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Violence risk profile of medium- and high-security NGRI offenders in Belgium

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ABSTRACT

Under Belgian law, offenders not guilty by reason of insanity (NGRI) are committed by the courts to forensic mental health treatment. The use of violence risk assessment tools has become routine in these settings. However, there are no national statistics regarding violence risk assessment in the Belgian forensic population. A study was undertaken to collect risk assessment data (PCL-R, VRAG, HCR-20) on a large cohort of forensic patients committed to Medium Security units in the Flanders region and in High-Security units in the Walloon region. Flemish patients were expected to present a lower risk compared with their Walloon counterparts. Instead, data yielded by a structured risk assessment method demonstrate the opposite. Moreover, the majority of patients in Flemish facilities had committed violent offenses and were institutionalized for shorter periods whereas the majority of Walloon patients had committed sexual offenses and were institutionalized for markedly longer periods.

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Under Belgian law, after having committed a crime, people deemed to lack criminal responsibility because of insanity (not guilty by reason of insanity, NGRI) are not condemned, but 'interned' under the supervision of a regional court. This specific legislation, which exists in other countries (Salize & Dressing, 2007), allows offenders with a mental disorder, referred as 'forensic patients' to be transferred for treatment. In Belgium, treatment can be provided either within a general psychiatric or a forensic psychiatric setting. Forensic or secure

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settings have been implemented since 1930 in the southern part of the country (Wallonia). However, the first medium security units were only implemented in the northern Flanders part in 2001 and the first high-security hospital in 2014. In a Belgian population of around 11 million inhabitants, the total number of internees has risen to 3,820 internees in 2013 (Deckers et al., 2014). The care policy diverges between the South and the North of the country. In Flanders, the orientation of care is much more focused on the insertion of medico-legal patients by relying on existing hospital and outpatient psychiatric units. There, decisions regarding admission for the medium security units are made on the basis of clinical judgment by a panel of clinicians. These units select their patients by defining inclusion criteria such as, for example, psychotic patient without addiction problems and associated personality disorders. In the south region, a much more security-oriented approach, based on the rehabilitation of psychiatric asylums in the Social Defense Institution-called Secure Psychiatric Hospital, has been organized. In these security units, teams do not have the choice of which patient they can admit, which leads to a significant heterogeneity of the population (Oswald et al., 2017). Admissions are based on the criminological and clinical determinants of criminal irresponsibility primarily assessed by criminal expertise.

The organization of the healthcare system therefore requires that mentally disordered individuals who have committed an offense be triaged in order to be directed to treatment facilities that fit their needs (Kennedy, 2002). These needs extend beyond the medical sphere including personal security as well as institutional and societal considerations. Triage of these individuals is predicated on two categories – risk and treatment – and three levels of security – low, medium and high. In the field, however, these categories are poorly operationalized though the scientific literature stresses the importance of defining, assessing and taking them into account. A vital part of this triage is to engage in violence risk assessment (Andrews & Bonta, 2017). The results of a survey, in Belgium, has shown that the risk assessment instruments, in more than half of the evaluation situations (Ducro & Pham, 2016), is rarely used as a support for decision-making admission in High-Security units or in Medium Security units. At the moment, the instruments most widely used for these purposes are the HCR-20, the VRAG and the PCL-R (Pham et al., 2016). However, despite attempts, objective criteria to determine which setting is most appropriate for which type of patients are currently non-existent in Belgium.

Risk assessment: risk factors to instrument development

Over the past few decades, studies in the international literature have sought to identify key risk factors in the field of violence. Andrews and Bonta (2017) identified both primary major central explanatory factors, such as history of violence, antisocial personality, pro-criminal attitudes and

cognitions, and presence of antisocial peers and secondary explanatory factors, such as education/employment, family, marital status, and leisure/recreation. These factors have also been found to be associated with general and violent recidivism in violent forensic populations (Bonta, Blais, & Wilson, 2014; Skeem, Winter, Kennealy, Loudon, & Tatar, 2014). More specifically, antisocial personality profile, pro-criminal attitudes and cognitions, and criminal history have proved the factors most strongly related to violent recidivism in these populations under psychiatric treatment (Wilson, Crocker, Nicholls, Charette, & Seto, 2015). Our research based on the risk principle is congruent with the Risk Need Responsivity model (Andrews & Bonta, 2017). Andrews and Bonta's model is the leading model for directing offender assessment and treatment. The RNR model identifies eight central risk/need factors (i.e. the central eight) that have empirical and conceptual links to criminal offending (Marshall & Marshall, 2017). The therapeutic dosage is notably based on these criminogenic factors.

Aside from identifying risk factors, researchers have developed various recidivism risk assessment tools for use with different populations, including mentally disordered offenders committed to secure psychiatric facilities. These tools are well-known and their potential to assess violence risk has been validated.

There are tools that evaluate static risk, such as the Violence Risk Assessment Guide (VRAG; Quinsey, Harris, Rice, & Cormier, 1998, 2006), and there are structured clinical tools, such as the Historical Clinical Risk-20 (HCR-20; Douglas, Hart, Webster, & Belfrage, 2013; Webster, Douglas, Eaves, & Hart, 1997) for a more dynamic evaluation of risk. These can be used in combination with the Psychopathy Checklist-Revised (PCL-R; Hare, 2003), which can also be used independently to assess general or violent recidivism risk (Hare, 2003).

The VRAG is a 12-item actuarial instrument widely used to predict violence risk within a specific post-release time frame in different populations including mentally disordered violent offenders. Developed at the Penetanguishene Mental Health Centre, the tool uses information contained in a patient's clinical records, particularly the psycho-social history component, as the basis for scoring, rather than information gathered through interviews or questionnaires. The PCL-R score is incorporated in this risk assessment. The VRAG total score does not vary over time, unless new offense is committed. The items were found to be strongly associated with violent recidivism in the validation study conducted by its authors among the mentally disordered population (Quinsey et al., 1998, 2006). Other studies have supported the VRAG's predictive validity for violent recidivism (Doyle, Carter, Shaw, & Dolan, 2012; Harris et al., 2003; Pham, Ducro, Marghem, & Réveillère, 2005; Rice, Harris, & Lang, 2013; Snowden, Gray, Taylor, & Fitzgerald, 2009). Furthermore, this instrument predicts institutional violence (Hastings, Krishnan, Tangney, & Stuewig, 2011; Vitacco, Gonsalves, Tomony, Smith, & Lishner, 2012) and general recidivism (Glover,

Nicholson, Hemmati, Bernfeld, & Quinsey, 2002; Gray, Fitzgerald, Taylor, MacCulloch, & Snowden, 2007; Pham et al., 2005). It should be noted, also, that the replication studies of the VRAG's predictive validity have covered post-release periods as short as five months (Harris, Rice, & Camilleri, 2004) and as long as 15 years (Parent, Guay, & Knight, 2011). The predictive effects observed in these studies were similar to those obtained by the VRAG's creators (Harris, Rice, & Quinsey, 2010). In contrast, the VRAG failed to significantly predict violent re-offenses and was only accurate in identifying low-risk individuals (Van Heesch, Jeandarme, Pouls, & Vervaeke, 2016). In terms of descriptive statistics, the mean score obtained on the VRAG by forensic populations has been in the vicinity of 5 and SD from 10 (Snowden, Gray, & Taylor, 2010) to 11 (Ho, Thomson, & Darjee, 2009), bearing in mind that the score range for this instrument runs from -26 to $+38$.

Regarding structured clinical instruments, also referred to as structured professional judgment (SPJ) tools, the HCR-20 covers 20 risk items selected on the basis of a review of the scientific, theoretical and professional literature. The tool structures the assessment of practitioners in order to ensure that all relevant factors for the prediction of future violence are considered. The items are grouped under three different factor types. Items under the Historical factor are static and present at all times. Those under the Clinical factor relate to the individual's recent and current functioning. Finally, the last group of items concerns Risk management. The two last factors are potentially variable and, as such, are obvious targets for clinical intervention and violence risk management (Pedersen, Ramussen, & Elsass, 2012). Clinicians seem to prefer the HCR-20 to other instruments (Farrington, Jolliffe, & Johnstone, 2008; Hurducas, Singh, de Ruitter, & Petrila, 2014; Pham et al., 2016) primarily because it takes into consideration symptoms and risk situations likely to evolve over the course of treatment. In other words, clinicians are more sensitive to the dynamic aspect of these two factors. The HCR-20 is the most widely used instrument in secure psychiatric facilities in the United Kingdom (Khiroya, Weaver, & Maden, 2009). With regard to predictive validity, studies have shown that the HCR-20 predicts violent recidivism with a significant moderate to strong effect in various populations (Douglas & Reeves, 2010; Pham et al., 2005). However, some recent field validity studies have found reduced accuracy (Jeandarme, Pouls, De Laender, Oei, & Bogaerts, 2017a; Neal, Miller, & Shealy, 2015; Pedersen et al., 2012; Vojt, Thomson, & Marshall, 2013). A number of reasons can be given to explain these results. First, in the field of psychopathy, for example, there is a considerable variability in the cut-off scores used by raters to classify offenders as 'low', 'moderate', and 'high' risk. Doctoral-level examiners having completed a formalized PCL-R training may produce more reliable scores (Boccaccini, Murrie, Rufino, & Gardner, 2014). Secondly, the reduced accuracy may be explained by adversarial affiliation (Chevalier, Boccaccini, Murrie, & Varela, 2015). Interestingly, raters generally acknowledge bias while are also

convinced that their scores were not influenced by their subjectivity (Rufino et al., 2011). Thirdly, level of background training and education could also influence scoring. Hence, highly trained researchers or clinicians with a doctoral degree might demonstrate greater skills and objectivity than master's-degree clinicians in general. Finally, the effect of experience and the number of evaluations may also influence the score. In research studies, the raters often score a high number of files in a short period of time whereas in general practice the scoring process is case-oriented and much longer. Finally, prolific evaluators may produce scores that demonstrate somewhat better predictive validity as well (Murrie, Boccaccini, Caperton, & Rufino, 2012). Finally, research has suggested that more experienced evaluators tend to assign lower scores than less experienced evaluators (Rufino, Boccaccini, Hawes, & Murrie, 2012).

At the descriptive level, forensic populations have scored from 18 to 25 on the HCR-20. Snowden et al. (2010) reported means of 18.5 ($SD = 6.5$) for the total score, 11.3 ($SD = 3.7$) for the Historical factor, 3.3 ($SD = 2.5$) for the Clinical factor, and 3.8 ($SD = 2.6$) for the Risk-management factor in a population of 1182 forensic patients. Jeandarme, Pouls, et al., 2017a, instead, reported means of 24.8 ($SD = 5.06$) for the total score, 14.1 ($SD = 3.28$) for the Historical factor, 4.8 ($SD = 1.74$) for the Clinical factor, and 6 ($SD = 2.01$) for the Risk-management factor in a medium-secure psychiatric population ($N = 168$).

Both the VRAG and the HCR-20 ratings require a structured assessment of psychopathy. It should be noted that the revised version of the HCR-20 (HCR^{V3}; Douglas et al., 2013) no longer requires a PCL-R and that in the revised version of the VRAG, the PCL-R was replaced by Facet 4 of the PCL-R (VRAG-R; Rice et al., 2013). Though the PCL-R (Hare, 2003) was not initially constructed to assess recidivism risk, meta-analyses have shown that it possesses moderate predictive validity within various offender populations (Leistico, Salekin, DeCoster, & Rogers, 2008; Singh, Grann, & Fazel, 2011; Yang, Wong, & Coid, 2010) as well as within forensic populations (Pham et al., 2005; Singh et al., 2011; Yang et al., 2010). More specifically, the instrument's antisocial and behavioral facet (Factor 2 of the PCL-R) has demonstrated a stronger predictive validity for violent recidivism (Yang et al., 2010) and general recidivism (Jeandarme, Pouls, et al., 2017a; Walters, 2003) than has its interpersonal and affective facet (Factor 1 of the PCL-R). The instrument's field of application has grown broader over the years. Indeed, whether for the purposes of an expert medical opinion, offender orientation or treatment, the psychopathy profile and its level of associated risk are useful indicators for professionals in the field (DeMatteo et al., 2014; Pham et al., 2016). Regarding the psychopathy levels evaluated in secure psychiatric populations, they have varied across studies. Indeed, Hare (2003) reported a mean score of 21.5 ($SD = 6.9$; $N = 1246$) and, more specifically, a mean score of 8 ($SD = 3.5$) for the Interpersonal Factor (Interpersonal Facet: $M = 3.1$, $SD = 2.1$; Affective Facet: $M = 4.9$, $SD = 2.1$) and a mean score of 11.9 ($SD = 4.0$) for the Social Deviance Factor (Lifestyle Facet:

$M = 6.1$, $SD = 2.2$; Antisocial Facet: $M = 5.9$, $SD = 2.6$). With a cohort of 98 forensic patients, Hildebrand and de Ruiter (2004) reported comparable mean scores (Total score: $M = 21.4$, $SD = 8.4$; Interpersonal Factor: $M = 9.3$, $SD = 3.8$; Social Deviance Factor: $M = 9.3$, $SD = 5$)., More recently forensic population of 958 patients, Krstic et al. (2017) reported means of 15.3 ($SD = 6.8$) for the Total score, 2 ($SD = 1.94$) for the Interpersonal Facet, 3.5 ($SD = 2$) for the Affective Facet, 3.9 ($SD = 2.3$) for the Lifestyle Facet, and 3.6 ($SD = 2.6$) for the Antisocial Facet. In the same study, it should be noted that only 2% of the population obtained scores equal to or greater than 30, compared with 10% of the forensic population examined by Hare (2003) and 21.4% of the population in the Hildebrand and de Ruiter (2004) study.

In most Northern European countries, the SPJ approach is perceived as the best way to assess and manage violence risk (De Vries Robbé & De Vogel, 2017), including Belgium (Pham et al., 2016). However, Southern and Eastern European countries are still based on unstructured professional approach. In some countries, however, the use of actuarial instruments is preferred in some setting and the SPJ is preferred in other settings (De Vries Robbé & De Vogel, 2017).

Aim of the current study

The use of recidivism risk assessment tools is essential in both forensic and clinical settings. In Belgium, the results of a survey highlight the use of risk assessment instruments – criminal responsibility, pre and post treatment, decision-making – in more than half of the evaluation situations (Ducro & Pham, 2016). The instruments most widely used for these purposes are the HCR-20, the VRAG and the PCL-R (Pham et al., 2016). However, research in this regard on forensic populations in Belgium has been scattered and fragmented (Cartuyvels, Champetier, & Wyvekens, 2010; Decoene, 2010). Statistics exist for the Flanders and Walloon regions, respectively, but not for the country as a whole. In this light, we undertook a study to assess violent recidivism risk in a large cohort of NGRI offenders treated in Medium-Security (MS) units in the Flanders region and in High-Security (HS) units in the Walloon region. We expected the MS subsample to present a lower risk level compared with HS subsample, given (a) the lower security structure facility and (b) the possibility to select their patients at the entrance and to discard non-collaborative profiles.

Method

Participants

The study's participants ($N = 938$) were hospitalized under Belgium's Social Defense Law, which provides for the indefinite confinement of offenders deemed incapable of controlling their conduct on account of mental disorder.

Table 1. Characteristics of medium and high-security NGRI offenders.

	MS subsample (<i>n</i> = 504)		HS subsample (<i>n</i> = 434)	
	%	<i>M</i> (<i>SD</i>)	%	<i>M</i> (<i>SD</i>)
<i>Demographic</i>				
Belgian nationality	90.0		76.1	
Marital status (married/living together)	14.2		10.5	
Age admission (years)		36.4 (10.8)		35.8 (11.1)
Duration first forensic admission (days)		488.7 (414.04)		3079.8 (2619.7)
<i>Judicial Index Offense</i>				
Sexual	10.5		43.8	
Non-sexual violent	66.9		38.8	
Non-sexual non-violent	22.6		17.4	
<i>Prior Offense</i>	86.1		65.1	
Sexual	11.8		27.9	
Non-sexual violent	65.2		44.7	
Non-sexual non-violent	23.0		27.4	
<i>Psychiatric diagnosis</i>				
<i>Axis I</i>				
Any psychotic/SUD/mood disorder	82.9		67.0	
Psychotic disorders	45.6		36.8	
Substance misuse	56.5		21.7	
Anxiety- and mood disorders	6.5		38.2	
<i>Axis II personality</i>				
Personality disorder cluster A/B/C	54.2		77.6	
Cluster A	7.1		37.9	
Cluster B	44.0		60.1	
Antisocial personality disorder	26.0		39.1	
Narcissistic personality disorder	4.6		19.8	
Cluster C	3.4		28.4	
Comorbidity Axis I and II	41.7		57.6	

The HS subsample (*n* = 434) consisted of male patients committed to the forensic hospital of the Centre Regional Psychiatrique 'Les Marronniers' in Tournai, Belgium (Walloon region). Participants were evaluated by the clinical psychologists (2009–2014) and data were analyzed by the research team at the *Centre de Recherche en Défense Sociale* (CRDS).

The MS subsample (*n* = 504) was composed of male patients committed to one of the three units located in Bierbeek, Zelzate, and Rekem (Flanders region). The sample consisted of practically the entire population (98%) treated during the period 2001–2010. Data were gathered for clinical purposes and subsequently analyzed by the research team at the Knowledge Centre for Forensic Psychiatric Care (KeFor). Medium-security units provide a treatment setting for NGRI offenders who do not require care in a high-secure hospital but are nevertheless considered unsuitable for general psychiatric inpatient or outpatient care. Female patients (*n* = 27) were excluded from the analyzes in order to obtain comparative data in terms of gender.

The MS subsample (*n* = 504; 53.7%) and the HS subsample (*n* = 434; 46.3%) are presented in Table 1. Most (83.8%) of the forensic patients were of Belgian nationality. Fewer than one in ten (9.3%) was married or living common law at the time of their index offense. Mean age at the time of

forensic psychiatric admission was 36.1 years ($SD = 10.94$) and mean length of stay was 1693 days ($SD = 2229.4$). The offenses for which the patients were committed were distributed as follows by type: 55.1% violent, 24.5% sexual, and 20.4% non-violent non-sexual. Moreover, 78.4% of the population had priors. These broke down as follows by type: 59% violent, 16.6% sexual and 24.4% non-violent non-sexual.

The most common diagnoses were personality disorders (63.7%), substance misuse disorders (42.2%) and psychotic disorders (42%). Among the personality disorders, cluster B personality disorders were most frequently found (50.6%). The mean number of Axis I diagnoses per participant was 1.1 ($SD = 0.81$, range 0–4) and of Axis II diagnoses 0.8 ($SD = 0.80$, range = 0–3). Regarding comorbidity between Axes I and II disorders, 48% presented one or more major mental disorders combined with one or more personality disorders; the mean number of diagnoses per participant was 1.9 ($SD = 1.22$, range = 0–7).

Comparing the two samples, it emerged that a higher proportion of the MS patients was of Belgian nationality, $\chi^2(1) = 32.00$, $p < .001$, Cramér's $V = .19$. Also, mean length of stay was longer for the HS patients than for the MS patients, $U = 17,087.00$, $z = 22.14$, $p < .001$, $r = .72$. A higher proportion of the HS patients had an index offense of a sexual nature, $\chi^2(1) = 126.56$, $p < .001$, Cramér's $V = .39$, and a higher proportion of the MS patients had an index offense of a violent nature, $\chi^2(1) = 66.98$, $p < .001$, Cramér's $V = .29$. Finally, a higher proportion of HS patients had sexual priors, $\chi^2(1) = 10.50$, $p = .002$, Cramér's $V = .12$, and a higher proportion of MS patients had violent priors, $\chi^2(1) = 54.39$, $p < .001$, Cramér's $V = .26$.

Clinically, Axis I disorders were more prevalent in MS settings as compared to the HS setting, $\chi^2(1) = 29.30$, $p < .001$, Cramér's $V = .18$. More specifically, more MS patients were diagnosed with substance misuse ($\chi^2(1) = 103.28$, $p < .001$, Cramér's $V = .35$), while more HS patients were diagnosed with anxiety and mood disorders, $\chi^2(1) = 131.69$, $p < .001$, Cramér's $V = .39$. On Axis II, more cluster A, B or C diagnoses were found in the HS patients, $\chi^2(1) = 48.85$, $p < .001$, Cramér's $V = .24$. More specifically, more HS patients were diagnosed with cluster C personality disorders ($\chi^2(1) = 111.05$, $p < .001$, Cramér's $V = .36$), cluster A personality disorders ($\chi^2(1) = 123.27$, $p < .001$, Cramér's $V = .38$) and cluster B personality disorders ($\chi^2(1) = 21.11$, $p < .001$, Cramér's $V = .16$). In addition, more HS patients were diagnosed with antisocial personality disorder ($\chi^2(1) = 39.31$, $p < .001$, Cramér's $V = .21$) and with narcissistic personality disorder ($\chi^2(1) = 49.79$, $p < .001$, Cramér's $V = .24$). Regarding comorbidity more HS patients presented with one or more Axis I mental disorders combined with one or more personality disorders ($\chi^2(1) = 20.50$, $p < .001$, Cramér's $V = .16$).

Instruments

Violent risk appraisal guide (Quinsey et al., 1998)

VRAG scores range from -26 to $+38$ and are expected to average 0. The initial VRAG validation sample was divided into nine bins according to a range of scores: 1) ≤ -22 ; 2) -21 to -15 ; 3) -14 to -8 ; 4) -7 to -1 ; 5) 0 to $+6$; 6) $+7$ to $+13$; 7) $+14$ to $+20$; 8) $+21$ to $+27$ and 9) $\geq +28$. In a study assessing the convergent and predictive validity of the PCL-R, the VRAG and the HCR-20, in a mixed population of high-security prison inmates and forensic inpatients the three instruments were found to be highly correlated ($>.70$) and to share a large common variance. ROC (Receiver Operating Characteristics), suggested that the VRAG (.74, .82) and the HCR-20 (.72, .71) presented a moderate predictive validity for both general and violent recidivism (Pham et al., 2005). The study of the validity and reliability of the VRAG in a forensic psychiatric MS population indicates a good inter-rater reliability (ICC = .91) and a moderate internal consistency ($\alpha = .63$) (Van Heesch et al., 2016). Furthermore, a pilot study revealed a substantial inter-rater agreement between the item and total scores of two assessors ($K = .70-.89$) (Rossegger, Endrass, Gerth, & Singh, 2014). The Dutch version of the VRAG (Jeandarme, Pouls, & Peters, 2012) was used with the Flemish sample and the French version with the French sample (Pham et al., 2005).

Concerning reliability of the Dutch version of the VRAG, van Heesch et al. (2016) found in forensic psychiatric medium security population a high ICC (.91), indicating a good inter-rater reliability. Cronbach's alpha was .63. Item-total correlation tests showed that eight items did not correlate very well ($<.3$) with the total score of the VRAG.

Several meetings between French and Flemish researchers were organized concerning the two versions of the VRAG. Either Dr Quinsey or Dr Rice were contacted by the two teams with regard of item content specifications.

Historical, clinical, risk-20, version 2 (Webster et al., 1997)

The HCR-20 is the structured professional judgment tool most widely used for assessing violence risk worldwide. It derives its name from its three component scales: Historical (H) factors (10 items), Clinical (C) factors (5 items), and Risk-management (R) factors (5 items). Factors are scored on a three-point scale from 0 to 2, for a score range of 0 to 40. Higher scores indicate higher risk. The HCR-20 covers as many static factors (hardly likely to change over time) as dynamic ones (likely to change). The dynamic factors considered are intended to render the risk assessment sensitive to personal and situational changes.

A quantitative review of over 50 studies of the HCR-20 by Douglas and Reeves (2010) revealed good to excellent inter-rater reliability and a moderate to large association between the HCR-20 and violence (Douglas et al., 2014). The instrument was found to have good psychometric properties in a study conducted in a French-language Belgian forensic hospital: inter-rater

correlation of 0.73, and intraclass coefficients of 0.70 (simple measure) and 0.82 (average measure); the Cronbach's alpha for all 20 items was 0.74 (Claix & Pham, 2004; Pham et al., 2005). These psychometric qualities are similar to those observed in other studies (Douglas et al., 2014).

In our study, the Dutch translation of the HCR-20 (Philipse, de Ruiter, Hildebrand, Bouman, & Webster, 2000) was used with the Flemish sample and the French translation with the French sample (Webster et al., 1997). Though a third version of the HCR-20 was recently released (HCR-20V3; Douglas et al., 2013), we used the second version of the instrument as this was the version available at the time of data collection. The study by Inge Jeandarme, Pouls, et al., 2017a reported a IRR of the total score of .74, similar to Claix and Pham (2004) research with an ICC = .70. The IIR of H-scale was .84, the C-scale was .64 and the R-scale was .58. In a mixed population of high-security prison inmates and forensic inpatients of the HCR-20, the ROC (Receiver Operating Characteristics) (.72, .71) presented a moderate predictive validity for both general and violent recidivism (Pham et al., 2005).

Psychopathy checklist – revised (Hare, 1991, 2003)

The PCL-R is characterized by two main factors and four facets. Factor 1 covers affective, interpersonal, and narcissistic elements and breaks down into Facet 1 'Interpersonal' and Facet 2 'Affective'. Factor 2 focuses on the propensity for chronic antisocial behavior and breaks down into Facet 3 'Lifestyle' and Facet 4 'Antisocial'. The PCL-R comprises 20 items rated on a three-point scale: 0 indicates that the item does not apply, 1 that it applies only in part, and 2 that it applies in full. The total score thus ranges from 0 to 40. The procedure suggested by Hare (1991, 2003) was used. Information for the purposes of the evaluation was culled from two sources, namely, criminal, social, psychological, and psychiatric records and mainly semi-structured interviews.

In Belgium, the instrument has been subjected to psychometric evaluation in a prison setting (inter-rater correlation of .96, intraclass coefficient of .91; Pham, 1998), a forensic psychiatric population (inter-rater correlation of .92, Kappa of .85; Pham, Remy, Dailliet, & Lienard, 1998), and has been the focus of a predictive validation study (Jeandarme, Edens, et al., 2017b; Pham et al., 2005). The study of Inge Jeandarme, Edens, et al., 2017b reported a poor rater agreement in general with an ICC of .42. Only Facet 4 (f4) has a 'good' rater agreement: .60. In a mixed population of high-security prison inmates and forensic inpatients, ROC suggested that the PCL-R (.63, .68) presented a moderate predictive validity for both general and violent recidivism (Pham et al., 2005).

In our study, the Dutch translation of the PCL-R (Vertommen, Verheul, de Ruiter, & Hildebrand, 2002) was used with the Flemish sample and French translation with the French sample (Côté & Hodgins, 1996).

Table 2. Percentage of missing data per variable.

	<i>N</i>	% missing Combined Sample	% missing MS subsample	% missing HS subsample
Nationality (Belgian)	902	4.8	0.6	7.6
Married/living together	868	7.5	3.4	12.2
Age at admission	915	2.5	0	5.3
Length of stay	905	3.5	0	2.8
Index offence	867	7.6	0	16.4
Priors	796	15.1	0	32.7

Procedure

For the combined population, the following offender information was gathered from hospital files: age at admission, length of stay, nationality, marital status, index offense, priors, and violence risk assessment.

Judicial information was retrieved from the Central Criminal Records of the Ministry of Justice. Violent offenses were restricted to acts of non-sexual violence against others, that is, the intentional use of physical force or power—threatened, attempted, or actual—against another person. Offenses were divided into three types: sexual, violent non-sexual, and other (non-sexual non-violent). When more than one type of crime was committed, the one coded was the most serious according to the following hierarchy: sexual > violent non-sexual > other.

As the data sources were characterized by different percentages of missing data, the analyses were not always carried out on samples of the same size. The percentage of missing data for each variable is given in Table 2.

Ethical approval was obtained from the Medical Ethical Commission of the University Hospital of Antwerp for the Flemish sample and from the Ethical Review Board of the Centre Régional Psychiatrique ‘Les Marronniers’ for the Walloon sample. Each patient was fully informed about the aim of the study and gave his consent to participate.

Data analyses

Due to a lack of normality across all the dependent variables, as verified by way of the Kolmogorov–Smirnov test, non-parametric statistics were computed. To this end, the HS and MS subsamples were compared via Mann–Whitney *U* tests and effect sizes ($r = z/\sqrt{n}$) (Field, 2013) were calculated on the following variables: age at admission, length of stay, PCL-R scores (Total, Factors and Facets), VRAG total score, and HCR-20 scores (Total and Factors). The chi-squared (χ^2) or Fisher’s exact test and Cramér’s *V* as a measure of association strength were used to compare the samples on the following variables: nationality, marital status, index offense, priors, and the VRAG and the PCL-R risk categories. The analyses were run on the SPSS 20.0 program (IBM Corp., 2011).

Results

Descriptive variables regarding violence risk for combined sample

The mean VRAG total score for the patients from the two samples for which data was available ($n = 446$) was 6.6 ($SD = 10.3$, range = $-26-38$). These patients were distributed across the risk violence categories as follows: 0.2% ($n = 1/446$) in Category 1, 2.0% ($n = 9/446$) in Category 2, 6.3% ($n = 28/446$) in Category 3, 17.3% ($n = 77/446$) in Category 4, 21.5% ($n = 96/446$) in Category 5, 28.5% ($n = 127/446$) in Category 6, 15.0% ($n = 67/446$) in Category 7, 7.8% ($n = 35/446$) in Category 8, and 1.3% ($n = 6/446$) in Category 9.

The mean HCR-20 total score for the patients from the two samples for which data was available ($n = 484$) was 23.8 ($SD = 5.8$, range = $4-38$). The mean score was 13.2 ($SD = 3.6$, range = $0-20$) on the H-scale ($n = 490$), 4.9 ($SD = 2.0$, range = $0-10$) on the C-scale ($n = 490$), and 5.7 ($SD = 2.1$, range = $0-10$) on the R-scale ($n = 486$).

The mean PCL-R total score for the patients from the two samples for which data was available ($n = 440$) was 19.6 ($SD = 7.0$, range = $-26-38$). The mean score was 7.9 ($SD = 3.6$, range = $0-16$) for Factor 1 ($n = 424$) and 10.2 ($SD = 4.2$, range = $0-19$) for Factor 2 ($n = 413$). The mean score was 2.9 ($SD = 2.2$, range = $0-8$) for Facet 1 ($n = 381$), 5.1 ($SD = 2.1$, range = $0-8$) for Facet 2 ($n = 383$), 5.6 ($SD = 2.5$, range = $0-10$) for Facet 3 ($n = 377$), and 5.0 ($SD = 2.7$, range = $0-10$) for Facet 4 ($n = 357$). With the cut-off score set at 30 (Hare, 1991), the combined sample contained 32 psychopaths (7.3%, $n = 32/440$). With the cut-off score set at 25 as suggested in European countries (Cooke & Michie, 1999), the number of patients that received a psychopathy diagnosis rose to 117 (26.6%, $n = 117/440$).

Comparing medium and high-security NGRI offenders

The descriptive statistics for the inter-group comparison are presented in Table 3. The mean VRAG total score was significantly higher for the MS patients than for the HS patients, $U = 20,949.50$, $z = 2.87$, $p = .004$, $r = .14$. A higher proportion of the HS patients fell into the low and moderate VRAG risk categories (Figure 1), while a higher proportion of the MS patients fell into the higher categories, $\chi^2(1) = 15.70$, $p = .047$, Cramér's $V = .19$.

The mean HCR-20 total score was significantly higher for the MS patients than for the HS patients, $U = 24,571.50$, $z = 2.77$, $p = .006$, $r = .13$, as was the mean score on the H-scale, $U = 20,052.00$, $z = 6.04$, $p < .001$, $r = .27$. However, the mean score on the C-scale was significantly higher for the HS patients than for the MS patients, $U = 25,845.50$, $z = 2.32$, $p = .021$, $r = .10$.

The mean PCL-R total score was significantly higher for the MS patients than for the HS patients, $U = 18,511.00$, $z = 4.27$, $p < .001$, $r = .20$, as was the mean score for Factor 1, $U = 17,558.00$, $z = 3.91$, $p < .001$, $r = .19$. The results regarding the facets went in the same direction. The MS patients scored significantly

Table 3. Violence risk for medium and high-security NGRI offenders.

	MS subsample (N = 504)		HS subsample (N = 434)	
	n	M (SD)	n	M (SD)
<i>VRAG</i>				
Total Score	227	7.9 (10.8)	219	5.3 (9.7)
<i>HCR-20</i>				
Total Score	273	24.4 (5.2)	211	22.9 (6.3)
Historical factor	278	14.1 (3.2)	210	12.0 (3.9)
Clinical factor	278	4.7 (1.9)	210	5.1 (2.1)
Risk factor	275	5.7 (2.1)	210	5.7 (2.1)
<i>PCL-R</i>				
Total Score	221	21.1 (6.6)	219	18.2 (7.1)
Factor 1	212	8.1 (3.4)	212	7.3 (3.6)
Factor 2	210	10.3 (3.9)	203	10.0 (4.5)
Facet 1	169	3.1 (2.1)	212	2.7 (2.2)
Facet 2	170	5.7 (1.9)	213	4.6 (2.1)
Facet 3	167	6.1 (2.5)	210	5.3 (2.5)
Facet 4	161	5.5 (2.6)	196	4.6 (2.8)

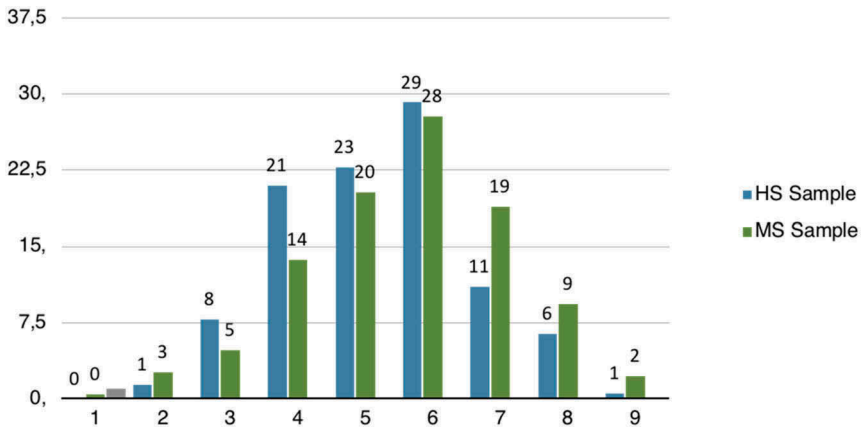


Figure 1. Percent distribution of patients across VRAG risk categories by samples.

higher on average than did the HS patients: Facet 1, $U = 15,556.00$, $z = 2.23$, $p = .026$, $r = .11$; Facet 2, $U = 12,536.00$, $z = 5.22$, $p < .001$, $r = .27$; Facet 3, $U = 14450$, $z = 2.95$, $p = .003$, $r = .15$; Facet 4, $U = 12,702.00$, $z = 3.18$, $p = .001$, $r = .19$.

Finally, with the cut-off score set at 25, a significantly higher proportion of the MS patients (33.9%, $n = 75/221$) than of the HS patients (19.2%, $n = 42/219$) was deemed psychopathic, $\chi^2(1) = 12.3$, $p = .001$, Cramér's $V = .17$. With the cut-off score set at 30, the two samples did not differ significantly: MS patients 9.0% ($n = 20/221$) vs. HS patients 5.5% ($n = 12/219$).

Discussion

The purpose of our study was to analyze violent recidivism risk in a large cohort of forensic patients committed to Medium Security units in the Flanders region and to High-Security units in the Walloon region. We expected the MS patients to present a lower risk level compared with their HS patients.

Regarding profile, the forensic patients in Belgium at the time of the study had a mean age of 36 years and, for the most part, lived alone at the time of the offenses for which they were currently committed. Mean length of stay was 4.6 years. More than 50% of the combined sample had committed violent non-sexual offenses and 25% had committed sexual offenses. Where priors are concerned, these same percentages applied. When the two samples were compared, however, it emerged that a higher proportion of HS patients had current and prior sexual offenses on their records and a higher proportion of MS patients had violent offenses on their records.

Violence risk profile of Belgian NGRI offenders

Regarding the static assessment of violent recidivism risk, the Belgian forensic population presented levels comparable to those found in the international literature with forensic patients in general (Ho et al., 2009; Snowden et al., 2010) and NGRI patients (Harris, Rice, & Quinsey, 1993). Regarding the structured clinical assessment, however, the data on the Belgian forensic population as a whole showed a higher level of violence risk compared with those reported in Snowden et al. (2010) based both on total score and on the different factors.

Psychopathy levels in our combined sample were intermediate compared with those reported in European and international studies (Hare, 2003; Hildebrand & de Ruiters, 2004; Krstic et al., 2017). In fact, intermediate levels were obtained across the board for total scores, factor scores and facet scores, as well as for prevalence of psychopathy with a cut-off of 30.

Differences between medium and high-security NGRI offenders

The static level of violent recidivism risk was higher for the MS patients than for the HS patients. The scores obtained by the HS patients are close to those reported in the international literature (Ho et al., 2009; Snowden et al., 2010).

Similarly, the structured clinical assessment of violence risk yielded higher scores in the MS patients than the HS patients for both total score and the Historical factor. However, scores for the Clinical factor were higher for the HS patients. Still, regardless of which Belgian population is considered, scores are higher than those reported by Snowden et al. (2010).

Finally, the mean total score and the mean scores for the Interpersonal factor and all facets of the PCL-R were higher in the Flemish treatment facilities than in

the Walloon facility. It should be noted that the scores obtained in the MS units are close to those obtained by Hare (2003) and by Hildebrand and de Ruiter (2004) whereas the scores obtained in the HS units are intermediate to those obtained by these researchers and by Krstic et al. (2017).

With a cut-off of 25, the prevalence of psychopathy was higher in the MS units. In any event, the prevalence of psychopathy is lower among Belgian NGRI offenders compared to levels reported in the international literature (Hare, 2003; Hildebrand & de Ruiter, 2004). Applying a cut-off of 30 probably boosted the number of false negatives in European samples. Moreover, the wide range of psychopathy prevalence rates and scores raises questions about the nature of the respective samples drawn from secure psychiatric populations. In this regard, it would be interesting to carry out analyses considering co-occurring diagnostic categories and the criminological profile of patients. Overall, the results contradict our initial hypothesis that MS Flemish patients present a lower risk than HS Walloon patients. These results may be explained by differences in terms of care and related infrastructure policies between the South and the North of the country. At the time of data collection, there was no high-security facility in Flanders Cartuyvels et al. (2010) in contrast to the Walloon Region. Hence, the great majority of the Flemish internees were detained in prison without access to adequate psychiatric treatment. The medium security facilities, were the only infrastructure outside the prison, prior selected 'treatable' patients with clinical syndromes. Indeed, Axis I disorder like substance abuse was more prevalent in MS settings as compared to the HS setting. Moreover, personality disorders were more prevalent in HS setting notably cluster A and C which may lower the total risk score. Moreover, MS present more violent but less sexual priors. These results may explain higher scores on MS.

Limitations and strengths

Given that the offenses committed by the NGRI patients were both sexual and non-sexual in nature, it would be worthwhile to replicate our study using static and structured clinical assessment tools for sexual recidivism, such as the Sex Offender Risk Appraisal Guide (SORAG; Quinsey, Rice, & Harris, 1995), the VRAG-R (Rice et al., 2013), the Risk for Sexual Violence Protocol (RSVP; Hart et al., 2003), the Stable-2007 (Hanson, Harris, Scott, & Helmus, 2007), the Acute-2007 (Hanson et al., 2007) or the HKT-R (Spren, Brand, Ter Horst, & Bogaerts, 2014). It would be preferable also in the future to use the latest version of instruments available, such as version 3 of the HCR-20 (HCR-20V3; Douglas et al., 2013), and to collect data on all NGRI offenders, institutionalized and not. Indeed, even though our study is unique and involves a large sample, it should be noted that it took into account only one fourth of the NGRI offenders in Belgium (Deckers et al., 2014).

Our study is limited by its cross-sectional design. It would be extremely worthwhile to push this study further by taking a dynamic or longitudinal approach in examining how patients are triaged for both clinical and risk-management purposes.

Finally, we cannot exclude potential cross-cultural differences between Flemish and Walloon patients. Hence, in the future, it may be interesting to assess these potential differences, for example, via item response theory with the PCL-R, similarly has been done by Cooke and colleagues (Cooke & Michie, 1999; Cooke, Michie, Hart, & Clark, 2005) between Nord American and British samples.

Conclusion

We hypothesized that the static and structured clinical level of violence risk was lower in Flemish MS units than the Walloon HS units. As it turns out, the data obtained via a standardized risk assessment method demonstrate the opposite. Moreover, patients in the Flemish facilities for the most part committed violent offenses, current and prior, and had shorter lengths of stay compared with patients in the Walloon facilities, who for the most part committed sexual offenses, current and prior, and had markedly longer lengths of stay. One factor that might explain these findings are differences in the culture of committing NGRI offenders to outpatient care. This culture is much more developed in the Flanders region than in the Walloon region essentially because for a long time there existed no facility equivalent to the Secure Psychiatric Hospital in the former. Things changed only as of 2014 with the opening of the Forensic Psychiatric Center (FPC) in Ghent. The absence of such a facility might have caused a shift in how and where NGRI offenders were assigned: MS units received patients that should have been treated in HS units while general psychiatric hospitals ended up receiving patients that should have been treated in MS units. Finally, the care circuit for NGRI offenders committed to treatment should expand thanks to changes to legal provisions that facilitate the opening of specific beds in general psychiatric facilities (Loi relative à l'internement de personnes, 2014). Ideally, the providing of a secure outpatient care in Belgium should include a better triage and orientation (see Davoren, 2012) of high, medium and low-security patients with accessibility to general psychiatric facilities and other ambulatory services.

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No potential conflict of interest was reported by the authors.

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References

- Andrews, D. A., & Bonta, J. (2017). *The psychology of criminal conduct* (6th ed.). New York, NY: Elsevier.
- Boccaccini, M. T., Murrie, D. C., Rufino, K. A., & Gardner, B. O. (2014). Evaluator differences in psychopathy checklist-revised factor and facet scores. *Law and Human Behavior, 38*(4), 337–345.
- Bonta, J., Blais, J., & Wilson, H. A. (2014). A theoretically informed meta-analysis of the risk for general and violent recidivism for mentally disordered offenders. *Aggression and Violent Behavior, 19*, 278–287.
- Cartuyvels, Y., Champetier, B., & Wyvekens, A. (2010). La défense sociale en Belgique, entre soin et sécurité. Une approche empirique [Social defense in Belgium: Between care and security]. *Déviante et société, 34*(4), 615–645.
- Chevalier, C. S., Boccaccini, M. T., Murrie, D. C., & Varela, J. G. (2015). Static-99R reporting practices in sexually violent predator cases: Does norm selection reflect adversarial allegiance? *Law and Human Behavior, 39*(3), 209–218.
- Claix, A., & Pham, T. H. (2004). Evaluation of the HCR-20 violence risk assessment scheme in a Belgian forensic population. *L'Encéphale, 30*(5), 447–453.
- Cooke, D. J., & Michie, C. (1999). Psychopathy across cultures: North America and Scotland compared. *Journal of Abnormal Psychology, 108*, 58–68.
- Cooke, D. J., Michie, C., Hart, S. D., & Clark, D. (2005). Searching for the pan-cultural core of psychopathic personality disorder. *Personality and Individual Differences, 39*(2), 283–295.
- Côté, G., & Hodgins, S. (1996). *L'Echelle de Psychopathie de Hare-Révisée-Manuel* [The hare psychopathy checklist – revised: Manual]. Toronto: Multi-Health Systems.
- Davoren, M., O'Dwyer, S., Abidin, Z., Naughton, L., Gibbons, O., Doyle, E., ... & Kennedy, H. G. (2012). Prospective in-patient cohort study of moves between levels of therapeutic security: the DUNDRUM-1 triage security, DUNDRUM-3 programme completion and DUNDRUM-4 recovery scales and the HCR-20. *BMC psychiatry, 12*(1), 80
- Deckers, A., Seynaeve, K., De Smedt, A., Dheedene, J., Vandenplas, E., & Van der Auwera, A. (2014). *Rapport geïnterneerden in detentie op 24/12/2013* (Report on the detention of forensic patients dated December 24, 2013). Unpublished report.
- Decoene, S. (2010). Lange zwangerschap, uitgestelde geboorte: Over geschiedenis en toekomst van de forensische psychologie in Vlaanderen. *Tijdschrift klinische psychologie, 40*, 169–179.
- DeMatteo, D., Edens, J. F., Galloway, M., Cox, J., Smith, S. T., & Formon, D. (2014). The role and reliability of the psychopathy checklist-revised in U.S. sexually

- violent predator evaluations: A case law survey. *Law and Human Behavior*, 38, 248–255.
- Douglas, K. S., & Reeves, K. A. (2010). Historical-clinical-risk management-20 (HCR-20) violence risk assessment scheme: Rationale, application, and empirical overview. In R. K. Otto & K. S. Douglas (Eds.), *Handbook of violence risk assessment. International perspectives on forensic mental health* (pp. 147–185). New York, NY: Routledge.
- Douglas, K. S., Hart, S. D., Webster, C. D., & Belfrage, H. (2013). *HCR-20V3: Assessing risk for violence - User guide*. Burnaby, British Columbia: Mental Health, Law, and Policy Institute, Simon Fraser University.
- Douglas, K. S., Shaffer, C., Blanchard, A. J. E., Guy, L. S., Reeves, K., & Weir, J. (2014). *HCR-20 violence risk assessment scheme: Overview and annotated bibliography*. Burnaby, British Columbia: Mental Health, Law, and Policy Institute, Simon Fraser University.
- Doyle, M., Carter, S., Shaw, J., & Dolan, M. (2012). Predicting community violence from patients discharged from acute mental health units in England. *Social Psychiatry and Psychiatric Epidemiology*, 47, 627–637.
- Ducro, C., & Pham, T. H. (2016). Recidivism risk assessment in Belgium: Clinical practice, reserach, and legislative aspects. In J. Singh, S. Bjorkly, & S. Fazel (Eds.), *International perspectives on violence risk assessment* (pp. 192–201). New York, NY: Oxford University Press.
- Farrington, D. P., Jolliffe, D., & Johnstone, L. (2008). *Assessing violence risk: A framework for practice*. Paisley, UK: Risk Management Authority.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th revised ed.). London: Sage.
- Glover, A. J. J., Nicholson, D. E., Hemmati, T., Bernfeld, G. A., & Quinsey, V. L. (2002). A comparison of predictors of general and violent recidivism among high-risk federal offenders. *Criminal Justice and Behavior*, 29, 235–249.
- Gray, N. S., Fitzgerald, S., Taylor, J., MacCulloch, M. J., & Snowden, R. J. (2007). Predicting future reconviction in offenders with intellectual disabilities: The predictive efficacy of VRAG, PCL-SV, and the HCR-20. *Psychological Assessment*, 19(4), 474–479.
- Hanson, R. K., Harris, A. J. R., Scott, T., & Helmus, L. (2007). *Assessing the risk of sexual offenders on community supervision: The dynamic supervision project* (Corrections Research User Report No. 2007-05). Ottawa, ON: Public Safety Canada.
- Hare, R. D. (1991). *The psychopathy checklist – revised manual*. Toronto, ON: Multi-Health Systems.
- Hare, R. D. (2003). *The hare psychopathy checklist revised*. Toronto, ON: Multi-Health Systems.
- Harris, G. T., Rice, M. E., & Camilleri, J. A. (2004). Applying a forensic actuarial assessment (the violence risk appraisal guide) to nonforensic patients. *Journal of Interpersonal Violence*, 19, 1063–1074.
- Harris, G. T., Rice, M. E., & Quinsey, V. L. (1993). Violent recidivism of mentally disordered offenders: The development of a statistical prediction instrument. *Criminal Justice and Behavior*, 20, 315–335.
- Harris, G. T., Rice, M. E., & Quinsey, V. L. (2010). Allegiance or fidelity? A clarifying reply. *Clinical Psychology: Science and Practice*, 17, 82–89.
- Harris, G. T., Rice, M. E., Quinsey, V. L., Lalumière, M. L., Boer, D., & Lang, C. (2003). A multi-site comparison of actuarial risk instruments for sex offenders. *Psychological Assessment*, 15, 413–425.

- Hart, S. D., Kropp, P. R., Laws, D. R., Klaver, J., Logan, C., & Watt, K. A. (2003). *The Risk for Sexual Violence Protocol (RSVP): Structured professional guidelines for assessing risk of sexual violence*. Burnaby, BC: Simon Fraser University, Mental Health, Law and Policy institute.
- Hastings, M. E., Krishnan, S., Tangney, J. P., & Stuewig, J. (2011). Predictive and incremental validity of the violence risk appraisal guide scores with male and female jail inmates. *Psychological Assessment, 23*, 174–183.
- Hildebrand, M., & de Ruiter, C. (2004). PCL-R psychopathy and its relation to DSM-IV Axis I and II disorders in a sample of male forensic psychiatric patients in the Netherlands. *International Journal of Law and Psychiatry, 27*(3), 233–248.
- Ho, H., Thomson, L., & Darjee, R. (2009). Violence risk assessment: The use of the PCL-SV, HCR-20, and VRAG to predict violence in mentally disordered offenders discharged from a medium secure unit in Scotland. *The Journal of Forensic Psychiatry & Psychology, 20*(4), 523–541.
- Hurducas, C. C., Singh, J. P., de Ruiter, C., & Petrila, J. (2014). Violence risk assessment tools: A systematic review of surveys. *International Journal of Forensic Mental Health, 13*(3), 181–192.
- IBM Corp. (2011). *IBM SPSS statistics for windows, version 20.0*. Armonk, NY: Author.
- Jeandarme, I., Edens, J. F., Habets, P., Bruckers, L., Oei, K., & Bogaerts, S. (2017b). PCL-R field validity in prison and hospital settings. *Law and Human Behavior, 41*(1), 29–43.
- Jeandarme, I., Pouls, C., De Laender, J., Oei, T. I., & Bogaerts, S. (2017a). Field validity of the HCR-20 in forensic medium security units in Flanders. *Psychology, Crime & Law, 23*(4), 305–322.
- Jeandarme, I., Pouls, C., & Peters, M. J. V. (2012). *Violence risk appraisal guide: Richtlijnen om het risico op (seksueel) gewelddadiggedrag te beoordelen* [Violence risk appraisal guide: Guidelines to assess the risk of (sexually) violent conduct]. Hasselt, Belgium: Leën.
- Kennedy, H. G. (2002). Therapeutic uses of security: Mapping forensic mental health services by stratifying risk. *Advances in Psychiatric Treatment, 8*(6), 433–443.
- Khiroya, R., Weaver, T., & Maden, T. (2009). Use and perceived utility of structured violence risk assessments in English medium secure units. *Psychiatric Bulletin, 33*, 129–132.
- Krstic, S., Neumann, C. S., Roy, S., Robertson, C. A., Knight, R. A., & Hare, R. D. (2017). Using latent variable- and person-centered approaches to examine the role of psychopathic traits in sex offenders. *Personality Disorders: Theory, Research, and Treatment, 9*(3), 207–216.
- Leistico, A. M. R., Salekin, R. T., DeCoster, J., & Rogers, R. (2008). A large-scale meta-analysis relating the Hare measures of psychopathy to antisocial conduct. *Law and Human Behavior, 32*(1), 28–45.
- Loi relative à l'internement des personnes. (2014, mai 5). Le moniteur Belge. Retrieved from [http://www.ejustice.just.fgov.be/cgi/article_body.pl?language=fr&c\(..\)](http://www.ejustice.just.fgov.be/cgi/article_body.pl?language=fr&c(..))
- Marshall, W. L., & Marshall, L. E. (2017). A strength-based treatment approach for adult sex offenders. In F. Cortoni & T. H. Pham (Eds.), *Le Traité de l'agression sexuelle* (pp. 165–176). Sprimont: Mardaga.
- Murrie, D. C., Boccaccini, M. T., Caperton, J., & Rufino, K. (2012). Field validity of the psychopathy checklist–revised in sex offender risk assessment. *Psychological Assessment, 24*(2), 524–529.
- Neal, T. M., Miller, S. L., & Shealy, R. C. (2015). A field study of a comprehensive violence risk assessment battery. *Criminal Justice and Behavior, 42*(9), 952–968. doi:10.1177/0093854815572252

- Oswald, P., Saloppé, X., Ducro, C., Macquet, D., Cornu, P.J., Pham, H.T., & Delaunoit, B. (2017). Caractéristiques cliniques d'une population internée. *Un Cas Particulier De L'établissement De Défense Sociale "Les Marronniers" à Tournai (Belgique). L'encéphale, 49*, 229–234.
- Parent, G., Guay, J., & Knight, R. (2011). An assessment of long-term risk of recidivism by adult sex offenders. *Criminal Justice and Behavior, 38*, 188–209.
- Pedersen, L., Ramussen, K., & Elsass, P. (2012). HCR-20 violence risk assessments as a guide for treating and managing violence risk in a forensic psychiatric setting. *Psychology, Crime and Law, 18*(8), 733–743.
- Pham, T., Ducro, C., Desmarais, S. L., Hurducas, C., Arbach-Lucioni, K., Condemarin, C., & Grann, M. (2016). Enquête internationale sur les pratiques d'évaluation du risque de violence: Présentation des données belges [International survey of violence risk assessment practices: Presentation of Belgian data]. *Annales Médico-psychologiques, 174*, 539–543.
- Pham, T., Remy, S., Dailliet, A., & Lienard, L. (1998). Psychopathie et évaluation des comportements violents en milieu psychiatrique de sécurité [Psychopathy and assessment of violent behaviors in a security hospital]. *L'Encéphale, 24*(3), 173–179.
- Pham, T. H. (1998). Évaluation psychométrique du questionnaire de la psychopathie de Hare auprès d'une population carcérale belge [Psychometric assessment of the PCL-R on a Belgian prison sample]. *L'Encéphale, 24*(5), 435–441.
- Pham, T. H., Ducro, C., Marghem, B., & Réveillère, C. (2005). Évaluation du risque de récidive au sein d'une population de délinquants incarcérés ou internés en Belgique francophone [Prediction of recidivism among prison inmates and forensic patients in French-speaking Belgium]. *Annales Médico-psychologiques, 163*, 842–845.
- Philipse, M., de Ruiter, C., Hildebrand, M., Bouman, Y., & Webster, C. (2000). *HCR-20: Beoordelen van het risico van gewelddadig gedrag. Versie 2* [HCR-20: Assessing risk for violence, version 2]. Amsterdam, the Netherlands: Onderzoeksinstituut Psychologie.
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (1998). *Violent offenders: Appraising and managing risk*. Washington, DC: American Psychological Association. doi:10.1037/10304-000
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (2006). *Violent offenders: Appraising and managing risk* (2nd ed.). Washington, DC: American Psychological Association. doi:10.1037/11367-000
- Quinsey, V. L., Rice, M. E., & Harris, G. T. (1995). Actuarial prediction of sexual recidivism. *Journal of Interpersonal Violence, 10*(1), 85–105.
- Rice, M. E., Harris, G. T., & Lang, C. (2013). Validation and revision to the VRAG and SORAG: The Violence Risk Appraisal Guide-Revised (VRAG-R). *Psychological Assessment, 25*(3), 951–965.
- Rossegger, A., Endrass, J., Gerth, J., & Singh, J. P. (2014). Replicating the violence risk appraisal guide: A total forensic cohort study. *PLoS One, 9*(3), e91845.
- Rufino, K. A., Boccaccini, M. T., & Guy, L. S. (2011). Scoring subjectivity and item performance on measures used to assess violence risk: the pcl-r and hcr-20 as exemplars. *Assessment, 18*(4), 453–463. doi:10.1177/1073191110378482
- Rufino, K. A., Boccaccini, M. T., Hawes, S. W., & Murrie, D. C. (2012). When experts disagreed, who was correct? A comparison of PCL-R scores from independent raters and opposing forensic experts. *Law and Human Behavior, 36*(6), 527–537.
- Salize, H. J., & Dressing, H. (2007). Admission of mentally disordered offenders to specialized forensic care in fifteen European union member states. *Social Psychiatry and Psychiatric Epidemiology, 42*(4), 336–342.

- Singh, J. P., Grann, M., & Fazel, S. (2011). A comparative study of violence risk assessment tools: A systematic review and metaregression analysis of 68 studies involving 25,980 participants. *Clinical Psychology Review, 31*(3), 499–513.
- Skeem, J., Winter, E., Kennealy, P. J., Loudon, J. E., & Tatar, J. R. (2014). Offenders with mental illness have criminogenic needs, too: Toward recidivism reduction. *Law and Human Behavior, 38*, 212–224.
- Snowden, R. J., Gray, N. S., & Taylor, J. (2010). Risk assessment for future violence in individuals from an ethnic minority group. *International Journal of Forensic Mental Health, 9*(2), 118–123.
- Snowden, R. J., Gray, N. S., Taylor, J., & Fitzgerald, S. (2009). Assessing risk of future violence among forensic psychiatric inpatients with the Classification of Violence Risk (COVR). *Psychiatric Services, 60*, 1522–1526.
- Spreen, M., Brand, E., Ter Horst, P., & Bogaerts, S. (2014). *Handleiding en Methodologische Verantwoording HKT-R, Historisch, Klinische en Toekomstige – Revisie* [Guidelines and methodological research of the HKT-R, historical, clinical and future – revision]. Groningen, The Netherlands: Dr. van Mesdag kliniek.
- van Heesch, B., Jeandarme, I., Pouls, C., & Vervaeke, G. (2016). Validity and reliability of the VRAG in a forensic psychiatric medium security population in Flanders. *Psychology, Crime & Law, 22*(6), 530–537.
- Vertommen, H., Verheul, R., de Ruiter, C., & Hildebrand, M. (2002). *Handleiding bij de herziene versie van Hare's Psychopathie Checklist* [Manual of the Dutch version of Hare's PCL-R]. Lisse, the Netherlands: Swets Test Publishers.
- Vitacco, M. J., Gonsalves, V., Tomony, J., Smith, B. E., & Lisher, D. A. (2012). Can standardized measures of risk predict inpatient violence? Combining static and dynamic variables to improve accuracy. *Criminal Justice and Behavior, 39*(5), 589–606.
- Vojt, G., Thomson, L. D., & Marshall, L. A. (2013). The predictive validity of the hcr-20 following clinical implementation: does it work in practice?. *Journal Of Forensic Psychiatry & Psychology, 24*(3), 371–385. doi:10.1080/14789949.2013.800894
- Walters, G. D. (2003). Predicting criminal justice outcomes with the psychopathy checklist and lifestyle criminality screening form: A meta-analytic comparison. *Behavioral Sciences & the Law, 21*(1), 89–102.
- Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1997). *HCR-20: Assessing risk for violence, Version 2*. Vancouver, BC: Mental Health, Law, and Policy Institute, Simon Fraser University.
- Wilson, C. M., Crocker, A. G., Nicholls, T. L., Charette, Y., & Seto, M. C. (2015). The use of risk and need factors in forensic mental health decision-making and the role of gender and index offense severity. *Behavioral Sciences and the Law, 33*, 19–38.
- Yang, M., Wong, S. C., & Coid, J. (2010). The efficacy of violence prediction: A meta-analytic comparison of nine risk assessment tools. *Psychological Bulletin, 136*(5), 740–767.