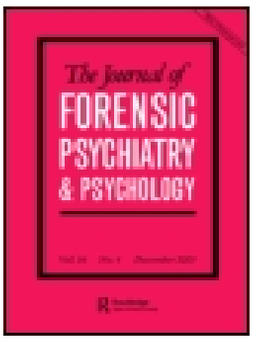

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Not guilty by reason of insanity: clinical and judicial profile of medium and high security patients in Belgium

Inge Jeandarme[a], Xavier Saloppé[b,c,d], Petra Habets[a] and Thierry H. Pham[b,e,f]

[a]Knowledge Centre Forensic Psychiatric Care, OPZC Rekem, Belgium; [b]Centre de Recherche en Défense Social, Tournai, Belgium; [c]Service de psychiatrie, Hôpital de Saint-Amand-les-Eaux, Saint-Amand-les-Eaux, France; [d]Laboratoire de sciences Cognitives et affectives (SCALab), CNRS, UMR 9193, Universite de Lille, Villeneuve d'Ascq, France; [e]Université UMONS, Service de Psychopathologie Légale, Mons, Belgium; [f]Centre de Recherche de l'Institut Philippe Pinel, Montréal, Canada

ABSTRACT

Under Belgian law, offenders deemed to lack criminal responsibility because of insanity receive mandated treatment under the internment law. Population profiles of these forensic patients ('internees') are, however, very scarce. In this study, we analysed the demographic, clinical and judicial profile of a large sample of Belgian internees admitted to a secure setting. In addition, differences between internees admitted to a medium versus a high security setting were investigated. Belgian internees were characterised by a large number of personality disorders and a low number of first offenders. Comparative analyses showed substantial differences between the high and medium security settings, with a marked proportion of the forensic patients in high security having committed a sexual offence. Contrary to expectations, more predictors for length of stay were found in the medium security subsample, while admission periods were significantly longer in the high security subsample.

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KEYWORDS Forensic psychiatry; NGRI; internees; clinical profile

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 punished, but submitted to an internment measure under the supervision of a regional court (i.e. interned). In a Belgian population of around 11 million inhabitants, the total number of internees has raised from 3,306 internees in 2004 to 3,820 internees in 2013 (Deckers et al., 2014). As in other countries (Gordon & Lindqvist, 2007; Salize & Dressing, 2007), this specific legislation allows offenders with a mental disorder (further referred to as forensic patients) to be transferred for treatment. In Belgium, treatment can be provided either within a general psychiatric or a forensic

CONTACT Inge Jeandarme inge.jeandarme@opzcrekem.be

psychiatric setting. While forensic or secure settings have been implemented since 1930 in the southern part of the country (Wallonia), it took another 70 years before the first medium security units were implemented in the northern part of the country (Flanders) in 2001 and the first high security hospital in 2014.

Forensic patients can be divided into low, medium and high risk patients depending on their treatment and criminogenic needs (low, medium and high care), level of risk and protective factors (low, medium and high risk) and responsivity (degree of connection in the treatment) (Schuringa, Spreen, & Bogaerts, 2014). By weighting these three principles, judges and review boards can decide on the most suitable level of security according to environmental, relational and procedural security characteristics. Kennedy (2002) describes features distinguishing different types of units. For example, in the UK, medium and high security settings differ mainly with respect to environmental (e.g. escape-proof building vs. controlled access to entire site) and procedural security (e.g. communication to specific individuals may be limited or prevented vs. letters and telephone calls in and out monitored). However, despite attempts, objective criteria to determine which setting is most appropriate for which type of patient are currently non-existent in Belgium. In Flanders, decisions regarding admission for the medium security units are made on the basis of clinical judgment whereby a panel of clinicians rule on the best placement. The question can thus be asked about how reliable, valid and transparent these decisions are in practice. This is surprising, because incorrect assessment of this can have a serious impact on society and forensic services and could also be highly devastating for the patients. In addition, research on the Belgian interned population is scarce and fragmented, with no national basic statistics available regarding population characteristics (Decoene, 2010). It thus remains unclear whether the Belgian interned population is similar to other NGRI populations internationally.

Profile of NGRI patients admitted in medium and high security forensic units

European studies. Research with respect to socio-demographic characteristics indicated that NGRI forensic patients were mostly single, poorly educated, unemployed men between 30 and 40 years old (Blattner & Dolan, 2009; Coid, Kahtan, Gault, Cook, & Jarman, 2001; Gow, Choo, Darjee, Gould, & Steele, 2010; Melzer et al., 2004). With the exception of a study of an inner-London population (Lelliott, Audini, & Duffett, 2001), the majority of the patients were Caucasian (Blattner & Dolan, 2009; Coid et al., 2001; Dolan & Khawaja, 2004; Ross, Querengasser, Fontao, & Hoffmann, 2012). However, Black patients were overrepresented in high security settings in the UK (Leese et al., 2006). The majority (> 75%) had previous admissions to

a general psychiatric hospital (Blattner & Dolan, 2009; Gow et al., 2010; Harty et al., 2004; Lelliott et al., 2001; Melzer et al., 2004). A quarter (22%; Coid et al., 2001) to half (47%; Dolan & Khawaja, 2004) of the population was admitted on more than one occasion to a medium security unit. After medium security treatment, approximately half of the population was discharged to the community (Blattner & Dolan, 2009; Gow et al., 2010). In the study of Dolan and Khawaja (2004), the majority was discharged to the community with forensic community care. In high security settings, most offenders (77%) were referred to another institution at discharge (Butwell, Jamieson, Leese, & Taylor, 2000). The mean length of stay in high security settings was 8.2 years (*Mdn* = 6.2 years, range = 0.01–52.3) (Butwell et al., 2000) and in medium security settings ranged from 0.4 year to 2.1 years (*Mdn* = 1.2) (Coid et al., 2001; Shah, Waldron, Boast, Coid, & Ullrich, 2011).

Judicially, most patients were not first-time offenders (Blattner & Dolan, 2009; Dolan & Khawaja, 2004; Freestone et al., 2012; Jeandarme, Pouls, Hanoulle, Oei, & Bogaerts, 2016). Linhorst and Scott (2004) found that 36.7% had prior convictions for serious crimes (i.e. felony convictions). In a high security population, Harty et al. (2004) found that 44% had prior convictions for a violent offence. Index offences were mostly violent offences (e.g. manslaughter or battery), followed by property offences (e.g. theft and arson) and sexual offences (Blattner & Dolan, 2009; Coid et al., 2001; Freestone et al., 2012; Lelliott et al., 2001).

Clinically, most primary psychiatric diagnoses were psychotic disorders (mostly around 60% to 70%) and personality disorders (around 10% to 30%) (Bjørkly, Sandli, Moger, & Stang, 2010; Blattner & Dolan, 2009; Dolan & Khawaja, 2004; Gow et al., 2010; Saloppé et al., 2012)). In a high security setting, somewhat higher prevalence rates were found for personality disorders (e.g. 44% in Harty et al., 2004). In Flanders, personality disorder was the most prevalent diagnosis, followed by psychotic disorder and intellectual disability (De Vuysere, Casselman, & Vervaeke, 2004; Jeandarme et al., 2016). Comorbid substance misuse was found in up to half of the population (Blattner & Dolan, 2009; Dolan & Khawaja, 2004; Gradillas, Williams, Walsh, & Fahy, 2007; Kivimies, Repo-Tiihonen, & Tiihonen, 2012). Overall, high rates of comorbidity were found (Blattner & Dolan, 2009; Gow et al., 2010; Jeandarme et al., 2016). Among personality disorders, mainly cluster B personality disorders and more in particular antisocial personality disorders were found both in medium and high security units (Dolan & Khawaja, 2004; Jeandarme et al., 2016; Pham & Saloppé, 2010).

US studies. Similar results were obtained in the US (Linhorst & Scott, 2004; Manguno-Mire, Thompson, Bertman-Pate, Burnett, & Thompson, 2007). Likewise, in the US, a high mean number of psychiatric hospitalisations were noted before the index offence (Green et al., 2014). However, compared to European studies, a higher number (43% to 71%) of African

Americans and other non-Caucasian races were found in most studies (Green et al., 2014; Linhorst & Scott, 2004; Manguno-Mire et al., 2007).

Non-Western studies. In non-Western countries, also similar demographic, clinical and judicial characteristics were found in forensic psychiatric populations. The majority of the patients were young, unemployed, poorly educated single men with a psychotic disorder and substance misuse who were being treated after a violent index offence (Barrett et al., 2007; Pal, 1997; Yusuf & Nuhu, 2009). Epilepsy and other organic disorders were noted in about 10% of all diagnoses (Pal, 1997; Strydom, Pienaar, Dreyer, van der Merwe, & Jansen van Rensburg, 2011). Among the violent index offences, a high number of rapes were registered (Barrett et al., 2007; Strydom et al., 2011). Menezes, Oyebode, and Haque (2009) and Yusuf and Nuhu (2009) noted a very high number (68% to 71%) of homicidal index offences, which was explained by the fact that in Africa, many patients suffering from a major mental illness remained untreated in the community and came to the attention of the psychiatric services only after they committed an offence.

From the abovementioned studies, it can be concluded that NGRI patients are similar in different jurisdictions in many aspects, although some differences may exist, e.g. in terms of ethnicity. The question then remains whether patients differ according to their security level. To the best of our knowledge, no study thus far directly compared medium to high security samples. Therefore, the current study investigates a large sample of internees in medium and high security settings in Belgium. First, to verify whether the profile of Belgian internees is comparable to that of international populations, demographic and judicial variables are discussed against those in the literature. Second, differences between the medium and high security patients are analysed. Based on the security level assigned to the internees (medium security level versus high security level), we expected high security internees to present with more personality disorders, substance misuse and comorbidity and less first offenders compared to medium security internees. In addition, a longer admission period was anticipated in case of admission to a high security setting.

Method

Participants and setting

The high security subsample (n = 434) consisted of males admitted at *les Marronniers* in Tournai (Wallonia). Patients are placed in *les Marronniers* by the court with or without consent. The two other high security institutions did not participate: one includes females only and the third, called 'Paifve' consists of a mixed regime between prison and hospital, thus providing more safety than care. Participants were evaluated by the clinical

psychologists (2009–2014), and data were analysed by the research team at the *Centre* de *Recherche en Défense Sociale* (CRDS). Patients in an acute phase of their illness were excluded from the study, as well as those with a pronounced intellectual deficiency for whom valid clinical evaluation could not be carried out. The medium security subsample (n = 531) consisted of mainly males treated in one of the three medium security units, which are located in Bierbeek, Zelzate and Rekem (Flanders). Patients are referred by the court but have to agree with the conditions imposed. The sample consisted of practically the whole (98%) population treated during the study period 2001–2010. Data were gathered for clinical purposes and subsequently analysed by the research team at the *Knowledge Centre for Forensic Psychiatric Care* (KeFor).

Procedure and outcome measures

Patient information was gathered through hospital files regarding demographics, IQ scores, type of offences and psychiatric diagnoses. Ethical approval was obtained from the Medical Ethical Commission of the University Hospital of Antwerp and the ethics review board of the C.R.P. *Les Marronniers* hospital. The two datasets (medium and high security) were merged to perform the comparison analyses.

Demographic characteristics

Age at admission, length of stay (days), previous admissions to general psychiatry (yes/no), gender and citizenship (Belgian versus non-Belgian) were coded. Length of stay (LOS) was calculated from date of admission until date of discharge or census date (31/12/2010 for the medium security units and 02/08/2014 for the high security unit). Intelligence scores were based on the Wechsler Adult Intelligence Scale-III (WAIS III, Wechsler, 2005).

Psychiatric diagnoses

In the high security hospital in Wallonia, the Axis I psychiatric diagnoses were assessed with the Mini International Neuropsychiatric Interview (MINI), which is a short diagnostic structured interview developed in France and the USA to explore 17 disorders according to Diagnostic and Statistical Manual DSM-IV diagnostic (Sheehan et al., 1998). The personality disorders were assessed with the Structured Clinical Interview for DSM-IV Axis II Disorders (First, Spitzer, Gibbon, Williams, & Benjamin, 1997). Data on personality disorders not otherwise specified (NOS) were not assessed, but additional clinical information was gathered. In the medium security units in Flanders, diagnoses were extracted from the Minimum Psychiatric Data (MPD) registration and subsequently cross-

referenced with relevant information found in the files. Discrepancies were discussed with the treating psychiatrists and corrected whenever needed. This was the case for 46.7% of the diagnoses. The adjusted clinical diagnoses were used according to the Diagnostic and Statistical Manual of Mental Disorder-IV text revision (American Psychiatric Association, 2000). For comparison reasons, only psychiatric diagnoses assessed in the MINI were included and personality disorders NOS were excluded.

Judicial information

Judicial information was retrieved from the Central Criminal Records of the Ministry of Justice. The offences were divided into hands-on sexual offences, violent offences (non-sexual, including homicide) and other offences (non-sexual, non-violent offences and hands-off sexual offences). Violent offences were restricted to non-sexual violence towards another person, referring to the intentional use of physical force or power – threatened, attempted or actual – against another person. If multiple crimes were present, the offence was coded by the most serious offence (homicide/attempted homicide >sexual hands-on >violent non-sexual >other (including sexual hands-off).

Data-analysis

Simple descriptive analyses were conducted using the software package SPSS version 22. Valid percentages are given. Since the data sources were characterised by different percentages of missing data, some analyses were based on smaller samples. The percentage of missing items for each variable is given in Table 1. Comparisons between high and medium security internees were conducted with Chi-square or Fischer Exact test for categorical variables and Cramer's V as a measure of association strength. For continuous variables,

Table 1. Percentage missing variables.

	N	% missing total	% missing medium security	% missing high security
Female sex	965	0	0	0
Belgian nationality	928	3.8	0.8	7.6
Married/living together	895	7.3	3.2	12.2
Admissions general psychiatry	845	7.8	1.9	25.3
Age at admission	942	2.4	0	5.3
Duration forensic admission	953	1.2	0	2.8
WAIS-III score	398	58.8	46.5	73.7
Index offence	894	7.4	0	16.4
Prior convictions	823	14.7	0	32.7
Axis I	882	8.6	0	19.1
Axis II personality	879	8.9	0	19.8
Comorbidity Axis I and II	866	10.3	0	22.8

Note. WAIS-III = Wechsler Adult Intelligence Scale-III.

independent samples t-test were used (in case of normally distributed data) or Mann–Whitney U tests (in case of non-normally distributed data); *r* effect sizes were calculated. To reduce the risk of Type I error for multiple comparisons, we used Bonferroni correction for the three clusters of variables.

Results

Descriptive variables internees

The characteristics of the entire population ($N = 965$) are presented in the first column of Table 2. Most (97.2%) of the internees were male and most (84.1%) had the Belgian citizenship. The minority (13.3%) was married or living common law at the time of the index offence. They were on average 36.2 years old ($SD = 10.94$, range = 18.8–74.4) at forensic admission. The forensic admission lasted on average 1631.55 days ($Mdn = 747$ days, $SD = 2190.36$, range = 1–18,854). The majority (70.7%) had been treated in a regular psychiatric unit prior to the forensic psychiatric admission. More than half of the index offences were violent offences (58%), followed by sexual offences (20.9%) and other offences (21.1%). Nearly one-third of the violent offences (29.3%) consisted of homicides or attempted homicides. There were judicial priors in 77.5% of the population. The nature of the prior convictions was of a violent nature in 62.5% of the cases, and it was sexual in 11.9% or of another nature in 25.5% of the cases. The most common diagnoses were personality disorders (64.1%), substance misuse disorders (42.7%) and psychotic disorders (41%). Among the personality disorders, cluster B personality disorders were most frequently found. 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 ($SD = 0.79$, 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 ($SD = 1.21$, range = 0–7). The average IQ score based on the WAIS-III was 77.9 ($SD = 17.69$, range = 45–155).

Comparison between the medium and high security settings

In Table 2, the medium security (MS) internees ($n = 531$; 55%) are compared to the group of internees admitted to a high security (HS) setting ($n = 434$; 45%). Demographically, there were more female internees ($p < .001$) and more Belgian internees ($p < .001$) in MS settings compared to the HS setting. Also more MS internees had been previously admitted to a general psychiatric unit ($p < .001$). The LOS was longer for HS internees ($p < .001$). Intelligence scores were lower in the HS subsample ($p < .001$).

Table 2. Characteristics total, medium and high security internees.

	Total (N = 965)		Medium security (n = 531)		High security (n = 434)			
	%	*M* (*SD*)	%	*M* (*SD*)	%	*M* (*SD*)	*p*	*Cramers' V/r*
Demographic								
Female sex	2.8		5.1		0		< .001*	.15
Belgian nationality	84.1		90.1		76.1		< .001*	.19
Marital status married/living together	13.3		15.4		10.5		.03	
Prior admissions general psychiatry	70.7		81.6		53.1		< .001*	.30
Age admission		36.2(10.94)		36.5(10.82)		35.8(11.09)	.33	
Duration first forensic admission		1656.9(2212.36)		472.5(415.37)		3079.8(2619.68)	< .001*	−.72
WAIS-III score		77.9(17.69)		80.5(16.8)		71.3(18.19)	< .001*	−.26
Judicial								
Qualification index offence							< .001*	.40
Sexual hands-on index offence	20.9		7.5		40.4		< .001*	.40
Violent index offence	58.0		69.7		40.9		< .001*	.29
Homicide/attempted homicide	17.0		18.1		15.4		.29	
Other index offence	21.1		22.8		18.7		.14	
Prior convictions yes/no	77.5		84.4		65.1		< .001*	.22
Qualification prior conviction							< .001*	.24
Sexual	11.9		7.4		22.6		< .001*	.22
Violent	62.5		68.8		47.9		< .001*	.20
Other	25.5		23.9		29.5		.14	
Psychiatric diagnosis								
Axis I								
Any psychotic/SUD/mood disorder	76.0		81.9		67.0		< .001*	.17
Psychotic disorders	41.0		43.9		36.8		.04	
Substance misuse	42.7		56.7		21.7		< .001*	.35
Anxiety- and mood disorders	19		6.4		38.2		< .001*	.40
Number of Axis I supra		1.1(0.81)		1.1(0.65)		1.1(1.01)	.32	
Axis II personality								
Personality disorder cluster A/B/C	64.1		55.2		77.6		< .001*	.23
Cluster A	19.1		6.8		37.9		< .001*	.39
Cluster B	51.3		45.6		60.1		< .001*	.14
Antisocial personality disorder	30.5		24.9		39.1		< .001*	.15
Narcissistic personality disorder	10.6		4.5		19.8		< .001*	.24
Cluster C	13.2		3.2		28.4		< .001*	.37
Number of Axis II supra		0.8(0.79)		0.6(0.51)		1.3(0.94)	< .001*	−.40
Comorbidity Axis I and II	48.0		42.0		57.6		< .001*	.15

Note. WAIS-III = Wechsler Adult Intelligence Scale-III.
*significant at Bonferroni correction

Judicially, there were differences both with respect to the qualification of the index offence as that of the prior convictions. There were more HS internees with a sexual index offence ($p < .001$) and less HS internees with a violent index offence ($p < .001$). Also, in HS, there were more internees with a prior sexual offence ($p < .001$) and less internees with a prior violent offence ($p < .001$). In addition, there were more first offenders in the HS sample ($p < .001$).

Clinically, Axis I disorders were more prevalent in MS settings as compared to the HS setting ($p < .001$). More specifically, more MS internees were diagnosed with substance misuse ($p < .001$), while more HS internees were diagnosed with anxiety and mood disorders ($p < .001$). On Axis II, more cluster A, B or C diagnoses were found in the HS sample ($p < .001$). More specifically, more HS internees were diagnosed with cluster C personality disorders ($p < .001$), cluster A personality disorders ($p < .001$) and cluster B personality disorders ($p < .001$). In addition, more HS internees were diagnosed with antisocial personality disorder ($p < .001$) and with narcissistic personality disorder ($p < .001$). The HS subsample presented with more personality diagnoses per participant ($p < .001$). Regarding comorbidity, more HS internees presented with one or more Axis I mental disorders combined with one or more personality disorders ($p < .001$).

Discussion

The purpose of the present study was to analyse population characteristics of Belgian NGRI patients and compare patients admitted to a medium versus a high security setting. Internees admitted for forensic psychiatric treatment were characterised by previous involvement both in general psychiatry and within the criminal justice system. With the exception of the high number of personality disordered patients, demographic, clinical and judicial characteristics were similar to those found in foreign populations. Between MS and HS internees, there were striking differences that call into question the mapping of forensic psychiatric services with the security needs of the patients.

What is the profile of the Belgian internee within a residential forensic treatment programme?

In sum, the following profile of the Belgian internee emerged. The internee was a 36-year-old male, diagnosed with a combination of psychosis, substance misuse and/or personality disorder and a lower IQ. He was previously admitted to a general psychiatric hospital, not married or living common-law at the time of the index offence. The internment measure was imposed

for a violent index offence; he also had prior convictions for violent offences. The forensic psychiatric treatment lasted on average 4.5 years.

Comparing forensic psychiatric populations across countries should be interpreted with caution because of major differences between the legal systems and organisation of forensic health care, as well as variations in characteristics of local patient groups and local treatment providers (Melzer et al., 2004; Salize & Dressing, 2007). For example, it should be acknowledged that levels of security are not necessarily identified in all countries. Countries such as the UK, who acknowledge medium security levels, provide medium security treatment for several patient groups: those who no longer require treatment in a high security hospital, those admitted from prison or the court, and difficult-to-manage patients in general psychiatric services (Melzer et al., 2004). In addition, the admission policies of local institutions with different inclusion and exclusion criteria affects the profile of the study populations (e.g. Dangerous and Severe Personality Disorder unit in Freestone et al., 2012). Furthermore, Coid and Kathan (2000) have argued that other factors, such as notoriety of the index offence and absence of alternative treatment options, can play a role. Study methodology can influence population profiles, for instance, when severely disturbed or psychotic patients are excluded from the study (Pham & Saloppé, 2010). Finally, other methodological differences can influence study results and prevalence rates, depending on whether patient notes, self-report or semi-structured interviews are used (Hildebrand & de Ruiter, 2004). In sum, generalising from local studies can be difficult and there are very few national studies with which to compare results.

Notwithstanding these obstacles, several conclusions can be made when comparing our results with other similar NGRI populations. Regarding socio-demographic characteristics, few differences with the literature were noted, e.g. with respect to gender, age and relationship status (Blattner & Dolan, 2009; Coid et al., 2001; Gow et al., 2010). In line with European studies identifying a primarily Caucasian population, most forensic patients were Belgian citizens, but it should be noted that citizenship not necessarily reflects ethnicity. Also in line with the literature (Linhorst & Scott, 2004; Melzer et al., 2004), the high number of internees with prior admissions to general psychiatry was striking, and calls into question the role of general mental health services. For example Brand, Mellsop, and Tapsell (2015) examined psychiatric care provided in the year prior to offending and found that access to care was not the problem, whereas a non-assertive approach to treatment was. Non-compliance with general psychiatric care was associated with being assessed as needing medium security care (Melzer et al., 2004). However, whether there is a causal relationship between effective psychiatric care in the sense of symptom reduction and offence prevention is less clearly established (Brand et al., 2015).

With regard to judicial involvement, mainly violent index offences were found and only a minority were first offenders. These findings were also in line with the literature (Freestone et al., 2012; Gow et al., 2010; Melzer et al., 2004).

In terms of clinical diagnoses, rates of comorbidity were in line with other studies (Blattner & Dolan, 2009; Gow et al., 2010). Internees were, however, less likely to have a psychotic disorder and more likely to have a personality disorder than international samples (Blattner & Dolan, 2009; Coid et al., 2001; Dolan & Khawaja, 2004; Gow et al., 2010; Lelliott et al., 2001; Melzer et al., 2004). Substance misuse was comparable to rates found in international studies (Blattner & Dolan, 2009; Carr et al., 2006; Dolan & Khawaja, 2004; Gow et al., 2010; Gradillas et al., 2007). Cluster B, more specifically APD, was the most common personality disorder, which was in line with other research (Dolan & Khawaja, 2004).

In terms of treatment characteristics, the admission period was lengthy and fell between lengths of stay reported in medium and high security units (Butwell et al., 2000; Coid et al., 2001).

Is there a difference between MS and HS settings?

Not surprisingly, there was a difference with respect to gender, since only one MS institution accepted women for treatment. There were less HS internees with a Belgian citizenship and a lower mean IQ was found in the HS sample, maybe due to the exclusion criteria for admission in MS units (only Dutch-speaking, enough cognitive abilities). Regarding the offences, there were more HS internees with sexual offences. Again, this may be due to the exclusion criteria for MS admission in Flanders, since these units do not provide treatment programmes for sex offences. The high number of patients with a sexual offence may also explain why less of the internees in HS were previously treated within a general psychiatric unit. Contrary to expectations, more MS internees had judicial priors.

On the clinical level, contrary to what could be expected, less HS internees presented with substance misuse. Also, there was a high number of HS internees with anxiety or mood disorders, which is not considered a robust risk factor. As was hypothesised, more personality disordered internees and more comorbidity were found in the HS sample. However, it should be noted here that personality disorders NOS were not assessed in the HS sample, and therefore also excluded from the analyses in the MS sample. According to clinical MPD registration, 11.4% of the HS sample was diagnosed with personality disorder NOS (T.Pham, personal communication, April, 26, 2017), whereas a higher number of personality disorders NOS (22.1%) and a higher number of personality disorders overall (71.6%) were found in the MS population (Jeandarme et al., 2016). In other words, the higher number of personality disordered

patients found in the HS subsample most probably reflects an artefact of the study design. Taken together, these findings seem to suggest that the psychiatric and judicial characteristics do not clearly distinguish MS and HS populations in the current study. In a follow-up study, we found similar findings regarding risk assessment scores within the same study population, i.e. contrary to what was expected lower risk scores were found in the HS sample (Pham, Habets, Saloppé & Ducro, in review). These findings may partly be explained by differences in the organisation of secure settings in the two parts of the country and the admission policies of local institutions. However, the lack of a definition and the inability to determine the degree of security in a systematic and reliable way provides a barrier to offer treatment that is adapted to the needs of the forensic patient. In this respect, there remains a need for clear definitions and investigations into the various aspects of security levels within forensic psychiatry. Instruments such as the Dangerousness Understanding, Recovery and Urgency (DUNDRUM) toolkit) (Kennedy, O'Neill, Flynn, Gill, & Davoren, 2016) may be helpful.

Finally, there was a marked difference of LOS with longer admission periods in HS. This difference could not be explained by the proportion of patients with psychosis or affective disorder, substance abuse, violent index offences or prior psychiatric admissions, all factors that have been associated with longer admission length in prior studies (Andreasson et al., 2014; Shah et al., 2011). It could be hypothesised that the patients remain in the high security facility longer due to security reasons and the lack of available intermediate or ambulatory infrastructures in the French-speaking part of the country.

Limitations and strengths

Although this study consisted of a large and unique sample, some limitations should be noted. The data collection in the two subsamples was not conducted in the same manner. For example, psychiatric diagnoses were made on a consensus clinical basis (MS) versus a semi-structured interview (HS). This may have affected the accuracy of the diagnoses in MS (Hildebrand & de Ruiter, 2004). In addition, the HS sample only comprised stabilised patients. Also, there were no women in the HS sample. However, excluding the women in the MS sample did not change the results (analyses not shown, but available upon request).

There were missing items, in particular in the HS sample and regarding the IQ scores overall. Finally, the study only investigated internees receiving a residential forensic psychiatric treatment programme. The profile may, therefore, not generalise to the total population of internees. Considering these limitations, caution is warranted in interpreting the

results of the study and follow-up research is needed to corroborate the findings.

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No potential conflict of interest was reported by the authors.

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