SUPPORTIVE HOUSING AND FORENSIC PATIENT OUTCOMES

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ABSTRACT

In Canada, Review Boards are mandated to evaluate individuals found Not Criminally Responsible on Account of Mental Disorder (NCRMD) on an annual basis and render 1 of 3 dispositions: (a) custody, (b) conditional discharge, or (c) absolute discharge. To promote social reintegration, conditional discharge can be ordered with the condition to live in supportive housing. However, NCRMD accused face great barriers to housing access as a result of the stigma associated with the forensic label. The goal of this study was to evaluate the role of housing in the clinical and criminal trajectories of forensic patients as they reintegrate into the community. Data for this study were extracted from a national study of individuals found NCRMD in Canada (Crocker, Nicholls, Seto, Côté, et al., in press). The present study focuses on a random sample of NCRMD accused in the province of Québec, who were under a conditional discharge disposition during the study period (n = 837). Controlling for sociodemographic, clinical, and criminal variables, survival analysis showed that individuals placed in independent housing following a conditional discharge from the Review Board were 2.5 times more likely to commit a new offense, nearly 3 times more likely to commit an offense against a person, and 1.4 times more likely to be readmitted for psychiatric treatment compared with individuals residing in supportive housing. These results point to the influence housing can have on the trajectories of forensic patients, above and beyond a range of clinical, criminological, and sociodemographic factors.

KEYWORDS: forensic mental health, housing, not criminally responsible on account of mental disorder, psychiatric services, readmission, recidivism

For more than 60 years, access to housing has been recognized as a basic human right and a necessity for living in society (United Nations, 1974, sect. 25). Homelessness has been associated with a higher risk of violence (Swanson et al., 2002) and criminal justice involvement of mentally ill individuals (McNeil, Binder, & Robinson, 2005; see Roy et al., 2014, for a systematic review). However, for justice-involved individuals with a severe mental illness, standard housing conditions may not be sufficient. A review of the literature on community treatment of offenders living with a mental illness indicates that the transfer from a long-term hospitalization or incarceration to an environment with little structure often results in relapse and increases the risk of violence (Lamb, Weinberger, & Gross, 1999; Lindqvist & Skipworth, 2000). Furthermore, the premature release of individuals into community settings offering little supervision can be costly in terms of hospital readmissions or psychiatric treatment in correctional facilities (Lamb & Weinberger, 2005).

SUPPORTIVE HOUSING

Various housing models emerged following successive deinstitutionalization movements since the 1960s to provide continuity of care and a solid basis for the return of mentally ill individuals to the community. Following a residential continuum model, different variants of supportive housing (e.g., group homes, supervised apartments, foster homes) were developed (Nelson, Aubry, & Hutchison, 2010). The focus of the current study is on supportive housing, an intermediate step between independent living and institutional care. Supportive housing is defined as housing with on-site professional support intended to address daily living skills, implement better routines, increase awareness of mental illness, and promote vocational and educational engagement (Soliman, Santos, & Lohr, 2008).

Results of outcome studies of supportive housing are limited by the fact that different models (e.g., group homes, foster homes) are incorporated under this broad label (Nelson et al., 2010). Nonetheless,

placement in supportive housing has been associated with reduced number of hospitalizations, increased housing stability, and reduced number and length of incarcerations of mentally ill individuals living in the community (Culhane, Metraux, & Hadley, 2002; Leff et al., 2009; Nelson, Aubry, & Lafrance, 2007). Supportive housing can thus facilitate the transition of individuals living with mental illness, as well as those who have gone through the criminal justice system, in safely returning to the community.

ACCESS TO RESOURCES

Access to supportive housing resources in mental health and social services is limited, especially for individuals who have a history of violent behavior, criminality, or a forensic label. Housing services in the criminal justice system are often reluctant to accept persons with serious mental illness because they lack resources to manage mental health needs (Lamb & Weinberger, 1998). Conversely, mental health services are reluctant to accept individuals with a history of violence or criminality (Lamb & Weinberger, 1998; Lamb et al., 1999). This difficulty in finding supportive housing for individuals with a history of forensic hospitalization can lead to longer hospital stays (detention) if there is concern about poor quality of housing or if the treating team is having difficulty securing a suitable community placement. Such a situation encourages institutionalization and works against rehabilitation (Skipworth & Humberstone, 2002). Given limited access to supportive housing, mentally ill persons also live with their families (Hodgins, 2001), who can be a source of support. However, such living arrangements are not always ideal because family members do not necessarily have the knowledge or skills to offer effective support, or can have negative influences (e.g., drug use in the home). Moreover, conflict with family members may sometimes increase the likelihood of violence, particularly when the mentally ill individual is financially dependent on the person with whom they live (Estroff, Swanson,

Lachicotte, Swartz, & Bolduc, 1998). Results from the Canadian national study focusing on individuals found Not Criminally Responsible on account of Mental Disorder (NCRMD) has shown that family members were the most likely victims of index NCRMD offenses against a person (34%) (Crocker, Nicholls, Seto, Charette, et al., in press).

MENTALLY ILL INDIVIDUALS IN THE FORENSIC SYSTEM

Little research has been conducted on housing of discharged forensic patients. One study in British Columbia, Canada, found that 47.7% of their NCRMD sample lived independently (i.e., alone in an apartment or hotel), 19.6% were living with a family member, and 19.6% were living in a supervised arrangement during their first community discharge (Livingston, Wilson, Tien, & Bond, 2003). Moreover, housing was not always stable; half of the participants had one to three address changes during the three-year follow-up period. These findings are concerning given that stable housing is an important factor for recovery among individuals living with mental illness (Piat & Sabetti, 2010; Ridgway & Zipple, 1990).

FORENSIC SYSTEM IN CANADA

In Canada, each province and territory has a Review Board responsible for disposition determinations in the management of individuals found NCRMD (Canadian Criminal Code s. 672.34). At the time the study was conducted, Review Boards were required to evaluate each NCRMD accused on at least an annual basis and render one of three decisions (CCC s. 672.81): (a) detention (custody) with or without conditions, (b) conditional discharge (release into the community with conditions; the person remains under the purview of Review Board), or (c) absolute discharge (complete release from the Review Board). The decision is intended to be the least onerous and least restrictive to the accused, to promote social reintegration (CCC s. 672.54). Thus, the Review Board must prioritize absolute or conditional discharge when individuals

no longer pose a significant threat to society and are clinically stable (CCC s. 672.54). Unlike determinate sentencing for individuals who are found guilty, the Review Board must take into consideration the public safety threat posed by NCRMD accused, their clinical condition, as well as other considerations before a conditional or absolute discharge is ordered; housing stability and support are important components of those decisions.

Research shows that an important proportion of NCRMD accused are managed in the community (Crocker, Braithwaite, Côté, Nicholls, & Seto, 2011; Latimer & Lawrence, 2006). Considering the increasing number of individuals treated in the community through outpatient mental health services, it has become crucial to consider the interrelationship of individual and environmental influences on violence (Melnychuk, Verdun-Jones, & Brink, 2009).

THE PRESENT STUDY

The main goal of the present study was to assess the influence of housing placements of forensic psychiatric patients conditionally discharged to the community on two main outcomes (i.e., recidivism and psychiatric readmissions). We predicted that forensic patients would have better criminal and clinical outcomes if they were conditionally discharged to supportive housing compared with individuals conditionally discharged to independent housing, after controlling for clinical, criminal history, and other relevant factors.

METHOD

RESEARCH DESIGN AND STUDY PERIOD

Data for this study were extracted from a multisite national study examining forensic psychiatric patients in Canada (see Crocker, Nicholls, Seto, Côté, et al., in press, for a detailed methodology). The national study used a retrospective longitudinal design in the three largest provinces of Canada (Ontario, Québec and British Columbia) of individuals found NCRMD between May 2000 and April 2005. Because access to provincial

administrative health records, including psychiatric hospitalizations, was only available in Québec, it was the only province retained for this study (Crocker, Nicholls, Seto, Côté, et al., in press, for a full description of the population). The average length of follow-up for the sample was 743.86 days (*SD* = 677.20). Because some patients had more than one NCRMD verdict during this time period, the first verdict during the study period was considered as the index verdict, all subsequent verdicts were considered recidivism.

Extensive coding of Review Board files as well as government health records five years before the index offense and up until December 31, 2008 (end of study), or absolute discharge (i.e., no longer under the purview of the provincial Review Board), was conducted. Criminal records were obtained from a national police database, and recidivism was coded up to December 31, 2008 or absolute discharge.

Sample Selection

Given the large number of forensic psychiatric patients hospitalized annually in Québec, the sample was stratified by geographic region; all 17 judicial administrative regions in the province of Québec were included. The Montreal metropolitan area was undersampled because of a high number of NCRMD verdicts, whereas other regions with small numbers of NCRMD accused were oversampled. The sample consisted of 837 men and women after excluding 85 cases (9.21%) with missing information on housing placement from the initial sample of 922 individuals conditionally discharged after their index NCRMD verdict.

PROCEDURES

Trained research assistants in Québec collected data from the Review Board files and entered information into a computerized data collection program on a secure server to ensure standardization of data collection from various study sites.

Measures and Sources of Information

Four main types of information were collated as independent variables: (a) Contextual (e.g., Review Board dispositions, housing, type of mental health facility), (b) sociodemographic (e.g., age at index verdict and sex), (c) clinical (e.g., diagnosis, psychiatric history), and (d) criminological variables (e.g., criminal history, offense leading to NCRMD verdict).

Contextual information. Forensic psychiatric patients undergo a Review Board hearing at least on an annual basis until their absolute discharge. We coded information regarding processing and outcomes of each hearing. For the purposes of this study, information regarding the evolution of dispositions (detention, conditional discharge or absolute discharge) for each individual was analyzed. Dates of hearings were used to map the trajectory of each participant. Total time detained before conditional discharge and total time spent on conditional discharge until the end of the observation period were then calculated.

Housing. Type of housing was rarely specified in Review Board files. To categorize housing, the patient's residential address at each hearing was compared with a list of supportive housing locations in Québec. The participant's address was categorized into supportive housing with on-site staff, other than a hospital (e.g., group homes, supervised apartments, foster homes) or independent housing (i.e., residence with no on-site support staff, whether alone or with family members or housemates or a romantic partner). Because of sample size, it was not possible to compare outcomes per subtype of supportive housing. Moreover, because addresses were only available at the time of the hearing, a decision algorithm was developed to ensure a systematic and reliable computation of placement between hearings based on Review Boards' decisions as well as the addresses provided at the time of hearings. Research assistants' notes also allowed further categorization of transitional placement for the sample.

To compute the housing variable, time spent in each type of housing was calculated (days between each hearing), and the housing placement where the accused spent the most time (independent housing or supportive housing) was used: individuals categorized in the supportive group spent on average 94.88% ($SD = 13.43$) of their conditional discharge time in supportive housing, whereas individuals categorized in the independent housing group spent 97.40% ($SD = 10.62$) of their conditional discharge mandate in independent housing. Another variable was computed with placement at the time of reoffense and most frequent placement for nonrecidivists, as it may be the type of housing at the time of a new offense that is more relevant.

However, housing placement was stable across individual mandates and the use of both housing variables yielded similar results. For consistency, we thus report most frequent placement for the whole sample.

Type of mental health services. In Québec, NCRMD cases under the purview of the Review Board are treated in one of several civil psychiatric hospitals (with or without a dedicated forensic or risk management unit), general hospitals with psychiatric wards, or in the sole forensic psychiatric hospital in the province. The level of expertise in forensic mental health services (i.e., risk assessment and management) may vary considerably from one facility to the next. We therefore factored in the type of facility providing mental health services to conditionally discharged individuals in the analysis of trajectories (civil, whether psychiatric or general hospital, vs. provincial forensic).

Clinical information. Previous psychiatric hospitalizations were coded through the provincial health records. Number of psychiatric hospitalizations in the five years before the index verdict was computed. Primary Axis I diagnosis at the time of index offense (*Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision* [*DSM–IV–TR*]; American Psychiatric Association, 2000), substance use and personality

disorders were identified through Review Board files.

Criminological information. All information regarding index offenses was obtained through the Review Board files. Given some individuals had multiple charges within the index NCRMD finding, the most serious charge was selected as the index offense.

Index offense was then categorized as severe if the accusations were of murder, attempted murder, or any sexual offense. Criminal history and recidivism were collected using the Royal Canadian Mounted Police centralized criminal records (Crocker, Nicholls, Seto, Côté, et al., in press, for more details). Using both criminal records and Review Board files, we coded information regarding both reoffenses leading to convictions or to a new NCRMD verdict. Moreover, all available information on offenses (i.e., *Canadian Criminal Code* sections and description of the offenses) was recorded and coded using the Uniform Crime Reporting Survey concordance tables (Canadian Centre for Justice Statistics Policing Services Program, 2008). A severity score was assigned to each index offense using the Crime Severity Index (CSI) (Crocker, Nicholls, Seto, Côté et al., in press, for more details on CSI; Wallace, Turner, Matarazzo, & Babyak, 2009). Two large categories of crime were used, those against a person (e.g., assaults, threats, robbery) and all other offenses (e.g., theft, mischief, etc.). Given that criminal records only provide information regarding sentencing or court verdict dates, an estimation of offense dates was computed using criminal court processing duration (Crocker, Nicholls, Seto, Côté, et al., in press).

OUTCOMES

Criminal recidivism. All offenses occurring after the first conditional discharge following the index verdict, up to the date of the individual's absolute discharge or the end of the data collection period (December 31st 2008), were coded as recidivism. Given that the goal of the study was to broaden knowledge regarding the influence of housing on

recidivism, and to provide possible recommendations that could be implemented in the management of NCRMD individuals while the Review Board still had some leverage, conditional discharge was selected as the start date, and offenses committed post absolute discharge were not considered.

Psychiatric readmission. Dates of psychiatric admissions were examined to establish hospitalization subsequent to conditional discharge. This information was collected through the provincial health records.

The nonparametric Kaplan–Meier method was used to estimate the time-to-event curves of our groups. Studies of time to relapse provide a more powerful comparison of participants than the proportion of reconviction within a fixed follow-up period (Dolan & Coid, 1992). Group comparisons on the time to event curves were conducted with the Mantel-Cox Log Rank test (M-C log rank). Finally, the Cox regression model was used to analyze the predictive value of multiple explanatory factors on the probability of an event to occur (i.e., rehospitalization or recidivism).

Because some hazard ratios in the Cox regression were not interpretable due to scaling (i.e., hazard ratios close to 1.0), age at index offense, number of past hospitalizations, and number of past offenses were entered into the model after dividing by 10 (e.g., age 34 was entered as 3.4). For example, before this transformation, the odds ratio for age in predicting recidivism against the person was .97 (p = .05), which is difficult to interpret. After transformation, the odds ratio was .78 (p = .05). Time spent detained was entered in the regression model in years for the same reasons (presented in days in the descriptive section).

RESULTS

DESCRIPTIVE RESULTS

Housing. As shown in Table 1, approximately a quarter (26.6%) of our sample were placed in supportive housing at the time of conditional discharge (n = 223), and the other three quarters (73.3%) were placed in independent housing (n = 614), forming our two main groups.

Sociodemographic characteristics. Men constituted 82.4% of our sample. The median age at index offense was 35.0 years old (SD = 12.4) and ranged from 18 to 82 years of age.

Hearings and dispositions. Among the conditionally discharged NCRMD individuals, length of detention between NCRMD verdict and conditional discharge within our study period ranged from 0 to 1,778 days (4.9 years), with a median of 11 days (SD = 249.3). The majority of the sample was granted a conditional discharge at the time of the index verdict (n = 413, 49.3%) or at the first hearing after the index verdict (n = 256, 30.6%). These results, as well as the level of severity of index offenses of our sample (Crocker, Nicholls,

Table 1 : Characteristics of Québec NCRMD sample

Variable	n	%
Housing		
Supportive housing	223	26.6%
Independent housing	614	73.3%
Sex		
Female	147	17.6%
Male	690	82.4%
Forensic hospital	93	11.5%
Diagnosis		
Psychotic disorder	537	64.5%
Mood disorder	239	28.7%
Substance use disorder	258	31.0%
Axis II disorder	93	11.2%
Psychiatric history	597	71.3%
Lifetime criminal history	399	47.7%
Criminal history against a person	226	27.0%
Severe index offense	53	6.3%
Outomes		
Criminal recidivism	113	13.5%
New offense against person	67	8.0%
Psychiatric re-hospitalisation	292	34.9%
Absolute discharge from review board	703	84.0%
	Mdn	(SD)
Age	35	12.4
Time detained (in days)	11	249.3
Number of prior hospitalisations	1	3.4
Number of past offenses	0	3.8

Seto, Charette, et al., in press), explain the short median number of days spent in detention before conditional discharge. Finally, 84% of our sample has been absolutely discharged during our study period (*n* = 703).

Type of facility. Information about type of mental health facility was available for 97.0% of the sample (*n* = 812). Results show that 88.5% (*n* = 719) of all conditionally discharged forensic patients in our sample were treated in a civil hospital over the 5-year study period, whereas just 11.5% (*n* = 93) of conditionally discharged patients received treatment at the province's only secure forensic psychiatric hospital.

Psychiatric history. Government health records show that 71.3% (*n* = 597) of our sample had a psychiatric hospitalization in the five years before their index verdict. The maximum number of prior hospitalizations was 36 within the five years, with a median of 1 (*SD* = 3.4).

Diagnosis. Information regarding diagnosis at NCRMD verdict was available for 832 (99.4%) accused. More than half of the sample (64.5%, *n* = 537) had a psychotic spectrum disorder (e.g., schizophrenia, schizoaffective disorders, unspecified psychosis), and 28.7% presented with a mood disorder (*n* = 239). Substance use disorder was identified in 31% (*n* = 258) of patients, whereas presence of an Axis II disorder was recorded for 11.2% of the sample (*n* = 93). Nearly half of the sample (48.6%, *n* = 407) presented with more than one psychiatric diagnosis at verdict.

Criminal history. Nearly half the sample had prior convictions (44.9%, *n* = 376) or NCRMD (8.4%, *n* = 70) findings. In total, 47.7% (*n* = 399) of our sample had either a prior conviction, an NCRMD finding, or both before their index forensic admission. Moreover, 27.0% (*n* = 226) of the sample had a history of offenses against a person, including threats.

Index offense. With regard to the index offense, 6.3% (*n* = 53) of the sample had a severe index offense (i.e., murder, attempted murder, sex offense).

OUTCOMES

Recidivism. As shown in Table 1, during the study period, 13.5% of conditionally discharged individuals (*n* = 113) were convicted or found NCRMD for a new offense. Of the 113 recidivists, 59.3% (*n* = 67) committed a new offense against a person (including threats).

Psychiatric readmission. More than a third of our sample (34.9%, *n* = 292) was readmitted to a psychiatric facility during our study period.

INFLUENCE OF HOUSING TYPE ON CRIMINAL, CLINICAL, AND REVIEW BOARD TRAJECTORIES

Figures 1 to 3 show the survival curves of both groups on general recidivism, recidivism against a person and psychiatric readmission. The *y* axis shows the number of accused who have survived the event (i.e., general recidivism, recidivism against a person and psychiatric readmission), and the *x* axis denotes time in days after conditional discharge. Figure 1 shows that individuals living in supportive housing have a significantly better survival rate to general recidivism than individuals living independently (M-C log rank = 13.46, *p* = .001, exp (b) = 2.42, 95% CI [1.49, 3.93]). Figure 2 shows that individuals living in supportive housing also have a significantly better survival rate to recidivism against a person than individuals living independently (M-C log rank = 9.21, *p* = .002, exp(b) = 2.64, 95% CI [1.38, 5.07]). Survival curves for psychiatric readmission following conditional discharge did not reach a statistically significant difference between groups (M-C log rank = 3.61, *p* = .057, exp(b) = 1.28, 95% CI [.99, 1.66]).

COX REGRESSION

To control for covariates in the influence of housing on our outcome measures, we carried out a Cox regression analysis.

Recidivism. As observed in Table 2, after controlling for sociodemographic, clinical, and criminal variables, type of housing following a conditional release still had a significant influence on

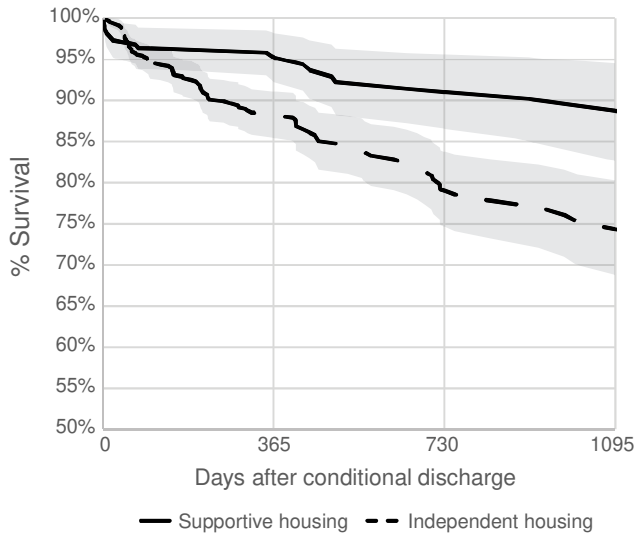**Figure 1. Survival curve for recidivism**

- Supportive housing - - Independent housing

Figure 2. Survival curve for recidivism against a person

- Supportive housing - - Independent housing
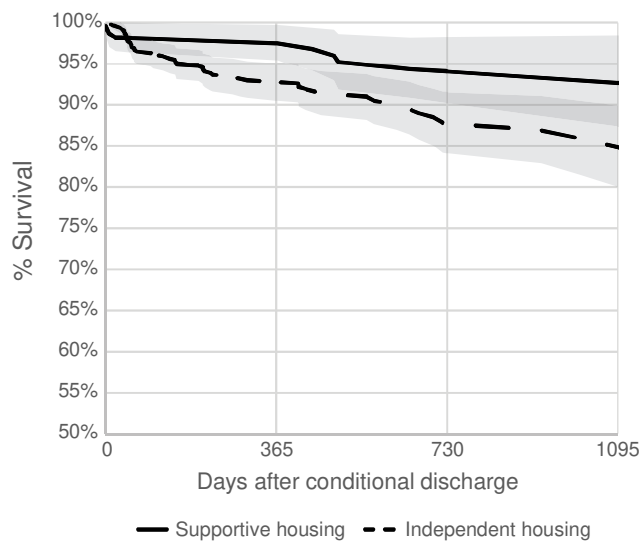
Figure 3. Survival curve for psychiatric rehospitalization

- Supportive housing - - Independent housing
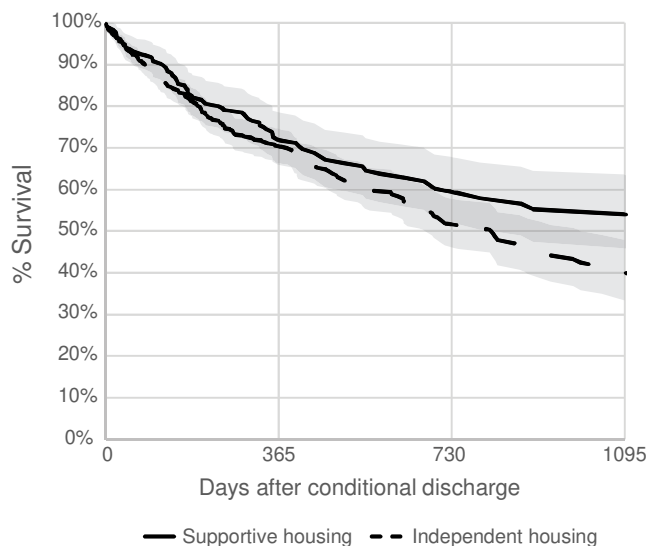
the risk of recidivism in our sample. Independent housing was associated with a 2.43 times greater risk of reoffending after conditional discharge compared with supportive housing (p = .001, 95% CI [1.421, 4.14]). As shown in Table 2, number of past offenses (exp(b) = 2.06 p = .001, 95% CI [1.39, 3.06]) also significantly increased risk of recidivism in the presence of other variables including housing. Finally, older age at index verdict reduced the risk of committing a new offense during conditional discharge (exp(b) = .79, p = .014, 95% CI [0.66, 0.95]).

Recidivism against a person. Table 2 also shows that individuals in independent housing were 2.76 times more likely to commit a new offense against a person (p = .006, 95% CI [1.34, 5.65]) than individuals in supportive housing. Number of criminal offenses prior to index offense (exp(b) = 1.93, p = .023, 95% CI [1.10, 3.40]) increased the risk for recidivism against a person in the presence of other variables including housing. Late age at index verdict (exp(b) = .78, p = .047, 95% CI [0.61, 1.00]) reduced the risk of recidivism against a person in this sample.

Psychiatric readmission. As shown in Table 2, controlling for sociodemographic, clinical, and criminological variables, housing type was significantly related to risk of psychiatric readmission following conditional discharge. In fact, results show that independent housing put individuals at 1.36 times risk of readmission compared with supportive housing (p = .034, 95% CI [1.02, 1.81]). Moreover, older age at index verdict (exp(b) = .84, p = .002, 95% CI [0.75, 0.93]), and being female (exp(b) = .57, p = .007, 95% CI [0.38, 0.86]) reduced the risk of being readmitted for psychiatric treatment on conditional discharge. Number of psychiatric hospitalizations before index verdict (exp(b) = 2.23, p = .001, 95% CI [1.71, 2.91]) also significantly increased the risk of readmission.

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Table 2 : Cox Regression: Criminal Recidivism, Recidivism Against a Person, and Psychiatric Re-Hospitalization

Variable	Criminal recidivism		Criminal recidivism against a person		Psychiatric re-hospitalization	
	Exp (B)	CI (95%)	Exp (B)	CI (95%)	Exp (B)	CI (95%)
Age at index (/10)	0.79**	0.66–0.95	0.78*	0.61–1.00	0.83**	0.75–0.93
Sex	0.58	0.27–1.20	0.50	0.18–1.43	0.57**	0.38–0.86
Forensic hospital	1.44	0.83–2.50	1.79	0.90–3.55	0.08	0.54–1.18
Years detained before conditional discharge	0.89	0.66–1.22	0.76	0.48–1.18	0.98	0.81–1.16
Number prior hospitalizations (/10)	0.68	0.33–1.40	0.92	0.38–2.19	2.23***	1.71–2.91
Diagnosis						
Psychotic disorder	0.82	0.36–1.91	0.79	0.28–2.24	1.37	0.74–2.54
Mood disorder	0.93	0.38–2.26	0.69	0.23–2.10	1.64	0.86–3.12
Substance use disorder	1.21	0.80–1.82	1.29	0.76–2.20	0.85	0.66–1.11
Axis II disorder	1.37	0.76–2.44	1.41	0.66–2.99	1.20	0.82–1.75
Presence of criminal history against a person	1.05	0.66–1.67	1.15	0.63–2.11	1.18	0.87–1.61
Number of past criminal offenses (/10)	2.06***	1.39–3.06	1.93*	1.10–3.40	1.19	0.83–1.70
Presence of a severe index offense	0.69	0.27–1.75	0.78	0.23–2.61	1.12	0.68–1.84
Housing	2.42***	1.42–4.14	2.76**	1.34–5.65	1.36*	1.02–1.81

* $p < .05$.   ** $p < .01$.   *** $p < .001$.

DISCUSSION

The objective of the present study was to explore the effect of supportive housing during conditional discharge on the criminal and clinical outcomes of individuals found NCRMD. The large majority of conditionally discharged individuals eventually lived in independent housing over our study period, seemingly a direct consequence of the lack of community mental health resources in Québec (Felx et al., 2012) and difficulty in accessing intermediary housing for justice involved individuals with a mental illness (Lamb & Weinberger, 1998; Lamb et al., 1999). Immediately after their NCRMD verdict, more than 30% of our conditionally discharged sample returned to independent housing in the community, even before the Review Board called an initial hearing. Slightly more than one tenth of the conditionally discharged sample in this study were convicted or found NCRMD for a new offense during the follow-up period; more than half were for offenses against a person but it is important to be mindful that this included threats. When controlling for sociodemographic, contextual, criminal, and clinical variables, supportive housing was associated with a lower risk of recidivism in general and recidivism involving offenses against a person in particular, compared with independent housing. Young age at index verdict and number of past offenses also significantly increased the risk of recidivism of our sample. Age and offense history

have been repeatedly demonstrated to predict recidivism among both general offenders and mentally ill offenders (Albonetti & Hepburn, 1997; Bonta, Law, & Hanson, 1998; Gendreau, Little, & Goggin, 1996; Hodgins, 1992; Swanson et al., 1998). Time spent in detention prior to conditional discharge did not seem to have an influence on criminal recidivism in the presence of control variables, nor did the presence of a severe index offense. These results are of particular interest as severity of index offense has been strongly associated with tribunal decisions for NCRMD individuals across three provinces in Canada (Crocker, Nicholls, Charette, & Seto, 2014). Moreover, recent changes were introduced into the Canadian legislation for NCRMD individuals. In fact, the Canadian Government brought amendments to Part XX.1 of the *Canadian Criminal Code* dealing with individuals found NCRMD. In what appears to be an effort to improve the Review Boards' ability to manage risk of reoffending, it is indicated in Bill C-14 (2013) that accused be identified by the court as "high risk" if there is a "substantial likelihood" that they will reoffend or if the acts for which they are found NCRMD were of "brutal nature as to indicate a risk of grave harm to the public" (CCC s. 672.64). Moreover, and although prolonged detention has been shown to work against rehabilitation (Skipworth & Humberstone, 2002), Bill C-14 proposes to set a hearing after three years of

detention for individuals deemed "high risk" rather than the usual annual hearings granted to NCRMD accused (CCC s. 672.81). The results of the present study reveal that neither length of detention nor severe index offense significantly predicts recidivism, when contextual variables such as housing are taken into account. Attributing risk of reoffending exclusively to past violence is an individual level approach to risk assessment and management that is not supported by empirical evidence, and overlooks dynamic risk factors and community level factors as correlates of violence and criminality (Sirotich, 2008). The present study suggests that supportive housing is effective in attending to dynamic criminogenic risk factors above and beyond static factors such as criminal history.

Our results also indicate that supportive housing was associated with a lower risk of psychiatric readmission during conditional discharge when controlling for other variables. Young age at index offense, being male, and number of past psychiatric admissions increased the risk of psychiatric readmission, which has been shown in the literature (Øiesvold et al., 2000; Swett, 1995). Although the mechanisms through which rehospitalization is reduced are speculative at the moment (e.g., better management of symptoms and medication), we can conclude that supportive housing plays a role in the success of community reintegration of NCRMD accused by maintaining individuals in the community with decreased rates of psychiatric readmissions compared with individuals living in independent settings. It has been suggested that the longer a person stays in the community the less likely they are to be readmitted (Melnychuk et al., 2009). Findings of the present study similarly suggest that supportive housing reduces the revolving door phenomenon and thereby facilitates social reintegration by attending to the clinical risk factors of this population.

STRENGTHS

The present study is innovative, as no published work has been conducted on the effect of housing environments on the criminal and clinical trajectories of individuals found NCRMD in Canada.

Moreover, this study analyzed a fairly large sample, with an important female proportion, thereby allowing us to control for gender. Lastly, to map out clinical and criminal outcomes influenced by housing while controlling for other risk factors, survival analysis with Cox regression provided us with a more precise indication of the time to 'fail' related to each placement condition (Fisher & Lin, 1999).

LIMITATIONS

An important limitation of this study relates to the fact that only officially recorded offenses were available for our analysis of recidivism and criminal history. According to Statistics Canada, about two thirds of criminal incidents are not reported to the police (Perreault & Brennan, 2009). Evidence of this phenomenon has also been found in studies of psychiatric patients. For instance, using official records alone, Steadman et al. (1998) found that 4.5% of their sample of discharged civil psychiatric patients had committed an act of violence; this proportion went up to 23.7% when adding patient-reported acts that were not available from official records. Moreover, violence in psychiatric institutions is rarely criminalized; in a study conducted among professionals working in psychiatric services, only 33% of victims reported the offenses (Larose & Bigaouette, 1999). It is possible that staff in supportive housing settings have a higher threshold of tolerance for assaultive and criminal behavior and may be less likely to criminalize residents' actions. Alternatively, however, individuals in supportive housing are expected to be more closely monitored and thus might be expected to have higher rates of adverse outcomes recorded. Further research is needed to examine these issues.

It was not possible to distinguish between preventive and reactive psychiatric readmission in the information that was available to us. Future studies should analyze hospital readmissions

prompted by deteriorating mental health, or concerns about safety separately from readmissions following a suspected offense. Case managers and administrators noted that it could be hypothesized that individuals in supportive housing are more likely to be directed toward mental health services when agitated or when demonstrating violent or intimidating attitudes, whereas individuals in independent housing might be more likely to be managed by the judicial system. Through constant contact with care teams, supportive housing might play a role in reducing the likelihood of such events occurring by providing mental health services instead of criminalizing the mentally ill individual. This could be explored further in future research.

FUTURE DIRECTIONS

Several types of supportive housing are available in the community, including group homes with 24/7 professional presence or supervised apartments with staff present during business hours only. Moreover, even within the same type of supportive housing, level of supervision may differ according to individual needs (e.g., medication can be managed by the staff or autonomously, depending on the capability of the resident). Because of sample size limitations, results from this study do not allow us to distinguish between types of supportive housing, and to determine the level of supervision required in order for supportive housing to be effective in reducing criminal recidivism and ensuring appropriate clinical management. We also did not have information on the quality of supervision or quality of supportive housing, which we would expect would have an impact on outcomes. Quality of supportive housing can vary greatly, from high-quality supervision that uses evidence-based practices tailored to the criminogenic needs of the individual, to lower-quality supervision that is inconsistent or indifferent. Quality of supportive housing can also vary from high-quality housing that is clean, comfortable, and safe to lower quality housing that lacks these qualities. Further research

is needed to understand the parameters of supervision required.

The present study did not control for neighborhood characteristics in the prediction of recidivism among our sample. Studies have shown that neighborhood characteristics should be attended to when looking at risk of violence for mentally ill individuals living in the community. Factors associated with violence (e.g., mental illness or substance abuse) have been shown to be more prevalent in socially disadvantaged neighborhoods (Silver, Mulvey, & Swanson, 2002). Some of the associations between individual factors and violence among the mentally ill have been found to be reduced when neighborhood variables were controlled for in prior studies. For instance, in a study conducted by Silver, Mulvey, and Monahan (1999), patients discharged to neighborhoods with concentrated poverty were found to be 2.7 times more likely to engage in violence compared to patients discharged to neighborhoods with less poverty. Moreover, in Silver and colleagues' study (1999), the association between presence of prior arrest and subsequent violent behavior was reduced when concentrated poverty was statistically controlled.

There is also a need to focus on the factors that come into play regarding social reintegration (e.g., monitoring of mental health status; vocational and educational engagement) to provide more specific conclusions as to the processes by which recidivism is reduced. The literature on supportive housing allows us to suggest different mechanisms through which supportive housing reduced the risk of recidivism and rehospitalization in our sample. A study conducted in Montreal, Québec reported that supportive housing offered mentally ill participants a place to integrate new skills such as socializing or solving daily problems (Dorvil, Morin, Beaulieu, & Robert, 2005). That study also revealed that the presence of others in the supportive housing environment prevented the participants from experiencing loneliness, which was considered to be a precipitant of relapse. These results are consistent with those found in a study focusing on predictors of

rehospitalization among conditionally discharged patients (Riordan, Haque, & Humphreys, 2006). In that study, individuals were almost five times more likely to be rehospitalized if they did not have the support of a live-in other. Similarly, in a sample of mentally ill offenders in Italy, those who had committed a homicide were usually suffering from active symptoms of schizophrenia in the period leading to the offense, which resulted in further isolation (Russo, Salomone, & Della Villa, 2003). According to the authors, such an "at risk situation" is difficult to identify in the absence of treatment. They concluded that there is a strong need to build prevention facilities to ensure that individuals who are at risk of committing violence be brought to the attention of mental health professionals. In that sense, it may also be the case that independent housing with informal supervision by family members, partners, or housemates (checking medication compliance, intervening when there appears to be deterioration in mental health stability) may influence psychiatric readmission and recidivism, compared with living alone. Future studies should investigate the influence of informal supervision for forensic patients released to independent housing. Research would also benefit from looking at criminal and clinical outcomes of forensic patients post absolute discharge from Review Boards to evaluate the long-term effect of housing placement on trajectories of NCRMD accused.

CONCLUSION

Because of the scarcity of forensic community resources, housing in particular, individuals who might be ready for that type of community reintegration may be kept in custody for longer than is necessary. This caveat in the administration of services delays the reintegration of the accused, and increases backlog and wait times in system. This study provides information justifying the relevance of pursuing research on housing placement of a forensic population and developing strategies to increase accessibility to transitional housing. When evaluating the threat that forensic patients pose to society, Review Boards have been shown to focus on individual risk factors associated with violence among mentally ill individuals (Grant, 1997). In fact, violence by individuals with mental illness is the result of multiple factors with compounded effects. It has also been argued that there is a need to shift away from prediction and move toward prevention and management of violence among individuals with mental illness (Hart, 1998; Heilbrun, 1997). Seeing that individual characteristics are often static, and hence have limited intervention potential (e.g., past criminal history, age, or gender), the study of factors related to the postrelease environment of the accused and their impact on community reintegration seems to be a logical avenue to pursue to enhance the success of community reintegration of former forensic inpatients. The results of the present study reveal the protective value of supportive housing for a forensic population, and concur with Silver's view (Silver, 2000) that we have to account for the social context in which mental illness and violence actually occur to understand the association between mental illness and violence.

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