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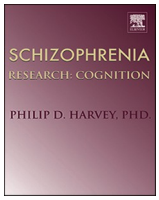

Decisional capacity in young people with first episode psychosis, major depressive disorder and no mental disorder

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ABSTRACT

We aimed to (1) examine decisional capacity for treatment in young people (aged 15 to 25 years) with first-episode psychosis (FEP), Major Depressive Disorder (MDD) and no mental disorder, and (2) determine which theoretically relevant factors are associated with, and predict decisional capacity. We assessed decisional capacity (using MacArthur Competence Assessment Tool-Treatment; MacCAT-T), cognitive abilities, insight and symptom severity in young people with no mental disorder (n = 38), MDD (n = 38) and FEP (n = 18) from inpatient and outpatient services. Most young people with MDD (84.2%) or no mental disorder (86.8%) had adequate decisional capacity to consent to treatment based on recommended cut-off scores, compared with fewer than half of the those with FEP (44.4%). Levels of capacity were not significantly different between young people with MDD and those with no mental disorder (p = .861). However, young people with FEP demonstrated significantly poorer decisional capacity than those with no mental disorder (p = .006) and MDD (p = .009). A hierarchical regression analysis suggested that differences may be better explained by variation in cognitive ability, especially thematic verbal recall. Greater symptom severity and poorer insight were associated with poorer decisional capacity for FEP (p = .008 and p < .001, respectively), but not MDD (p = .050 and p = .805, respectively). Cognitive performance (i.e., predicted IQ, processing speed, mental flexibility and thematic verbal memory) collectively explained 36.6% of the variance in decisional capacity (p < .001). Thematic verbal memory was the strongest predictor of decisional capacity (p < .001). Supports for memory should be implemented to facilitate involvement in treatment decisions during the early course of illness.

1. Introduction

Most mental disorders emerge during adolescence and early adulthood, with 75% beginning before age 24 (Kessler et al., 2005). Treatment is essential to reduce the likelihood of impairments persisting into adulthood (Kessler et al., 2005; McGorry, 2017). Involving people in treatment decisions improves engagement and clinical outcomes (Clever et al., 2006; Larkin and Hutton, 2017; Orlando and Meredith, 2002; Rokke et al., 1999; Swanson et al., 2007; Ventura et al., 1993). There is extensive literature regarding decisional capacity in adult populations, and while some studies may include young people (i.e., those aged <26 years) as part of a broader sample, no study has focused on whether young people with mental disorders have adequate capacity to make treatment decisions (Spencer et al., 2017). Capacity research in youth populations is crucial to better understand the extent to which young people can participate in their own treatment decisions, and thus, improve outcomes.

Decisional capacity refers to the ability to: (i) comprehend relevant information, (ii) appreciate how information applies to one's own situation, (iii) apply reasoning skills to form a decision, and (iv) express a choice (Grisso and Appelbaum, 1998). In adult populations, mental disorders, particularly psychotic disorders, are associated with impaired decisional capacity (Owen et al., 2009), though most people diagnosed with mental disorders maintain adequate capacity (Spencer et al., 2017). Although studies have assessed adults with chronic psychosis, there is limited knowledge of decisional capacity in younger individuals earlier in the course of psychosis.

Examining factors associated with decisional capacity can inform the

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development of supports to encourage the involvement of individuals in treatment decisions over their lifespan, despite impaired capacity (Woodrow et al., 2019). Researchers have highlighted predictors of poor decisional capacity in adult populations (Woodrow et al., 2019), including poorer insight, impaired cognitive functioning, fewer years of education and greater symptom severity in adults diagnosed with psychotic disorders (Larkin and Hutton, 2017; Palmer and Jeste, 2006; Ruissen et al., 2012). Few studies have examined decisional capacity in non-psychotic disorders. However, Owen et al. (2009) found that poor insight strongly predicted decisional capacity in adults with psychotic disorders, but not those with depressive disorders (Owen et al., 2009).

No study has explored correlates of decisional capacity in youth populations. Further investigation is required to understand whether previous conclusions in older cohorts also apply to young people. The first aim of this study was to examine decisional capacity in young people (aged 15–25 years) experiencing first-episode psychosis (FEP), major depressive disorder (MDD) and no mental disorder. This age range was selected in line with the age range of the youth tertiary mental health service, Orygen Specialist Program (OSP). For context, in Australia, young people (minors) can make independent decisions about their treatment (e.g., medication) if they meet criteria for Gillick competence based on the treating practitioner's determination (Office of the Public Advocate, 2021). The inclusion of the FEP, MDD and no mental disorder groups reflects previous studies examining decisional capacity in adults (Appelbaum and Grisso, 1995; Owen et al., 2009; Owen et al., 2015). The second aim was to determine which theoretically relevant factors (e.g., age, level of education, insight, cognitive abilities and symptom severity) are associated with, and predict decisional capacity in youth.

We hypothesised that: 1) most young people would have adequate capacity to make treatment decisions (Spencer et al., 2017); 2) young people with FEP would demonstrate poorer decisional capacity than those with MDD or no mental disorder; and 3) level of education, insight and cognitive functioning would be positively associated with decisional capacity. Symptom severity would be negatively associated with decisional capacity in young people (Palmer and Jeste, 2006; Woodrow et al., 2019).

2. Material and methods

2.1. Design

This cross-sectional cohort study compared three groups: young people with MDD (MDD group), FEP (FEP group) and no mental disorder (healthy control group [HC]).

2.2. Participants

Inclusion criteria aimed to reflect a representative real-world sample:

(1) aged between 15 and 25 years (inclusive);
(2) able to provide informed consent, either prior to data collection or retrospectively;
(3) able to read, write and converse fluently in English as indicated by treating team at point of referral and confirmed by assessing researcher.

HC participants had never been diagnosed with a mental health disorder (assessed by self-report). They were recruited through an existing database of healthy controls held by OSP or via online advertisements. All interviewers were trained in how to use the Brief Psychiatric Rating Scale (BPRS), which was used as a screening tool. Absence of psychopathology was defined as a score below 28.

FEP participants met criteria for any psychotic disorder according to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5; (American Psychiatric Association, 2013)) and were within their first two years of treatment. FEP participants were recruited from the Early Psychosis Prevention and Intervention Centre (EPPIC) outpatient clinic and the Inpatient Unit (IPU) at Orygen Specialist Program (OSP). OSP is a tertiary mental health service that provides care to young people aged 15–25 years living in the western and north-western area of metropolitan Melbourne, Australia.

MDD participants met diagnostic criteria for MDD according to the DSM-5 (American Psychiatric Association, 2013). The assessment was conducted by the multidisciplinary treating team, including an allied health professional (e.g., clinical psychologist) and psychiatrist. Participants were recruited from two primary care headspace clinics (headspace Glenroy and headspace Craigieburn, in the northern suburbs of Melbourne), the OSP outpatient Youth Mood Clinic (YMC), and Orygen IPU. headspace is a private/public hybrid organisation that provides outpatient care to young people with mental health difficulties.

2.3. Outcome measures

2.3.1. Decisional capacity

Decisional capacity was measured using the semi-structured MacArthur Competence Assessment Tool-Treatment (MacCAT-T; (Grisso et al., 1997)), which has four domains:

- *understanding* of information about one's diagnosis and recommended treatment
- *appreciation* of the nature of one's situation and the consequences of one's choices
- *reasoning* about the potential risks and benefits of one's choices
- *expressing a choice* about treatment.

Hypothetical treatment scenarios mirrored real-world treatment decisions. The MacCAT-T scoring manual (Grisso and Appelbaum, 1998) generated domain subscale scores and a total score ranging from 0 to 20 (higher total scores indicated greater decisional capacity).

Adequate decisional capacity was operationalised according to subscale cut-off scores recommended by Aydin Er and Sehiralti (2014) which we deemed to be necessary across all four subscales, in line with previous research (Grisso and Appelbaum, 1995; Vollmann et al., 2003): $\geq$5 for understanding, $\geq$3 for appreciation, and $\geq$6 for reasoning. Aydin Er and Sehiralti (2014) did not provide a cut-off score for the *expressing a choice* domain; we used a conservative cut-off score of $\geq$3 (Mandarelli et al., 2018).

2.3.2. Insight

Level of insight was measured in the symptomatic groups using the 9-item Scale to Assess Unawareness of Mental Disorder (SUM-D; (Amador et al., 1994)). Participants' awareness was rated on a 3-point scale ranging from 1 (aware) to 3 (severely unaware). Higher total scores (calculated by summing item scores) indicated poorer insight.

2.3.3. Cognitive abilities

The Wide-Range Achievement Test-4 (WRAT-4) word reading subtest (Wilkinson and Robertson, 2006) is a word recognition test, providing a broad estimate of participants' IQ. Age-based standardised scores were used.

The two parts of the Trail Making Test (TMT; (Arnett and Labovitz, 1995)) assessed processing speed (TMT-A) and mental flexibility (TMT-B). Performance was measured by recording the time taken to complete each task (in whole seconds).

The Logical Memory subtest (LM) from the Wechsler Memory Scale – Third Edition (Wechsler, 1997) measured immediate recall, delayed recall, recognition and thematic recall. Immediate recall (i.e., the ability to recall information accurately directly after it was provided) was measured by part I of the LM test (LM-I). Participants listened to two short stories and immediately recalled them in detail. Delayed recall was examined through part II of the assessment (LM-II); participants recalled

the stories presented in LM-I after a 25–30-min delay. To assess delayed recognition, participants were asked yes/no questions about the two stories. Thematic recall (i.e., the ability to recall the general gist of each story) was measured during the LM-II task. All scores were converted to standardised scores, except recognition scores (raw score out of 30).

2.3.4. Depressive symptom severity

Symptom severity for participants with MDD was assessed using the Quick Inventory of Depressive Symptomatology-Self-Report 16-item scale (QIDS-SR-16; (Rush et al., 2003)), measuring nine domains of depressive symptom severity over the past week on a scale of 0–3 (total score between 0 and 27). Higher scores indicated greater symptom severity (0–5 indicated no depression, 6–10 indicated mild depression, 11–15 indicated moderate depression, 16–20 indicated severe depression, and 21–27 indicated very severe depression).

2.3.5. Psychotic symptom severity

Symptom severity for participants with FEP was measured using the Positive and Negative Syndrome Scale for Schizophrenia (PANSS; (Kay et al., 1987)), a 30-item rater-administered assessment which assesses presence and severity of positive and negative symptoms of psychosis. Items are scored using a 7-point scale. A score of 1 indicates absence of psychopathology and 7 indicates extremely severe psychopathology. Seven items constitute a Positive Symptoms Scale (range of scores = 7–49), seven items constitute a Negative Symptoms Scale (range of scores = 7–49) and 16 items form a General Psychopathology Scale (range of scores = 16–112). A total score ranging from 30 to 210 was calculated by summing subscale scores. Higher scores indicate greater symptom severity. A total score of 58 corresponds to a mild level of illness and a score of 116 or greater indicates severe illness (Leucht et al., 2005).

2.4. Procedure

Ethical approval was obtained from the Melbourne Health Human Research Ethics Committee (reference number 2015.041).

Potential participants from headspace, YMC or EPPIC were identified by their case manager, other researchers or were allocated for recruitment through an Orygen recruitment database. Potential participants were contacted via telephone. Potential participants from the IPU were identified by the clinical team, then approached directly to participate. Informed consent was obtained prior to data collection from the participant and their parent or guardian if the participant was under 18 years old. We were granted ethical approval to obtain retroactive consent if the participant was unable to consent at the time. This was to ensure a representative sample, given that many treatment decisions occur when individuals are acutely unwell. However, this was not needed as all participants were deemed by the referring clinician to be able to provide informed consent.

Data were collected during a single-session assessment lasting approximately 120 min, or over multiple sessions. Participants were reimbursed AUD$20. The assessments were administered by MS (Senior Research Fellow), CK (Master of Clinical Psychology student), and four additional students (two medical and two Honours). Training for all neuropsychological assessments was provided by KA (clinical neuropsychologist) and training for all remaining assessments was provided by MS. Training included mock interviews with interrater reliability assessed, then students observing MS conduct assessments and then MS observing students conduct assessments before independent assessments were conducted.

2.5. Statistical analyses

Data were analysed using IBM SPSS 26.0. To assess decisional capacity in young people with MDD, FEP or no mental disorder (Aim 1) descriptive statistics explored levels of decisional capacity among the whole sample, and each group. A Kruskal-Wallis *H* test determined whether level of decisional capacity (i.e., MacCAT-T total scores) differed significantly between groups.

To assess which theoretically relevant factors were associated with decisional capacity (Aim 2), Spearman's rank-order correlations examined bivariate relationships between decisional capacity (i.e., MacCAT-T total score) and age, symptom severity, level of insight and cognitive abilities. Correlations were calculated using data from the whole participant sample rather than within groups (except for the case of symptom severity and insight) to avoid limited power impairing detection of relationships.

A hierarchical multiple regression determined which factors contributed to variance in decisional capacity. As insight was not measured in HCs, and symptom severity was not measured consistently among patient groups, neither variable could be used as a predictor in the regression analysis. Categorical variables (i.e., highest level of education and diagnostic group) were recoded into dummy variables. All memory variables (immediate recall, thematic recall, delayed recall and recognition) were highly correlated with one another. To avoid multicollinearity, only thematic recall (i.e., gist recall) was included as a predictor. Thematic recall was selected since it had the greatest theoretical relevance to the measurement of decisional capacity in the present study, as the MaCAT-T requires participants to recall the gist of the information in their own words rather than recall verbatim. Hence, step 1 of the hierarchical multiple regression included demographic variables (age and education level), step 2 included cognitive abilities (IQ, TMT-A processing speed, TMT-B mental flexibility and LM-II thematic recall) and step 3 included diagnostic group (i.e., MDD, FEP or HC).

2.5.1. Preliminary data handling

Data were first explored for normality, missing data and outliers. Parametric statistics were used where distributional properties were normal and non-parametric tests were performed otherwise. Inspection of standardised scores for each variable revealed two extreme univariate outliers in excess of ±3.29 (Field, 2013) on the key outcome variable (i.e., MacCAT-T total score). However, both values reflected genuine assessments of very low decisional capacity. Hence, excluding these data was not considered appropriate (Osborne, 2010). Rather, to reduce the risk of these outliers biasing interpretation of parametric tests, nonparametric tests were undertaken where possible to compare decisional capacity between groups and examine correlations. Nonparametric tests were also considered most appropriate given that data on the key outcome variable were negatively skewed. To reduce the risk of outliers influencing the hierarchical multiple regression model the truncation method was used, wherein univariate outlier scores detected on all variables were changed to the nearest score that was not seriously suspect (Osborne, 2010). Overall, five scores were changed (two outliers on the decisional capacity variable, one outlier on the processing speed variable and two outliers on the mental flexibility variable) prior to undertaking the hierarchical regression analysis. For all tests missing data were excluded pairwise. Initial assumption testing confirmed linearity as assessed by partial regression plots and a plot of studentized residuals against predicted values. Independence of residuals was also observed as assessed by a Durbin-Watson statistic of 2.7. There was no evidence of multicollinearity as assessed by tolerance values greater than 0.1. One potential multivariate outlier with a studentized deleted residual value in excess of ±3 standard deviations was detected. However, no leverage values were found to be greater than 0.5, and no Cook's distance values were observed to be above 1. Thus, this data-point was not considered problematic and was retained (Cook and Weisberg, 1982; Tabachnick and Fidell, 2013). Normality could be assumed as determined by visual inspection of histogram and P-P plot. Visual inspection of a plot of studentized residuals versus unstandardized predicted values showed the spread of residuals to be moderately heteroscedastic. Hence, some caution in interpretation of results is advised and findings will require replication.

3. Results

3.1. Sample characteristics

Ninety-seven participants were recruited, comprising 38 in the HC group, 39 in the MDD group and 20 in the FEP group. One participant from the FEP group was excluded prior to data analysis, as they were too unwell to complete the assessment and were discharged before it could be rescheduled. Two other cases were removed prior to analysis due to invalid scores on MacCAT-T as a result of non-completion ($n = 1$; MDD group), and inadequate effort ($n = 1$; FEP group).

3.1.1. Demographic information

Demographic characteristics of all three groups are summarised in Table 1. We were unable to recruit any 15-year-olds to the study. Groups were not significantly different in terms of distribution of age, $\chi^2(2) = 5.914$, $p = .052$. Most participants had completed year 12 as their highest level of education and spoke English as their main language. A higher proportion of the HC group reported speaking a language other than English at home compared with the other two groups. This was not problematic given that participants all spoke fluent English, as per inclusion criteria.

3.1.2. Symptom severity

Twenty-one MDD participants (55.3%) were recruited from Orygen Mood Clinic, 14 (36.8%) were recruited from headspace and three (7.9%) were recruited from the Orygen Inpatient Unit. MDD participants' scores on the QIDS-SR-16 showed that depressive symptom severity ranged from full symptomatic remission to very severe ($M = 13.92$, $SD = 5.33$; range 4.00–26.00).

Twelve FEP participants (66.7%) were recruited from EPPIC outpatient sites and 6 participants (33.3%) were recruited from Orygen Inpatient Unit. One did not complete the full assessment due to impaired concentration. However, their data were included in analyses, as the main outcome measure (MacCAT-T) and two predictor measures were completed. Performance on the PANSS indicated that symptom severity varied in this group: positive symptom scores ranged from 7 to 30 ($M = 15.72$; $SD = 7.72$); negative symptoms scores ranged from 7 to 27 (mean = 13.67; SD = 6.34); general symptom scores ranged from 18 to 59 ($M = 32.89$; $SD = 13.47$); and total scores ranged from 36 to 113 ($M = 62.28$; $SD = 25.92$).

Table 1
Demographic characteristics of HC, MDD and FEP groups.

		HC group ($n = 38$)	MDD group ($n = 38$)	FEP group ($n = 18$)
Age	M (SD)	21.68 (2.27)	20.41 (2.35)	21.78 (2.78)
	Range	17–25	16–25	17–26[a]
Sex at birth				
Male	n (%)	20 (52.6%)	14 (36.8%)	9 (50.0%)
Female	n (%)	18 (47.4%)	24 (63.2%)	8 (44.4%)
Missing data	n (%)	–	–	1 (5.6%)
Ethnicity				
Australian	n (%)	11 (28.9%)	30 (78.9%)	8 (44.4%)
Other ethnicity	n (%)	27 (71.1%)	8 (21.1%)	9 (50.0%)
Missing data	n (%)	–	–	1 (5.6%)
Main language				
English	n (%)	27 (71.1%)	36 (94.7%)	11 (61.1%)
Other	n (%)	11 (28.9%)	2 (5.3%)	4 (22.2%)
Missing data	n (%)	–	–	3 (16.7%)
Highest level of education				
Year 10 or below	n (%)	1 (2.6%)	1 (2.6%)	4 (22.2%)
Year 11	n (%)	2 (5.3%)	5 (13.2%)	3 (16.7%)
Year 12	n (%)	18 (47.4%)	20 (52.6%)	5 (27.8%)
Certificate 3 or 4	n (%)	1 (2.6%)	2 (5.3%)	2 (11.1%)
Diploma	n (%)	1 (2.6%)	2 (5.3%)	–
Undergraduate degree	n (%)	15 (39.5%)	8 (21.1%)	4 (22.2%)
Post-graduate degree	n (%)	–	–	–

[a] One 26-year old participant was included given that they were still within an episode of care at EPPIC and met FEP criteria, thus were still considered to be part of the population of interest.

3.2. Decisional capacity of the groups

Table 2 shows the MacCAT-T performance for each group. Seventy-seven percent of the total participant sample had adequate treatment-decision capacity. Most participants within the HC group (86.8%) and MDD group (84.2%) demonstrated adequate decisional capacity. Only 44.4% of participants with FEP demonstrated adequate decisional capacity. Notably, 44.4% of young people in inpatient care (i.e., young people diagnosed with MDD or FEP in the IPU) had adequate decisional capacity.

Distributions of MacCAT-T scores significantly differed between groups, $\chi^2(2) = 8.55$, $p = .014$. Post-hoc pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons (Dunn, 1964). Statistical significance was accepted at the $p < .017$ level. Post-hoc analyses revealed significant differences in mean rank MacCAT-T scores between the FEP group (30.64) and MDD group (50.95), $p = .009$, and FEP group and HC group (52.04), $p = .006$, but not between the HC group and MDD group, $p = .861$.

3.3. Relationships between decisional capacity, age, symptom severity, cognitive abilities and insight

3.3.1. Decisional capacity and age

There was no significant relationship between decisional capacity and age in the whole participant sample, $r_s(92) = 0.043$, $p = .680$.

3.3.2. Decisional capacity and symptom severity

The relationship between decisional capacity and depressive symptom severity (i.e., total QIDS-16-SR score) among the MDD group was not significant, $r_s(36) = -0.320$, $p = .050$. In FEP, decisional capacity was associated with positive symptoms ($r_s = -0.696$, $p = .001$), negative symptoms ($r_s = -0.551$, $p = .018$), general symptoms ($r_s = -0.478$, $p = .045$), and overall symptom severity i.e., total PANSS score ($r_s = -0.603$, $p = .008$), such that higher symptom levels were associated with poorer decisional capacity.

3.3.3. Decisional capacity, cognitive abilities and insight

Table 3 summarises scores on cognitive ability and insight within each group. To examine relationships between decisional capacity and cognitive abilities, Spearman's rank-order correlations were performed on the whole participant sample. The relationship between decisional

Table 2
Summary of MacCAT-T scores for the HC, MDD and FEP groups.

		HC group $n = 38$	MDD group $n = 38$	FEP group $n = 18$
Decisional capacity				
MacCAT-T				
Understanding subscale	M, SD (range)	4.90, 0.63 (3.31–5.90)	5.29, 0.82 (3.00–6.00)	4.44, 1.49 (0.00–5.83)
Appreciation subscale	M, SD (range)	4.00, 0.00 (4.00–4.00)	3.96, 0.60 (3.00–7.00)	3.28, 1.13 (0.00–4.00)
Reasoning subscale	M, SD (range)	7.53, 0.89 (4.00–8.00)	6.68, 1.63 (1.00–8.00)	5.20, 2.69 (1.00–8.00)
Expressing a choice subscale	M, SD (range)	2.00, 0.00 (2.00–2.00)	1.97, 0.16 (1.00–2.00)	1.67, 0.59 (0.00–2.00)
MacCAT-T Total	M, SD (range)	18.43, 1.19 (14.13–19.90)	17.90, 2.27 (10.00–20.00)	14.92, 5.00 (2.00–19.60)

Note. Lower scores on the MacCAT-T indicate poorer decisional capacity. Cut-off scores were ≤4 for understanding, ≤2 for appreciation, ≤5 for reasoning and = 2 for expressing a choice. See method for justification.

Table 3
Performance on insight and cognitive measures for HC, MDD and FEP groups.

		HC group $n = 38$	MDD group $n = 38$	FEP group $n = 18$
Insight				
SUM-D total score	M, SD (range)	–	4.66, 1.62 (3–10)	9.39, 4.73 (3–19)
Cognition				
Predicted IQ				
WRAT word reading score (standard score)	M, SD (range)	107.11, 14.74 (75–136)	116.39, 12.66 (90–142)	100.35*, 15.46 (76–139)
Processing speed				
TMT-A score (whole seconds)	M, SD (range)	23.39, 5.75 (11–37)	25.76, 7.91 (13–46)	40.82*, 42.19 (17–199)
Mental flexibility				
TMT-B score (whole seconds)	M, SD (range)	56.37, 28.50 (29–204)	64.82, 25.86 (42–172)	116.05*, 102.12 (39–439)
Memory				
Immediate recall	M, SD (range)	12.21, 3.35 (5–18)	11.29, 3.33 (2–17)	7.76*, 0.80 (2–13)
LM-I scaled score				
Thematic recall	M, SD (range)	11.39, 3.03 (2–15)	9.76, 3.64 (1–15)	6.71*, 3.50 (1–11)
LM-II thematic scaled score				
Delayed recall	M, SD (range)	13.24, 3.14 (6–18)	11.26, 3.78 (1–17)	7.24*, 3.07 (1–13)
LM-II scaled score				
Recognition	M, SD (range)	26.16, 2.60 (18–30)	26.61, 2.51 (16–30)	23.94**, 3.49 (16–29)
Total recognition score (raw score)				

Note. Lower scores on SUM-D, TMT-A and TMT-B indicate better performance. Higher scores on all other measures listed indicate better performance. For the FEP group $n = 18$ unless otherwise stated. *Indicates $n = 17$ **Indicates $n = 16$. Different n values reflect participants who did not complete the entire assessment battery.

capacity and predicted IQ (i.e., standardised WRAT score) was not significant, $r_s(91) = 0.078$, $p = .457$. There was no significant relationship between decisional capacity and processing speed (i.e., TMT-A score), $r_s(91) = -0.136$, $p = .194$, or mental flexibility (i.e., TMT-B score), $r_s(91) = -0.123$, $p = .240$. Significant positive relationships were found between decisional capacity and all four memory variables. Specifically, greater decisional capacity was associated with higher scores on immediate recall (i.e., LM-I scaled score), $r_s(91) = 0.470$, $p < .001$, thematic recall (i.e., LM-II thematic scaled score), $r_s(91) = 0.497$, $p < .001$, delayed recall (i.e., LM-II scaled score), $r_s(91) = 0.522$, $p < .001$ and recognition (i.e., total recognition score), $r_s(90) = 0.253$, $p = .015$.

3.3.4. Decisional capacity and level of insight

No significant relationship was found between decisional capacity and insight in the MDD group, $r_s(36) = 0.041$, $p = .805$. There was a significant negative relationship between decisional capacity and insight in the FEP group, $r_s(16) = -0.827$, $p < .001$, demonstrating that greater insight was associated with higher levels of decisional capacity in the FEP group.

3.4. Hierarchical regression – predictors of decisional capacity

Table 4 displays the final hierarchical multiple regression model (Model 3). Step 1 showed that demographic information alone did not significantly explain variance in decisional capacity ($R^2 = 0.015$, $F(2,90) = 0.701$, $p = .499$). Step 2 demonstrated that cognitive abilities collectively explained a significant proportion of the variance in decisional capacity ($\Delta R^2 = 0.363$, $F(4, 86) = 8.711$, $p < .001$), above all other variables. However, thematic recall was the only statistically significant independent predictor of decisional capacity ($p < .001$). At step 3, diagnostic group did not significantly contribute to the model above demographic and cognitive variables ($\Delta R^2 = 0.017$, $p = .305$). The final model with all variables was significant ($R^2 = 0.395$, $F(2, 84) = 6.865$, $p < .001$).

4. Discussion

This study provides the first assessment of decisional capacity in young people with mental ill health, and provides foundational work for future research to explore changes in decisional capacity over the course of illness. Consistent with expectations, most young people had adequate capacity to make treatment decisions. Specifically, most young people with MDD or no mental disorder had adequate decisional capacity, with no significant difference between the two groups. Fewer than half of those with FEP demonstrated adequate decisional capacity, which was significantly poorer than other groups.

Our final hypothesis was partially supported, in that some theoretically relevant factors were associated with, or predictive of, decisional capacity. Greater symptom severity and poorer insight were associated with poorer decisional capacity in FEP, but not MDD. In the whole sample, age and level of education did not predict decisional capacity, nor did diagnostic group after accounting for cognitive ability. Cognitive abilities (i.e., predicted IQ, processing speed, mental flexibility and thematic recall) explained 36.6% of the variance in decisional capacity. Verbal memory (specifically thematic recall) was the only individual predictor of decisional capacity.

These findings are consistent with adult populations showing that most adults with mental disorders retain decisional capacity (Spencer et al., 2017), and that people with psychotic disorders are more likely to experience impaired decisional capacity than individuals with non-psychotic disorders (Boettger et al., 2015; Owen et al., 2009). As in the current study, some studies demonstrated no relationship between age and decisional capacity among adults with psychotic disorders (Palmer and Jeste, 2006; Pons et al., 2020), yet others have found greater capacity in younger individuals (Pons et al., 2020). Prior research regarding the relationship between symptom severity and decisional capacity among adults with psychotic disorders has yielded inconsistent results. Our study supports meta-analyses demonstrating a negative association between psychotic symptom severity and

Table 4
Results from the final hierarchical regression model (Model 3) examining predictors of decisional capacity.

Steps	Predictor variables	Unstandardised coefficients		Standardised coefficients	t	Sig.	Correlations		
		B	Std. error	Beta			Zero-order	Partial	Part
Step 1	Age	−0.088	0.103	−0.089	−0.851	0.397	0.010	−0.092	−0.072
	Highest level of education	0.407	0.505	0.081	0.806	0.422	0.112	0.088	0.068
Step 2	Predicted IQ	−0.015	0.017	−0.094	−0.901	0.370	0.105	−0.098	−0.076
	Processing speed	−0.046	0.028	−0.170	−1.646	0.103	−0.289	−0.177	−0.140
	Mental flexibility	0.007	0.008	0.103	0.900	0.371	−0.215	0.098	0.076
	Thematic recall	0.358	0.066	0.550	5.414	0.000*	0.576	0.509	0.459
Step 3	FEP (vs HC)	−0.850	0.696	−0.136	−1.220	0.226	−0.379	−0.132	−0.103
	MDD (vs HC)	0.194	0.516	0.039	0.375	0.708	0.059	0.041	0.032

Note. $N = 93$. $R^2 = 0.015$ for step 1; $\Delta R^2 = 0.363$ for step 2 ($p < .001$); $\Delta R^2 = 0.017$ for step 3 ($p = .305$). * indicates $p < .0$.

decisional capacity (Calcedo-Barba et al., 2020; Larkin and Hutton, 2017). Our findings are consistent with the only study to have investigated the relationship between symptom severity and decisional capacity among individuals with MDD, which did not find an association (Appelbaum and Grisso, 1995).

The proportion of those with adequate decisional capacity in the current sample of young people with FEP (44.4%), despite being the most impaired in this study, is greater than estimates in adult populations with psychosis. Boettger et al. (2015) found that less than a quarter with any psychotic disorder had adequate decisional capacity. Similarly, a recent meta-analysis demonstrated that 26% of adults with schizophrenia or a non-affective disorder demonstrated capacity (Calcedo-Barba et al., 2020). It is possible that factors potentially related to decisional capacity such as general impairment, poorer insight, and/or increased symptom severity are more common (but not universal) in chronic adult populations, especially involuntarily-admitted inpatient cohorts, than in the present young FEP sample. However, we note that our sample is relatively small and we were unable to make comparisons between inpatient and outpatient participants, with further research needed to directly compare decisional capacity in varying psychosis samples.

Our findings are consistent with Owen et al. (2009) who likewise found that poor insight is a strong predictor of decisional capacity among adults with psychotic disorders, but not depressive disorders (Owen et al., 2009). This may be because insight varies more in psychosis than depression (Owen et al., 2009), which is consistent with our finding that few participants with MDD had low insight compared with those with FEP. The finding that level of education did not predict decisional capacity is inconsistent with prior research (Woodrow et al., 2019). This could be explained by the limited range within this variable in the present study, which may not be sufficiently diverse to detect an association.

Our finding that cognitive abilities collectively explain a significant proportion of the variance in decisional capacity is consistent Palmer and Jeste (2006), who found that cognitive test scores most strongly predicted decisional capacity among adults with schizophrenia (Palmer and Jeste, 2006). Moreover, our study identified verbal memory as the strongest individual predictor of capacity, which is consistent with the importance of information retention for making an informed decision (Kaup et al., 2011).

The present findings have important theoretical and clinical implications. First, they suggest that collaborative decision-making approaches are clinically appropriate for most adolescents and young adults (including those receiving acute inpatient care), which is promising for enhancing treatment engagement. Second, this study supports existing literature that diagnosis alone is not sufficient to predict decisional capacity (Spencer et al., 2017). Compared to adult cohorts (Boettger et al., 2015), capacity is heterogeneous within diagnostic groups, such that diagnosis is a less reliable predictor of capacity than other variables, such as cognitive functioning (Palmer and Jeste, 2006). Additionally, the ability to recall the gist of information is a good indicator of capacity. This is clinically significant for working with young people who may have difficulty recalling treatment-related jargon verbatim, leading to underestimation of capacity. It is important that young people advise on youth-appropriate communication strategies in the development of resources to support treatment decision making (e.g., fact sheets, decision aids, and training for healthcare professionals). Our results suggest that a subgroup of young people who experience FEP will lack decisional capacity. Finding ways to support these young people requires screening and tailored support, including mechanisms to uphold their legal right to involvement in their care (Valentine et al., 2020).

Importantly, our study suggests that verbal recall plays a key role in decisional capacity. Treatment decision-making for people with verbal memory difficulties should be supported by compensatory methods or adaptation of the informed consent processes. Kaup et al. (2011) recommended that informed consent procedures may be improved for adults diagnosed with schizophrenia by providing information in a way that facilitates learning and memory, including iterative disclosure of information, corrective feedback, and emphasis of key points (Kaup et al., 2011). Research in this population indicates significant improvements in decisional capacity following educational interventions (Moser et al., 2006). The same may be true for young people, yet there is a paucity of existing youth-specific resources. Future trials should investigate the impact of memory supports and strategies on decisional capacity.

Limitations of this study include the small sample size of the FEP group and the sample overall, which may have limited our power in the regression analysis. Furthermore, a greater proportion of the FEP group were recruited from tertiary mental health settings compared with the MDD group, allowing the possibility that the FEP group experienced greater overall impairment. There is a need for replication as the FEP participants may have been more likely to be acutely unwell and lack capacity than the broader population of young people with psychosis. Symptom severity was not measured consistently across groups, preventing its inclusion in the regression analysis. High comorbidity within the FEP and MDD groups was not accounted for in analyses, potentially influencing results. In addition, laws in relation to treatment-decision making are complex within the child/adolescent age group and vary by country and jurisdiction. Our findings need to be interpreted within the Australian context and may not be generalisable to other settings. Future studies should use a general symptom screening measure for all participants, e.g., the Brief Psychiatric Rating Scale (Ventura et al., 1993), allowing for analysis of comorbidity as a covariate. Future studies should measure symptom severity and insight consistently across groups to facilitate group comparisons and determine their value as predictors of capacity. Future longitudinal research may also assess changes in decisional capacity from FEP to chronic psychosis.

This study was the first to explore treatment-related decisional capacity in young people with and without mental disorders. Most young people have adequate decisional capacity for treatment decisions, though those experiencing FEP may be more likely to exhibit impairments. Interventions that consider verbal recall may improve decisional capacity in this group, enhancing the likelihood that young people with impaired capacity can be involved in their treatment decisions. This study encourages the advancement of treatment engagement, so that individuals can be involved in healthcare decisions throughout their illness.

CRediT authorship contribution statement

Chiara Killey: Formal analysis, investigation, data curation, writing (original draft), writing (review and editing); Kelly Allott: Conceptualization, methodology, formal analysis, writing (review and editing), supervision; Sarah Whitson: Writing (review and editing); Shona Francey: Conceptualization, methodology, formal analysis, writing (review and editing); Christina Bryant: Formal analysis, writing (review and editing), supervision; Magenta Simmons: Conceptualization, methodology, formal analysis, investigation, writing (review and editing), supervision, project administration, funding acquisition.

Declaration of competing interest

None of the authors have any conflicts to declare.

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