International Journal of Law and Psychiatry 64 (2019) 53–59

Contents lists available at ScienceDirect

International Journal of Law and Psychiatry

journal homepage: www.elsevier.com/locate/ijlawpsy

Categorical mental capacity for treatment decisions among psychiatry inpatients in Ireland

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ARTICLE INFO

Keywords:
Mental health
Legislation
Mental disorder
Mental capacity
Involuntary treatment

ABSTRACT

This study aimed to assess mental capacity for treatment decisions among psychiatry inpatients in Ireland and explore the relationship, if any, between mental capacity and various demographics and clinical variables. We assessed mental capacity for treatment decisions in 215 psychiatry inpatients in four psychiatry admission units. Almost half of the participants were female and the most common diagnoses were schizophrenia or a related disorder and affective disorders. Overall, 1.9% of participants lacked mental capacity for treatment decisions; 50.7% had partial mental capacity; and 47.4% had full mental capacity. These proportions did not differ between female and male patients. On multi-variable regression analysis, greater mental capacity was significantly associated with, in order of strength of association, voluntary admission status, Irish ethnicity, being employed and younger age. However, while these relationships were statistically significant (i.e. were unlikely to have occurred by chance), together they accounted for just 27.6% of the variance in mental capacity between participants (i.e. they were not very strong). The relatively high rate of "partial mental capacity" identified in our work suggests that decision-making supports are likely to be of substantial importance in assisting psychiatry inpatients making decisions about treatment, especially involuntary inpatients whose mental capacity is especially likely to be impaired. Future research could usefully clarify and quantify the role of cognitive and other factors in relation to the unexplained variance (72.4%) in mental capacity identified in this study; and explore which models of supported decision-making are most likely to assist the substantial proportion (50.7%) of psychiatry inpatients who have partial mental capacity for treatment decisions, as well as the minority lacking such mental capacity (1.9%).

1. Introduction

Studies suggest that between 29% and 45% of psychiatry inpatients lack mental capacity for treatment decisions but the relationships between mental capacity and key demographic and clinical variables remain unclear (Lepping, Stanly, & Turner, 2015; Okai et al., 2007). These are important issues: not only is mental incapacity for treatment decisions common among psychiatry inpatients (indicating a widespread issue) but, in addition, psychiatry inpatients can be subjected to involuntary treatment which further complicates the possible consequences of mental incapacity in this group. To compound matters, legal criteria for involuntary care differ significantly between jurisdictions (some explicitly require mental incapacity; others do not) and there is a remarkably small evidence base concerning population requirements for involuntary care, the psychological and psychiatric underpinnings of such requirements, and – the subject of this study – the prevalence and correlates of mental incapacity for treatment decisions in psychiatry inpatients, all of which are relevant, directly or indirectly, to issues of involuntary care and the right to self-determination.

With regard to gender, for example, one study by Owen et al. (2009) shows an association between a lack of mental capacity and being female, while the majority of studies do not (Melamed, Kimchi, Shnit, Moldavski, & Elizur, 1997; Palmer, Dunn, Appelbaum, & Jeste, 2004; Cairns et al., 2005; Spencer, Gergel, Hotopf, & Owen, 2018). The relationship between mental capacity and psychiatry admission status also likely varies between jurisdictions as criteria for involuntary care vary (Kelly, 2015, 2016). Many studies indicate that mental incapacity for treatment decisions is associated with involuntary admission status (Cairns et al., 2005; Mandarelli et al., 2014; Maxmin, Cooper, Potter, & Livingston, 2009; Spencer et al., 2018), but Spencer et al. (2018) demonstrate no association between involuntary admission status and

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https://doi.org/10.1016/j.ijlp.2019.02.001
Received 21 December 2018; Received in revised form 31 January 2019; Accepted 1 February 2019
Available online 06 February 2019
0160-2527/

decision-making capacity to participate in research.

The aim of the present study was to assess mental capacity in psychiatry inpatients in Ireland and elucidate the relationships, if any, between mental capacity, psychiatry admission status, gender and other key demographic and clinical variables. Most studies in this area to date have used either binary ratings of mental capacity (with mental capacity rated as either present or absent) or else continuous scales, such as the MacArthur Competence Assessment Tool for Treatment (MacCAT-T) (Grisso & Applebaum, 1998; Grisso, Applebaum, & Hill-Fotouhi, 1997; Murphy, Fleming, Curley, Duffy, & Kelly, 2018) which yields a mental capacity score ranging from 0 to 20, with a higher score indicating greater mental capacity (Lepping et al., 2015; Okai et al., 2007).

Elsewhere, we use linear MacCAT-T score in an examination of the relationship between mental capacity and age in our study population (Curley, Murphy, Fleming, & Kelly, 2019). For the present analysis, however, we sought to determine the prevalence of *categorical* mental incapacity, which is more relevant to clinical practice; i.e. determining what proportion of patients have full mental capacity for treatment decisions and what proportion have not. Moreover, rather than dividing mental capacity scores into two categories (with mental capacity rated as either present or absent), we sought to optimise clinical relevance by determining the proportions of patients with (a) no mental capacity, (b) *partial* mental capacity and (c) full mental capacity. The purpose of this approach was to identify the characteristics of patients most likely to benefit from different levels of decision-making support and estimate the likely need for such decision-support services in order to optimise mental capacity.

In Ireland, new legislation, the Assisted Decision-Making (Capacity) Act 2015, aims to assist persons in exercising their decision-making capacity and has been signed by the President of Ireland but has yet to be commenced in practice. A key area addressed within the 2015 Act is new models of supported decision-making (Kelly, 2017). To allow those whose capacity is in question to retain as much autonomy as possible while making a decision, the 2015 Act outlines three levels of supported decision-making: “decision-making assistant”, “co-decision-maker” (joint decision-making) and “decision-making representative” (substitute decision-making), which will apply to psychiatric inpatients, among others. Our study aims to clarify the extent of mental incapacity among psychiatry inpatients and thus highlight the magnitude of the challenges likely to be presented by the 2015 Act when it is implemented.

We also seek to focus explicitly on the relationships, if any, between categorial mental capacity, psychiatric admission status and other demographic and clinical variables in order to elucidate better the roles of these factors in relation to mental capacity for treatment decisions among psychiatry inpatients.

2. Material and methods

2.1. Setting

This cross-sectional, observational study was based in four psychiatry inpatient units in Ireland: the Acute Psychiatry Unit in Tallaght University Hospital, Dublin; the Drogheda Department of Psychiatry, Crosslanes, Drogheda, County Louth; St Brigid's Hospital, Ardee, County Louth; and the Department of Psychiatry, Connolly Hospital, Blanchardstown, Dublin. All of these units provide inpatient mental health care to public adult patients (i.e. non-fee-paying) and are operated by the Health Service Executive, Ireland's governmental provider of public mental health care (i.e. free at point-of-use). All four units provide inpatient mental health care to adults aged 18 years or over as both voluntary and involuntary patients under the Mental Health Act 2001 (Inspector of Mental Health Services, 2017a, 2017b, 2017c, 2017d).

2.2. Participants, recruitment and psychiatry admission status

We recruited inpatients in the four participating psychiatry units from 31 July 2017 to 5 October 2018 inclusive. For consideration for inclusion, a patient had to be an inpatient in one of the four inpatient psychiatry units during the study period; aged 18 years or over; and proficient in the English language. We identified patients from inpatient census lists and recruited patients based on availability and eligibility from each of the four units over the study period. On the day of assessment, all those eligible for assessment were approached for consent to participate. We included both voluntary and involuntary patients under Ireland's Mental Health Act 2001.

In Ireland, as in many other jurisdictions (e.g. England and Wales), lack of mental capacity is not an explicit part of the legal criteria for involuntary psychiatric admission (Kelly, 2016). Ireland's Mental Health Act 2001 permits involuntary admission when a person has a “mental disorder”, which is defined as “mental illness, severe dementia or significant intellectual disability where (a) because of the illness, disability or dementia, there is a serious likelihood of the person concerned causing immediate and serious harm to himself or herself or to other persons, or (b) (i) because of the severity of the illness, disability or dementia, the judgment of the person concerned is so impaired that failure to admit the person to an approved centre [i.e. inpatient psychiatry unit] would be likely to lead to a serious deterioration in his or her condition or would prevent the administration of appropriate treatment that could be given only by such admission, and (ii) the reception, detention and treatment of the person concerned in an approved centre would be likely to benefit or alleviate the condition of that person to a material extent” (Section 3(1)).

In 2017, there were 16,743 admissions to Irish psychiatry inpatient units and hospitals (yielding a rate of 351.6 per 100,000 population), of which 13% were involuntary admissions under the Mental Health Act 2001 (Daly & Craig, 2018). This yields a rate of 45.4 involuntary admissions per 100,000 population per year, which is less than half the rate in England (Gilhooley & Kelly, 2018).

The present study did not compare outcomes across groups so, in place of a statistical power calculation, we selected a sample size of approximately 200 participants so that our study would be comparable with, or larger than, other key studies in the field (Cairns et al., 2005; Mandarelli et al., 2014; Mandarelli et al., 2018; Owen et al., 2009). In addition, approximately 200 participants was a pragmatically achievable sample size in the study setting, pragmatically and proportionately divided between the four participating psychiatry units.

2.3. Data collection methodology

All assessments were carried out based on the patient's own diagnosis and the treatment they were receiving according to the records documented by their treating team. Once a patient consented to participate in the study, the researcher gathered the required information from their clinical file and identified the key treatment decision that the patient faced at that time. For each participant in the study, we recorded gender, age, marital status, employment status, ethnicity, admission status at time of assessment (voluntary or involuntary) and clinical diagnosis derived from each participant's case-file, coded using the World Health Organisation's (WHO) *International Classification of Mental and Behavioural Disorders (ICD-10)* (WHO, 1992).

The key outcome variable was mental capacity for treatment decisions assessed using the MacCAT-T, a semi-structured interview that yields scores on four separate scales (with higher scores indicating greater mental capacity): (1) understanding of the disorder and its treatment, including associated benefits and risks (rated from 0 to 6, made up of three sub-scales, each rated from 0 to 2: understanding of the disorder, treatment and benefits/risks); (2) appreciation of the disorder and its treatment; i.e. how the patient understands how they specifically could be affected, which usually entails some degree of

insight (rated from 0 to 4, made up of two sub-scales, each rated from 0 to 2: appreciation of the disorder and appreciation of treatment); (3) reasoning, which assesses the processes behind the decision and ability to compare alternatives in view of the consequences (rated from 0 to 8, made up of four sub-scales, each rated from 0 to 2: consequential reasoning, comparative reasoning, generating consequences and logical consistency); and (4) the ability to express a choice (which is rated from 0 to 2) (Grisso et al., 1997; Grisso & Applebaum, 1998; Murphy et al., 2018).

The MacCAT-T measures these four elements of mental capacity on continuous scales with a high degree of inter-rater reliability (ranging between 0.99 for "understanding" and 0.87 for "appreciation") (Grisso et al., 1997; Sturman, 2005). When added together, these scores yield an overall MacCAT-T score ranging from 0 to 20, with a higher score indicating greater mental capacity for treatment decisions.

The initial use of the MacCAT-T did not involve establishing cut-off scores to generate categorical assessments of mental capacity; instead, it was encouraged to couple the MacCAT-T with other tools or clinical evaluations to inform metal capacity assessments. However, cut-off scores have been used in various research studies and have clinical utility, so, for the present analysis, we followed the method outlined by Kolva, Rosenfeld, Brescia, and Comfort (2014) who noted that previous studies of the MacCAT-T had used cut-off scores to classify levels of decisional impairment. Building on this work, they generated scores classifying participants as "impaired", "borderline" or "unimpaired" on each of four subscales (understanding, appreciation, reasoning and expressing a choice) based closely on the MacCAT-T instrument.

For the understanding subscale, scores in the 0 to 2 range were classified as "impaired"; scores of 5 or greater were "unimpaired"; and scores in between these extremes were "borderline". On the appreciation subscale, scores below 2 were classified as "impaired"; scores of 3 or greater were "unimpaired"; and scores in between were "borderline". On the reasoning subscale, scores below 4 were classified as "impaired"; scores of 7 or greater were "unimpaired"; and scores in between were "borderline". On the expressing a choice subscale, scores below 1 were classified as "impaired"; scores of 2 or greater were "unimpaired"; and scores in between were "borderline".

As a result, following this re-coding, each subscale score ranged from 0 to 2 where 0 indicated that the participant lacked the ability to perform the task; 1 indicated partial ability; and 2 indicated adequate ability (Kolva et al., 2014). Taken together, these four subscales yielded a second overall mental capacity score ranging from 0 to 8, with a score of 0 indicating lack of mental capacity, 8 indicating full mental capacity, and scores in between indicating partial mental capacity.

In our study ratings were performed by a trained clinician with more than five years training in psychiatry and membership of the Royal College of Psychiatrists (AC), consistent with established methodology (Murphy et al., 2018; Owen et al., 2013) and with ongoing supervision by another trained assessor (BDK). For additional quality control, there were joint assessments of certain patients with another trained clinician, also with more than five years training in psychiatry and membership of the Royal College of Psychiatrists (RM), and also under supervision (BDK).

2.4. Consent procedure

For this study, it was imperative that all patients who were eligible to participate were approached and invited to participate regardless of level of mental capacity, in order to gain a complete picture of the prevalence of mental incapacity and avoid selection bias. To achieve this, we developed a detailed, multi-step consent procedure as follows.

First, any patient (with or without mental capacity) who indicated in any way that they did not wish to participate was excluded from the study immediately.

Second, we obtained written informed consent from patients with mental capacity to provide this consent. There is a legal presumption of mental capacity in Ireland so it was only in cases where there was a prima facie reason to believe that the patient lacked mental capacity to consent to the study that we could question the presumption of mental capacity to participate in the study.

Third, for patients who lacked mental capacity to consent to the study, we developed a next-of-kin/relative information leaflet and assent form, and we obtained assent in this fashion from their next-of-kin or relative where feasible; i.e. when a next-of-kin or relative was named and available. On receiving such assent, we proceeded with our assessments provided the patient assented and did not object to participation at any point. In these cases, we later sought "deferred consent" if the patient regained mental capacity during the study period. If, on regaining mental capacity, any patient had declined to provide such "deferred consent", we would have destroyed that patient's data, but this situation did not arise in the study.

Fourth, for patients who lacked mental capacity to consent to the study and there was no next-of-kin or relative named or available to provide assent, we were to proceed with our assessments provided the patient assented and did not object at any point. In these cases, we were to seek "deferred consent" if the patient regained mental capacity later in the study period. If, on regaining mental capacity, any patient had declined to provide such "deferred consent", we would have destroyed that patient's data, but this situation did not arise in the study.

2.5. Ethical approval

This study received ethical approval from the Tallaght University Hospital/St James's Hospital Joint Research Ethics Committee, Dublin, Ireland, the HSE North East Area Research Ethics Committee, Bective Street, Kells, County Meath, and the RCSI Research Ethics Committee, 121 St Stephen's Green, Dublin 2. This study was performed in accordance with Ireland's *Data Protection Guidelines on Research in the Health Sector* (Data Protection Commissioner, 2007) and the Declaration of Helsinki (World Medical Association, 2008). Data were anonymized, encrypted and stored on a password-protected research computer in a locked research office. Patient confidentiality was protected and data protection legislation adhered to at all times.

2.6. Statistical analysis

Data were analysed using IBM SPSS Statistics 23. For bi-variable analysis, we used the Student *t* and Chi Square tests, as appropriate. For multi-variable analysis, we generated a multi-variable regression model with mental capacity (lack of/partial/full mental capacity) as the dependent variable. Independent variables were gender, age, marital status, employment status, ethnicity, admission status at time of assessment, clinical diagnosis and psychiatry unit in which the person was admitted (Tallaght Acute Psychiatry Unit, Drogheda Department of Psychiatry, St Brigid's Hospital (Ardee) or Blanchardstown Department of Psychiatry).

We tested the model for multicollinearity, which is when two or more variables are so closely related to each other that the model cannot reliably distinguish the independent effects of each. To achieve this, we calculated a "tolerance value" for each independent variable; tolerance values below 0.25 indicate possible multicollinearity, and tolerance values below 0.10 indicate significant problems with multicollinearity (Katz, 1999). There were no missing data.

3. Results

3.1. Sample characteristics

The study sample comprised 215 patients of whom 41.9% (n = 90) were female. Mean age was 46.2 years (standard deviation [SD]: 17.2). A majority were never married (74.0%; n = 159); 14.4% (n = 31) were married; 7.0% (n = 15) separated or divorced; and 4.7% (n = 10)

Table 1
Characteristics of female and male psychiatry inpatients included in the study of categorical mental capacity for treatment decisions in four adult psychiatry inpatient units in Ireland.

Variable		Female inpatients $n = 90$ n (%)	Male inpatients $n = 125$ n (%)	Statistic	
				Chi Square	p
Marital status	Never married	59 (65.6)	100 (80.0)	6.700	0.082
	Married	19 (21.1)	12 (9.6)		
	Separated or divorced	7 (7.8)	8 (6.4)		
	Widowed	5 (5.6)	5 (4.0)		
Employment status	Unemployed	56 (62.2)	82 (65.6)	0.260	0.610
	Employed	34 (37.8)	43 (34.4)		
Ethnicity	Irish	80 (88.9)	107 (85.6)	0.500	0.480
	Non-Irish	10 (11.1)	18 (14.4)		
Primary diagnosis	Schizophrenia and related disorders	31 (34.4.)	61 (48.8)	13.529	0.019
	Affective disorders	44 (48.9)	35 (28.0)		
	Psychoactive substance misuse disorders	3 (3.3)	14 (11.2)		
	Neurotic disorders	6 (6.7)	9 (7.2)		
	Personality disorders	4 (4.4)	3 (2.4)		
	Other disorders	2 (2.2)	3 (2.4)		
Admission status	Voluntary	74 (82.2)	102 (81.6)	0.014	0.907
	Involuntary	16 (17.8)	23 (18.4)		
Mental capacity (total)	Lacks mental capacity	1 (1.1)	3 (2.4)	2.407	0.300
	Partial mental capacity	41 (45.6)	68 (54.4)		
	Full mental capacity	48 (53.3)	54 (43.2)		
Mental capacity (understanding)	Lacks mental capacity	9 (10)	14 (11.2)	3.234	0.198
	Partial mental capacity	29 (45.6)	54 (43.2)		
	Full mental capacity	52 (57.8)	57 (45.6)		
Mental capacity (appreciation)	Lacks mental capacity	25 (27.8)	37 (29.6)	1.145	0.564
	Partial mental capacity	6 (6.7)	13 (10.4)		
	Full mental capacity	59 (65.6)	75 (60)		
Mental capacity (reasoning)	Lacks mental capacity	25 (27.8)	48 (38.4)	3.279	0.194
	Partial mental capacity	5 (5.6)	9 (7.2)		
	Full mental capacity	60 (66.7)	68 (54.4)		
Mental capacity (expressing choice)	Lacks mental capacity	1 (1.1)	3 (2.4)	0.476	0.490
	Full mental capacity	89 (98.9)	122 (97.6)		

widowed. Majorities were unemployed (64.2%; $n = 138$) and of Irish ethnicity (87.0%; $n = 187$). The most common diagnoses were schizophrenia and related disorders (42.8%; $n = 92$) followed by affective disorders (36.7%; $n = 79$), psychoactive substance misuse disorders (including alcohol) (7.9%; $n = 17$), neurotic disorders (7.0%; $n = 15$), personality disorders (3.3%; $n = 7$) and others (2.3%, $n = 5$). A majority were voluntary (81.9%; $n = 176$) rather than involuntary patients (18.1%; $n = 39$).

Female and male participants did not differ in terms of age (mean ages 48.5 years, SD: 17.3 and 44.6, SD: 16.9 respectively; $t = 1.663$, $p = .098$), marital status, employment status, ethnicity or admission status (Table 1). In terms of diagnosis, schizophrenia and related disorders were more common among male participants and affective disorders more common among female participants.

The distribution of mental capacity scores was non-normal, skewed to the left. Overall, 1.9% of participants ($n = 4$) lacked mental capacity for treatment decisions; 50.7% ($n = 109$) had partial mental capacity; and 47.4% ($n = 102$) had full mental capacity. With respect to the ability to understand information about diagnosis and treatment, 10.7% of participants ($n = 23$) lacked this ability; 38.6% ($n = 83$) had partial ability; and 50.7% ($n = 109$) had full ability. In relation to appreciation, 28.8% ($n = 62$) lacked the ability to appreciate information relating to their disorder and its treatment; 8.8% ($n = 19$) had partial ability; and 62.3% ($n = 134$) had full ability. In relation to reasoning, 34% ($n = 73$) lacked the ability to reason; 6.5% ($n = 14$) had partial ability; and 59.5% ($n = 128$) had full ability. Only 1.9% ($n = 4$) lacked the ability to express a choice; none had partial ability; and 98.1% had full ability. These proportions did not differ between female and male participants on bi-variable testing (Table 1).

Our scoring methodology meant that all participants deemed to have full mental capacity for treatment decisions ($n = 102$) had full ability to understand and appreciate relevant information, reason and express a choice. All four participants who lacked mental capacity lacked all four abilities; i.e. lacked the ability to understand, appreciate, reason and express a choice.

Among participants deemed to have partial mental capacity ($n = 109$); 17.4% ($n = 19$) lacked the ability to understand the information; 76.1% ($n = 83$) had partial ability; and 6.4% ($n = 7$) had full ability. In relation to appreciation, 53.2% ($n = 58$) lacked the ability to appreciate information relating to their disorder and its treatment; 17.4% ($n = 19$) had partial ability; and 29.4% ($n = 32$) had full ability. In relation to reasoning, 63.3% ($n = 69$) lacked the ability to reason; 12.8% ($n = 14$) had partial ability; and 23.9% ($n = 26$) had full ability. All participants with partial mental capacity had full ability to express a choice.

3.2. Clinical and demographic correlates of mental capacity for treatment decisions

On multi-variable regression analysis, greater mental capacity was significantly associated with, in order of strength of association, voluntary admission status, Irish ethnicity, being employed and younger age (Table 2). The regression model was statistically significant ($p < .001$) and the variables included together accounted for 27.6% of the variance in mental capacity between participants.

There was a borderline statistically significant association between greater mental capacity and female gender on multi-variable testing ($p = .041$). All tolerance values were > 0.25, indicating no problems with multicollinearity.

4. Discussion

4.1. Mental incapacity for treatment decisions

We found that 1.9% of psychiatry inpatients lack mental capacity for treatment decisions; 50.7% have partial mental capacity; and 47.4%

Table 2
Multi-variable regression analysis of demographic and clinical correlates of categorical mental capacity for treatment decisions among female and male inpatients in four adult psychiatry inpatient units in Ireland.

Independent variables	β	Standard error	p	Tolerance value[a]
Gender	−0.132	0.064	0.041	0.959
Age	−0.010	0.002	< 0.001	0.692
Marital status	0.035	0.045	0.437	0.707
Employment status	0.205	0.070	0.004	0.866
Ethnicity	−0.261	0.106	0.014	0.765
Admission status at time of assessment	−0.499	0.085	< 0.001	0.903
Primary diagnosis	0.036	0.028	0.190	0.872
Psychiatry unit in which the person was admitted	0.013	0.020	0.515	0.870

Note: This table presents a multi-variable regression analysis of categorial mental capacity for treatment decisions as per the MacArthur Competence Assessment Tool for Treatment (MacCAT-T) as the dependent variable (lack of/partial/full mental capacity); $r^2 = 27.6\%$; $p < .001$.

[a] All tolerance values were > 0.25 indicating no problems with multi-collinearity (Katz, 1999).

have full mental capacity. Greater mental capacity is significantly associated with voluntary admission status, Irish ethnicity, being employed and younger age. However, while these relationships are statistically significant (i.e. are unlikely to have occurred by chance), they together account for just 27.6% of the variance in mental capacity between participants and leave most of the variance (72.4%) unexplained.

4.2. Comparison with the broader literature

The previous literature on this topic from a variety of countries shows that between 29% and 45% of psychiatry inpatients lack mental capacity for treatment decisions (Lepping et al., 2015; Okai et al., 2007). We found that only 47.4% of psychiatry inpatients in our study had full mental capacity but we sought to develop this literature by identifying patients with "partial" mental capacity, as well as those who lacked mental capacity and had full mental capacity. We took this approach in order to identify the characteristics of patients most likely to benefit from different levels of decision-making supports and to estimate the need for such services to optimise mental capacity among psychiatry inpatients.

We found that a substantial proportion (50.7%) of psychiatry inpatients have partial mental capacity. We feel that this finding highlights the need for decision-making supports in this group, especially among involuntary patients, to assist them in increasing and exercising their mental capacity. Ireland's new Assisted Decision-Making (Capacity) Act 2015 outlines a range of supports to assist this group, including "decision-making assistants", "co-decision-makers" (joint decision-makers) and "decision-making representatives" (substitute decision-makers) (Kelly, 2017). This legislation is in the process of being implemented and it aims to optimise mental capacity and increase autonomy among persons with diminished mental capacity through its graduated approach to providing support.

Among the psychiatry inpatients in our study with partial mental capacity (50.7%), all had full mental capacity to express their choice. Smaller proportions were capable of understanding the disorder and its treatment (6.4%), appreciating the disorder and its treatment (29.4%) and reasoning (23.9%). This suggests that majorities of patients with partial mental capacity would likely benefit from support across all three of these areas, especially in relation to understanding the disorder and its treatment.

Our decision to divide mental capacity into three categories (no, partial and full mental capacity) is consistent with Kolva et al. (2014), among others, but contrasts with the approach in Ireland's Assisted Decision-Making (Capacity) Act 2015 which regards mental capacity as either absent or present, although the constituent elements of mental capacity in the Act (understanding, retention, using or weighing up, and communicating) overlap significantly with those in the MacCAT-T (understanding, appreciation, reasoning and expressing a choice). In our study, patients we categorised as having no or partial mental capacity would be regarded as having no mental capacity according to the 2015 Act's binary definition.

The 2015 Act, however, takes a more nuanced approach when it outlines decision-making supports, implicitly recognising a middle category in which impaired mental capacity can be restored by a decision-making assistant or co-decision-maker. For example, the involvement of a co-decision-maker as a joint decision-maker would result, according to the Act, in a capacitous decision by the person themselves (the "appointer"). More specifically, Section 21(4)(f) states that an "application to register a co-decision-making agreement" must be accompanied by "a statement by a registered medical practitioner and a statement by [another] healthcare professional" that "the appointer has capacity to make the relevant decisions specified in the co-decision-making agreement with the assistance of the co-decision-maker".

Overall, then, in terms of the interaction between our findings and the 2015 Act, patients we identified in our study as having full mental capacity for treatment decisions (47.4%) would not require any supports under the legislation; those with partial mental capacity (50.7%) would likely benefit from decision-making assistants or co-decision-makers; and those who lacked mental capacity (1.9%) might require a "decision-making representative" for treatment decisions (i.e. substitute decision-making), especially if decision-making assistants or co-decision-makers did not appear appropriate or did not prove sufficient.

We also sought, in the present analysis, to focus explicitly on the relationships, if any, between categorical mental capacity, psychiatric admission status, gender and other clinical variables. Like most studies (Cairns et al., 2005; Melamed et al., 1997; Palmer et al., 2004; Spencer et al., 2018), we found no robust relationship between gender and mental capacity, although one study found an association between lack of mental capacity and being female (Owen et al., 2009). Like previous work, we confirmed a relationship between involuntary admission status and reduced mental capacity (Cairns et al., 2005; Mandarelli et al., 2014; Maxmin et al., 2009; Okai et al., 2007; Spencer et al., 2018), even though incapacity is not an explicit part of criteria for involuntary care in Ireland. Spencer et al. (2018) found no association between involuntary admission status and decision-making capacity to participate in research, highlighting the potential to retain mental capacity in one area while lacking it in another, and the importance of decision-specific capacity assessments.

The distribution of mental capacity scores in our study was non-normal and skewed to the left. Our decision to divide mental capacity into three categories (no, partial and full mental capacity) was decided prior to data collection, based on the criteria used for mental capacity in the MacCAT-T and the methodology of Kolva et al. (2014), among others. Other divisions or categorisations could, however, usefully be investigated in the future, based more closely on distributions of mental capacity scores in relevant populations, such as that demonstrated in our study.

4.3. Strengths and limitations of the present study

In terms of strengths, our study addressed an important, understudied topic, mental capacity among psychiatry inpatients, despite the ethical challenges inherent in conducting research among patients who might lack mental capacity for both research and treatment decisions. Our study also included both voluntary and involuntary patients; is comparable in size with leading studies in the field (Cairns et al., 2005; Mandarelli et al., 2014; Mandarelli et al., 2018; Owen et al., 2009); and included a category of "partial mental capacity" so as to provide a more

graduated assessment of categories of mental capacity (compared to the more usual binary assessments of mental capacity or the linear MacCAT-T approach); this was in order to optimise clinical relevance.

Methodological weaknesses include the fact that our cross-sectional analysis did not take account of possible changes in mental capacity over the course of time; we recorded only one diagnosis per patient (their primary diagnosis) when some patients might have had two significant diagnoses; and we did not measure cognitive performance, which is important in the MacCat-T assessment (Breden & Vollmann, 2004; Mandarelli et al., 2012). To reduce bias, we included both voluntary and involuntary patients, studied four psychiatry inpatient units, and developed an inclusive consent procedure, although the use of a single rater for all assessments might still have introduced assessment bias; we provided careful training, supervision, and joint assessments of certain patients (under supervision) in order to minimise this possibility.

5. Conclusions

The relatively high rate of "partial mental capacity" among psychiatry inpatients identified in this study (50.7%) suggests that decision-making supports are likely to be of substantial importance in assisting many psychiatry inpatients making decisions about treatment. This is likely to be especially relevant among involuntary inpatients whose mental capacity is especially likely to be reduced and whose will and preferences therefore require greater focus and particular attention during and between episodes of care (Duffy & Kelly, 2017).

Future research could usefully clarify and quantify the role of cognitive and other factors in relation to the unexplained variance (72.4%) in mental capacity identified in this study, and explore the possible relevance of other factors (e.g. psychiatric symptoms) which might be related to, but not identical with, some of the factors we studied (e.g. admission status). Future work could also usefully explore which models of supported decision-making are most likely to assist the substantial proportion (50.7%) of psychiatry inpatients who have partial mental capacity for treatment decisions, and who might have greater mental capacity if appropriate supports were made available to them through mechanisms such as those proposed in Ireland's incoming Assisted Decision-Making (Capacity) Act 2015.

Acknowledgements

The authors appreciate the cooperation and support of the patients and staff who assisted with this study. The authors are very grateful to the editor and reviewers for their comments and suggestions.

Declaration of interest

None.

Animal and human rights

This study was performed in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. This study, including the procedure for obtaining informed consent from participants (outlined in the text), was approved by the Tallaght University Hospital/St James's Hospital Joint Research Ethics Committee, Dublin, Ireland, the HSE North East Area Research Ethics Committee, Bective Street, Kells, County Meath, and the Royal College of Surgeons in Ireland (RCSI) Research Ethics Committee, 121 St Stephen's Green, Dublin 2.

Role of the funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Submission declaration

The work described has not been published previously, is not under consideration for publication elsewhere, its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and, if accepted, will not be published elsewhere including electronically in the same form, in English or in any other language, without the written consent of the copyright-holder.

References

Breden, T. M., & Vollmann, J. (2004). The cognitive based approach of capacity assessment in psychiatry: A philosophical critique of the MacCAT-T. *Health Care Analysis, 12*, 273–283. https://doi.org/10.1007/s10728-004-6635-x.

Cairns, R., Maddock, C., Buchanan, A., David, A. S., Hayward, P., Richardson, G., ... Hotopf, M. (2005). Prevalence and predictors of mental incapacity in psychiatric inpatients. *British Journal of Psychiatry, 187*, 379–385. https://doi.org/10.1192/bjp.187.4.379.

Curley, A., Murphy, R., Fleming, S., & Kelly, B. D. (2019). *Age, psychiatry admission status and mental capacity for treatment decisions.* (In progess).

Daly, A., & Craig, S. (2018). *HRB statistics series 38: Activities of Irish psychiatric units and hospitals 2017: Main findings.* Dublin: Health Research Board.

Data Protection Commissioner (2007). *Data Protection Guidelines on Research in the Health Sector.* Dublin: Data Protection Commissioner.

Duffy, R. M., & Kelly, B. D. (2017). Rights, laws and tensions: A comparative analysis of the convention on the rights of persons with disabilities and the WHO resource book on mental health, human rights and legislation. *International Journal of Law and Psychiatry, 54*, 26–35. https://doi.org/10.1016/j.ijlp.2017.07.003.

Gilhooley, J., & Kelly, B. D. (2018). Return of the asylum. *British Journal of Psychiatry, 212*, 69–70. https://doi.org/10.1192/bjp.2017.19.

Grisso, T., & Applebaum, P. S. (1998). *MacArthur Competence Assessment Tool for Treatment (MacCAT-T).* Sarasota, FL: Professional Resource Press.

Grisso, T., Applebaum, P. S., & Hill-Fotouhi, C. (1997). The MacCAT-T: A clinical tool to assess patients' capacities to make treatment decisions. *Psychiatric Services, 48*, 1415–1419. https://doi.org/10.1176/ps.48.11.1415.

Inspector of Mental Health Services (2017a). *Approved centre inspection report 2017: Acute Psychiatric Unit, Tallaght Hospital.* Tallaght, Dublin 24 Dublin: Mental Health Commission.

Inspector of Mental Health Services (2017b). *Approved centre inspection report 2017: Drogheda Department of Psychiatry, Crosslanes, Drogheda, County Louth.* Dublin: Mental Health Commission.

Inspector of Mental Health Services (2017c). *Approved centre inspection report 2017: St Ita's Ward, St Brigid's Hospital, Kells Road, Ardee, County Louth.* Dublin: Mental Health Commission.

Inspector of Mental Health Services (2017d). *Approved centre inspection report 2017: Department of Psychiatry, Connolly Hospital, Blanchardstown, Dublin 15.* Dublin: Mental Health Commission.

Katz, M. H. (1999). *Multivariable analysis.* Cambridge: Cambridge University Press.

Kelly, B. D. (2015). *Dignity, mental health and human rights: coercion and the law.* Abingdon, Oxon: Routledge.

Kelly, B. D. (2016). *Mental illness, human rights and the law.* London: RCPsych Publications.

Kelly, B. D. (2017). The Assisted Decision-making (Capacity) act 2015: What it is and why it matters. *Irish Journal of Medical Science, 186*, 351–356. https://doi.org/10.1007/s11845-016-1443-5.

Kolva, E., Rosenfeld, B., Brescia, R., & Comfort, C. (2014). Assessing decision-making capacity at end of life. *General Hospital Psychiatry, 36*, 392–397. https://doi.org/10.1016/j.genhosppsych.2014.02.013.

Lepping, P., Stanly, T., & Turner, J. (2015). Systematic review on the prevalence of lack of capacity in medical and psychiatric settings. *Clinical Medicine, 15*, 337–343. https://doi.org/10.7861/clinmedicine.15-4-337.

Mandarelli, G., Carabellese, F., Parmigiani, G., Bernardini, F., Pauselli, L., Quartesan, R., ... Ferracuti, S. (2018). Treatment decision-making capacity in non-consensual psychiatric treatment: A multicentre study. *Epidemiology and Psychiatric Sciences, 27*, 492–499. https://doi.org/10.1017/S2045796017000063.

Mandarelli, G., Parmigiani, G., Tarsitani, L., Frati, P., Biondi, M., & Ferracuti, S. (2012). The relationship between executive functions and capacity to consent to treatment in acute psychiatric hospitalization. *Journal of Empirical Research on Human Research Ethics, 7*, 63–70. https://doi.org/10.1525/jer.2012.7.5.63.

Mandarelli, G., Tarsitani, L., Parmigiani, G., Polselli, G. M., Frati, P., Biondi, M., & Ferracuti, S. (2014). Mental capacity in patients involuntarily or voluntarily receiving psychiatric treatment for an acute mental disorder. *Journal of Forensic Sciences, 59*, 1002–1007. https://doi.org/10.1111/1556-4029.12420.

Maxmin, K., Cooper, C., Potter, L., & Livingston, G. (2009). Mental capacity to consent to treatment and admission decisions in older adult psychiatric inpatients. *International Journal of Geriatric Psychiatry, 24*, 1367–1375. https://doi.org/10.1002/gps.2272.

Melamed, Y., Kimchi, R., Shnit, D., Moldavski, M., & Elizur, A. (1997). Insight and competence to consent to psychiatric hospitalization. *Medicine and Law, 16*, 721–727 (PMID: 9573709).

Murphy, R., Fleming, S., Curley, A., Duffy, R. M., & Kelly, B. D. (2018). Who can decide? Prevalence of mental incapacity for treatment decisions in medical and surgical hospital inpatients in Ireland. *QJM, 111*, 881–885. https://doi.org/10.1093/qjmed/hcy219.

Okai, D., Owen, G., McGuire, H., Singh, S., Churchill, R., & Hotopf, M. (2007). Mental capacity in psychiatric patients: Systematic review. *British Journal of Psychiatry, 191*, 291–297. https://doi.org/10.1192/bjp.bp.106.035162.

Owen, G., David, A., Richardson, G., Szmukler, G., Hayward, P., & Hotopf, M. (2009). Mental capacity, diagnosis and insight in psychiatric in-patients: A cross-sectional study. *Psychological Medicine, 39*, 1389–1398. https://doi.org/10.1017/S0033291708004637.

Owen, G. S., Szmukler, G., Richardson, G., David, A. S., Raymont, V., Freyenhagen, F., ... Hotopf, M. (2013). Decision-making capacity for treatment in psychiatric and medical in-patients: Cross-sectional, comparative study. *British Journal of Psychiatry, 203*, 461–467. https://doi.org/10.1192/bjp.bp.112.123976.

Palmer, B. W., Dunn, L. B., Appelbaum, P. S., & Jeste, D. V. (2004). Correlates of treatment-related decision-making capacity among middle-aged and older patients with schizophrenia. *Archives of General Psychiatry, 61*, 230–236. https://doi.org/10.1001/archpsyc.61.3.230.

Spencer, B. W. J., Gergel, T., Hotopf, M., & Owen, G. S. (2018). Unwell in hospital but not incapable: Cross-sectional study on the dissociation of decision-making capacity for treatment and research in in-patients with schizophrenia and related psychoses. *British Journal of Psychiatry, 213*, 484–489. https://doi.org/10.1192/bjp.2018.85.

Sturman, E. D. (2005). The capacity to consent to treatment and research: A review of standardized assessment tools. *Clinical Psychology Review, 25*, 954–974. https://doi.org/10.1016/j.cpr.2005.04.010.

World Health Organization (1992). *International classification of mental and behavioural disorders ICD-10.* Geneva: World Health Organization.

World Medical Association (2008). *WMA declaration of Helsinki: Ethical principles for medical research involving human subjects.* Ferney-Voltaire: World Medical Association.