HOUSING TRAJECTORIES OF FORENSIC PSYCHIATRIC PATIENTS

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Paper published in Behavioral Sciences and the Law, 2016, 34

ABSTRACT

The objectives of this study were to describe the disposition and housing trajectories of individuals found Not Criminally Responsible on account of Mental Disorder (NCRMD), and the factors that predict different trajectories. To do so, disposition and housing status were coded for 934 NCRMD patients over a 36-month follow-up period. Sequential data analysis resulted in four distinct trajectories: detention in hospital, conditional discharge in supportive housing, conditional discharge in independent housing, and absolute discharge to unknown housing. The likelihood of a placement in supportive housing compared with detention significantly decreased for individuals with a higher index offense severity. Less restrictive trajectories were significantly predicted by clinical factors. The results revealed little change in the disposition and housing trajectories of NCRMD patients. Furthermore, decisions about disposition and housing placement reflect a knowledge–practice gap between risk factors known to be predictive of community resources use in the forensic population.

Over the past 25 years, continuity of care has been addressed by providing hospitalized individuals with serious mental illness access to supportive housing upon their return to the community (Parkinson, Nelson, & Horgan, 1999). Supportive housing is defined as housing with on-site professional mental health support intended to address daily living skills, implement better routines, and promote vocational and educational engagement (Rog, 2004; Sylvestre, Ollenberg, & Trainor, 2007). Housing stability and fewer hospitalizations and incarcerations have been associated with supportive housing placements for individuals with a serious mental illness, as well as those involved in the criminal justice system (Caton et al., 1993; Cherner et al., 2014; Culhane, Metraux, & Hadley, 2002; Leff et al., 2009; Marshall, Vitacco, Read, & Harway, 2014; Murray et al., 1997; Proscio, 2000; Salem et al., 2015; Tsemberis & Eisenberg, 2000). However, research on supportive housing for forensic populations is scarce and usually involves small sample sizes (Cherner et al., 2014) and/or short follow-up periods (Salem et al., 2015); and in essence supportive housing resources are often limited for mentally ill individuals involved in the criminal justice system (Heilbrun, Lawson, Spier, & Libby, 1994; Lamb & Weinberger, 1998; Lamb, Weinberger, & Gross, 1999).

Forensic mental health

In Canada, provincial Review Boards render dispositions regarding the custody and management of individuals found Not Criminally Responsible on account of Mental Disorder (NCRMD) (Canadian Criminal Code s. 672.34). Hearings are held wherein the Review Board has the option of ordering one of three dispositions: detention in hospital ; conditional discharge to the community; or absolute discharge from the Review Board's jurisdiction. These hearings are held, at a minimum, on an annual basis and/or when patient's circumstances substantially change (e.g., following elopement). At the time this study was conducted, when making their decisions, Review Boards were to promote the community reintegration of the patient while taking into account the safety of the public as well as the mental condition of the patient (CCC s. 672.54). Considering that housing influences community outcomes of mentally ill individuals (Estroff et al., 1998; Friedrich et al., 1999; Hodgins, 2001; Newman, Reschovsky, Kaneda, & Hendrick, 1994; Ridgeway, Simpson, Wittman, & Wheeler, 1994; Salem et al., 2015; Swanson, Van Dorn, Monahan, & Swartz, 2006), Review Boards have the option, when ordering a conditional discharge, to require that the patient live in supportive housing. Review Boards may also decide not to impose any living restrictions, and some NCRMD patients live on their own, with friends or with family, although a transfer to the community with little or no structure could lead to deteriorating mental health and may put the patient at risk of acting violently or getting in trouble with the law (Lamb, Weinberger, & Gross, 1999).

According to the risk–need–responsivity (RNR) model (Andrews, Bonta, & Hodge, 1990), the level of service provided to an offender should match the offender's risk to reoffend (risk principle) and the needs of the patient should be assessed and targeted in treatment (needs principle). Several studies have identified predictors of dispositions in the forensic population that do not reflect risk for recidivism (Crocker et al., 2011; Crocker, Nicholls, Charette, & Seto, 2014; Desmarais, Hucker, Brink, & De Freitas, 2008; Grant, Ogloff, & Douglas, 2000; Livingston, Wilson, Tien, & Bond, 2003; Melnychuk, Verdun-Jones, & Brink, 2009; Roesch et al., 1997). For instance, age, substance use and prior criminal history do not predict dispositions (Callahan & Silver, 1998; Crocker et al., 2011, 2014; McDermott & Thompson, 2006), despite the fact that they have been strongly associated with risk of reoffending or revocation of conditional discharge (Bonta, Law, & Hanson, 1998; Brekke, Prindle, Bae, & Long, 2001; Harris, Rice, & Quinsey, 1993; Monson, Gunnin, Fogel, & Kyle, 2001; Porporino & Motiuk, 1995; Riordan, Haque, & Humphreys, 2006) and are part of most recognized risk assessment tools. Conversely, some factors that do predict dispositions, such as nature and severity of index

offense (Callahan & Silver, 1998; Crocker et al., 2014; McDermott & Thompson, 2006) or physical attractiveness (Hilton & Simmons, 2001), have little to no empirical support as risk factors for recidivism (Bonta, Blais, & Wilson, 2014; Bonta et al., 1998). Furthermore, as described in Wilson et al. (2015) and in Côté, Crocker, Nicholls, and Seto (2012), significant variability exists in the risk factors that are being included in the written reports and reasons for decision by the Review Board. The objective of the present study is to describe patterns of dispositions, particularly with regards to housing placement, upon conditional discharge from the Review Board and to analyze contextual, criminal and clinical factors that distinguish housing trajectories.

METHOD

SAMPLE

Data were extracted from a multi-site national study examining forensic psychiatric patients in Canada (Crocker et al., 2015b). The present study focuses on individuals found NCRMD between May 2000 and April 2005 (i.e., the index verdict) in the province of Québec. Housing status was available for 934 individuals (85%) of the Québec sample (N = 1094); those without housing status information did not differ on the sociodemographic, clinical and criminological variables of this study.

MEASURES AND SOURCES OF INFORMATION

Characteristics of the sample

Primary diagnosis at the time of the index offense, as well as presence of a co-occurring diagnosis of substance use or personality disorder, were identified through clinical reports in Review Board files. Using the provincial health records registry, the number of psychiatric hospitalizations in the 5 years preceding the index verdict was collated.

In Québec, in addition to one provincial forensic psychiatric hospital, civil psychiatric facilities are designated to treat and manage NCRMD patients. The risk assessment and management approach of the forensic hospital (Crocker & Côté, 2009), as well as the stigma associated with forensic hospital service users, might have an impact on accessibility to housing resources. The type of facility responsible for the management of patients was therefore taken into account.

The severity of the index offense was classified using the Canadian Crime Severity Index (CSI; Wallace, Turner, Matarazzo, & Babyak, 2009). Given that some individuals had multiple charges leading to an NCRMD finding, the most serious charge was selected as the index offense. Criminal history was coded as the sum of lifetime convictions and NCRMD verdicts based on criminal records and Review Board records.

Housing placement

Over a 3-year period following the index verdict, a month-by-month sequence of four housing statuses were analyzed, as hearings are not exactly 1 year apart, and when changes in dispositions need to be made, individuals may have had more than one hearing during the year.

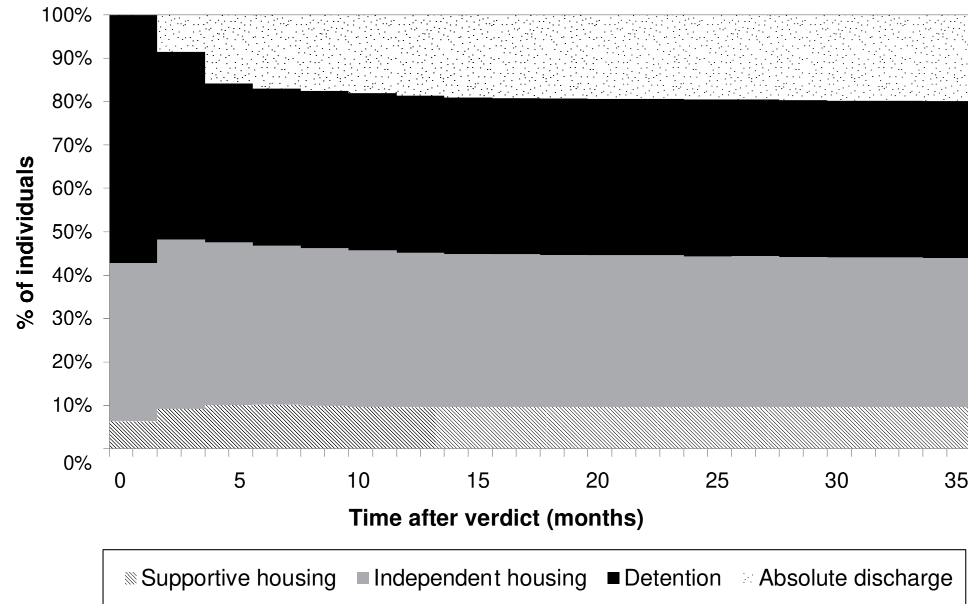
Housing status depends largely on the disposition ordered by the Review Board. An NCRMD patient may be placed in one of four housing options based on the Review Board's decision: detention in hospital, conditional discharge in supportive housing, conditional discharge in independent housing, or absolute discharge to an unknown housing placement. Information regarding housing following absolute discharge was not available, as individuals were no longer under a Review Board mandate. Figure 1 presents the average distribution of participants' housing statuses during the 3-year follow-up period.

ANALYSES

Sequential Data Analysis

For the 934 individuals in the sample, 44 distinct custody sequences were observed; however, given the complexity of these longitudinal sequences of categorical data, a sequential clustering method was used to simplify the information (Abbott, 1995; Abbott & Forrest, 1986; Abbott & Hrycak, 1990).

Figure 1. Distribution of housing states for the 36 months following the index verdict.



Average silhouette distance (Rousseeuw, 1987) and average Pearson gamma (Halkidi, Batistakis, & Vazirgiannis, 2001) adequacy measures suggest an optimal solution of four clusters. As individuals cannot adhere perfectly to one cluster, a "fuzzy" clustering method was favored (Kaufman &

Rousseeuw, 1990). Compared with discrete clustering, where an individual may only be found in one of the four clusters, fuzzy clustering takes a dimensional approach to clustering, allowing an individual to be represented proportionally in different clusters. With this method, the imperfection in discrete classification is improved by considering each individual not as part of a unique cluster, but as having a probability of being part of each cluster. This method is particularly appropriate in the context of the present study, as forensic patients might follow a variable housing trajectory (e.g., detention shortly following verdict, followed by integration in supportive housing and access to more autonomy through conditional discharge in independent housing). The R package TraMineR was used to compute optimal matching algorithm (Gabadinho, Ritschard, Müller, & Studer, 2011), cluster was used to compute fuzzy clustering (Maechler et al., 2013) and fpc was used to obtain the cluster statistics (Hennig, 2010).

Multinomial Logistic Regression

In order to identify patient characteristics that influenced their disposition-housing trajectories, a multinomial logistic regression was used to compare each of our trajectories, for a total of six pairwise comparisons. The distribution of the number of past hospitalizations, severity of index offense and number of past criminal offenses were log-transformed.

RESULTS

As observed in Figure 2, 43% (n = 401) of the total sample had the highest probability of membership to the detention cluster, spending an average of 31.5 months detained in hospital during the 36-month follow-up period. Individuals grouped in the second cluster (*n* = 102; 11%) spent an average of 22.0 months in supervised housing. For those belonging to the third cluster (*n* = 300; 32%), 31.9 months of their follow-up period was spent in independent housing. Individuals in the fourth trajectory (n = 131; 14%) were under the authority of the Review Board for an average of 7.7 months before being granted absolute discharge. Pairwise bivariate comparisons revealed that the four groups differed significantly on all of the independent

variables except the number of previous hospitalizations and the presence of comorbid substance use and personality disorders (see Table 1).

PREDICTORS OF TRAJECTORY

Sociodemographic Variables

Results of the multinomial regression analyses predicting disposition-housing trajectories are presented in Table 2. Being a woman decreased the likelihood of belonging to the detention in hospital trajectory compared with belonging to the independent housing or the absolutely discharged trajectories, but had no impact on the probability of belonging to the supportive housing trajectory. Age did not significantly predict trajectory.

Clinical Variables

A higher number of hospitalizations prior to index offense significantly decreased the likelihood of belonging to the absolutely discharged trajectory compared with all other trajectories. A higher number of hospitalizations prior to index offense also increased the likelihood of being in the supportive housing trajectory compared to the independent housing trajectory. A primary diagnosis of psychotic disorder significantly increased the likelihood of belonging to the detention in hospital trajectory and the independent housing trajectory

Figure 2. Distribution of housing states for each trajectory.

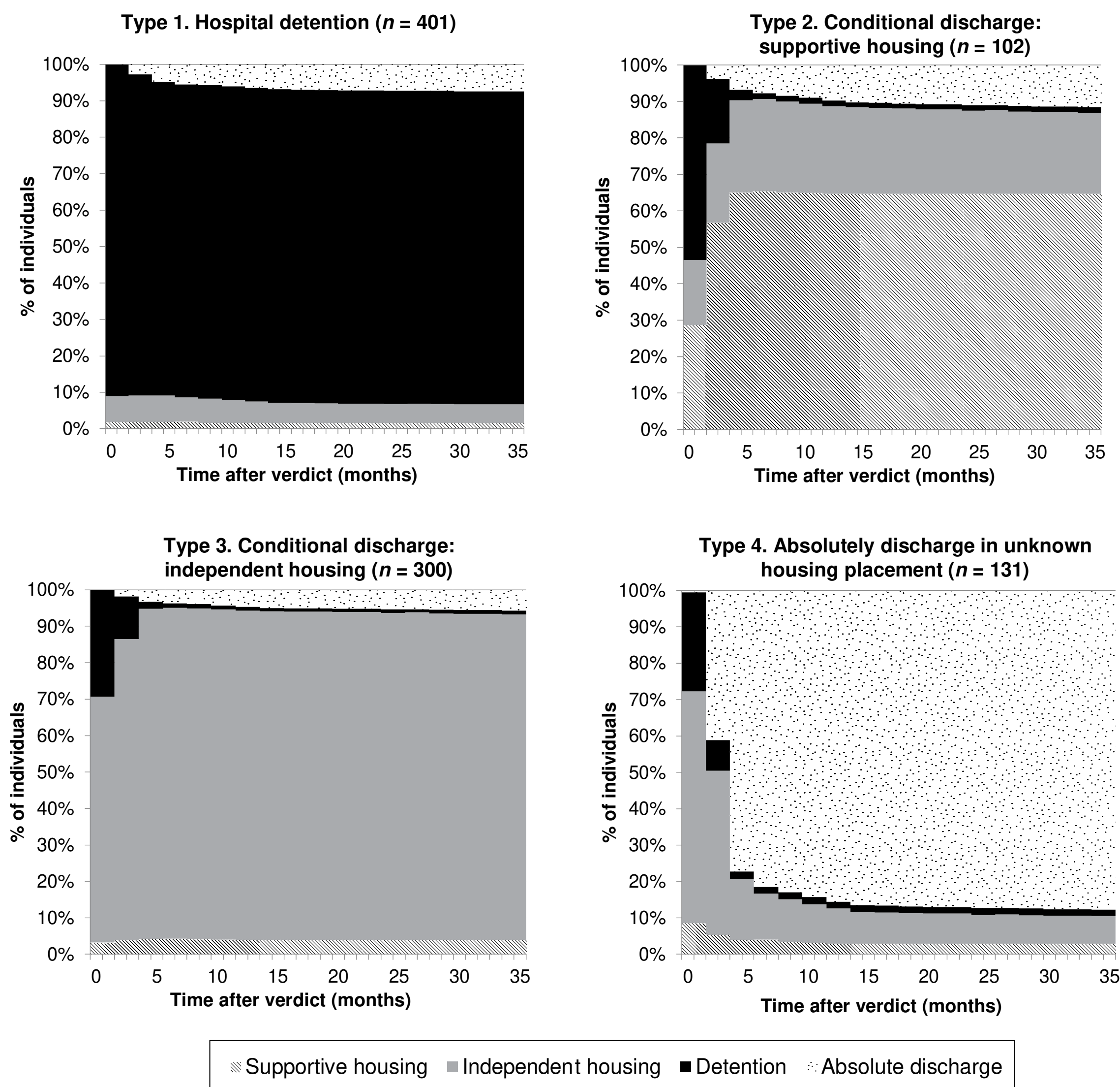


Table 1. Descriptive and bivariate analysis of disposition-housing trajectories

	Custody trajectories												
	Detention n = 401		Independent housing n = 300		Supportive housing n = 102		Absolute discharge n = 131		Total n = 934		Statistics		
	n	%	n	%	n	%	n	%	n	%	χ^2	df	p
Male	359	89%	246	82%	85	83%	103	78%	782	84%	12.88	3	0.005
Forensic institute	49	12%	56	19%	7	7%	8	6%	93	10%	17.88	3	<0.001
Psychotic spectrum disorder	304	76%	197	66%	73	71%	65	50%	624	67%	33.09	3	<0.001
Mood spectrum disorder	92	23%	108	36%	25	25%	61	46%	290	31%	32.68	3	<0.001
Comorbid substance use disorder	121	30%	84	28%	26	26%	41	31%	299	32%	1.35	3	0.710
Comorbid personality disorder	50	12%	26	9%	8	8%	16	12%	114	12%	3.79	3	0.280
	M	SD	M	SD	M	SD	M	SD	M	SD	F	df	p
Age at the index verdict	35.40	12.80	36.20	12.30	37.20	12.6	38.70	12.80	36.40	12.80	2.47	3, 930	0.006
Number of past offences ln	0.61	0.89	0.43	0.77	0.48	0.81	0.42	0.74	0.50	0.82	3.48	3, 930	0.020
Number of past offences geometric mean	1.84	2.44	1.54	2.16	1.62	2.25	1.52	2.10	1.65	2.27			
Severity of index offence ln	4.67	1.35	4.44	0.10	4.32	0.90	4.40	0.89	4.52	1.16	5.72	3, 930	0.001
Severity of index offence geometric mean	107	3.86	84.80	1.11	75.20	2.46	81.50	2.44	91.8	3.19			
Number hospitalizations ln	0.90	0.77	0.79	0.74	0.95	0.75	0.78	0.71	0.91	0.75	2.21	3, 930	0.080
Number hospitalizations geometric mean	2.46	2.16	2.20	2.10	2.59	2.12	2.18	2.03	2.48	2.12			
Time spent detained months	31.50	11.50	1.26	3.45	2.22	4.18	1.57	4.80	13.60	16.8	1038	3, 930	<0.001
Time spent independent housing months	2.09	7.47	31.90	9.74	8.78	14.10	5.55	9.17	12.80	16.20	623.69	3, 930	<0.001
Time spent supportive housing months	0.54	4.07	1.39	6.59	22.00	16.50	1.35	6.08	3.42	10.20	240.82	3, 930	<0.001
Time spent in absolute discharge months	1.89	7.42	1.42	6.43	3.01	9.14	27.50	11.70	6.21	12.70	380.24	3, 930	<0.001

Table 2. Multinomial regression predicting disposition-housing trajectories

	Independent > Detention		Supportive > Detention		Absolute discharge > Detention		Independent > Supportive		Absolute discharge > Independent		Absolute discharge > Supportive	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Age at the index verdict	.01	-.12 to .13	.06	-.98 to .21	.05	-.08 to .18	-.09	-.19 to .01	.11	-.20 to .23	-.05	-.14 to .04
Male	.17**	.06 to .29	.03	-.11 to .17	.20**	.08 to .33	.08	-.01 to .16	.05	-.06 to .17	.08	-.00 to .17
Forensic Institute	.16**	.06 to .26	-.19*	-.35 to -.03	-.20**	-.34 to -.05	.22***	.13 to .31	-.37***	-.51 to -.24	-.08	-.18 to .02
Past hospitalizations	-.09	-.21 to .03	.07	-.06 to .21	-.20**	-.35 to -.05	-.13**	-.22 to -.04	-.14*	-.28 to -.01	-.26***	-.36 to -.16
Psychotic Disorder	-.02	-.19 to .15	-.04	-.25 to .17	-.31***	-.49 to -.13	.00	-.13 to .14	-.30***	-.47 to -.14	-.11	-.24 to .01
Mood Disorder	.27**	.10 to .43	-.11	-.33 to .10	.25 **	.07 to .43	.19**	.05 to .32	.03	-.14 to .19	.28***	.15 to .41
Substance use disorder	-.02	-.15 to .11	-.09	-.24 to .06	-.06	-.19 to .08	.06	-.03 to .16	-.02	-.15 to .11	.05	-.04 to .14
Personality disorder	-.21***	-.33 to -.09	-.01	-.15 to .13	-.33***	-.47 to -.20	-.11*	-.21 to -.02	-.16*	-.29 to -.03	-.22***	-.31 to -.13
Severity of index offence	-.18**	-.29 to -.07	-.21**	-.36 to -.06	-.19**	-.32 to -.05	.09	-.02 to .19	-.10	-.24 to .04	-.01	-.12 to .09
Past offences	-.14*	-.26 to -.01	-.04	-.18 to .10	-.11	-.25 to .02	-.02	-.11 to .08	.00	-.13 to .13	-.05	-.14 to .05

**p<.05, **p<.01, *** p<.001*

compared to the absolutely discharged trajectory. In contrast, having a primary diagnosis of a mood disorder was associated with less restrictive dispositions. In fact, a mood disorder reduced the likelihood of belonging to the detention in hospital trajectory and the supportive housing trajectory compared to the independent housing trajectory and the absolutely discharged trajectory.

A comorbid personality disorder was associated with increased restrictive dispositions and significantly differentiated all trajectories except for the detention in hospital trajectory compared to the supportive housing trajectory. A comorbid substance use disorder had no significant influence on the placement trajectories of our sample.

Contextual Variables

Being treated in a forensic institution significantly increased the likelihood of being in the independent housing trajectory compared with the three other trajectories. In addition being treated in the forensic institute was associated with an increased likelihood of being in the hospital detention trajectory compared with the supportive housing trajectory or the absolutely discharged trajectory.

Criminological Variables

The severity of the index offense significantly increased the likelihood of being detained compared with the other trajectories, while a higher number of offenses prior to index offense only increased the likelihood of being detained when compared with the independent housing trajectory.

DISCUSSION

The results of this study reveal little variation in the housing trajectories of the sample during the first 3 years following an NCRMD verdict. Patients spent most of the first 3 years of their Review Board mandate in one of four trajectories: detained, conditionally discharged to independent housing, conditionally discharged to supportive housing, or absolutely discharged (Crocker et al., 2014; also see Grant, 1997).

As previously mentioned, Review Boards must take into account the safety of the public as well as the mental condition of the patient when rendering a disposition. The results of this study show that the mental condition of the patient criteria seems to predict custody housing dispositions for NCRMD patients in the way that would be expected based on empirical knowledge. For instance, an increased number of prior hospitalizations, likely to suggest chronicity of illness and/or poor treatment compliance, significantly predicted more restrictive dispositions. Furthermore, mood disorders, usually associated with nonviolent offending (Grant et al., 2000), were associated with the least restrictive measures (Crocker et al., 2014), specifically, independent housing. Latimer and Lawrence (2006) also found that individuals with a primary mood disorder are given fewer conditions upon conditional discharge than individuals with a primary diagnosis of schizophrenia; they were also more likely to be absolutely discharged to an unknown housing placement.

Presence of a comorbid personality disorder seems to be an obstacle for placement in independent housing and for receiving an absolute discharge. However, presence of a personality disorder did not differentiate individuals who were detained in hospital from those who were conditionally discharged to supportive housing. In our sample, antisocial personality disorder is one of the most common specified comorbid personality disorders diagnosed (21.6%). The presence of marked impulsivity, aggressiveness and irritability of a patient (American Psychiatric Association, 2013) might be associated with prior surveillance failure, and poor treatment compliance, which might dissuade Review Boards from releasing the patient to the community with reduced supervision. We also found that a primary diagnosis of psychotic disorder was associated with increased restrictions in dispositions, but did not influence the likelihood of placement in supportive housing. These findings are important, considering the results of our previous

study looking at recidivism and re-hospitalization rates among the same sample as the current study (Salem et al., 2015). Our previous results revealed that when housing setting is controlled for, the presence of a psychotic disorder or a personality disorder does not predict recidivism or re-hospitalization, suggesting that supportive housing is an effective management tool despite the presence of a severe mental disorder or a complex clinical profile (Salem et al., 2015).

On the other hand, when examining the safety of the public criterion of the legislation, the results of the current study point to a knowledge–practice gap, because custody-housing dispositions did not consistently match the patients' level of risk. For instance, age and substance use had no association with dispositions in our sample. Furthermore, number of prior criminal offenses only differentiated individuals who were detained compared with those who were in independent housing. These results do not align with evidence showing that substance use, younger age at index offense and number of prior criminal offenses are important risk factors for violence (Bonta et al., 1998; Salem et al., 2015). However, it is possible that, based on the clinical team recommendations, Review Boards rely more heavily on dynamic factors (Crocker et al., 2014; Wilson et al., 2016), specifically on changes in the mental condition and evolution of symptom manifestation of the patient when ordering absolute discharges, instead of basing decisions on static/historical factors such as age. Future research should take into account symptom evolution as a predictor of Review Board dispositions.

As would be expected from previous studies examining factors associated with dispositions (Callahan & Silver, 1998; Crocker et al., 2014; Hilton & Simmons, 2001; McDermott & Thompson, 2006), controlling for other sociodemographic, clinical and criminological factors, a more severe index offense was found to reduce access to community reintegration, particularly, access to supportive housing. These results are not aligned with research showing that severity of the index offense is not a reliable risk factor for recidivism among the NCRMD population (Charette et al., 2015; Salem et al., 2015), or with other mentally ill offender populations (Bonta et al., 2014).

Furthermore, although individuals treated in a forensic hospital are likely to require more support in the community for efficient risk management than their counterparts being treated in civil psychiatric settings, the present study shows that, controlling for other risk factors, being treated in a forensic hospital actually reduces the likelihood of placement in supportive housing compared with independent housing. These resultsmay be indicating that the forensic hospital has not established partnerships with resources in the community.

Another plausible explanation for this result is that an individual conditionally discharged from a forensic hospital would be followed quite closely by the forensic team, which might be less the case for an individual conditionally discharged from a civil hospital. In addition, when controlling for the severity of index offense, being treated in a forensic hospital increased the likelihood of being detained throughout the 3-year study period. We hypothesize that these results are due to the stigma associated with having been treated in a maximum security forensic hospital, which constitutes a barrier to supportive housing accessibility and leads to further institutionalization or premature release of the NCRMD population to housing environments with reduced support. Previous research has demonstrated that individuals treated in a forensic hospital are no more likely to reoffend, or be re-hospitalized than those treated in general or civil psychiatric hospitals (Hodgins et al., 2007; Salem et al., 2015). This suggests that supportive housing should be an equally accessible risk management tool for this population.

Taken together, these results reveal that supportive housing placement does not seem to be used as a risk management strategy based on the static/stable level of risk of the patient; instead, it seems to depend greatly on the clinical condition of the NCRMD patient. The risk principle of the RNR model, as defined using static/stable risk factors, does not seem to be supported. Premature release

of forensic patients to independent housing or unnecessary prolonged detention is incongruent with the RNR model, which has been associated with more efficient and effective intervention (Hollin, 1999). Custody and housing placement decisions should take into account factors that are empirically associated with risk in this population in order to protect public safety, ensure appropriate lengths of stay and efficient use of scarce resources.

STRENGTHS AND LIMITATIONS

This study is innovative, as supportive housing, despite having been studied in the general mental health literature, has remained relatively unexplored in forensic populations. Having highlighted the risk management function served by supportive housing within this sample in our previous study (see Salem et al., 2015), we are able to draw further conclusions about the factors associated with supportive housing placements.

The literature has shown that a Review Board's purview over NCRMD individuals last more than 5 years for them majority of cases across the country (Latimer & Lawrence, 2006). Thus, the 3-year duration of the observation period of this study might have had an impact on the lack of variability in the trajectories of this sample. Longer follow-up periods would allow us to see more variation over time in placement patterns, particularly for individuals who committed a severe index offense, for whom duration under Review Board is longer (Crocker et al., 2015a) and for whom housing resources may be particularly difficult to access.

Having access to supportive housing is not always possible, particularly for forensic patients. Community mental health resources are lacking (Felx et al., 2012; Herman et al., 2008; Tourigny, 2014) and/or individuals with a mental illness involved in the justice system may face barriers in accessing supportive housing (Heilbrun et al., 1994; Lamb et al., 1999). The stability of trajectories revealed in this study might be the product of institutional factors (i.e., the scarcity of housing resources leading to long waiting lists and backlogs) rather than risk management decisions. Future data collection methods should take into account the recommendations of clinical teams, not just the actual outcomes.

CONCLUSIONS

Consistent with what is known about violence generally, violence by individuals with mental illness is the result of multiple factors (Swanson et al., 2002). However, research to date has taken an individual-level approach (Sirotich, 2008), overlooking community level factors (Silver, 2000). Results of the present study show that there might be a knowledge–practice gap in the management of the forensic population, as the factors taken into account in the housing placement decisions for NCRMD patients in our sample are not consistent with the factors that predict recidivism and re-hospitalization in this population. The discrepancy between decision-making practices and evidence-based knowledge in forensic services has been highlighted in previous research, particularly with regard to standardized risk assessment (Côté et al., 2012; Wilson et al., 2015). Conditional discharge has been shown to be an effective alternative to hospitalization (Segal & Burgess, 2006); by adequately targeting custody and placement based on risk factors, lengths of stay, risk of recidivism and re-hospitalization could be reduced.

ACKNOWLEDGEMENTS

L.S. helds a Fonds de recherche du Québec – Société et culture doctoral fellowship. A. G.C. received consecutive salary awards from the Canadian Institutes of Health Research (CIHR) and the Fonds de recherche du Québec – Santé (FRQ-S), as well as a William Dawson Scholar award from McGill University, while conducting this research. T.L.N. would like to acknowledge the support of the Michael Smith Foundation for Health Research and the CIHR for consecutive salary awards. This research was supported by grant #6356-2004 from

the FRQ-S and a grant from the Mental Health Commission of Canada to A.G.C.

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