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## Forensic Inpatients with Low IQ and Psychiatric Comorbidities: Specificity and Heterogeneity of Psychiatric and Social Profiles

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### ABSTRACT

While the prevalence of mental disorders in people with intellectual disabilities (ID) is well documented, there is less specific literature in the forensic domain. This study sought to clarify the psychiatric and criminological characteristics among Belgian French-speaker forensic inpatients with low IQ and mental health illnesses. To this end, we compared a low IQ group with mental health illnesses ( $n=69$ ), low IQ group ( $n=56$ ), and control group ( $n=165$ ). Compared with controls, proportionally more inpatients low IQ with Mental Health Illnesses presented a psychiatric illness, particularly a mood disorder, and proportionally fewer presented a cluster C personality disorder. The findings highlight the specificity and heterogeneity of the psychiatric profile of this subgroup of patients. He also demonstrated that forensic patients with ID are not a homogeneous group. This emphasizes the importance of considering in the management of forensic ID patients the specific needs with regard to their psychopathological profile.

### KEYWORDS

Low IQ; psychiatric comorbidities; dual diagnosis; forensic facilities; intellectual disability

## Introduction

### *Intellectual disability: definition and international prevalence*

While there is no consensus on the definition of Intellectual Disability (ID), the comparison of proposed definitions in North America and Europe agrees that three diagnostic criteria are required (Garcin, 2003): limitations in intellectual functioning, limitations in adaptive behavior, and the occurrence of these difficulties before the age of 18 years (Schalock et al., 2010). The ID population was found to break down by severity as follows: 85% mild, 10% moderate, 4% severe, and 2% profound (King, Toth, Hodapp, & Dykens, 2009). As part of the diagnostic approach, it is recommended that data be collected using recent validated psychometric tools (INSERM, 2016), as well as multiple and diverse sources of information.

The prevalence of ID in the general population has been estimated at 1% (American Psychiatric Association, 2013; Maulik, Mascarenhas, Mathers, Dua, & Saxena, 2011) to 3% (Harris, 2006). In

Belgium, there is no official figure for the prevalence of ID in the general population (Bonarelli, 2015). Given the lack of standardization in the methods used to measure intellectual functioning, it is necessary to strengthen existing knowledge by collecting data based on a structured method for assessing ID (Maulik et al., 2011). Research indicates that people with intellectual disability are over-represented among prison populations (Simpson & Hogg, 2001). According to these authors, it is possible that there is a difference in rates of remand detention for similar offenses between offenders with and without ID. ID is far more prevalent in this group than in the general population (Hayes & Farnill, 2003; Holland, 2004), ranging from 1.5–19.1% and averaging 6.2% (Denkowski & Denkowski, 1985). Studies of the prevalence of ID in prison populations suffer from methodological limitations (Holland & Persson, 2011) such as variability in the definition of ID (Fazel, Xenitidis, & Powell, 2008; Holland & Persson, 2011), variability in the sample inclusion and exclusion criteria (Morgan, Leonard, Bourke, & Jablensky, 2008), variability in the assessment tools used (Søndenaa,

Rasmussen, & Nøttestad, 2008), use of non-standardized tools (Holland & Persson, 2011), and absence of a Control group for comparison purposes (Lindsay, 2002).

Where forensic populations are concerned, few studies have sought to gauge the prevalence of ID in secure psychiatric hospitals (Raina & Lunskey, 2010). In one of these, Lunskey et al. (2011) estimated the rate in Ontario's secure psychiatric hospital at 12.8–20.8%. These rates exceed those found in prison settings and are in line with those reported by Salekin, Olley, and Hedge (2010). In Belgium, studies of Flemish-speaking forensic inpatients have estimated the prevalence at 12.3– (Dheedene, Seynnaeve, & Auwera et al., 2015) 16.8% (Cosyns, Maes, D'Hont, Janssens, & Verellen, 2007), and even 18.5% (Verlinden, Maes, & Goethals, 2009). In the Walloon Region and in Brussels, a study demonstrated that 7.8% of forensic inpatients presented ID (Saloppé et al., 2012). Such high prevalence rates are the reason that forensic inpatients with ID warrant attention.

All the more so that numerous studies have evidenced that these persons are particularly vulnerable within the criminal justice system (Crocker, Côté, Toupin, & St-Onge, 2007), particularly because they are at higher risk for physical, sexual, and emotional victimization (Denkowski & Denkowski, 1985; Fazel et al., 2008). According to American Psychiatric Association (2013), ID is a vulnerability factor: “Credulity and misunderstanding of risk can lead to exploitation by others and possible victimization, fraud, involuntary criminal involvement, false confessions and the risk of physical and sexual violence” (American Psychiatric Association, 2013, p. 38). Harris (2006) listed different factors that might explain this greater vulnerability, including neurobiological factors, cognitive limitations leading to communication problems, poor education, diminished self-esteem, and difficulty managing psychosocial stress, which could lead to the development of impulsive, if not antisocial, behaviors. Camilleri and Quinsey (2011) specified that ID was directly or indirectly linked to certain risk factors for antisocial behavior, such as cognitive deficits, problem behavior in childhood, unemployment, and low socio-economic status. They are also at high risk of developing a psychiatric illness (Fazel et al., 2008). Some authors have suggested that offenders with ID have a higher prevalence of mental health problems than non-offenders with ID (Smith & O'Brien, 2004). While forensic patients with ID are often considered a homogeneous group, studies indicate a diversity of psychopathological

profiles. While it is clear that a significant proportion of persons with ID who have committed an offense are also psychologically disordered, the prevalence and nature of the comorbidity is variable (Hobson & Rose, 2008).

### **Dual diagnosis: definition and prevalence**

In the field of ID, the term *dual diagnosis* (DD) is used to refer to persons with co-occurring diagnoses, namely, ID and a psychiatric illness (Lovell & Reiss, 1993; Pyles, Muniz, Cade, & Silva, 1997). Until the 1980s, ID and psychopathology were considered mutually exclusive (Harris, 2006). Psychiatric symptoms were considered secondary to cognitive limitations (Fuller & Sabatino, 1998). Then, as research evolved, it was recognized that a person with ID could present a concurrent psychiatric disorder (Lehotkay, Varisco, Deriaz, Douibi, & Galli et al., 2009; Lovell & Reiss, 1993; Martínez, Duran, & Navarro, 2011; O'Brien, 2002; Pyles et al., 1997). Today, it is acknowledged that persons with ID are at higher risk than the general population of developing a psychiatric illness (American Psychiatric Association, 2013; Burge et al., 2002; Helps, 2015). The high prevalence rates of mental disorders among people with ID are due to their low stress management capacity, emotional instability, and low social skills (Jourdan-Ionescu, 2003). Harris (2006) highlights that people with ID have reduced capacity to manage social requirements, difficulties in resolution of conflicts, and poor social judgment, which is vulnerability factors. Harris and Greenspan (2016) report that these high prevalence rates can also be explained by brain impairment or environmental deprivation. Furthermore, the presence of language and sensorimotor disorders also affects the communication skills (Harris, 2006), which contributes to increasing psychosocial stress.

The prevalence of psychiatric illness within the ID population has varied across studies (Lehotkay et al., 2009). Cooper, Smiley, Morrison, Williamson, and Allan (2007) reported rates ranging from 7% to 97%. However, co-occurrence is most likely of the order of 30% (Morgan et al., 2008; Yoo, Valdovinos, & Schroeder, 2012). This wide variability in estimates of the prevalence of DD is attributable not only to methodological factors (Cooper et al., 2007; Holland & Persson, 2011; Morgan et al., 2008), but also to nosographic problems that affect the reliability of results (Morgan et al., 2008). Another reason it is hard to establish more precise prevalence rates has to do with the difficulty in establishing a psychiatric diagnosis for

persons with ID, notably on account of the limited capacity of these persons to participate in a diagnostic evaluation (White, Chant, Edwards, Townsend, & Waghorn, 2005). Furthermore, the presence of psychiatric illness can hinder the assessment of ID and, vice versa, cognitive impairments can mask psychiatric symptoms (Galli Carminati et al., 2003). This co-occurrence complicates diagnosis.

The diagnosis most commonly associated with ID is schizophrenia. The prevalence of schizophrenia in the ID population is 1.3–5.2%, compared with only 0.4% in the general population (Deb, Thomas, & Bright, 2001; Morgan et al., 2008). Regarding mood disorders, the prevalence of depressive disorders in the ID population has been estimated at 1.3–3.7%, compared with 2% in the general population (Deb et al., 2001). These rates are a function of various risk factors, both social (hypo- or hyper-stimulating environment) and psychological (history of adversity), and of certain genetic predispositions (Surjus & de Campos, 2014). The other psychiatric disorders have not been sufficiently investigated to date to allow establishing prevalence rates within the ID population. However, the diagnostic association between ID and substance-related disorders engenders substantial physical and social consequences compared with other diagnostic groupings (Chapman & Wu, 2012).

Very few studies have examined DD in prison settings (O'Brien, 2002) and even fewer in forensic settings. A Flemish study of the profile of forensic inpatients with ID (Verlinden et al., 2009) showed that 69% also presented one or more psychiatric comorbidities. To our knowledge, in French-speaking Belgium, no study has detailed the profile of forensic inpatients with ID and, by extension, of those with DD. Clearly, the prevalence of DD in the general population is highly variable across studies and it is even more so in prison and forensic settings. Arriving at more accurate estimates would help develop assessment methods and specific care programs for the ID population (Fazel et al., 2008).

Indeed, one of the major difficulties in the management of psychiatric disorders in people with ID is related to the difficulty of making an adequate diagnosis (Harris, 2006). Currently, the diagnostic philosophy is pragmatic and aims to adequately diagnose all the disabilities of a person in order to provide the necessary responses in terms of care and services (Jourdan-Ionescu, 2003). However, psychiatric diagnosis among people with ID has a number of difficulties (Harris, 2006; Jourdan-Ionescu, 2003). One of the major obstacles is the existence of the diagnostic

overshadowing (Jourdan-Ionescu, 2003; Reiss, Levitan, & Szyszko, 1982). This term refers to the fact that, in presence of an ID, co-occurring mental health problems become less salient (Mason & Scior, 2004). This bias negatively affects the accuracy of clinicians' judgments (Jopp & Keys, 2001). In addition to this difficulty, people with ID with a mental disorder often present atypical symptoms, including aggressive behavior or altered social interaction (Bakken & Sageng, 2016). These symptoms are often identified as "behavioral problems" and therefore attributed to ID and not identified as a symptom of a psychiatric disorder (Bakken & Sageng, 2016; Wieland, Kapitein, Otter, & Baas, 2014). As a consequence of these difficulties in diagnosing psychiatric disorders is that people with ID do not have access to appropriate treatment or to adequate services (Harris, 2006).

Adults with ID, mental health issues, and forensic involvement are a very complex group of individuals (Raina & Lunsy, 2010). They can be categorized as one of the most stigmatized populations with a "psychiatric", "disability", as well as "offender" label (Simpson & Hogg, 2001). The study of forensic inpatients with DD has sought to address a number of issues. Regardless of how persons with ID are defined, the fact remains that forensic patients with ID constitute a heterogeneous group with different limitations and comorbidities (Royal College of Psychiatrists, 2014). According to Glaser and Florio (2004), "It is possible that psychiatric disorder may be making a contribution, in its own right, to the behaviors and difficulties which lead to offending by an intellectually disabled person" (p. 592). Lunsy et al. (2011) found that ID offenders with a psychiatric illness presented more severe symptoms and required higher levels of management than other forensic patients. General services were ill-equipped to handle this specific subgroup, which instead required specialized institutions (Glaser & Florio, 2004; Puri, Lekh, & Treasaden, 2000).

Researchers have stated that identifying the characteristics specific to persons with DD was key to developing interventions tailored to their needs (Lehotkay et al., 2009; Lunsy et al., 2011). It has also been shown that psychiatric disorders, particularly schizophrenia and mood disorders, were associated with prolonged lengths of stay for persons with ID in general psychiatric settings (Burge et al., 2002). This is a fundamental consideration, particularly in Belgium where occupancy rates and lengths of stay in forensic facilities have been on the rise in recent years (Oswald et al., 2017).

## Objectives

As mentioned above, there is no study on ID and DD among French-speaking forensic inpatient in Belgium. And based on the observation that ID assessment, according to the international classifications, are not systematized in clinical practice in this environment, this preliminary study aims to establish the prevalence rate of Low IQ with Mental Health Illnesses and, second, to characterize their diagnostic (DSM-IV Axes I and II) and social profile.

## Method

### Study site

The study was conducted at the *Les Marronniers* Regional Psychiatric Center (RPC) in Tournai, Belgium, which comprises a Secure Psychiatric Hospital (SPH) that manages 350 offenders, most of whom have psychiatric illness. They are hospitalized there under Belgium's Social Defense Act, which provides for the forensic commitment of offenders if they are found criminally not responsible for their conduct owing to psychiatric illness. The SPH's core mission is to provide treatment to these persons while ensuring their safety and that of citizens inside and outside the facility.

### Participants

In this exploratory study, the participants were all recruited on a voluntary basis and consented to take part in the research in accordance with the ethical principles of the Helsinki declaration. Moreover, this study was approved by the research ethics board of the *Les Marronniers* RPC.

It is important to note that the data collection period ran from 2009–2014. Regarding the IQ assessment, the French-language version of the WAIS-IV (Wechsler, 2011) was released in March 2011. For the sake of data consistency, we chose to keep assessing IQ using the older version of the instrument. While the decision is debatable, it is a hard one to make whenever a new version of an instrument is published in the middle of a long data collection period. The same argument holds regarding use of the MINI 5.00 (Sheehan et al., 1998), which applies the diagnostic criteria of the DSM-IV (American Psychiatric Association, 1994) to evaluate psychiatric disorder. For the same reasons mentioned above, we carried on with the instrument that we began with.

In all, 290 stabilized patients in this facility were divided according to 2 criteria: low IQ score

**Table 1.** Offenses committed in Low IQ MHI group, Low IQ group, and Control group.

Type of offense	Low IQ MHI <i>n</i> = 69	Low IQ <i>n</i> = 56	Control <i>n</i> = 165
Sexual (%)	39.7	67.2	35.1
Non-sexual violent (%)	47.1	23.6	52.4
Non-sexual nonviolent (%)	50.0	30.9	51.7

*Note.* Severity was determined according to the Cormier–Lang system (Quinsey, Harris, Rice, & Cormier, 2006). Sexual offenses: rape, sexual molestation/assault, and indecent exposure. Non-sexual violent offenses: attempted murder, murder, bodily harm, aggravated robbery torture rebellion, and kidnaping. Non-sexual nonviolent offenses: vandalism, contempt of court, resisting arrest, breaking and entering, impaired driving, traffic violation, theft, arson, uttering threats, harassment, drug possession and use, extortion, embezzlement, etc.

(below 70) on the Wechsler Adult Intelligence Scale – 3<sup>rd</sup> edition (WAIS-III; Wechsler, 2000) and presence of at least one psychiatric disorder diagnosed with the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). Presently, adaptive behaviors are not evaluated in forensic inpatients in Belgium for lack of a French-language measure validated for use in secure settings. Consequently, we classified participants based only on the full-scale IQ score.

Three groups were thus formed.

- The Low IQ with Mental Health Illnesses or **Low IQ MHI group** (*n* = 69; 23,8%) was composed of persons with a full-scale IQ score below 70 and at least one Axis I disorder.
- The **Low IQ group** (*n* = 56; 19,3%) was composed of persons with a full-scale IQ score below 70 without Axis I disorder.
- The **Control group** (*n* = 165; 56,9%) was composed of all forensic inpatients with a full-scale IQ score equal to or above 70, with or without an Axis I disorder.

Concerning the types of offenses, prevalence rates for the three groups differed significantly on sexual offenses,  $\chi^2_{(2, n=290)} = 17.79$ ,  $p < .001$ , Cramér's  $V = .25$ , violent non-sexual offenses,  $\chi^2_{(2, n=290)} = 13.86$ ,  $p = .001$ , Cramér's  $V = .22$ , and nonviolent offenses,  $\chi^2_{(2, n=290)} = 7.48$ ,  $p = .024$ , Cramér's  $V = .16$  (Table 1). For the  $2 \times 2$  comparisons, the Low IQ group had significantly more sexual offenses compared with both the Low IQ MHI group,  $\chi^2_{(1, n=125)} = 9.26$ ,  $p = .004$ , Cramér's  $V = .27$ , and the Control group,  $\chi^2_{(1, n=221)} = 17.47$ ,  $p < .001$ , Cramér's  $V = .28$ . The Low IQ MHI group had significantly more non-sexual violent offenses,  $\chi^2_{(1, n=125)} = 7.19$ ,  $p = .009$ , Cramér's  $V = .24$ , and nonviolent non-sexual offenses,  $\chi^2_{(1, n=125)} = 4.57$ ,  $p = .043$ , Cramér's  $V = .19$ , compared with the Low IQ group. Finally, the Control group had significantly more non-sexual

violent offenses,  $\chi^2_{(1, n=221)} = 13.82$ ,  $p = .001$ , Cramér's  $V = .25$ , and nonviolent non-sexual offenses,  $\chi^2_{(1, n=221)} = 7.26$ ,  $p = .008$ , Cramér's  $V = .18$ , compared with the Low IQ group. The Low IQ MHI group and the Control group did not differ significantly on any type of offenses.

The Low IQ MHI group constituted 22.7% of the overall population assessed and 55.2% of the forensic inpatients with Low IQ (Low IQ MHI group:  $n = 69$ / Low IQ MHI group + Low IQ group:  $n = 69 + 56$ ).

### Instruments

**Wechsler Adult Intelligence Scale, 3rd edition (WAIS-III; Wechsler, 2000).** This instrument was developed to assess intelligence (IQ) in adolescents and adults. The Wechsler scales are the measures of intelligence most widely used in the world (Huteau & Lautrey, 1999; Mackintosh, 2004). The 3rd edition comprised 14 tests, split evenly between a verbal scale and a performance scale. In addition to yielding scores for full-scale IQ, verbal IQ, and performance IQ, the scale also allowed to calculate four index scores: Verbal Comprehension Index, Perceptual Organization Index, Processing Speed Index and Working Memory Index. Among a cohort of 1,104 subjects aged 16–89 years, the French adaptation of the WAIS III has a good fidelity ranging from .97 (QIT) to .86 (IVT). The subtests of the Verbal scale are the most accurate: their coefficients range from .90 (Vocabulary, Arithmetic and Information) to .81. The performance scale coefficients are significantly lower, ranging from .87 (Matrices) to .68 (Object Assembly). The scores (IQ and indices) have excellent sensitivity at all skill levels in all age groups. Concerning the validity, the factorial structure in four factors is well found. The tests are grouped according to the four postulated factors and each is clearly saturated by one of these factors (Grégoire, 2004).

**Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998).** The MINI is a structured interview for adults used essentially to diagnose Axis I disorders according to the DSM-IV (American Psychiatric Association, 1994), which is congruent with the CIM-10 classification. It comprises 120 yes/no questions and is divided into sections, each of which represents a diagnostic category. Requiring approximately 15 min to complete, the MINI allows screening for 17 major psychiatric disorders. It focuses on current problems but takes past episodes into consideration for some pathologies. The French-language

version of the MINI validated by Sheehan et al. (1998) was used in this study.

Regarding the instrument's psychometric properties, sensitivity was found to range from 45% and 96%, specificity from 86–100%, and the concordance coefficient (Kappa) from .43 and .90. The metrological qualities of the MINI were particularly good for the diagnosis of depression, manic disorders, panic disorders, agoraphobia, psychotic disorders, anorexia and post-traumatic stress disorder (Sheehan et al., 1998). In our cohort of forensic inpatients ( $N = 262$ ), comparing MINI-based positive diagnoses with psychiatrist-based diagnoses yielded the following interrater reliability (Cohen's kappa): psychotic disorders,  $K = .88$ ,  $p < .001$ ; mood disorders,  $K = .84$ ,  $p < .001$ ; addictive disorders,  $K = .86$ ,  $p < .001$ ; and anxiety disorders,  $K = .92$ ,  $p < .001$ . These results are considered right based on the standards set by Landis and Koch (1977).

**Structured Clinical Interview for DSM-IV Axis II Disorders (SCID II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997).** Personality disorders were evaluated with the SCID II. This instrument serves to assess 12 personality disorders described in the DSM-IV (American Psychiatric Association, 1994). It is composed of a 119-items self-evaluation questionnaire and a semi-structured interview aimed at reviewing the items for the disorders that proved positive on the questionnaire. The SCID II rests on a decision tree that helps establish a diagnosis progressively over the course of the interview. Additional information required to reach one or more diagnoses was obtained from patients' hospital records. We used the French-language version of the SCID II validated by Bouvard et al. (1999).

Where the instrument's psychometric properties are concerned, the concordance coefficient (Kappa) was found to range from .48–.98 for categorical diagnosis and from .90–.98 for dimensional judgements (intraclass correlation coefficient). Internal consistency coefficients were found to be satisfactory, ranging from .71–.94. The results suggest that the SCID-II 2.0 has adequate interrater and internal consistency reliability (Maffei et al., 1997). In our sample ( $N = 260$ ), comparing SCID-II-based positive personality disorder diagnoses with psychiatrist-based diagnoses yielded the following interrater reliability (Cohen's kappa): Cluster A "odd or eccentric",  $K = .86$ ,  $p < .001$ ; Cluster B "dramatic, emotional or erratic",  $K = .81$ ,  $p < .001$ ; and Cluster C "anxious or fearful",  $K = .86$ ,  $p < .001$ . These results are considered good based on the standards set by Landis and Koch (1977).

**Table 2.** Descriptive statistics regarding age, length of stay, and IQ Score, in Low IQ MHI group, Low IQ group, and Control group.

	Low IQ MHI ( <i>n</i> = 69)		Low IQ ( <i>n</i> = 56)		Control ( <i>n</i> = 165)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age at evaluation (years)	44.04	10.08	45.51	9.88	47.83	11.58
Age at arrest (years)	31.18	8.03	31.16	9.46	35.13	11.78
Age at admission (years)	33.17	8.06	33.52	10.03	37.59	11.87
Length of stay (years)	9.44	6.27	10.86	6.49	9.26	7.45
Full-scale IQ score	57.83	7.03	55.60	7.33	86.79	15.11

### Procedure

We excluded persons with an acute psychiatric disorder and others for whom a valid clinical evaluation could not be conducted. All participants were volunteers and signed an informed consent form specifying the purpose of the study and guaranteeing anonymity and confidentiality. The evaluations were carried out by ward psychologists trained in the administration of the instruments. The participants were evaluated individually at least one month after admission to the facility. Evaluations were carried out at Admission Services where the focus is on evaluating patients in a general way with no specific therapeutic aim.

For the purpose of comparing the groups, data were collected by SPH staff (psychologists, psychiatrists, and social workers) on the following variables: age at evaluation, age at arrest, age at admission to SPH, and social data relative to family ties during stay (marital and family relations), living accommodations prior to admission (alone, with spouse, with family, in an institution), psychiatric antecedents, and type of facility used prior to arrest. These data were then transmitted in an anonymous form to researchers at the Centre de Recherche en Défense Sociale for coding and analysis.

### Data analysis

Owing to a lack of normality across all the dependent variables, as verified by way of the Kolmogorov-Smirnov test, nonparametric statistics were computed. To this end, inter-group comparisons were carried out using the Kruskal–Wallis test (when comparing the three groups) and the Mann–Whitney U test (when comparing two groups) on age, length of stay, and full-scale IQ score. Effect sizes ( $r = z/\sqrt{n}$ ) are reported for this two-by-two comparisons (Field, 2013). Cohen's *d* criterion have been used (Cohen, 2003) (.10 = small, .30 = medium, .50 = large). The chi-squared ( $\chi^2$ ) and Fisher's exact test statistic was used. The chi-squared ( $\chi^2$ ) or Fisher's exact test and Cramér's *V* as a measure of association strength were

used to compare the remaining data. The analyses were run on the SPSS 20.0 program (SPSS, 2011).

### Results

#### Comparative analysis of low IQ MHI, low IQ, and control groups

The three groups did not differ on age at evaluation, age at arrest, and length of stay (Table 2). However, persons in the Control group were significantly older at admission compared with those in the other two groups,  $\chi^2_{(2, n=290)} = 8.33, p = .016$ , particularly the Low IQ MHI group,  $U = 4402.50, p = .015, z = -2.43, r = -.16$ . As expected, the full-scale IQ score was significantly higher for the Control group than for the other two groups,  $\chi^2_{(2, n=290)} = 213.24, p < .001$ . No difference emerged between the Low IQ MHI group and Low IQ groups on full-scale IQ score.

Regarding the diagnostic data, a significantly higher proportion of patients in the Low IQ MHI group presented Axis I disorders,  $\chi^2_{(1, n=234)} = 25.25, p < .001$ , Cramér's *V* = .33, compared with those in the Control group, especially in terms of mood disorders,  $\chi^2_{(1, n=234)} = 8.85, p = .005$ , Cramér's *V* = .19, including current major depressive episode,  $\chi^2_{(1, n=234)} = 7.34, p = .009$ , Cramér's *V* = .18, and dysthymia,  $\chi^2_{(1, n=234)} = 4.61, p = .038$ , Cramér's *V* = .14 (Table 3). Regarding addictions, a significantly higher proportion of patients in the Low IQ MHI group presented alcohol dependence, compared with those in the Control group,  $\chi^2_{(1, n=234)} = 6.80, p = .023$ , Cramér's *V* = .17.

Where personality disorders were concerned, a significantly lower proportion of patients in the Low IQ MHI group presented a cluster C disorder, compared with those in the Control group,  $\chi^2_{(1, n=225)} = 4.75, p = .040$ , Cramér's *V* = .15, especially with respect to obsessive-compulsive type,  $\chi^2_{(1, n=225)} = 6.03, p = .014$ , Cramér's *V* = .16 (Table 4).

Regarding the social data (Table 5), the three groups differed in terms of marital relations,  $\chi^2_{(2, n=101)} = 7.82, p = .020$ , Cramér's *V* = .28. A significantly higher proportion of patients in the Control

**Table 3.** Diagnostic prevalence of Axis I disorders in Low IQ MHI group and Control group.

	Low IQ MHI (n = 69)		Control (n = 165)	
	n	%	n	%
Any Axis I disorder	69	100.00	117	70.90
Mood disorders	36	52.17	52	31.51
Current major depressive episode	20	28.98	23	13.93
Past major depressive episode	5	7.25	9	5.45
Major depressive episode with melancholia	8	11.59	8	4.85
Dysthymia	12	17.39	13	7.88
Hypomanic episode	5	7.25	10	6.06
Manic episode	7	10.14	15	9.09
Mood disorder with psychotic features	1	1.45	0	0.00
Addictions	20	28.98	35	21.21
Alcohol abuse	7	10.14	6	3.64
Alcohol dependence	8	11.59	5	3.03
Substance abuse	9	13.04	16	9.70
Substance dependence	10	14.49	19	11.51
Anxiety disorders	23	33.33	41	24.85
Panic disorder without agoraphobia	5	7.25	5	3.03
Panic disorder with agoraphobia	2	2.90	0	0.00
Agoraphobia	3	4.35	13	7.88
Social phobia	4	5.80	9	5.45
Obsessive-compulsive disorder	4	5.80	6	3.64
Post-traumatic stress disorder	4	5.80	6	3.64
Generalized anxiety disorder	11	15.94	14	8.48
Psychotic disorder	32	46.38	65	39.39
Current psychotic syndrome	20	28.99	42	25.45
Lifetime psychotic syndrome	32	46.38	63	38.18

**Table 4.** Diagnostic prevalence of Axis II disorders in Low IQ MHI group and Control group.

Axis II disorders	Low IQ MHI (n = 67)		Control (n = 158)	
	n	%	N	%
Any personality disorder	40	59.70	91	57.59
Cluster A "odd or eccentric"	30	44.78	67	42.41
Paranoid	23	34.33	49	31.01
Schizoid	6	8.96	14	8.86
Schizotypal	6	8.96	24	15.19
Cluster B "dramatic, emotional or erratic"	46	68.66	105	66.46
Antisocial	36	53.73	65	41.14
Borderline	25	37.31	56	35.44
Narcissistic	13	19.40	29	18.35
Histrionic	3	4.48	3	1.90
Cluster C "anxious or fearful"	14	20.90	57	36.08
Avoidant	9	13.43	21	13.29
Dependent	1	1.49	11	6.96
Obsessive-Compulsive	8	11.94	43	27.22

group maintained a marital relation, compared with those in the Low IQ group,  $\chi^2_{(1, n=81)} = 7.83$ ,  $p = .004$ , Cramér's  $V = .31$ . The three groups also differed in terms of living alone prior to admission,  $\chi^2_{(2, n=268)} = 10.58$ ,  $p = .005$ , Cramér's  $V = .19$ . A significantly higher proportion of patients in the Low IQ MHI group and the Control group lived alone, compared with those in the Low IQ group,  $\chi^2_{(1, n=118)} = 4.64$ ,  $p = .041$ , Cramér's  $V = .20$  and  $\chi^2_{(1, n=203)} = 10.56$ ,  $p = .001$ , Cramér's  $V = .23$ , respectively.

The three groups also differed in terms of living with family prior to admission,  $\chi^2_{(2, n=267)} = 16.17$ ,  $p < .001$ , Cramér's  $V = .25$ . A significantly higher proportion of patients in the Low IQ group lived with their family, compared with those in the Control group,  $\chi^2_{(1, n=202)} = 16.23$ ,  $p < .001$ , Cramér's  $V = .28$ .

No inter-group differences emerged on maintenance of family relations, living in an institution, and living with spouse prior to admission or on psychiatric antecedents.

## Discussion

To our knowledge, this is the first study conducted in French-speaking Belgium to examine the prevalence of psychiatric disorders among and the sociodemographic profile of forensic inpatients with Low IQ and, by extension, with Low IQ with Mental Health illnesses. This study grew out of the need to develop treatment and management protocols tailored to the ID population and, more particularly, to develop research on DD among offenders (O'Brien, 2002).



**Table 5.** Descriptive statistics regarding maintenance of family and marital relations, living accommodations prior to admission, and psychiatric antecedents, in Low IQ MHI group, Low IQ group, and Control group.

	Low IQ MHI		Low IQ		Control	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Marital relations	7/20	35.00	1/17	6.00	27 (64)	41.19
Family relations	44/49	89.80	44/49	89.80	98 (110)	89.00
Living with family	17/65	26.15	22/52	42.31	23 (150)	15.33
Living with spouse	5/65	7.69	0/53	00.00	13 (150)	8.67
Living alone	24/65	36.92	10/53	18.87	66 (150)	44.00
Living in an institution	37/55	67.27	33/48	68.75	94 (132)	71.21
Psychiatric antecedents	38/64	59.37	35/52	67.31	105 (151)	69.54

Note: *n*: the occurrence of the social variable when information available for each group.

Regarding the study's first objective concerning the prevalence of patients with Low IQ and Mental Health Illnesses in secure psychiatric hospital, several results emerged worthy of note. First, 41.1% of the sample was composed of patients with an IQ below 70. This rate exceeds by far the numbers reported in the literature for Flanders (12.3%–18.5%; Cosyns et al., 2007; Dheedene et al., 2015; Verlinden et al., 2009) and the Walloon region (7.8%; Saloppé et al., 2012). This over-representation can be explained in part by the lack of standardization in the methods employed. Indeed, we used only the full-scale IQ score whereas, in the Flemish studies, the evaluations were carried out on the basis of information garnered from forensic records.

Moreover, the prevalence we observed is far greater than available international figures. Indeed, Lunsky et al. (2011) estimated the rate in Ontario's SPH at between 12.8% and 20.8%. However, in their study, ID was diagnosed essentially on the basis of an evaluation of adaptive behaviors and need for support services. Consequently, it is difficult to compare prevalence rates across studies, again, owing to the lack of homogeneousness in the methods used. These findings underscore the need to complement the evaluation of intellectual functioning among forensic inpatients with a systematic measure of adaptive behaviors.

Regarding more specifically Low IQ MHI group, we observed a prevalence of 22.7% in the forensic population as a whole. Within the subgroup of forensic inpatients with Low IQ, the prevalence was 55.2%. Although this figure can be explained in part by the high rate of psychiatric disorders in the SPH (Cosyns et al., 2007; Oswald et al., 2017; Pham & Saloppé, 2010; Saloppé et al., 2012), it was nevertheless lower than the rate of 69% reported by Verlinden et al. (2009) in a Flemish forensic population. However,

both these numbers are markedly greater than the rate of 30% estimated by Morgan et al. (2008) for the general population with ID. On the one hand, the differences between the general population and forensic populations are due to the complexity of the psychopathological profiles of forensic inpatients. On the other, the rate difference between the Flemish study and our Walloon study may have to do with differences in how psychiatric illness are evaluated in patients with ID. In this regard, it would be of interest to foster the development and implementation of instruments specific to the evaluation of psychiatric disorders in persons with ID, such as the MINI-PAS-ADD (Prosser et al., 1998).

Regarding the study's second objective, the results indicated that, all diagnostic categories considered, proportionally more persons from Low IQ MHI group presented Axis I disorders compared with the Control group, particularly when it came to mood disorders. While it is known that forensic inpatients present the full array of Axis I disorders, the literature has reported psychotic disorders as the most prevalent in this group (Oswald et al., 2017; Saloppé et al., 2012). While we did observe this pattern in our Control group, in the Low IQ MHI group, mood disorders were the most prevalent, particularly depressive disorders. These disorders can be explained by the social and psychological vulnerability of these persons (Surjus & de Campos, 2014), which is heightened when they are exposed to the criminal justice system, and by the vulnerability related to the promiscuity in detention settings and to the antisocial population found there, which translates into a higher victimization risk (physical, sexual, and emotional risk), difficulty having their specific needs met, a higher suicide risk, discrimination, and so on (Crocker et al., 2007; Denkowski & Denkowski, 1985; Fazel et al., 2008; Hassiotis et al., 2011). This vulnerability is exacerbated in persons with a substance-related disorder, as they require special attention in terms of care (Chapman & Wu, 2012). In light of these factors, future research should seek to assess the developmental background of persons with DD, particularly their history of adversity and perceived quality of life, by means of existing instruments of measure (e.g., WHOQOL-DIS; Power & Green, 2010).

Alongside this specificity, a diagnostic heterogeneity emerged among Low IQ with Mental Health Illnesses patients, as reflected in the high prevalence of psychotic disorders, anxiety disorders and addictions in this group. However, the results revealed no significant

inter-group difference on these three diagnostic categories.

Where personality disorders are concerned, given the specificity of the forensic population, we expected both the Low IQ MHI group and the Control group to present a high prevalence of Axis II disorders, especially those in cluster B (Oswald et al., 2017). While we did observe a high prevalence of cluster A and B disorders in both groups at nearly equivalent levels, a significantly lower proportion of patients from Low IQ MHI group presented a cluster C disorder.

While it has been shown that people with ID often have psychosocial difficulties (Glowacz, Courtain, & Dassylva, 2017), our analysis of social profile evidenced that proportionally more patients in the Low IQ MHI group and the Control group maintained a marital relation, compared with those in the Low IQ group. This raises the question of the different role of the family in the treatment of psychiatric illness versus the management of disabilities. Proportionally more patients in the Low IQ MHI group and in the Control group lived alone prior to admission whereas proportionally more patients in the Low IQ group lived with their family. However, we cannot reach any broad conclusions in this regard given that these results pertain only to the period prior to arrest. In future, it would be interesting to collect information on the life course of these persons.

### **Limitations of the study**

Our results must be interpreted with caution given that the study presents several limitations. First and foremost, we did not evaluate adaptive behaviors. Although it has been recognized for more than 30 years that this evaluation covers a major issue in the legal field, it has seldom been considered in studies carried out in offender populations (Murphy & Mason, 2014; Uzieblo, Winter, Vanderfaeillie, Rossi, & Magez, 2012). Hayes and Farnill (2003) pointed out that assessing IQ and adaptive behaviors together contributed to a more comprehensive understanding of an offender's ability to function. However, while the assessment of adaptive behaviors in the general population is already fraught with difficulties, it is even more complicated in forensic populations (Bonnie & Gustafson, 2006; Olley & Cox, 2008; Tassé, 2009). It is not surprising then that, as reported by Uzieblo et al. (2012), the assessment of ID in studies has generally been limited to the evaluation of IQ through various methods and only rarely has included an evaluation of adaptive behaviors. What's more, when such an

evaluation has been carried out, little or no detail on the methods used has been provided. Many authors agree on the need to harmonize the method of assessing ID in studies (Cooper et al., 2007; Holland & Persson, 2011; Morgan et al., 2008).

Assessing adaptive behaviors in a forensic psychiatric setting, particularly those related to leisure skills, self-direction and community resources, is a complex, if not impossible, task primarily on account of the restrictive and structured nature of the environment (Bonnie & Gustafson, 2006; Olley & Cox, 2008; Stevens & Price, 2006). Moreover, diagnosing ID in adults depends in part on the retrospective assessment of a person's adaptive behaviors in childhood (Tassé et al., 2012). Indeed, one of the three major diagnostic criteria for ID (American Psychiatric Association, 1994, 2013) is that the disorder must have appeared during the developmental period. If the person's memory is deteriorated or unreliable (Tassé et al., 2012), the data must be obtained or corroborated from other sources or informants (Stevens & Price, 2006), which unfortunately are not always consistent, let alone available (Olley & Cox, 2008). Finally, instruments used to assess adaptive behaviors are not standardized for retrospective administration (Tassé et al., 2012).

Furthermore, existing adaptive behavior scales have not been validated in forensic settings. This is critical in that these scales are often of the self-report type. In the legal field, this creates difficulties, mainly related to evaluation issues (Stevens & Price, 2006). In addition, the scales currently do not allow evaluating all adaptive behaviors, including naivety or credulity (Schalock, 2007). Also, the assessment of adaptive behaviors is more complex in people with mild intellectual disabilities (Tassé, 2009). As it happens, it has been shown that most persons with an ID who commit an offense present a mild ID (Hayes, 1994), there is evidence that offending among those with  $IQ < 50$  is rare (Murphy et al., 2017; Simpson & Hogg, 2001). This makes it all the harder to apply the necessary rigor for this type of evaluation.

All this goes to show why the evaluation of adaptive behaviors is a daunting endeavor in the legal field. Future research should focus on the development of assessment tools in the aim of addressing the limitations mentioned above. A number of French-language scales already exist to assess adaptive behaviors, including the Quebec Scale of Adaptive Behavior (QABS; Maurice, Morin, Tassé, Garcin, & Vaillant, 1997). However, to our knowledge, this instrument has never been standardized for forensic purposes.

Other scales such as the Vineland Adaptive Behavior Scale (VABS; Sparrow, Cicchetti, & Saulnier, 2016) have already been implemented in a forensic setting (Hayes & Farnill, 2003) and could be translated and validated in French. Considering all of these elements, the evaluation of adaptive behaviors in our sample would have made it possible to better respond to current nosographies. In particular, we believe that the assessment of adaptive behaviors would have ensured the proper identification of patients. This is especially true for patients with borderline IQs at the category borders.

While the assessment of adaptive behaviors is a key element in reaching a diagnosis of ID, the assessment of IQ is just as important. As mentioned in the Method section, we used the WAIS-III for the purpose, which was the issue available at the start of our study. The WAIS-IV was released midway through the data collection period. Though we chose to complete the study with the same tool we began with, we recognize that it is necessary to work with the latest tools that reflect the evolution of theoretical concepts.

Another limitation of our study is related to the use of a measure of psychiatric disorders that has not been validated in an ID population. However, many authors recommend using tools adapted to the particularities of this group (Harris, 2006; Moss, Emerson, Bouras, & Holland, 1997). Future research should consider the implementation of specific assessment tools, such as the Mini Pas ADD (Prosser et al., 2002) mentioned earlier. While psychiatric disorders are common in the ID population, they are often poorly identified and their evaluation poses a genuine clinical challenge (Fletcher, Loschen, Stavrakaki, & First, 2007). According to Fletcher et al. (2007), a key reason for this is the absence of an appropriate diagnostic system. However, the more attention is paid to DD, the more the need for adapted means of evaluation and tailored treatment will be recognized (Harris, 2006). Future research will have to develop tools for assessing psychiatric disorders in this subgroup, but also reflect upon adapting diagnostic criteria to its specificities (Fletcher et al., 2007; Harris, 2006) and developing appropriate training programs for clinicians (Moss et al., 1997).

## Conclusions

In conclusion, our study demonstrated that patients from Low IQ MHI group was highly prevalent at the secure psychiatric hospital. It also shed light on the

specificity and heterogeneity of the psychiatric profile of these individuals.

Most of the research on DD has highlighted the need to pay special consideration to this specific subgroup. It has also demonstrated that forensic patients with ID do not constitute a homogeneous group but rather make up specific subgroups. Low IQ with Mental Health Illnesses patients have a psychopathological profile that sets them apart from both forensic patients without Low IQ and forensic patients with Low IQ but no psychiatric comorbidity.

The challenges facing this field of research are numerous. Above all, specific diagnostic tools need to be adapted and implemented in order to develop evaluations and treatments tailored to forensic patients. These should ideally be applied as soon as a person is committed to a psychiatric facility by court order. Then, the psychopathological profile of patients with ID should be evaluated on an ongoing basis in light of their heightened vulnerability and the symptomatic variations they present over their life course.

At the same time, we would do well to implement care programs adapted to the specificities of forensic patients with ID with and without a psychiatric comorbidity.

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