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Recent violence and legal involvement among young adults with early psychosis enrolled in Coordinated Specialty Care

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Abstract

Aim—Individuals with serious mental illnesses have a small increased risk of engaging in violence or legal involvement compared to the general population. This seems to be particularly true for young adults experiencing early stages of psychosis. This study analysed the prevalence of and risk factors for reports of violence and legal involvement in a sample of young adults receiving Coordinated Specialty Care for early non-affective psychosis.

Methods—A total of 373 young adults (ages 16–30) within 2 years of the onset of non-affective psychosis were enrolled in 10 Coordinated Specialty Care sites in New York State from October 2013 to August 2016. Baseline violent ideation or behaviour and legal involvement was described and predictors identified.

Results—Approximately one-quarter of individuals had either recent violent ideation or behaviour at baseline ($n = 90$, 24.6%); nearly one-tenth of the sample reported recent legal involvement ($n = 33$, 9.0%). Individuals with violent ideation or behaviour had lower levels of education and were less likely to be working. Those with recent legal involvement were more likely to be male and more likely to have substance use (alcohol, cannabis and other drugs).

Conclusions—The overall rate of recent violent ideation or behaviour is similar to other studies; up to one-third of individuals experiencing a first-episode of psychosis (FEP) report violence. Recent legal involvement was strongly associated with substance use. This study presents insight

into violence and legal involvement among individuals with FEP and indicates the need for further research.

Keywords

early intervention; early psychosis; legal involvement; substance use; violence

1 | INTRODUCTION

Previous research has focused on the association between serious mental illnesses and acts of violence, as well as the relatively high risk of legal involvement for this group. However, few studies have examined violent behaviour or legal involvement for young people leading up to first treatment for first-episode psychosis (FEP) (Dean et al., 2007; Robertson, Swanson, Frisman, Lin, & Swartz, 2014; Swanson, McGinty, Fazel, & Mays, 2015). The available literature suggests that up to one-third of individuals experiencing FEP have engaged in violent or aggressive behaviour prior to initial presentation for psychiatric care (Dean et al., 2007; Foley et al., 2007; M. M. Large & Nielssen, 2011). Research indicates that rates of violence are highest during the earliest stages of serious mental illnesses, the critical period leading up to and including first psychiatric care (Hodgins, 2017; Hutton, Parker, Bowe, & Ford, 2012; Langeveld et al., 2014). For example, one recent study found that nearly 40% of young adults at ultra-high risk of developing psychosis had a history of violence which appeared related to high level of suspiciousness and anger on clinical review (Hutton et al., 2012). While there is an expected overlap between individuals with FEP engaging in violence and those involved with the legal system, it appears that individuals with FEP are predominantly incarcerated for non-violent offences (Cuellar, Snowden, & Ewing, 2007; Ramsay, Goulding, et al., 2011; Ramsay Wan, Broussard, Haggard, & Compton, 2014). Studies of incarceration among young adults hospitalized for FEP in an urban, low-income setting have found that more than two-thirds have been arrested and over half of individuals have been incarcerated at least once (Ramsay, Goulding, et al., 2011; Ramsay Wan et al., 2014). Similarly, studies of young adults at ultra-high risk of psychosis reported higher rates of prior arrests and convictions than the general population (Hutton et al., 2012; Purcell, Harrigan, Glozier, Amminger, & Yung, 2015).

Recent reviews have found that factors associated with violence among individuals with FEP include younger age, male gender, history of involuntary treatment, history of forensic involvement and illicit drug use (M. M. Large & Nielssen, 2011). Less is known about legal involvement, although the few existing studies demonstrate that risk factors for incarceration among individuals with FEP include male gender, minority status, lower educational attainment and substance use (Prince, Akincigil, & Bromet, 2007; Ramsay, Flanagan, Gantt, Broussard, & Compton, 2011; Ramsay, Goulding, et al., 2011; Ramsay Wan et al., 2014), similar to the general population. The relationship between duration of untreated psychosis (DUP) and violence or legal involvement is not entirely clear. The published evidence provides limited support for the association of increased DUP on higher rates of violence, and the few existing studies on legal involvement and DUP found that prior incarceration predicted longer DUP (Hastrup, Haahr, Jansen, & Simonsen, 2017; M. Large & Nielssen, 2008; M. M. Large & Nielssen, 2011; Latalova, 2014; Ramsay Wan et al., 2014).

Further research could elucidate the interplay between violence, legal involvement, and illness factors, particularly as they relate to the course of illness, treatment accessibility and response and long-term functioning. It is especially critical to focus on the FEP population as recent research shows that intervention early in the course of schizophrenia may represent an opportunity to improve long-term functioning (Dixon et al., 2015; Kane et al., 2016; Penttila, Jaaskelainen, Hirvonen, Isohanni, & Miettunen, 2014). This study focused on the prevalence of and risk factors for violence and legal involvement in a large sample of young adults in New York State receiving Coordinated Specialty Care for early non-affective psychosis. This is a needed area of study for several reasons. First, prior studies on violence in the FEP population have not focused on the United States, where access to weapons is dramatically higher than other countries (Fisher & Keller, 2017). Second, prior studies on the FEP population have largely included individuals with both affective and non-affective psychosis (Dean et al., 2007; Milton et al., 2001; Spidel, Lecomte, Greaves, Sahlstrom, & Yuille, 2010), despite evidence that violence risk is higher for individuals with affective symptoms (S. C. Harris & Mattox, 2010; Spidel et al., 2010). This limits the ability to undertake separate assessment of individuals with non-affective psychosis. Third, many studies of violence or legal involvement in early psychosis include adults up to age 60 or older (Dean et al., 2007; Milton et al., 2001; Steinert, Wiebe, & Gebhardt, 1999) even though research indicating that the course of illness, as well as violence, differs by age (Dean et al., 2007; A. W. Harris et al., 2010; Milton et al., 2001; Rolin, Aschbrenner, Whiteman, Scherer, & Bartels, 2017; Volavka et al., 1997).

Given the recent expansion of Coordinated Specialty Care targeting young adults within 5 years of onset of non-organic, non-affective psychotic disorders (Azrin, Goldstein, & Heinssen, 2016; Heinssen, Goldstein, & Azrin, 2014), further research is needed on this specific population to support the creation, expansion and potential modification of interventions to reduce morbidity and criminal justice entanglement in this population.

2 | METHODS

We conducted a secondary analysis on data collected from OnTrackNY, a network of Coordinated Specialty Care programs providing multidisciplinary, evidence-based, early-intervention care to young adults (ages 16–30) diagnosed with non-affective psychosis who were within 2 years of the onset of psychosis (Heinssen et al., 2014). OnTrackNY is a New York State program consisting of 21 locations distributed throughout the State (including all 5 boroughs of New York City, Long Island and upstate New York). This model was developed from the National Institute of Mental Health (NIMH)-funded Recovery after an Initial Schizophrenia Episode (RAISE) Connection project and is described in prior reports (Bello et al., 2017; Dixon et al., 2015). Analyses were deemed exempt from further review by the Institutional Review Board process as all data were pre-existing from clinical programs and de-identified.

2.1 | Participants

Participants included individuals who enrolled at 1 of 10 different OnTrackNY locations in New York State from October 2013 through August 2016. Individuals were eligible if they:

(1) were ages 16 to 30; (2) had a diagnosis of schizophrenia, schizoaffective disorder, schizophreniform disorder, psychotic disorder not otherwise specified or delusional disorder; (3) had a history of psychotic symptoms lasting at least 1 week; (4) it had been less than 2 years since the onset of first psychotic symptoms and (5) were a resident of New York State. Individuals were excluded if they: (1) had an intellectual disability, as evidenced by an IQ less than 70; (2) had a primary diagnosis of a substance-induced psychotic disorder, mood disorder with psychotic features, or a psychotic disorder due to a general medical condition or (3) had a serious or chronic medical illness significantly impairing functioning independent of psychosis. Individuals were eligible regardless of ability to pay or insurance status.

The study sample is described in Table 1.

2.2 | Measures

This study included baseline assessments obtained at intake into OnTrackNY and recorded by the individual's primary clinician. Demographic information included age, gender, level of education, insurance status and housing information. Clinical information, including diagnosis and hospital utilization, was obtained by the primary clinician through direct clinical interaction and collateral sources (eg, review of medical records; discussions with family, friends, other medical providers; other team members). The clinical team also collected time from onset of psychotic symptoms to initiation of treatment with OnTrackNY, which is a measure of DUP. This variable was subdivided into 3 categories (less than 6 months, 6–12 months, more than 12 months) (Hastrup et al., 2017).

Measures of violence included: (1) violent or aggressive ideation and (2) violent or aggressive behaviour. These were binary (present/ not present) variables, coded based on the individual's behavioural patterns in the 90 days prior to intake to OnTrackNY. The variables were determined by the clinicians based on patients' self-report combined with collateral from families and medical records. If any source reported either violent or aggressive ideation or behaviour, it was coded as present. A measure of legal history was similarly coded as a binary variable based on information from the patients' self-report combined with collateral information. If an individual was determined to have legal issues, be on probation or parole, or under court-ordered treatment within the 90 days prior to intake to OnTrackNY, this variable was coded as present.

Substance use was assessed for multiple substances: tobacco, alcohol, cannabis and other substances. It was recorded by the clinician as a binary variable (present/not present) for each substance independently based on the patient's self-report, the family's report, and review of the medical record, including any urine toxicology screens in the prior 90 days.

Overall functioning was assessed using the Clinical Global Impression (CGI) scale (Busner & Targum, 2007) and the MIRECC (Mental Illness Research, Education, and Clinical Center) version of the Global Assessment of Functioning (GAF) (Niv, Cohen, Sullivan, & Young, 2007). The CGI scale consists of 3 items regarding an individual's level of illness. Scores range from 1 to 7, with higher scores indicating a higher severity of illness. For the purpose of these analyses, the scores were collapsed into 4 categories: borderline or mildly

ill, moderately ill, markedly or severely ill and among the most ill. The MIRECC version of the GAF consists of 3 separate subscales: symptom severity, occupational functioning and social functioning. Each subscale ranges from 1 to 100, with higher scores indicating a higher level of functioning and lesser symptom severity.

2.3 | Statistical analyses

Statistical tests, including *t* test (for continuous measures) and the chi-square test of associations (for categorical variables), were used to compare groups of individuals. The presence of violence or legal history (as defined above) was used as the dependent variable, respectively. For chi-square analyses with small expected cell counts, a Fisher's exact *P*-value was calculated. All analyses were adjusted for age, gender and insurance status using logistic regression. We determined that we would adjust for these confounders a priori based on expert consensus. Stata Windows version 14.2 (STATA; College Station, TX USA) was used for all statistical analyses.

3 | RESULTS

3.1 | Prevalence and correlates of violent ideation/ behaviour

The prevalence of violent ideation and violent behaviour was similar ($n = 76$, 20.7% and $n = 75$, 20.3%, respectively). As these variables were highly associated ($\chi^2(1) = 205.1$, $P < .001$), all subsequent analyses were conducted combining violent ideation and violent behaviour into a single variable. Approximately one-quarter of the sample had either violent ideation or behaviour in the past 90 days ($n = 90$, 24.6%).

Individuals with violent ideation or behaviour were comparable to individuals without violent ideation or behaviour in terms of age, race/ ethnicity, gender and recent homelessness (Table 2). Notably, individuals with violent ideation or behaviour had lower levels of education ($\chi^2(2) = 6.04$; $P = .049$) and were less likely to be working ($\chi^2(1) = 6.21$; $P = .013$). There were no differences in the proportion enrolled in school at the time of intake. The relationship between violent ideation or behaviour and current engagement in work or having an educational level of at least some college remained significant after adjusting for age, gender and health insurance status. Additionally, individuals with violent ideation or behaviour were significantly more likely to have had recent legal involvement ($\chi^2(1) = 17.6$; $P < .001$); this remained significant after adjusting for age, gender and health insurance status.

Diagnosis did not differ between individuals with or without violent ideation or behaviour. Individuals with violent ideation or behaviour were more likely to have recent emergency room visits for psychiatric (but not medical) reasons ($\chi^2(1) = 5.60$; $P = .018$). Levels of functioning were lower for individuals with violent ideation or behaviour, on multiple scales including the CGI scale ($\chi^2(5) = 18.88$; $P = .003$), GAF symptom scale ($t(364) = 4.11$; $P < .001$), GAF social functioning scale ($t(364) = 3.31$; $P = .001$) and GAF occupational functioning scale ($t(364) = 3.32$; $P = .001$). Cannabis use was higher among individuals with violent ideation or behaviour ($\chi^2(1) = 8.42$; $P = .004$); other substance use including tobacco, alcohol or other drugs was comparable. After adjustment for age, gender and health

insurance status, only the most ill individuals according to the CGI scale had significantly more violent ideation or behaviour than other groups on this scale. All other associations remained significant after adjustment. There was no significant difference between DUP among individuals with or without violent ideation or behaviour.

3.2 | Prevalence and correlates of legal involvement

Nearly one-tenth of the sample reported recent legal involvement ($n = 33$, 9.0%) (see Table 3). Individuals with recent legal involvement were more likely to be male ($\chi^2(1) = 8.05$; $P = .005$); there were no differences in age, race/ethnicity or recent homelessness. Individuals with and without recent legal involvement had comparable levels of education and participation in either work or school at the time of intake.

Diagnosis and emergency department utilization (for medical or psychiatric reasons) did not differ between individuals with recent legal involvement and those without. Individuals with recent legal involvement were significantly more likely to have substance use, including tobacco ($\chi^2(1) = 4.33$; $P = .037$), alcohol ($\chi^2(1) = 8.25$; $P = .004$), cannabis ($\chi^2(1) = 10.5$; $P = .001$) and other drugs ($\chi^2(1) = 8.72$; $P = .003$). Associations with alcohol, cannabis and other drug use remained significant after adjustment for age, gender and health insurance status. Occupational functioning on the GAF was lower for individuals with recent legal involvement ($t(366) = 2.12$; $P = .035$); this was not significant after adjustment for age, gender and health insurance status. Other measures of functioning (CGI scale, GAF symptom scale, GAF social functioning scale) were comparable. Individuals with longer DUP were more likely to have legal involvement ($\chi^2(2) = 6.08$, $P = .048$). This was not statistically significant after adjustment for age, gender and health insurance status.

4 | DISCUSSION

This study sought to develop a better understanding of the underpinnings of violence and legal involvement among individuals with FEP. To the authors' knowledge, this is the largest clinical sample of young adults with early non-affective psychosis examining violent ideation or behaviour as well as legal involvement. This sample also included individuals regardless of health insurance status, allowing for a more diverse clinical sample than typically expected in many American clinics. In this sample, violent ideation or behaviour was associated with poorer functioning, higher rates of cannabis use and recent psychiatric emergency department visits. Individuals with FEP and recent violent ideation or behaviour also had lower levels of education and less engagement in work at the time of intake. Recent legal involvement for individuals with FEP was most common in men and those with substance use; functioning, work and school, and symptom severity was comparable between individuals with and without recent legal involvement.

Approximately one-quarter of individuals in this study had recent violent ideation or behaviour; this is similar to other studies (Dean et al., 2007; Foley et al., 2007; M. M. Large & Nielssen, 2011). In this sample, violent ideation or behaviour was associated with cannabis use, though not with other drug use. While prior studies have suggested that violence among individuals with early psychosis is associated with illicit drug use (Foley et al., 2007; Milton et al., 2001; Spidel et al., 2010), few studies have specifically assessed

cannabis independently from overall substance use. The results from this study support the existing preliminary evidence suggesting cannabis use itself is associated with violence in this population (A. W. Harris et al., 2010; Marenmani et al., 2004). Further research is required regarding cannabis use and violence in this population, as cannabis is known to be associated with increased positive symptoms among young adults with early psychosis (Baeza et al., 2009; Grech, Van Os, Jones, Lewis, & Murray, 2005; Hinton et al., 2007). Regarding other illicit drug use, while our study did not note an association with violent ideation or behaviour, this is a heterogeneous label that combines a variety of illicit substances such as stimulants (cocaine, phencyclidine (PCP), lysergic acid diethylamide (LSD)) with depressants (benzodiazepines, gamma-Hydroxybutyric acid (GHB)). Future studies should seek to study substance use in more detail among young adults with early psychosis to identify which substances are associated with violence.

Our study also found that individuals with recent violent ideation or behaviour reported lower levels of education and less engagement in work. Prior studies have shown that individuals with FEP who work have better functioning and lower severity of symptoms (Humensky, Essock, & Dixon, 2017). This is notable as a core component of many FEP Coordinated Specialty Care programs, like OnTrackNY, is the provision of supported education and employment. Although this study presents only cross-sectional data and cannot determine causality of the relationship between work and violent ideation or behaviour, it does suggest the importance of engaging individuals with FEP, perhaps especially those with recent violent ideation or behaviour, in work and education.

Regarding recent legal involvement, men unsurprisingly had higher rates than women. This is consistent with the general population, as men tend to be arrested more than women (Dolan & Vollm, 2009; Nicholls, Ogloff, Brink, & Spidel, 2005). More notable is the association between substance use and recent legal history. This study suggests that abuse of alcohol, cannabis and other drugs is strongly associated with recent legal involvement. Though this analysis does not provide information about the types of offences for which individuals had recent legal involvement, nearly half of those with recent legal involvement did not have recent violence. This supports prior research that individuals with FEP are typically arrested for non-violent offences, and further suggests the role that substance use plays in legal involvement. While preliminary, these results also indicate the importance of substance abuse treatment for individuals with FEP, perhaps especially for those with recent legal involvement.

Recent research has highlighted a potential association between delay in accessing treatment and greater risk of arrests or incarceration (Hastrup et al., 2017; Ramsay Wan et al., 2014). Our study provides preliminary evidence that individuals who have delayed entry to treatment are at greater risk of legal involvement, or that those with legal involvement are likely to have delayed treatment. Though this association did not remain statistically significant following adjustment for age, gender and health insurance status, it does point to a need for more investigation between the overlap between criminal justice involvement and treatment delay. These results suggest the importance of the criminal justice system as a potential ally in identifying and referring young adults with early psychosis to treatment.

This study has limitations to consider. First, this was a secondary analysis of data collected for a clinical program rather than a research study. Primary clinicians collected the majority of the data during clinical interactions, relying on collateral information from family, friends and medical records. This data was collected with limited use of formal research tools at 10 different locations across New York State, which may introduce measurement heterogeneity into the data. Structured tools were not used to assess violence or legal involvement and focused solely on the prior 90 days, which would not account for a more remote history of violence or legal involvement. Also detailed information about violence or legal involvement was not collected, which limits the data available for secondary analysis. For example, we cannot categorize recent violent behaviour into serious or severe violence in this sample. Additionally, this study sample consists of individuals with FEP entering treatment, which likely differs from the larger population of individuals with FEP, some of whom do not receive treatment. However, as noted previously, very little is known about violence and legal involvement in the FEP population and the limited evidence to date comes from small samples. This study has a number of strengths, including a large sample of young adults with non-affective psychosis from 10 different treatment locations, introducing demographic and geographic diversity. Primary clinicians received significant training and consultation in order to determine participant eligibility due to non-affective psychosis rather than depending on chart diagnoses. The OnTrackNY initiative has been collecting participant characteristics and outcomes data since its inception in 2013 and has provided continuous training, consultation and support to all clinicians for reporting of such data about participants over time (Bello et al., 2017).

In conclusion, individuals with FEP with recent violent ideation or behaviour have a number of differentiating characteristics with respect to engagement in work, educational attainment, functioning, cannabis use and recent psychiatric emergency department visits. Similarly, individuals with recent legal involvement are distinct from those without recent legal involvement in several domains, including gender and substance use. As early intervention programs continue to expand, these findings have implications for service delivery and highlight the need for further research on the interaction of early psychosis with violence and legal involvement.

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TABLE 1
Description of study sample

	Study sample <i>n</i> = 373 (<i>N</i> [%])
Age (y) (mean [SD])	20.7 (3.3)
Gender (% male)	271 (72.9)
Health insurance	
Uninsured	34 (9.1)
Public	170 (45.6)
Private	154 (41.3)
Other	15 (4.0)
Race/ethnicity	
Non-Hispanic white	102 (27.4)
Non-Hispanic black	136 (36.6)
Hispanic	35 (9.4)
Mixed	12 (3.2)
Other	87 (23.4)
Level of education	
Less than high school	105 (28.2)
High school or equivalency degree	67 (18.0)
At least some college	201 (53.9)
Diagnosis (%)	
Schizophrenia	109 (29.4)
Schizoaffective	56 (15.1)
Schizophreniform	103 (27.8)
Other	103 (27.8)

TABLE 2

Recent violent ideation or violent behaviour

	Violent ideation or violent behaviour present (<i>n</i> = 90) (<i>N</i> [%])	Not present (<i>n</i> = 276) (<i>N</i> [%])	Test statistic, df, <i>P</i> -value	Adjusted odds ratio ^a	Adjusted test statistic, <i>P</i> -value ^a
Demographics					
Age (y) (mean [SD])	20.8 (3.2)	20.6 (3.5)	$\chi^2(364) = 0.475$ <i>P</i> = .635	—	—
Gender (% male)	69 (77.5)	197 (71.4)	$\chi^2(1) = 1.29$ <i>P</i> = .256	—	—
Health insurance (%)					
Uninsured	9 (10.0)	25 (9.1)	$\chi^2(3) = 4.11$ <i>P</i> = .250	—	—
Public	48 (53.3)	118 (42.8)			
Private	31 (34.4)	120 (43.5)			
Other	2 (2.2)	13 (4.7)			
Race/ethnicity ^b (%)					
Non-Hispanic white	18 (20.0)	81 (29.5)	$\chi^2(4) = 6.40$ <i>P</i> = .184	1.00	Reference
Non-Hispanic black	42 (46.7)	91 (33.1)		2.03	<i>z</i> = 2.01, <i>P</i> = .045
Hispanic	9 (10.0)	26 (9.5)		1.58	<i>z</i> = 0.94, <i>P</i> = .348
Mixed	2 (2.2)	10 (3.6)		1.00	<i>z</i> = 0.0, <i>P</i> = 1.00
Other	19 (21.1)	67 (24.4)		1.18	<i>z</i> = 0.42, <i>P</i> = .677
Level of education (%)					
Less than high school	32 (35.6)	69 (25.0)	$\chi^2(2) = 6.04$ <i>P</i> = .049	1.00	Reference
High school or equivalency degree	19 (21.1)	47 (17.0)		0.75	<i>z</i> = −0.78, <i>P</i> = .436
At least some college	39 (43.3)	160 (58.0)		0.49	<i>z</i> = −2.09, <i>P</i> = .037
In school at time of intake (% yes)	30 (33.3)	91 (33.1)	$\chi^2(1) = 0.002$ <i>P</i> = .966	0.96	<i>z</i> = −0.13, <i>P</i> = .893
Working at time of intake (% yes)	6 (6.7)	48 (17.4)	$\chi^2(1) = 6.21$ <i>P</i> = .013	0.38	<i>z</i> = −2.10, <i>P</i> = .035

	Violent ideation or violent behaviour present (<i>n</i> = 90) (<i>N</i> [%])	Not present (<i>n</i> = 276) (<i>N</i> [%])	Test statistic, df, <i>P</i> -value	Adjusted odds ratio ^a	Adjusted test statistic, <i>P</i> -value ^a
Homeless at some point within 90 days prior to intake (% yes)	8 (9.0)	12 (4.4)	$\chi^2(1) = 2.74$ <i>P</i> = .098	1.95	$z = 1.38, P = .168$
Clinical information					
Diagnosis (%)					
Schizophrenia	29 (32.2)	75 (27.4)	$\chi^2(3) = 1.11$ <i>P</i> = .775	Reference	Reference
Schizoaffective	12 (13.3)	44 (16.1)		0.82	$z = -0.49, P = .622$
Schizophreniform	26 (28.9)	77 (28.1)		0.91	$z = -0.29, P = .771$
Other	23 (25.6)	78 (28.5)		0.77	$z = -0.79, P = .428$
Recent legal history (% with)	18 (20.2)	15 (5.5)	$\chi^2(1) = 17.6$ <i>P</i> < .001	4.16	$z = 3.69, P < .001$
Medical emergency room visits (% with)	5 (5.6)	16 (5.8)	$\chi^2(1) = 0.007$ <i>P</i> = .932	0.90	$z = -0.20, P = .838$
Psychiatric emergency room visits (% with)	69 (77.5)	174 (64.0)	$\chi^2(1) = 5.60$ <i>P</i> = .018	0.54	$z = 2.22, P = .026$
Substance use (% with)					
Tobacco	19 (21.1)	37 (13.4)	$\chi^2(1) = 3.11$ <i>P</i> = .078	1.73	$z = 1.70, P = .09$
Alcohol	23 (25.8)	76 (27.5)	$\chi^2(1) = 0.098$ <i>P</i> = .756	0.88	$z = -0.45, P = .653$
Cannabis	40 (44.4)	77 (28.0)	$\chi^2(1) = 8.42$ <i>P</i> = .004	2.00	$z = 2.70, P = .007$
Other drugs	7 (7.9)	16 (5.8)	$\chi^2(1) = 0.48$ <i>P</i> = .490	1.24	$z = 0.44, P = .656$
CGI ^b (%)					
Borderline or mildly ill	8 (8.9)	32 (11.8)	$\chi^2(3) = 17.75$	1.00	Reference
Moderately ill	16 (17.8)	79 (29.2)		0.83	$z = -0.39, P = .699$

	Violent ideation or violent behaviour present (<i>n</i> = 90) (<i>N</i> [%])	Not present (<i>n</i> = 276) (<i>N</i> [%])	Test statistic, df, <i>P</i> -value	Adjusted odds ratio ^a	Adjusted test statistic, <i>P</i> -value ^d
Markedly or severely ill	58 (64.4)	157 (57.9)	<i>P</i> < .001	1.43	<i>z</i> = 0.82, <i>P</i> = .411
Among the most ill	8 (8.9)	3 (1.1)		10.0	<i>z</i> = -0.68, <i>p</i> = .004
GAF symptom (mean [SD])	27.3 (15.7)	35.1 (15.8)	$\chi^2(2) = 4.11$ <i>P</i> < .001	0.97	<i>z</i> = -3.71, <i>P</i> < .001
GAF social functioning (mean [SD])	49.8 (19.6)	57.0 (17.1)	$\chi^2(2) = 3.31$ <i>P</i> = .001	0.98	<i>z</i> = -2.93, <i>P</i> = .003
GAF occupational functioning (mean [SD])	29.2 (16.3)	37.2 (20.9)	$\chi^2(2) = 3.32$ <i>P</i> = .001	0.98	<i>z</i> = -2.96, <i>P</i> = .003
DUP ^c (%)					
Less than 6 months	47 (52.2)	158 (57.3)	$\chi^2(2) = 1.36$ <i>P</i> = .507	1.00	Reference
6–12 months	24 (26.7)	74 (26.8)		1.09	<i>z</i> = 0.30, <i>P</i> = .765
More than 12 months	19 (21.1)	44 (15.9)		1.48	<i>z</i> = 1.19, <i>P</i> = .233

Abbreviations: CGI, clinical global impression; GAF, Global Assessment of Functioning; DUP, duration of untreated psychosis; df, degrees of freedom.

^a Adjusted for age, gender, and health insurance.

^b For categorical variables with low expected cell counts, a Fisher's exact *P*-value was calculated.

^c Defined as time from onset of qualifying psychotic symptoms to treatment with OnTrackNY.

TABLE 3

Recent legal involvement

	Recent legal involvement (<i>n</i> = 33) (<i>N</i> [%])	Not present (<i>n</i> = 335) (<i>N</i> [%])	Test statistic, df, <i>P</i> -value	Adjusted odds ratio ^a	Adjusted test statistic, <i>P</i> -value ^a
Demographics					
Age (y) (mean [SD])	21.3 (2.6)	20.7 (3.3)	$\chi^2(366) = -1.02$ <i>P</i> = .308	—	—
Gender (% male)	31 (93.9)	237 (71.0)	$\chi^2(1) = 8.05$ <i>P</i> = .005	—	—
Health insurance (%)					
Uninsured	1 (3.0)	32 (9.6)	$\chi^2(3) = 6.2$ <i>P</i> = .098	—	—
Public	21 (63.6)	145 (43.3)			
Private	11 (33.3)	143 (42.7)			
Other	0 (0)	15 (4.5)			
Race/ethnicity ^b (%)					
Non-Hispanic white	8 (24.2)	93 (27.8)	$\chi^2(4) = 3.27$ <i>P</i> = .676	1.00	Reference
Non-Hispanic black	16 (48.5)	118 (35.3)		1.90	<i>z</i> = 1.25, <i>P</i> = .210
Hispanic	2 (6.1)	33 (9.9)		0.88	<i>z</i> = -0.14, <i>P</i> = .885
Mixed	0 (0)	12 (3.6)		—	—
Other	7 (21.2)	78 (23.4)		1.02	<i>z</i> = 0.04, <i>P</i> = .969
Level of education (%)					
Less than high school	9 (27.3)	93 (27.8)	$\chi^2(2) = 0.27$ <i>P</i> = .873	1.00	Reference
High school or equivalency degree	5 (15.2)	62 (18.5)		0.72	<i>z</i> = -0.55, <i>P</i> = .584
At least some college	19 (57.6)	180 (53.7)		1.04	<i>z</i> = 0.09, <i>P</i> = .932
In school at time of intake (% yes)	6 (18.2)	117 (35.0)	$\chi^2(1) = 3.83$ <i>P</i> = .050	0.46	<i>z</i> = -1.50, <i>P</i> = .133
Working at time of intake (% yes)	4 (12.1)	49 (14.6)	$\chi^2(1) = 1.53$ <i>P</i> = .696	1.18	<i>z</i> = 0.28, <i>P</i> = .779

	Recent legal involvement (n = 33) (N [%])	Not present (n = 335) (N [%])	Test statistic, df, P-value	Adjusted odds ratio ^a	Adjusted test statistic, P-value ^a
Homeless at some point within 90 days prior to intake ^b (% yes)	4 (12.5)	15 (4.5)	$\chi^2(1) = 3.78$ $P = .074$	2.60	$z = 1.51, P = .132$
Clinical information					
Diagnosis (%)					
Schizophrenia	12 (36.4)	95 (28.5)	$\chi^2(3) = 5.00$ $P = .172$	1.00	Reference
Schizoaffective	8 (24.2)	47 (14.1)		1.79	$z = 1.13, P = .257$
Schizophreniform	5 (15.2)	98 (29.4)		0.47	$z = -1.33, P = .184$
Other	8 (24.2)	93 (27.9)		0.80	$z = -0.45, P = .651$
Recent violent ideation or behaviour (%with)	18 (54.6)	71 (21.6)	$\chi^2(1) = 17.6$ $P < .001$	4.13	$z = 3.67, P < .001$
Medical emergency room visits ^b (%with)	3 (9.1)	18 (5.4)	$\chi^2(1) = 0.771$ $P = .288$	1.57	$z = 0.67, P = .501$
Psychiatric emergency room visits (%with)	19 (59.4)	223 (67.4)	$\chi^2(1) = 0.84$ $P = .359$	0.73	$z = -0.83, P = .409$
Substance use (% with)					
Tobacco	9 (27.3)	46 (13.7)	$\chi^2(1) = 4.33$ $P = .037$	1.95	$z = 1.53, P = .126$
Alcohol	16 (48.5)	84 (25.2)	$\chi^2(1) = 8.25$ $P = .004$	2.74	$z = 2.57, P = .010$
Marijuana	19 (57.6)	100 (29.9)	$\chi^2(1) = 10.5$ $P = .001$	2.75	$z = 2.66, P = .008$
Other drugs	6 (18.2)	17 (5.1)	$\chi^2(1) = 8.72$ $P = .003$	3.44	$z = 2.33, P = .020$
CGI ^b (%)					
Borderline or mildly ill	4 (12.1)	36 (10.9)	$\chi^2(3) = 2.12$ $P = .549$	1.00	Reference
Moderately ill	6 (18.2)	89 (27.0)		0.52	$z = -0.94, P = .345$

	Recent legal involvement (n = 33) [%]	Not present (n = 335) (N [%])	Test statistic, df, P-value	Adjusted odds ratio ^a	Adjusted test statistic, P-value ^d
Markedly or severely ill	21 (63.6)	196 (59.4)		0.65	$z = -0.72, P = .470$
Among the most ill	2 (6.1)	9 (2.7)		1.05	$z = 0.05, P = .958$
GAF symptom (mean [SD])	29.2 (13.9)	33.6 (16.2)	$\chi^2(2) = 1.52$ $P = .129$	0.99	$z = -0.70, P = .485$
GAF social functioning (mean [SD])	51.2 (19.3)	55.9 (17.8)	$\chi^2(2) = 1.45$ $P = .149$	0.99	$z = -0.72, P = .470$
GAF occupational functioning (mean [SD])	28.2 (16.9)	35.9 (20.2)	$\chi^2(2) = 2.12$ $P = .035$	0.98	$z = -1.21, P = .225$
DUP ^c (%)					
Less than 6 months	12 (36.4)	192 (57.3)		1.00	Reference
6–12 months	11 (33.3)	87 (26.0)	$\chi^2(2) = 6.08$ $P = .048$	2.22	$z = 1.75, P = .079$
More than 12 months	10 (30.3)	56 (16.7)		2.48	$z = 1.94, P = .052$

Abbreviations: CGI, clinical global impression; GAF, global assessment of functioning; DUP, duration of untreated psychosis; df, degrees of freedom.

^a Adjusted for age, gender, and health insurance.

^b For categorical variables with low expected cell counts, a Fisher's exact P-value was calculated.

^c Defined as time from onset of qualifying psychotic symptoms to treatment with OnTrackNY.