Treatment Decision-Making Capacity in Forensic vs. Non-Forensic Psychiatric Patients: A European Comparison

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ABSTRACT

Background

Consent to treatment is a cornerstone of medical ethics and law. Nevertheless, very little empirical evidence is available to inform clinicians and policy makers regarding the capacities of forensic patients with Schizophrenia Spectrum Disorders (SSD) to make decisions about their treatment, with the risks of both clinical and legal inertia, silent coercion, stigmatisation or ill-conceived reforms.

Study design

In this multinational study we assessed and compared treatment-related decisional capacities in forensic and non-forensic patients with SSD. 160 forensic and 139 non-forensic patients were recruited in Austria, Germany, Italy, Poland and England. Their capacity to consent to treatment was assessed by means of the MacArthur Competence Assessment Tool for Treatment (MacCAT-T). Multiple generalised linear regression models were used to identify the socio-demographic and clinical variables associated with MacCAT-T scores.

Study results

55 forensic (34.4%) and 58 non-forensic patients (41.7%) showed high treatment-related decisional capacity, defined as scoring ≥75% of the maximum scores for the understanding, appreciation and reasoning and 2 for expressing a choice. Forensic patients showed differences in their capacity to consent to treatment across countries. Of all socio-demographic and clinical variables only "social support" was directly relevant to policy.

Conclusions: Forensic patients have treatment-related decisional capacities comparable to their non-forensic counterparts. Social contacts might provide a substantial contribution towards enhancing the decisional autonomy of both forensic and non-forensic patients, hence improving the overall quality and legitimacy of mental health care.

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Key words: Forensic psychiatry, Capacity to consent to treatment, MacArthur Competence Assessment Tool for Treatment, schizophrenia spectrum disorders

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INTRODUCTION

The capacity to consent to treatment is a crucial element of protecting patients' autonomy in medicine. The last forty years have witnessed a steady expansion of the number of studies on the capacity to consent in patients with mental disorders, as evidenced by the appearance of systematic reviews and meta-analyses.[1,2,3] This growth has been paralleled by intensive methodological refinement: a panoply of standardised tools has been developed to assess capacity,[4,5,6] with ever-closer attention to the specificity and complexity of individual cases. On one hand, this has led to finer discrimination in performance among diagnostic categories (e.g., schizophrenia, depression, dementia, etc.).[7,8] On the other, it underscores the need for more detailed consideration of patient-specific contexts (e.g., long- vs. short-term care, voluntary vs. involuntary commitment), reflecting the situational nature of the decision-making process.[9]

In forensic psychiatry, the issue of capacity to consent to treatment is especially important, given the dual role of treatment in fostering individual health and reducing the risk of re-offending.[10] What is at stake in forensic patients' decisions is not simply the improvement of their mental health, but also the duration of their ongoing confinement, or the conditions of their eventual discharge. In most European legal systems, in fact, decisions about release rest on evaluations of the subject's risk of dangerousness to self or others,[11] in which their treatment status may play a substantial role. Given these concerns, the scant attention devoted to the decisional capacities of forensic patients is striking. The scant number of extant studies are based on relatively small samples, absence of comparison with non-forensic patients, and samples from a single country. Four focused on Ireland,[12,13,14,15] one on New Zealand,[16] one on Canada,[17] and one on the UK.[18] With the exception of the latter, which examined the decisional capacity of 155 offenders with personality disorders, all focused on forensic patients with psychosis, with

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relatively small samples (ranging from 37 to 109 subjects). None included non-forensic comparison groups.

There are many possible explanations for the scarcity of studies in forensic settings, starting from a devaluation of the issue due to implicit conflation of two separate considerations: the adjudicated lack of or diminution in criminal responsibility at the time of the legally relevant act (which in most jurisdictions justifies hospitalisation) then resulting in the assumption of incapacity to consent to treatment.[19,20,21] Additional reasons may be the relatively small number of forensic patients in most systems, the dispersion of patients among different treatment units, difficulties in obtaining permission to conduct studies in forensic facilities, and the challenges of making comparisons between forensic and general psychiatric patients, given differences in such factors as comorbidities[22] and institutional settings.[23]

Consequently, little empirical evidence is available to inform discussion and policymaking regarding the capacities of forensic patients to make treatment decisions. Legislative reforms in this domain risk being considered and implemented without a clear idea of their possible consequences.[18,24] However, equally great are the risks of inertia, including perpetuation of an anachronistic and unethical status-based approach to treatment decisional capacity,[25] therapeutic parentalism, coercion, and further stigmatisation of these patients.

Aims of the study

The present study was conceived to advance policy making on a firmer empirical basis. It is part of the multi-centre "*European Study on Risk Factors for Violence in Mental Disorder and Forensic Care*" (EU-VIORMED).[26] Key features of EU-VIORMED are its international scope and the inclusion of a comparison (i.e., non-forensic) population matching the target cohort in diagnosis and socio-demographic profile. In this project we focused on patients with schizophrenia spectrum disorders (SSD)[27] for two main reasons: (1) patients with a primary diagnosis of personality

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disorders and/or alcohol/substance abuse tend to follow very different treatment, legal and forensic pathways in different European countries; (2) past evidence shows that the vast majority of patients cared for by forensic services have SSDs. The cross-national design of EU-VIORMED allowed examination of country-specific institutional determinants of decisional capacities and other characteristics. In short, we seek to reassess the "forensic patient" as a *psychiatric* patient (as such, comparable regardless of the institutional situation) as well as a *forensic* subject (as such, at least in part defined by a complex set of local institutional/cultural factors).

The aims of this study were: i) to compare decisional capacities, measured by MacArthur Competence Assessment Tool for Treatment (MacCAT-T), between forensic and non-forensic patients; and ii) to identify the socio-demographic and clinical characteristics associated with MacCAT-T scores.

METHODS

EU-VIORMED is a European multicentre observational study. The fieldwork was conducted in five European countries: Austria, Germany, Italy, Poland and England. All subjects were between 18 and 65 years of age with a primary diagnosis SSD. Forensic patients had a primary diagnosis of an SSD and a history of significant interpersonal violence. They were recruited from multiple forensic institutions in each country (See supplementary file, table 1S). Significant interpersonal violence was defined as having committed a homicide, attempted homicide or other assault that caused serious physical injury to another person. Non-forensic patients were gender- and age-matched patients with SSDs who had never committed such an act of violence and were recruited from general psychiatric services. DSM-5 diagnoses were based on clinicians' evaluations extracted from the medical records. For more details about study design see de Girolamo et al., 2021.[28]

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All participants provided written informed consent before entering the study, after receiving a full verbal and written description of the study's aims and methods. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving human subjects/patients were approved by relevant local or national ethical committees of each country. The first approval was obtained by the St. John of God Ethical Committee (coordinating centre) on July 20th, 2018 (permission n. 74–2018); subsequent permissions have been obtained in each of the other recruiting countries according to national and local policies (For more details see Supplementary File, Ethical Permissions).

All details about socio-demographic, clinical, functional and violence assessment can be found elsewhere.[28]

Assessment of decision-making capacity for treatment

Decision-making capacity related to each patients' current treatment was assessed by means of the MacArthur Competence Assessment Tool for Treatment (MacCAT-T),[29,30] the most commonly used, standardised method for the assessment of capacity for treatment decisions, also used in all mentioned previous studies on the decisional capacity of forensic patients.[31]

The MacCAT-T is a semi-structured interview, tailored to the patient's specific disorder and treatment decision. It tests four domains:

(1) Understanding. This domain pertains to the patient's acquisition and retention of information on the diagnosis and the therapeutic options.

(2) Appreciation. This subscale assesses the patient's ability to acknowledge the diagnosis and the likely effects of treatment; not acknowledging the diagnosis and the likely effects of

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treatment is counted as a failure of appreciation only if the patient's explanations are based on illogical or delusional premises.

(3) Reasoning. This category measures the patient's capacity to weigh the risks and benefits of treatment and assesses the logical consistency of the patient's choice. The patient is asked to evaluate the potential consequences of different treatment options and their likely impact on his/her everyday life, to compare them, and to provide a reason for the therapeutic choice made.

(4) Expressing a choice. The subject is asked to select one treatment option, including the option of no treatment, among those offered.

Each domain is scored individually (understanding: 0-6; appreciation: 0-4; reasoning: 0-8; expressing a choice: 0-2), and higher scores indicate greater capacity. The tool was not designed for a binary (pass/fail) capacity assessment, and it does not yield total scores. Nevertheless, there is a growing tendency for studies to employ MacCAT-T generated data as a basis for dichotomous categorization of decisional capacity. In this connection, various cut-offs have been proposed.[2,32] Although cut-off values should be considered with caution,[33] to allow comparison with Mandarelli et al. (2018)'s study, we set the cut-off at ≥75% (i.e., at the fourth quartile), by setting the cut-off at ≥75% on all the first three MacCAT-T subscales (i.e., understanding ≥4.5, appreciating ≥3, reasoning ≥6), plus the maximum score at expressing a choice (= 2).

All researchers were trained in the MCAT during a training course in Vienna, based on the "MacArthur Competence Assessment Tool for Treatment (MacCAT-T)" Manual. As spelled out in the manual, the structured interview can be administered by clinicians or other health professionals. In the EU-VIORMED project, every research assistant filled in the MacCAT-t record form with the patients' treating clinicians in order to register the diagnosis, the clinical symptoms, the pharmacological treatment prescribed and the potential alternative treatment to be suggested to the patient during the interview. After this, the research assistant administered the clinical

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interview to the patients, recorded him/her answers and rated the interview.

Statistical analyses

Continuous variables were compared between forensic and non-forensic patients using t-tests or Mann-Whitney tests, as appropriate. Categorical variables were compared between the two groups using χ^2 test or Fisher's exact test. Because of the observational study design and the enforced modifications of the recruitment strategy during the pandemic, the two groups were no longer matched and might differ on demographic and clinical characteristics. Therefore, comparison of MacCAT-T scores between the two groups took into account the possible effect of confounders. To control for confounding, multiple generalised linear (GLM) regression models were used to identify patients' characteristics associated with the MacCAT-T scores. The distribution and link function of the GLM were chosen based on Bayesian information criterion (BIC). In particular the normal distribution and identity link function (linear model) was selected because it provided the lowest BIC for each domain scores.

Variables differing between the two groups and associated with MacCAT-T scores in the overall sample were considered as confounders and were used to adjust the comparisons of MacCAT-T scores between the two groups. Multiple GLMs were also used to identify the socio-demographic and clinical variables associated with MacCAT-T scores in forensic and non-forensic patients. We chose not to use MacCAT-T scores as dichotomous variables in regression models because, as argued by Altman and Royston,[34] dichotomisation underestimates the extent of variation in outcomes between groups and leads to a reduction in the study power. In addition, when regression is used to adjust for the effect of confounders, dichotomisation runs the risk that a substantial part of the confounding remains.

All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS), version 25.0. The level of significance was set to $p<.05$.

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RESULTS

Participants

Among the 398 participants, 339 (85.2%) agreed to participate in the study; 299/339 (88.2%) provided complete MacCAT-T data and were included in the analyses. They comprised 160 forensic and 139 non-forensic patients. The number of participants and the comparison-to-cases ratio varied among the five countries (Supplementary files, Ethical permissions).

The majority of participants were males (n=256; 85.6%). Forensic patients and comparisons did not differ in age (χ^2 test=5.6, p=0.133), overall ethnicity, or marital and occupational status (table 1). Compared to their non-forensic counterparts, forensic patients had fewer years of education (M=11.5 vs. M=13.0; t-test=3.8, p<0.001), spent more time engaged in structured activities (more than 6 hours per day; χ^2 test=15.9, p<0.001), had fewer personal contacts with friends (12.5% vs. 45.7%; χ^2 test=40.5, p<0.001) and more personal contacts with other patients (8.1% vs. 2.2%; χ^2 test=5.2, p=0.023), and were more likely to have children (χ^2 test=4.3, p=0.038). As for the baseline clinical characteristics, there was a significant difference in the type of SSD diagnosis between forensic and non-forensic patients (χ^2 test=24.7, p<0.001): forensic patients were more likely to have a delusional disorder (5% vs. 0.7% for the non-forensic group) and less likely to have a schizoaffective disorder (6.9% vs. 24.5% for comparisons). Comorbidity with personality disorders was more common among the forensic group (28.4% vs. 9.6% for comparisons; χ^2 test=16.1, p<0.001). Forensic patients were more likely to have been beaten, kicked or punched by someone (70.6% vs. 52.5% for comparisons; χ^2 test=8.3, p=0.004). On average, non-forensic patients had their first contact with a Department of Mental Health at an earlier age (M=22.5 years vs. M=24.9 years; t-test=-2.3, p=0.022).

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Table 1 about here

Decisional capacity scores on the MacCAT-T

The frequency distribution of MacCAT-T scores was asymmetric, with the majority of both forensic and non-forensic patients achieving high scores on each domain (fig. 1). Figure 1S (Supplementary files) shows the MacCAT-scores for both groups in the 5 participating countries. To facilitate the comparisons, scores are expressed as percentages.

Figure 1 about here

Forensic and non-forensic patients did not show any difference in three of four MacCAT-T categories (table 2): understanding (Mann-Whitney U=12050, p=0.208), appreciation (Mann-Whitney U=9905, p=0.080), and expressing a choice (Mann-Whitney U=10677, p=0.407). Non-forensic patients scored higher on reasoning (M=6.1, SD=2.3 vs. M=5.4, SD=2.5; Mann-Whitney U=9160, p=0.007).

Table 2 about here

55 forensic (34.4%) and 58 non-forensic patients (41.7%) showed high treatment-related decisional capacity, defined as scoring ≥75% of the maximum scores for the *understanding, appreciation and reasoning* MacCAT-T subscales and 2 for *expressing a choice* (See supplementary files, table 2S).

To identify potential confounders, we investigated the relationship of socio-demographic and clinical features with MacCAT-T scores in the overall sample (Table 3S). Education, age at first contact with mental health service, time not engaged in non-structured activities and country were identified as confounders because they were associated with MacCAT-T scores and showed significant differences between forensic and non-forensic patients.

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After adjusting for confounders, the "understanding" domain shows significant differences between forensic and non-forensic patients, with the former achieving on average 0.48 points more than the latter (p=0.001), which amounts to a 9% difference. The domain of "reasoning", in contrast, was significantly lower in forensic patients by 0.64 points compared with non-forensic patients (p=0.018; 8% difference) (Table 3).

Table 3 about here

Socio-demographic and clinical correlates of MacCAT-T scores in forensic and non-forensic patients

As shown in table 4, several socio-demographic variables were associated with the four different domains of the MacCAT-T in multiple regression analyses. Among forensic patients, better understanding was associated with lower age (p=0.015) and more years of education (p=0.005). Higher appreciation was related to self-harm (p=0.004). Notably, a higher ability to express a choice was associated with social support from the family (p=0.006), being a victim of violence (p=0.041), substance use (p=0.034), and not having witnessed violence (p=0.045).

As to the non-forensic patients, being single, divorced or widowed was associated with lower scores on understanding (p=0.002) and reasoning (p=0.045). The SSD subgroup 'other psychotic disorder' was associated with poorer understanding compared with schizophrenia (p=0.012). Lifetime substance use was also positively related to understanding (p=0.026). Lastly, not being engaged in non-structured activities for more than 6 hours per day was related to poorer appreciation (p=0.028). Country was associated with each MacCAT-T domain among forensic and non-forensic patients.

Table 4 about here

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DISCUSSION

When individual decision-making domains were investigated *ceteris paribus*, i.e., after controlling for demographic and clinical confounders, forensic patients exhibited modestly better understanding and poorer reasoning compared to their non-forensic counterparts. Lower scores in reasoning could be due to weightier consequences of the treatment for forensic patients than for their non-forensic counterparts: since a person's capacity to make treatment decisions is relative to context, forensic patients may be especially challenged when reasoning about risks and benefits of therapeutic options. The same might also be said to apply to appreciation,[16] although the difference detected by our study is not significant.

Three different studies from Ireland found results similar to (though slightly lower than) ours with regard to the scores of forensic patients for understanding, appreciation and reasoning.[12,13,14] Another research project conducted in Ireland used either short or long introductory presentations to provide participants with information and an idiosyncratic scoring system for understanding. Notwithstanding these differences, summary scores for appreciation and reasoning were again below those of our forensic group.[15] This could be explained by the institutional conditions in each country, but also by different sampling strategies, interview techniques, raters' biases, or intraindividual factors. Forensic patients in Ireland were mostly diagnosed with a broader category of "psychosis" instead of specific diagnoses of schizophrenia spectrum disorders. Lastly, it should be noted that most patients were still deemed to have sufficient decision-making capacity, even if their scores were on average lower than those found in this study.

About one third (34.4%) of the forensic patients showed high treatment-related decision-making capacity, with no significant difference compared to their non-forensic counterparts. These results appear consistent with, albeit somewhat higher than, those provided by Mandarelli et al.

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(2018) on non-forensic patients (22%).[32] These results suggest that a large proportion of both forensic and non-forensic patients with SSDs have substantial decisional capacities.

As regards socio-demographic variables, our results support the consensus view[1] of their limited impact on decision-making capacity. Among the few statistically significant variables, the only one directly relevant to policy is "social support": forensic patients enjoying family support during hospitalisation, in fact, performed better on "choice".

Forensic patients showed differences in their capacity to consent to treatment across countries in this study. However, the study has insufficient power to conduct formal statistical testing of these differences. Different scores might be due to the fact that, for obvious linguistic reasons, interviews were conducted by different researchers. Given the adequate interrater reliability demonstrated by the MacCAT-T ,[34,29,6,4] other explanations, such as local institutional configurations, should be taken into account. The use of the general labels "forensic psychiatry", and "forensic patient" do not do justice to the national variation in legal frameworks and key concepts regulating detention and treatment of mentally ill offenders.[11,35,36,37,38]

The criterion of criminal responsibility and its relative weight in admission decisions to forensic psychiatric institutions are not consistent across countries. In the English framework, rooted in the Common Law tradition, patients can be admitted to forensic services without having committed a crime, on the basis of a finding of mental disorder and serious dangerousness. Moreover, the concept of diminished responsibility is irrelevant, except in cases of homicide. In contrast, in Austria, Germany, Italy and Poland a person must have committed a crime or a forbidden act, in order to be admitted to a forensic facility. In these countries, the legal framework is dominated by Roman Law or a combination of Roman and Common Law, and commitment to a forensic facility depends on the assessment of criminal responsibility (at the time of offence) and dangerousness (at the time of trial). While Austria applies a dichotomous concept of criminal

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responsibility (either full or absent), Italy, Germany and Poland adopt a graded concept (lacking, diminished or full), and the relationship between criminal behaviour and the mental disorder is a determining factor with regard to a finding of non-responsibility or partial responsibility. The criterion for retention is consistently based on continuing dangerousness, rather than the patient's psychiatric condition, although Italy constitutes an exception, as the maximum duration of confinement in forensic institutions cannot exceed the maximum prison sentence for the same crime.[39] More details about the different institutional and legal contexts of forensic psychiatry in Europe can be found elsewhere. [38]

These national differences in admission and discharge criteria, not to mention treatment philosophies, service provision and emphasis on quality of life,[39,40] must not be underestimated in evaluating the data presented here. As is known from the literature, they result in a heterogeneity of prevalence and incidence patterns,[37] as well as of average length of stay.[39,23,41,42] Our study suggests that they may have an additional bearing on the very "profile" of the patients as reflected by the appreciable differences in individual capacity to consent to treatment.

The small samples collected in some countries limited our ability to conduct analyses stratified by country. Moreover, although comparisons between forensic and non-forensic patients were adjusted for confounders, unknown confounders could not be taken into account. Finally, it must be acknowledged that a whole set of factors are not captured by cognitive assessment tools, namely emotions, personal values and other biographic and context-specific aspects.[43,44,45] Our data do not allow us to make judgments about the relative impact of these variables on the decision-making capacities of forensic or non-forensic patients.

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CONCLUSIONS

Attributing impaired decisional capacity to persons committed to forensic institutions merely on the basis of their legal status (or criminal history) is not only unwarranted, but also a potential source of stigma, inappropriate treatment and oversight.

Our results suggest an appreciable impact of age and education on the capacity to consent, and an association with social contacts of unclear directionality. A similar correlation regarding social support has been suggested by previous studies on psychosocial functioning of persons diagnosed with schizophrenia,[46] as well as of forensic patients with personality disorders.[47] Assuming a causal role for social interaction in supporting decisional capacity, an effort to improve the quality and quantity of social contacts might provide a substantial contribution towards enhancing the decisional autonomy of both forensic and non-forensic patients. The overall degree to which both groups manifested impaired decisional capacities suggests the importance of efforts to improve their abilities to make treatment decisions by all available means, including ameliorating the symptoms of their disorders with medication. In the light of the principle of reciprocity,[48] restoration or optimization of autonomy is a paramount moral obligation vis-á-vis subjects who are deprived of liberty as a consequence of their mental condition and forensic status.

The data presented here offer an impulse towards the strengthening of a comparative perspective in forensic psychiatry in Europe. Opportunities for large cross-national comparisons are of course rare. Nevertheless, harmonisation of the approach and methodology among national studies would afford researchers and policymakers a shared knowledge base, which would in turn facilitate the consolidation of a moral common ground. The approach showcased in this could provide a model for such a shared approach, benefiting at once legislators, caregivers, and, hopefully, patients.

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References

1. Okai D, Owen G, McGuire H, Singh S, Churchill R, Hotopf M. Mental capacity in psychiatric patients: systematic review. *Br J Psychiatry*. 2007 Oct;191(4):291–7.
2. Lepping P, Stanly T, Turner J. Systematic review on the prevalence of lack of capacity in medical and psychiatric settings. Response. *Clin Med (Lond)*. 2016 Feb 1;16(1):94.
3. Larkin A, Hutton P. Systematic review and meta-analysis of factors that help or hinder treatment decision-making capacity in psychosis. *Br J Psychiatry*. 2017 Oct;211(4):205–15.
4. Sturman ED. The capacity to consent to treatment and research: a review of standardized assessment tools. *Clin Psychol Rev*. 2005 Nov 1;25(7):954–74.
5. Jeste DV, Depp CA, Palmer BW. Magnitude of impairment in decisional capacity in people with schizophrenia compared to normal subjects: an overview. *Schizophr Bull.* 2006 Jan;32(1):121–8.
6. Lamont S, Jeon YH, Chiarella M. Assessing patient capacity to consent to treatment: an integrative review of instruments and tools. *J Clin Nurs*. 2013 Sep;22(17-18):2387–403.
7. Wang SB, Wang YY, Ungvari GS, et al. The MacArthur Competence Assessment Tools for assessing decision-making capacity in schizophrenia: a meta-analysis. *Schizophr Res.* 2017 May 1;183:56–63.
8. Spencer BW, Shields G, Gergel T, Hotopf M, Owen GS. Diversity or disarray? A systematic review of decision-making capacity for treatment and research in schizophrenia and other non-affective psychoses. *Psychol Med.* 2017 Aug;47(11):1906–22.
9. Buchanan AE, Brock DW. Deciding for others: the ethics of surrogate decision making. New York; 1989.
10. Völlm B, Nedopil N. The use of coercive measures in forensic psychiatric care. Legal, Ethical and Practical Challenges. Cham: Springer. 2016.
11. Dressing H, Salize HJ, Gordon H. Legal frameworks and key concepts regulating diversion and treatment of mentally disordered offenders in European Union member states. *Eur Psychiatry*. 2007 Oct;22(7):427–32.
12. Dornan J, Kennedy M, Garland J, Rutledge E, Kennedy HG. Functional mental capacity, treatment as usual and time: magnitude of change in secure hospital patients with major mental illness. *BMC Res Notes*. 2015 Dec;8(1):1–9.
13. Naughton M, Nulty A, Abidin Z, Davoren M, O'Dwyer S, Kennedy HG. Effects of group metacognitive training (MCT) on mental capacity and functioning in patients with psychosis in a secure forensic psychiatric hospital: a prospective-cohort waiting list controlled study. *BMC Res Notes*. 2012 June 18;5:302.
14. Rutledge E, Kennedy M, O'Neill H, Kennedy HG. Functional mental capacity is not independent of the severity of psychosis. *Int J Law Psychiatry*. 2008 Jan 1;31(1):9–18.
15. Kennedy M, Dornan J, Rutledge E, O'Neill H, Kennedy HG. Extra information about treatment is too much for the patient with psychosis. *Int J Law Psychiatry*. 2009 Nov 1;32(6):369–76.

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16. Skipworth JJ, Dawson J, Ellis PM. Capacity of forensic patients to consent to treatment. *Aust N Z J Psychiatry*. 2013 May;47(5):443–50.

17. King CM, Del Pozzo J, Ceballo D, Zapf PA. An Examination of Fitness to Stand Trial, Competence to Make Treatment Decisions, and Psychosis in a Canadian Sample. *Int J Forensic Ment Health*. 2021 Jan 18; 20(3):278-290.

18. Zlodre J, Yiend J, Burns T, Fazel S. Coercion, competence, and consent in offenders with personality disorder. *Psychol Crime Law*. 2016 Apr 20;22(4):315–30.

19. Elliott C. Competence as accountability. *J Clin Ethics*. 1991;2(3):167–71.

20. Meynen G. Free will and psychiatric assessments of criminal responsibility: a parallel with informed consent. *Med Health Care Philos*. 2010 Nov;13(4):313–20.

21. Pouncey CL, Lukens JM. Madness versus badness: the ethical tension between the recovery movement and forensic psychiatry. *Theor Med Bioeth*. 2010 Feb;31(1):93–105.

22. Goethals K R, Vorstenbosch EC, van Marle HJ. Diagnostic comorbidity in psychotic offenders and their criminal history: a review of the literature. *Int J Forensic Ment Health*. Fall 2008; 7(2): 147–156.

23. Connell C, Seppänen A, Scarpa F, Gosek P, Heitzman J, Furtado V. External factors influencing length of stay in forensic services – a European evaluation. *Psychiatr Pol*. 2019 Jun 30;53(3):673–689.

24. Nedopil N., Special Considerations in Forensic Psychiatry in: Völlm B, Nedopil N. The use of coercive measures in forensic psychiatric care. Legal, Ethical and Practical Challenges. Cham: Springer. 2016, 135–149.

25. Szmukler G, Holloway F. Mental health legislation is now a harmful anachronism. *Psychiatric Bulletin*. 1998 Nov;22(11):662–5.

26. de Girolamo G, Carrà G, Fangerau H, et al. European violence risk and mental disorders (EU-VIORMED): a multi-centre prospective cohort study protocol. *BMC Psychiatry*. 2019 Dec;19(1):1–3.

27. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, Fifth Edition (DSM-5). Washington, D.C.: Am Psychiatric Publ.; 2013.

28. de Girolamo G, Iozzino L, Ferrari C, et al. A multinational case-control study comparing forensic and nonforensic patients with schizophrenia spectrum disorders: the EU-VIORMED project. *Psychological Medicine*, in press, 2021.

29. Grisso T, Appelbaum PS, Hill-Fotouhi C. The MacCAT-T: a clinical tool to assess patients' capacities to make treatment decisions. *Psychiatr Serv*. 1997 Nov;48(11):1415–9.

30. Grisso T, Appelbaum PS. Macarthur competence assessment tool for treatment (maccat-t). Sarasota, FL: Professional Resource Press; 1998.

31. Appelbaum PS. Assessment of patients' competence to consent to treatment. *N Engl J Med*. 2007 Nov 1;357(18):1834–40.

32. Mandarelli G, Carabellese F, Parmigiani G, et al. Treatment decision-making capacity in non-consensual psychiatric treatment: a multicentre study. *Epidemiol Psychiatr Sci*. 2018 Oct;27(5):492–9.

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33. Kim SY, Appelbaum PS, Swan J, et al. Determining when impairment constitutes incapacity for informed consent in schizophrenia research. *Br J Psychiatry*. 2007 Jul;191(1):38–43.

34. Altman DG, Royston P. The cost of dichotomising continuous variables. *BMJ*. 2006 May 4;332(7549):1080.

35. Dunn LB, Nowrangi MA, Palmer BW, Jeste DV, Saks ER. Assessing decisional capacity for clinical research or treatment: a review of instruments. *Am J Psychiatry*. 2006 Aug;163(8):1323–34.

36. Goethals K, editor. Forensic psychiatry and psychology in Europe: A cross-border study guide. Cham: Springer; 2018.

37. Völlm B, Braun P, editors. Long-term forensic psychiatric care: Clinical, ethical and legal challenges. Cham: Springer; 2019.

38. Salize HJ, Dressing H, Fangerau H, et al. Concepts and Capacities of Forensic Mental Health Services in the European Union. *European Psychiatry*, Submitted.

39. Di Lorito C, Castelletti L, Lega I, Gualco B, Scarpa F, Völlm B. The closing of forensic psychiatric hospitals in Italy: determinants, current status and future perspectives. A scoping review. *Int J Law Psychiatry*. 2017 Nov 1;55:54–63.

40. Sampson S, Edworthy R, Völlm B, Bulten E. Long-term forensic mental health services: an exploratory comparison of 18 European countries. *Int J Forensic Ment Health*. 2016 Oct 1;15(4):333–51.

41. Edworthy R, Sampson S, Völlm B. Inpatient forensic-psychiatric care: legal frameworks and service provision in three European countries. *Int J Law Psychiatry*. 2016 Jul 1;47:18–27.

42. Tomlin J, Lega I, Braun P, et al. Forensic mental health in Europe: some key figures. *Soc Psychiatry Psychiatr Epidemiol.* 2021 Jan;56(1):109–17.

43. Vollmann J, Bauer A, Danker-Hopfe H, Helmchen H. Competence of mentally ill patients: a comparative empirical study. *Psychol Med.* 2003 Nov;33(8):1463–71.

44. Breden TM, Vollmann J. The cognitive based approach of capacity assessment in psychiatry: a philosophical critique of the MacCAT-T. *Health Care Anal*. 2004 Dec 1;12(4):273–83.

45. Welie JV, Welie SP. Patient decision making competence: Outlines of a conceptual analysis. *Med Health Care Philos*. 2001 May;4(2):127–38.

46. Siegrist K, Millier A, Amri I, Aballéa S, Toumi M. Association between social contact frequency and negative symptoms, psychosocial functioning and quality of life in patients with schizophrenia. *Psychiatry Res*. 2015 Dec 30;230(3):860–6.

47. van der Horst R, Snijders T, Völker B, Spreen M. Social interaction related to the functioning of forensic psychiatric inpatients. *J Forensic Psychol Pract*. 2010 Jul 27;10(4):339–59.

48. Eastman N. Mental health law: civil liberties and the principle of reciprocity. *BMJ.* 1994 Jan 1;308(6920):43–5.

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TABLE 1

SOCIO-DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF FORENSIC AND NON-FORENSIC PATIENTS

	Forensic patients N=160 N (%)	Non-forensic patients N=139 N (%)	Test	p-value
Sex			2.74	0.098§
Male	142 (88.8%)	114 (82%)		
Female	18 (11.2%)	25 (18%)		
Age			5.60	0.133§
18-29	36 (22.5%)	41 (29.5%)		
30-41	72 (45.0%)	46 (33.1%)		
42-53	28 (17.5%)	33 (23.7%)		
54-65	24 (15.0%)	19 (13.7%)		
Country			**11.78**	**0.019§**
Austria	49 (30.6%)	47 (33.8%)		
Germany	11 (6.9%)	22 (15.8%)		
Italy	29 (18.1%)	25 (18.0%)		
Poland	47 (29.4%)	37 (26.6%)		
England	24 (15.0%)	8 (5.8%)		
Ethnicity			2.14	0.328§
White	144 (90%)	130 (93.5%)		
Middle Eastern or Asian	8 (5.0%)	7 (5.0%)		
Black/African/ Central or South American	7 (4.4%)	2 (1.5%)		
Don't know/won't say	1 (0.6%)	0 (0%)		
Marital status			1.57	0.457§

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Married or cohabiting	7 (4.4%)	10 (7.2%)		
Single	131 (81.9%%)	114 (82.0%)		
Divorced or widowed	22 (13.7%)	15 (10.8%)		
Missing				
Social support (multiple choice)				
None	28 (17.5%)	15 (10.9%)	2.64	0.104§
Family	123 (76.9%)	106 (76.8%)	0.01	0.990§
Friends	20 (12.5%)	63 (45.7%)	**40.53**	**<0.001§**
Other patients	13 (8.1%)	3 (2.2%)	**5.17**	**0.023§**
Children			**4.29**	**0.038§**
Yes	41 (25.6%)	22 (15.8%)		
No	119 (74.4%)	117 (84.2%)		
Education years, Mean (SD)	11.5 (3.1)	13.0 (3.5)	**3.81**	**<0.001^**
Highest occupational status			3.42	0.332§
Never worked/ Student/Homemaker	22 (13.8%)	22 (15.9%)		
Unskilled worker	85 (53.1%)	59 (42.8%)		
Skilled worker	44 (27.5%)	49 (35.5%)		
Professional	9 (5.9%)	8 (5.8%)		
Missing	0	1 (0.7%)		
Time not engaged in non-therapeutic activities			**15.87**	**<0.001§**
Less than 3 hours a day	30 (18.7%)	49 (35.3%)		
Up to 6 hours a day	51 (31.9%)	51 (36.7%)		
More than 6 hours a day	77 (48.2%)	39 (28.1%)		
Missing	2 (1.2%)	0		
Illness duration (Years), Mean (SD) *	12.5 (9.2)	13.9 (10.4)		0.254^
Age of first contact with DMHs (Years), Mean (SD) *	24.9 (9.3)	22.5 (8.2)	**-2.30**	**0.022^**
Type of SSD diagnosis			**24.70**	**<0.001§**

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Schizophrenia	129 (80.6%)	101 (72.7%)		Schizoaffective: non-forensic>forensic patients.
Schizoaffective disorders	**11 (6.9%)**	**34 (24.5%)**		
Delusional disorder	**8 (5%)**	**1 (0.7%)**		Delusional: forensic>non-forensic.
Brief psychotic disorder	0 (0%)	0 (0%)		
Schizophreniform disorder	5 (3.1%)	1 (0.7%)		
Drug-induced psychosis	7 (4.4%)	2 (1.4%)		
Comorbidity with Personality disorders			**16.08**	**<0.001§**
No	111 (71.6%)	122 (90.4%)		
Yes	44 (28.4%)	13 (9.6%)		
Missing	5 (3.1%)	4 (2.9%)		
Type of Comorbid personality disorders			**15.10**	**0.001°**
Borderline personality disorder	8 (18.2%)	2 (15.4%)		
Antisocial personality disorder	22 (50%)	0 (0%)		
Other	11 (25%)	7 (15.9%)		
Missing	3 (6.8%)	4 (30.8%)		
Lifetime SUD (yes)	123 (76.9%)	106 (76.3%)	0.01	0.911§
Attempted suicide/self-harm behaviours (yes)	77 (48.1%)	54 (38.8%)	2.26	0.133§
Witness of physical and/or sexual violence in the family	51 (31.9%)	35 (25.2%)	1.12	0.139§
Victim of physical and/or sexual violence in the family	57 (35.6%)	42 (30.2%)	0.61	0.308§
Beaten, kicked or punched by someone	113 (70.6%)	73 (52.5%)	**8.29**	**0.004§**
Age at first admission to a forensic unit (years), *Mean (SD)*	33.2 (10.5)			
Number of lifetime admissions in forensic units, *Median (IQR)*	1 [1; 1]			
Total lifetime months spent in forensic	36 [16; 66]			

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units, *Median (IQR)*	
Total lifetime months spent in prison, *Median (IQR)*	6 [0; 12]
Number of years since the index violence, *Median (IQR)*	4 [2; 7]

§Chi-square test
^t-test for equality of means
°Fisher's exact test

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TABLE 2

MEAN SCORES OF MACCAT-T SCALES

MACCAT-T	**Forensic patients (*N*=160)**	**Non-forensic patients (*N*=139)**	**Mann-Whitney U test, p-value**
Understanding summary rating (range 0-6)			
Median [IQR]	5.4 [4; 6]	4.9 [3.7; 5.8]	*U=12050, p=0.208*
Mean (SD)	4.7 (1.4)	4.6 (1.3)	
Appreciation summary rating (range 0-4)			
Median [IQR]	3 [2; 4]	4 [3; 4]	*U=9905, p=0.080*
Mean (SD)	2.9 (1.3)	3.2 (1.0)	
Reasoning summary rating (range 0-8)			
Median [IQR]	6 [3; 8]	7 [5; 8]	***U=9160, p=0.007***
Mean (SD)	5.4 (2.5)	6.1 (2.3)	
Expressing a choice summary rating (range 0-2)			
Median [IQR]	2 [2; 2]	2 [2; 2]	*U=10677, p=0.407*
Mean (SD)	1.7 (0.6)	1.8 (0.4)	

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TABLE 3

ASSOCIATIONS BETWEEN TYPE OF SUBJECT AND MACCAT-T SCORES, ADJUSTED FOR SOCIO-DEMOGRAPHIC AND CLINICAL CONFOUNDERS [1]

Parameter	Understanding			Appreciation			Reasoning			Choice		
	B	**95% CI**	**p**	**B**	**95% CI**	**p**	**B**	**95% CI**	**p**	**B**	**95% CI**	**P**
Type of subject												
Non-forensic patients	*Ref. cat.*			*Ref. cat.*			*Ref. cat.*			*Ref. cat.*		
Forensic patients	**0.484**	**[0.196; 0.772]**	**0.001**	-.204	[-0.475; 0.068]	.142	**-.636**	**[-1.162; -0.111]**	**.018**	-.062	[-0.171; 0.047]	.263
Education years	**0.095**	**[0.050; 0.140]**	**<0.001**	-	-	-	-	-	-	-	-	-
Country												
Austria	*Ref. cat.*			*Ref. cat.*								
England	**-1.616**	**[-2.107; -1.125]**	**<0.001**	-0.26	[-0.727; 0.203]	0.269	-1.22	**[-2.150; -0.290]**	**0.010**	-0.08	[-0.275; 0.111]	0.405
Poland	0.256	[-0.098; 0.611]	0.156	**-0.55**	**[-0.873; -0.219]**	**0.001**	-0.98	**[-1.634; -0.322]**	**0.003**	**-0.31**	**[-0.443; -0.170]**	**<0.001**
Italy	**0.808**	**[0.402; 1.213]**	**<0.001**	**-0.75**	**[-1.141; -0.367]**	**<0.001**	-2.48	**[-3.223; -1.730]**	**<0.001**	0.09	[-0.061; 0.249]	0.233
Germany	**0.673**	**[0.178; 1.169]**	**0.008**	-0.01	[-0.475; 0.458]	0.971	-0.45	[-1.351; 0.453]	0.329	0.00	[-0.189; 0.185]	0.984
Age of first contact with psychiatric systems	0.003	[-0.019; 0.013]	0.731	0.00	[-0.015; 0.015]	0.976	-	-	-	-	-	-
Time not engaged in non-therapeutic activities												
Less than 3 hours a day				Ref. cat.								
Up to 6 hours a day	-	-	-	**-0.45**	**[-0.791; -0.108]**	**0.010**	-	-	-	-	-	-

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More than 6 hours a day	-	-	-	-0.07	[-0.41; 0.262]	0.665	-	-	-	-	-	-
(Intercept)	3.22	[2.565; 3.872]	<0.001	3.67	[3.217; 4.122]	<0.001	6.93	[6.407; 7.451]	<0.001	1.87	[1.757; 1.973]	<0.001

[1] Results of multiple regression analysis

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TABLE 4

DEMOGRAPHIC AND CLINICAL CHARACTERISTICS ASSOCIATED WITH MacCAT-T SCORES AMONG FORENSIC AND NON-FORENSIC PATIENTS [1].

	Understanding			Reasoning			Appreciation			Choice		
	B	**95% CI**	**P**	**B**	**95% CI**	**P**	**B**	**95% CI**	**P**	**B**	**95% CI**	**P**
NON-FORENSIC PATIENTS												
(Constant)	4.22	[3.385; 5.054]	<0.001	8.60	[7.233; 9.967]	<0.001	3.53	[3.258; 3.81]	<0.001	1.96	[1.861; 2.071]	<0.001
Marital status												
Married (ref category)	Ref. cat.			Ref. cat.			-	-	-	-	-	-
Single/divorced/widowed	-1.16	[-1.899; -0.423]	0.002	-1.40	[-2.757; -0.033]	0.045	-	-	-	-	-	-
Type of SSDs												
Schizophrenia (ref. category)	Ref. cat.			-	-	-	-	-	-	-	-	-
Other	0.59	[0.13; 1.048]	0.012	-	-	-	-	-	-	-	-	-
Lifetime substance and/or alcohol use	0.53	[0.066; 0.986]	0.026	-	-	-	-	-	-	-	-	-
Time not engaged												
More than 6 hours a day	-	-	-	-	-	-	-0.45	[-0.841; -0.05]	0.028	-	-	-
Country												
Austria	Ref. cat.			Ref. cat.			Ref. cat.			Ref. cat.		
Germany	1.52	[0.944; 2.103]	<0.001	-1.00	[-2.058; 0.05]	0.062	0.07	[-0.429; 0.566]	0.786	-0.11	[-0.309; 0.080]	0.247
Italy	1.32	[0.751; 1.882]	<0.001	-3.19	[-4.225; -2.164]	<0.001	-0.53	[-1.032; -0.035]	0.036	-0.06	[-0.248; 0.135]	0.56
Poland	1.78	[1.295;	<0.	-	[-2.069;	0.0	-	[-0.635;	0.2	-	[-0.588;	<0.

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		2.257]	001	1.20	-0.34]	07	0.22	0.191]	89	0.43	-0.270]	001
England	-0.17	[-2.297; 1.95]	0.872	-1.20	[-5.096; 2.686]	0.541	0.47	[-1.37; 2.302]	0.616	0.04	[-0.678; 0.765]	0.905
FORENSIC PATIENTS												
(Constant)	5.04	[4.116; 5.969]	<0.001	6.05	[5.318; 6.777]	<0.001	2.98	[2.540; 3.429]	<0.001	1.44	[1.198; 1.675]	<0.001
Age	-0.02	[-0.039; -0.004]	0.015	-	-	-	-	-	-	-	-	-
Years of education	0.09	[0.028; 0.153]	0.005	-	-	-	-	-	-	-	-	-
Social support												
Family	-	-	-	-	-	-	-	-	-	0.26	[0.078; 0.447]	0.006
Witnessed violence	-	-	-	-	-	-	-	-	-	-0.18	[-0.36; -0.005]	0.045
Victim of violence	-	-	-	-	-	-	-	-	-	0.18	[0.008; 0.357]	0.041
Lifetime substance and/or alcohol use	-	-	-	-	-	-	-	-	-	0.20	[0.016; 0.384]	0.034
Attempted suicide/ Self harm	-	-	-	-	-	-	0.61	[0.197; 1.025]	0.004	-	-	-
Country												
Austria	Ref. cat.			Ref. cat.			Ref. cat.			Ref. cat.		
Germany	0.32	[-0.588; 1.231]	0.486	1.24	[-0.692; 3.168]	0.207	0.26	[-0.682; 1.200]	0.587	-0.06	[-0.438; 0.313]	0.743
Italy	0.39	[-0.169; 0.943]	0.171	-1.83	[-2.991; -0.659]	0.002	-0.71	[-1.316; -0.097]	0.023	0.25	[0.021; 0.47]	0.032
Poland	-0.63	[-1.113; -0.152]	0.01	-0.66	[-1.665; 0.353]	0.2	-0.65	[-1.168; -0.124]	0.016	-0.21	[-0.407; -0.007]	0.042
England	-2.4	[-3.001; -1.793]	<0.001	-1.05	[-2.332; 0.237]	0.109	-0.44	[-1.103; 0.223]	0.192	-0.13	[-0.386; 0.123]	0.309

[1] Results of multiple regression analysis

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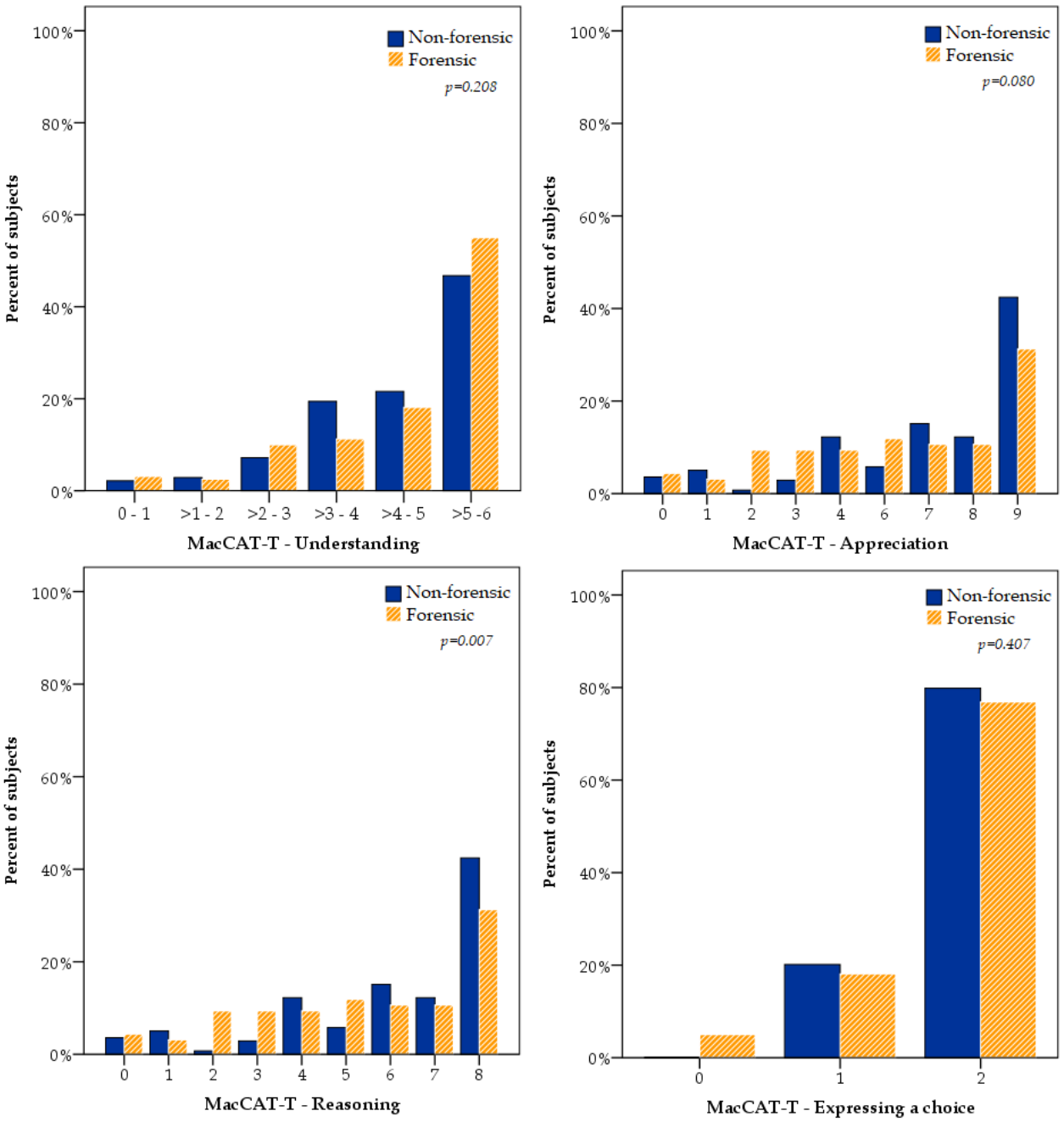
FIGURE 1

MACCAT-T "UNDERSTANDING", "APPRECIATION", "REASONING" AND "EXPRESSING A CHOICE" DOMAINS IN FORENSIC AND NON-FORENSIC PATIENTS. "Understanding" scores are rounded off to the nearest integer, p-values are reported for Mann-Whitney test)



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