

Psychiatric symptoms, challenging behaviour and utilization of psychiatric services among adults with intellectual disabilities in Turkey

Aynur Gormez¹  | Ayse Kurtulmus²  | Zeynep Ince³ | Perihan Torun⁴ | Omer Uysal⁵ | Serhat Citak¹

¹Department of Psychiatry, Istanbul Medeniyet University, Istanbul, Turkey

²Department of Psychiatry, Bezmialem Vakif University, Istanbul, Turkey

³Bagcilar Basak Special Education and Rehabilitation Centre, Istanbul, Turkey

⁴Department of Public Health, Bezmialem Vakif University, Istanbul, Turkey

⁵Department of Statistics, Bezmialem Vakif University, Istanbul, Turkey

Correspondence

Aynur Gormez, Department of Psychiatry, Istanbul Medeniyet University, Merdivenkoy Mah. Ressay Salih Ermez Cd., Kadikoy, Istanbul, Turkey.
Email: aynurdemirel@yahoo.com

Funding information

This study was part of the TUBITAK BIDEB-2232 project (ID: 115C015) funded by The Scientific and Technological Research Council of Turkey.

Abstract

Background: The aim of this study was to investigate the prevalence of and the factors associated with psychiatric symptoms (PS) and challenging behaviour (CB) in adults with intellectual disabilities, and the utilization of psychiatric services in Turkey.

Method: Psychiatric Assessment Schedule for Adults with Developmental Disorders Checklist-Revised was used for PS and a structured form for other variables in 771 participants.

Results: Of the participants, 50.1% had PS and 36.4% presented with CB. Multivariate analysis revealed that a higher level of needs, better verbal ability, residential living, incontinence and CB, and lifetime suicidal ideation/attempt were independently associated with PS. For CB, it emerged as male carer, PS, lifetime suicidal attempt/ideation, lower level of verbal ability and autism spectrum disorder. Barriers were experienced by 64.7% of participants within the previous year.

Conclusions: Psychiatric symptoms and CB seem to be problems for a significant proportion of adults with intellectual disabilities in Turkey, and there are certain barriers to psychiatric services.

KEYWORDS

associated factors, challenging behaviour, intellectual disabilities, mental health, prevalence, psychiatric symptoms, service utilization

1 | INTRODUCTION

Approximately 1% of the population has intellectual disabilities, defined as a significant deficits in cognitive and adaptive functions with onset during the developmental period (American Psychiatric Association, 2013). People with intellectual disabilities seem to have more risk factors for psychiatric disorders, such as neurodevelopmental factors, communication difficulties, social isolation and stigmatization. Despite variations of prevalence figures from 13.9% to 75.2% in the literature, it is now widely accepted that adults with

intellectual disabilities experience mental health problems at least as often as the general population (Buckles, Luckasson, & Keefe, 2013). There are several possible reasons for the wide discrepancy of these findings, including variations in the definition of intellectual disabilities and mental disorders, selection of study sample, procedures of identification and assessment of cases, and use of different diagnostic criteria (Smiley, 2005).

Mental health assessment is inherently a difficult task in people with intellectual disabilities, and clinicians face several challenges during the process. Communication difficulties, level of intellectual

disabilities, presence of co-existing developmental delays and comorbid physical health problems tend to complicate the clinical picture, which can lead to under-diagnosis or misdiagnosis of psychiatric problems. Mental health problems in individuals with intellectual disabilities often present in an unconventional fashion, such as problem behaviours, leading to “diagnostic overshadowing” in which behaviour stemming from a health or psychiatric condition is erroneously attributed to the intellectual disabilities. Moreover, there are concerns that psychiatric classification systems are developed for the general population and may not be reliably applicable for people with intellectual disabilities (Matson, Belva, Hattier, & Matson, 2012; Matson & Shoemaker, 2011).

In addition, people with intellectual disabilities are at increased risk of presenting with challenging behaviour (CB), defined as behaviour of an intensity, frequency or duration that threatens the physical safety of the person or others or restricts access to community facilities (Emerson et al., 2001). Studies report that 10%–30% of people with intellectual disabilities present with CB (Emerson et al., 2001; Myrbakk & von Tetzchner, 2008; Sheehan et al., 2015), which adversely affects the life of the individual, including the risk of out-of-home placement, exclusion from community facilities, exposure to abuse and restrictive practices (Beadle-Brown, Murphy, & DiTerlizzi, 2009; Beadle-Brown, Murphy, & Wing, 2006; Kozma, Mansell, & Beadle-Brown, 2009; Myrbakk & von Tetzchner, 2008).

Research undertaken in many developed countries has reported that people with intellectual disabilities have poorer physical health than their non-disabled counterparts (Ouellette-Kuntz, 2005; Scotland, 2004; Sutherland, Couch, & Iacono, 2002; van Schrojenstein Lantman-de & Walsh, 2008) and that poor physical health is also associated with mental health problems (Cooper, Smiley, Morrison, Williamson, & Allan, 2007b). Additionally, there may be psychiatric sequelae to some of the physical health needs and/or side effects to drugs and drug combinations. There are also studies indicating an association between CB and some physical health problems (De Winter, Jansen, & Evenhuis, 2011). In some instances, CBs result from the pain associated with untreated medical disorders (Kwok & Cheung, 2007; Ryan & Sunada, 1997).

Despite the high prevalence of mental health problems, CB and physical health problems in people with intellectual disabilities, many individuals continue to face barriers in accessing appropriate and adequate services. Access to and use of psychiatric services have been a concern since the deinstitutionalization of this population in the 1970s. There are few studies investigating the concept of accessibility of mental health services as compared to general health services (Buckles et al., 2013; Cooper et al., 2007b). A recent review of English-language articles between 2005 and 2016 from multiple countries identified 12 empirical research articles, eight review articles and 12 grey-literature documents (Whittle, Fisher, Reppermund, Lenroot, & Trollor, 2018). Studies usually state that barriers to accessing services are the primary reason that prevents individuals with intellectual disabilities or their carers from care. Organizational barriers, lack of services and poor-quality services

(related to lack of training for practitioners) were found to be main barriers reported in this review.

Another deficit in the literature related to the mental health of individuals with intellectual disabilities is related to the geographic location of past research. Although there are a few studies conducted in Turkey regarding the mental health of children and adolescents with intellectual disabilities (Aktepe & Sönmez, 2012; Kaya, Cilli, Aşkın, & Şahinoğlu, 1997), to our knowledge, there is only one study conducted on mental health of adults with intellectual disabilities in Turkey (Gormez & Kirpınar, 2017a). This past study on adults employed a similar recruitment strategy to the present study but was conducted on a smaller sample size ($n = 151$), and rather than screening for psychiatric symptoms, the researchers investigated the presence of psychiatric disorders and CB through clinical examination based on DSM-5 criteria. It also did not evaluate uptake of mental health services or problems associated with accessibility in the country.

The aim of this study is to determine the prevalence of, and the factors independently associated with, psychiatric symptoms (PS) and CB in adults with intellectual disabilities and to investigate the utilization of psychiatric services, including barriers to uptake, experienced by people with intellectual disabilities or their carers/families.

2 | METHOD

2.1 | Ethics

The study was carried out in accordance with ethical principles for medical research involving humans (WMA, Declaration of Helsinki), and ethical approval was obtained from the relevant research ethics committee. Consent was obtained from the person with intellectual disabilities if the person had the mental capacity to make an informed decision, otherwise carers/families of the person with intellectual disabilities made decision on their behalf.

2.2 | Participants

The study sample included adults with intellectual disabilities living in different parts of Istanbul, a metropolis with a population of 15 million people similar in socioeconomic terms to Turkey as a whole. In order to reach as representative of a sample as possible, people with intellectual disabilities were recruited through various social, educational and healthcare services. Participants were contacted through primary care (general practitioner centres), day centres (e.g., community special education and rehabilitation centres which provide skills/vocational training and daytime activities for all individuals with intellectual disabilities) and care homes.

Participants were also recruited through the new patient psychiatry clinic of Göztepe Training and Research Hospital, and the disabilities committee of the same hospital where assessments are

carried out by medical health board which includes psychiatrists in order to evaluate eligibility for social benefits provided by the local government for people with disabilities, over a period of May 2016 to October 2017.

2.3 | Assessment tools

Psychiatric symptoms were evaluated using the Psychiatric Assessment Schedule for Adults with Developmental Disorders (PAS-ADD) Checklist (Revised), which is a screening tool used for adults with intellectual disabilities to help with the detection of possible psychiatric disorders (Moss, 2002). Questions are designed using lay language so the checklist can be completed by non-professionals who know the person with intellectual disabilities but have no training in psychopathology. The checklist has 25 items. It is scored on a four-point scale about psychiatric symptoms observed in the past 4 weeks. The 25 items of the PAS-ADD Checklist (Revised) result in three possible diagnostic categories: (a) possible organic disorder, (b) possible affective or neurotic disorder and (c) possible psychotic disorder. Each diagnostic category has a threshold value (6 for affective/neurotic, 5 for organic, 2 for psychotic), indicating the person with intellectual disabilities can be referred to an appropriately qualified professional for a full mental health assessment. The PAS-ADD Checklist (Revised) was recently validated for Turkish-speaking populations by a study carried out in Turkey (Görmez & Kırpınar, 2017b), which showed its utility as a general screening tool for psychiatric disorders in clinical practice. PAS-ADD Checklist (Revised) also includes a section about life events in the past 2 years experienced by the person with intellectual disabilities, such as illness or bereavement.

In addition to the PAS-ADD Checklist (Revised), data on various socio-demographic and relevant clinical variables were collected using a structured data collection form designed by the researchers. Forms were filled out by carers/family members who have known the person for at least 6 months. The form included questions about the level of intellectual disabilities, level of support needed by the person, CB, autism spectrum disorder (ASD) diagnosis, medical conditions, daytime activities and access/utilization of psychiatric services. Level of intellectual disabilities was recorded from mild to profound if there was a previous intelligence assessment known to the carer. Level of support needed by the person was recorded in two categories of low or high, depending on the level of support/help the individual needed for activities of daily living. For CB, carers were provided with a general description of CB in line with the definition by Emerson et al. (1987) as "any behaviour of an intensity, duration or frequency which puts others or the person at risk, or prevents the person from participating in ordinary community facilities." If CB was present, caregivers were directed to choose from a list of four different types of CB: self-injurious behaviour (harming or hurting him/herself), aggression towards objects around them, hurting or aggression towards people, and hyperactivity and/or making excessive noise to an extent which causes disruption to environment.

For ASD diagnosis, informants reported any previous diagnosis of ASD. Medical conditions, including epilepsy and incontinence, were also based on prior diagnoses. There was also a question in the form about whether the person with intellectual disabilities had a structured daytime activity, such as attending a day centre.

Regarding access to and utilization of psychiatric services, carers were asked to report if the person with intellectual disabilities underwent any psychiatric assessment, lifetime and/or in the previous year, and if they were receiving any psychotropic medications at the time of the study. If the person with intellectual disabilities had contact with psychiatric services within the previous year, carers were directed to a section about caregivers' experience of services. This section was composed of a list of possible barriers: difficulties with getting an appointment with a psychiatrist, difficulties with bringing the person with intellectual disabilities to the hospital, difficulties while waiting for the assessment and/or treatment process in the hospitals, and any other problems. Carers ticked off one or more of the options depending on their experience of mental health services.

2.4 | Statistical analysis

Data were analysed using SPSS version 25 (SPSS Inc.). In addition to descriptive statistics, first univariate analyses were conducted to explore the associations between the presence of PS which are determined according to the cut-off scores of the PAS-ADD Checklist (Revised) as described above, CB and related factors which included gender of the person with intellectual disabilities and their carer, age of the person, place of residence, level of intellectual disabilities, verbal ability, level of support needed, physical disability, incontinence, diagnosis of ASD, epilepsy, other medical comorbidities, psychiatric contact (lifetime and the previous year), lifetime suicidal ideation/attempt, life events within the past 2 years, daytime activity by using chi-square analyses for categorical variables and Student's *t* test for continuous variables. Then, multivariate logistic regression analyses were conducted to identify the unique contribution of relevant predictors on the risk of having psychiatric symptoms and challenging behaviour separately. Correlates that showed statistical significance at p -value $<.05$ in the group comparisons were included in the regression analysis.

Sample sizes vary because of missing data. Valid percentages were given for all analyses by excluding missing cases for each dependent variable. All analyses were two-tailed with α set at .05.

3 | RESULTS

3.1 | Characteristics of the sample

Out of 1,000 people contacted, 771 adults with intellectual disabilities participated in the study. The majority of participants (64.7%) were recruited through day centres, followed by care homes (10.6%), psychiatry new patient outpatients (9.7%), hospital

disabilities committee (6.7%) and general practitioners (2.6%). The remaining 6.2% were contacted by other means. The age range was 18–63 years with a mean of 26.06 ± 6.93 .

There were more males than females in the sample (62.7% vs. 37.3%). Most were living with their families (84.7%). The most common intellectual disability level was moderate (42.1%), followed by severe (31.9%), mild (20.1%) and profound (6.0%). Of the participants, 82.3% had some sort of daytime activity. Physical comorbidities were common in the sample: 23.1% had physical disabilities, one fifth (20.2%) had epilepsy, one fifth (19.8%) had another medical comorbidity, and 17.3% experienced incontinence. According to carers' reports, 26.1% of the participants had a diagnosis of ASD. Lifetime suicidal ideation and/or attempt was reported for 4.6% of people with intellectual disabilities. Based on caregiver report, 45.8% had good verbal ability and 11.8% did not have any verbal skills. Verbal skills were limited to a few words in nearly one quarter (24.1%) and a few sentences in nearly one fifth (18.3%) of the people with intellectual disabilities. A high level of help and support with activities of daily living was needed by 45.2% of the individuals studied.

3.2 | Psychiatric symptoms and challenging behaviour

The prevalence of PS and CB in the sample is presented in Table 1. According to PAS-ADD Checklist (Revised), 50.1% met the threshold for a possible psychiatric disorder: 26.9% met the threshold for one, 16.5% for two and 6.7% for three possible psychiatric disorders. Challenging behaviour was displayed by 36.4% of people with intellectual disabilities, hyperactivity being the most common type, followed by aggression towards objects, self-injurious behaviour and aggression towards people (Table 1).

The findings from the univariate analysis for PS are presented in Table 2. Factors associated with PS were as follows: having a male

TABLE 1 Psychiatric symptoms and challenging behaviour

	n	%
Psychiatric symptoms ^a (n: 699)		
(possible) Affective disorder	300	42.9
(possible) Psychotic disorder	164	23.5
(possible) Organic disorder	95	13.6
Challenging behaviour (n: 742)		
Disruptive hyperactivity	153	20.6
Aggression towards objects	102	13.7
Self-injurious behaviour	95	12.8
Aggression towards people	85	11.5
One problem behaviour	171	23.0
Two problem behaviours	52	7.0
Three or more problem behaviours	47	6.3

^aDetected by PAS-ADD Checklist (Revised).

carer, living in a care home, needing a higher level of support, displaying challenging behaviour, having incontinence, lower level of intellectual ability, lower verbal ability, comorbid ASD diagnosis, life events within the past 2 years, past psychiatric contact and lifetime suicidal ideation/attempt. There was no relation found between PS and gender, age, comorbid physical disabilities, epilepsy, other medical conditions or the presence of daytime activities (Table 2).

The findings of the univariate analyses for CB are presented in Table 3.

Factors associated with CB were as follows: male gender, having a male carer, living in a care home, needing a higher level of support, having incontinence, comorbid ASD diagnosis, lower verbal ability, more severe intellectual disabilities, comorbid PS, psychiatric contact, lifetime suicidal ideation/attempt and absence of daytime activities. People with physical disabilities and/or medical comorbidities were less likely to exhibit CB. Life events and epilepsy were not associated with CB.

3.3 | Logistic regression analyses on psychiatric symptoms and challenging behaviours

A multivariate logistic regression analysis was performed to ascertain the independent effects of gender of the carer, place of residence, level of support needed, level of intellectual disabilities, incontinence, ASD, verbal ability, CB, lifetime suicidal ideation/attempt and life events on the likelihood that participants have psychiatric symptoms. Residential living, high level of support needed, better verbal ability, having incontinence, CB and lifetime suicidal ideation/attempt were independently associated with an increased likelihood of exhibiting PS (Table 4).

Additionally, another logistic regression analysis was performed to ascertain the effects of the gender of the person, gender of the carer, place of residence, level of support needed, level of intellectual disabilities, incontinence, ASD, verbal ability, psychiatric comorbidity, lifetime suicidal ideation/attempt and daytime activity on the likelihood that participants have CB. Male carer, lower verbal ability, presence of psychiatric comorbidity, lifetime suicidal ideation/attempt and ASD were independently associated with an increased likelihood of exhibiting CB (Table 4).

The other variables were not found to be independently associated with PS or CB.

3.4 | Contact with psychiatric services and experience of carers

Based on carer report, 31% of the adults with intellectual disabilities ($n = 228$) had not seen a psychiatrist during their lifetime either for clinical or social benefit eligibility assessment purposes. Those who had contact with psychiatric services within the past year (48% of participants) reported some difficulties in the process as described in Table 5.

	Psychiatric symptoms +	Psychiatric symptoms -	Test statistics	p
	% (n)	% (n)		
Gender of the person (male %)	63.1 (221)	62.4 (217)	$\chi^2 = 0.05$	.83
Gender of the carer (male %)	13.7 (47)	5.8 (20)	$\chi^2 = 12.32$	<.001
Place of residence ^b (care home %)	20.7 (72)	6.0 (21)	$\chi^2 = 32.46$	<.001
Level of support needed (high %)	51.8 (157)	37.5 (118)	$\chi^2 = 12.89$	<.001
Physical disability (yes %)	23.2 (79)	21.7 (75)	$\chi^2 = 0.22$	.64
Incontinence (yes %)	20.9 (71)	13.6 (47)	$\chi^2 = 6.33$	.01
Autism spectrum disorder (yes %)	33.3 (110)	16.9 (55)	$\chi^2 = 23.40$	<.001
Epilepsy (yes %)	22.6 (74)	17.2 (58)	$\chi^2 = 2.99$	.08
Medical comorbidity (yes %)	20.6 (70)	18.9 (64)	$\chi^2 = 0.34$	.56
Lifetime psychiatric contact (yes %)	78.4 (261)	58.9 (198)	$\chi^2 = 29.38$	<.001
Psychiatry contact within the previous year (yes %)	58.8 (193)	35.8 (114)	$\chi^2 = 34.23$	<.001
Challenging behaviour—any type (yes %)	49.9 (168)	21.5 (73)	$\chi^2 = 59.07$	<.001
Life events (yes %)	40.6 (132)	27.2 (88)	$\chi^2 = 12.92$	<.001
Lifetime suicidal ideation/attempt (yes %)	6.3 (21)	2.4 (8)	$\chi^2 = 6.25$	.01
Daytime activity (no %)	18.6 (62)	15.8 (53)	$\chi^2 = 0.95$	.33
Verbal ability ^c	1.94 ± 1.08	2.14 ± 1.01	$t(676) = 2.42$	.02
Level of intellectual disabilities ^d	2.30 ± 0.84	2.11 ± 0.78	$t(672) = -3.05$	.002
Age	25.85 ± 7.33	26.10 ± 6.52	$t(639) = 0.46$	.65

^aNs vary because of missing data.

^bParticipants who chose "other" option not included in the analysis due to small number.

^cAs measured by a Likert scale. Possible scores range from 0 to 3, with higher scores indicating better verbal ability.

^dAs measured by a Likert scale. Possible scores range from 1 to 4, with higher scores indicating greater severity.

p values with statistical significance (<.05) were presented in bold.

Difficulties experienced with getting the person with intellectual disabilities to a hospital (35.8% vs. 18.0%, $p < .001$, $\chi^2 = 13.43$) and with having to wait (53.1% vs. 30.4%, $p < .001$, $\chi^2 = 17.79$) in hospitals were reported more frequently in patients with CB. There was no significant difference between the patients with and without PS regarding the challenges experienced ($p = .11$; $p = .06$; $p = .22$ for difficulties with getting an appointment, bringing the person to the hospital and having to wait, respectively).

3.5 | Use of psychotropics

Before conducting descriptive analyses for the use of psychotropic medications, 52 people who used antiepileptic medications for epilepsy and were not receiving any other psychotropics were excluded from the analysis. Among the remaining 577 people with intellectual disabilities who reported medication use, 200 people (34.7%)

were on one psychotropic, 14.7% were on two psychotropics, 4.2% were on three psychotropics, and three people were on four or more psychotropic medications. Among the 155 people who were receiving antipsychotics, 26.9% were on first-generation drugs. Use of antiepileptics as a mood stabilizer without a diagnosis of epilepsy was evident in 5.5% ($n = 32$). Antidepressant use was recorded for 12%, benzodiazepine for 1.2% ($n = 7$) and lithium for 0.7% ($n = 4$). Methylphenidate was used by 4.2% ($n = 24$) of those who reported psychotropic use.

4 | DISCUSSION

To the best of our knowledge, this is the first study conducted on a large sample of adults with intellectual disabilities in Turkey. The earlier study with a smaller sample of individuals with intellectual disabilities ($n = 151$) used a DSM-5-based clinical assessment with

TABLE 2 Associations with psychiatric symptoms^a

TABLE 3 Associations with challenging behaviour^a

	Challenging behaviour +	Challenging behaviour -	Test statistics	p
	% (n)	% (n)		
Gender of the person (male %)	72.1 (194)	57.6 (272)	$\chi^2 = 15.42$	<.001
Gender of the carer (male %)	22.3 (59)	4.1 (19)	$\chi^2 = 58.61$	<.001
Place of residence ^b (care home %)	33.0 (88)	4.2 (20)	$\chi^2 = 112.45$	<.001
Level of support needed (high %)	62.4 (151)	35.2 (146)	$\chi^2 = 45.71$	<.001
Physical disability (yes %)	15.2 (40)	27.1 (127)	$\chi^2 = 13.48$	<.001
Incontinence (yes %)	23.4 (62)	14.1 (66)	$\chi^2 = 10.06$	.002
Autism spectrum disorder (yes %)	47.0 (117)	14.4 (65)	$\chi^2 = 88.16$	<.001
Epilepsy (yes %)	21.4 (54)	20.0 (92)	$\chi^2 = 0.19$	.662
Medical comorbidity (yes %)	15.1 (39)	22.7 (105)	$\chi^2 = 6.11$	.013
Lifetime psychiatric contact (yes %)	85.3 (226)	60.0 (281)	$\chi^2 = 50.54$	<.001
Psychiatry contact within the previous year (yes %)	68.1 (179)	36.3 (162)	$\chi^2 = 66.76$	<.001
Psychiatric symptoms as detected by PAS-ADD (yes %)	69.7 (168)	38.9 (169)	$\chi^2 = 59.07$	<.001
Life events (yes %)	35.7 (80)	33.5 (143)	$\chi^2 = 0.32$	.570
Lifetime suicidal ideation/attempt (yes %)	7.5 (20)	3.0 (14)	$\chi^2 = 7.81$	.005
Daytime activity (no %)	23.6 (63)	14.3 (67)	$\chi^2 = 9.97$	.002
Verbal ability ^c	1.58 ± 1.13	2.29 ± 0.92	$t (722) = 8.69$	<.001
Level of intellectual disabilities ^d	2.54 ± 0.88	2.08 ± 0.78	$t (676) = -6.76$	<.001
Age	26.40 ± 6.79	25.30 ± 7.37	$t (676) = 1.92$	.056

^aNs vary because of missing data.

^bParticipants who chose "other" option not included in the analysis due to small number.

^cAs measured by a Likert scale. Possible scores range from 0 to 3, with higher scores indicating better verbal ability.

^dAs measured by a Likert scale. Possible scores range from 1 to 4, with higher scores indicating greater severity.

p values with statistical significance (<.05) were presented in bold.

each participant and did not investigate the utilization of psychiatric services (Gormez & Kirpinar, 2017a). Addressing an important but often neglected area of research and studying a large sample size are the strengths of the current study. However, before discussing the findings, it would be useful to acknowledge the weaknesses in the methods of the present study. First, although appropriate to the adult intellectual disability population, the PAS-ADD Checklist (Revised) is a screening instrument which determines cases at the symptom level (Moss, 2002). Therefore, data arising from the checklist may refer to the prevalence of PS or possible psychiatric disorders rather than to definitive diagnoses. As a screening tool, the checklist is likely to be over-inclusive in terms of detecting mental disorders. However, there is also the risk of underestimating potential psychiatric disorders with the PAS-ADD Checklist (Moss et al.,

1998). The checklist is designed to detect the most common axis 1 disorders; however, it does not check for personality disorders or neurodevelopmental disorders, such as attention deficit hyperactivity disorder, which is reported to be a common diagnosis in this population (La Malfa, Lassi, Bertelli, Pallanti, & Albertini, 2008). Secondly, in order to evaluate CB in adults with intellectual disabilities, we relied on the reports of informants as described in the data collection form rather than observing the behaviour or interviewing the carers. This measure was created for the purpose of this study as there was no validated instrument available in Turkish to assess CB in this age group. Thirdly, we recruited people with intellectual disabilities from various settings in order to make the sample as representative as possible. The majority of individuals with intellectual disabilities were contacted through day centres which are for people

TABLE 4 Summary of logistic regression analyses

	B	SE	Wald	OR	%95 CI	p
Binary logistic regression analysis on psychiatric symptoms						
Gender of the carer ^a	-0.296	0.532	0.310	0.743	0.26–2.11	.578
Place of residence ^b	-1.959	0.601	10.614	0.141	0.04–0.46	.001
Level of support needed ^c	0.652	0.263	6.128	1.920	1.15–3.22	.013
Level of intellectual disabilities ^d	-0.085	0.157	0.291	0.919	0.68–1.25	.590
Incontinence ^e	0.638	0.298	4.588	1.893	1.06–3.39	.032
ASD ^e	0.054	0.315	0.030	1.056	0.57–1.96	.864
Verbal ability ^f	0.317	0.141	5.063	1.373	1.04–1.81	.024
Challenging Behaviour ^e	1.466	0.256	32.810	4.334	2.62–7.16	<.0001
Suicide ^e	1.878	0.804	5.454	6.537	1.35–31.60	.020
Life events ^e	0.759	0.220	11.902	1.125	1.39–3.29	.880
Binary logistic regression analysis on challenging behaviour						
Gender of the person	0.409	0.243	2.839	1.505	0.94–2.42	.092
Gender of the carer ^a	1.083	0.482	5.046	2.954	1.15–7.60	.025
Place of residence ^b	0.062	0.548	0.013	1.064	0.36–3.11	.909
Level of support needed ^c	0.350	0.273	1.644	1.420	0.83–2.43	.200
Level of intellectual disabilities ^d	0.205	0.165	1.542	1.228	0.88–1.70	.214
Incontinence ^e	0.262	0.282	0.865	1.300	0.75–2.26	.352
ASD ^e	0.660	0.309	4.566	1.935	1.06–3.55	.033
Verbal ability ^f	-0.301	0.140	4.647	0.740	0.56–0.97	.031
Psychiatric comorbidity ^e	1.234	0.232	28.361	3.436	2.18–5.41	<.0001
Suicide ^e	1.890	0.555	11.595	6.620	2.23–19.65	.001
Daytime activity ^e	-0.320	0.309	1.073	0.726	0.40–1.33	.300

Abbreviations: B, beta coefficient; CI, confidence interval; OR, odds ratio; SE, standard error.

^a0 = female; 1 = male.

^b0 = care home; 1 = with family.

^c0 = low; 1 = high.

^dRanging from 1 to 4, with higher scores indicating greater severity.

^e0 = no; 1 = yes.

^fRanging from 0 to 3, with higher scores indicating better verbal ability.

p values are statistical significance (<.05) were presented in bold.

with intellectual disabilities living in the community. Nevertheless, we were not able to capture people who stay at home and do not need or use any of the social, educational or healthcare services provided. It is possible that those who are not in contact with any type of public services are less likely to experience problems in terms of PS or CB. Therefore, data arising from this sample should be used cautiously in comparative studies.

The present study benefited from a large sample of adults with intellectual disabilities in Turkey, which shows that a significant proportion of adults with intellectual disabilities experience PS and/or CB. Half of the persons with intellectual disabilities met the threshold for

one possible psychiatric disorder (point prevalence), most commonly affective symptoms. More than one third presented with at least one type of CB. These findings are in line with the international literature, as cited above. In a previous Turkish study carried out by clinical examination of 151 adults with intellectual disabilities, the prevalence of psychiatric disorders was 52.3% and CB was 34.4%, which are very close to figures yielded in the present study (Gormez & Kirpinar, 2017a).

For the sample studied, several associations for psychopathology and CB were found. Logistic regression analysis revealed that past psychiatric history, including lifetime suicidal ideation/attempt, living in a care home, better verbal ability, having incontinence,

TABLE 5 Challenges experienced by users of psychiatric services in the past 1 year (*n*: 341)

	<i>n</i>	%
Difficulties experienced while waiting in the hospital	144	42.4
Difficulties with bringing the person to the hospital	93	27.4
Difficulties with getting an appointment	64	18.8
Other	18	5.3
Difficulties in any area	220	64.7
Difficulties in two areas	33	9.7
Difficulties in three areas	21	6.2
Difficulties in four areas	8	2.4

needing a higher level of care and displaying CB emerged as independent factors increasing the risk of psychiatric symptoms.

Previous psychiatric contact (past psychiatric history) and lifetime suicidal ideation/attempt were found to be independently associated PS and CB. These relationships are expected considering the general etiopathogenesis and course of most psychiatric disorders.

A consistent finding in the literature, as in the present study, is that living in a residential setting rather than at a family home is associated with mental health problems (Cooper et al., 2007b; Gormez & Kirpinar, 2017a). Whether this association is a result of cause or effect is difficult to know; either mental health problems are important cause of the requirement for residential care or mental health needs are being triggered and/or precipitated (or not optimally addressed) in these settings. Either explanation highlights a need for mental health professionals to work closely with paid carers and their managers. Other independent factors for PS in the present sample were needing a higher level of support and having incontinence. Increased rates of mental health problems in people with more severe disabilities who require more support have been described by various past studies (Cooper & Bailey, 2001; Deb, Thomas, & Bright, 2001). Similarly, incontinence was found to be an independent risk factor for psychopathology in other studies as well (Cooper et al., 2007b). It was suggested that incontinence may be aetiological through a mediating effect of self-esteem, or alternatively a common underlying mechanism (Smiley et al., 2007). In fact, people with incontinence may need more care, and therefore, it might be a specific aspect of higher support needs.

Autism spectrum disorder was not found to be independently associated with psychiatric symptoms in our study, but better verbal ability was. In a population-based study by Cooper et al. (2007b), it was reported that communication impairment was not independently associated with mental health problems (both psychiatric disorders and CB). There is no consensus in the literature as to whether ASD increases the risk of mental health problems (Hemmings, Deb, Chaplin, Hardy, & Mukherjee, 2013), making additional research on this topic important. However, the results from this study should be interpreted with caution. First, it is likely that some participants in the present study did not have a diagnosis of ASD because it was undetected due to paucity of services in the country. Second, both

ASD and poor verbal ability are likely to overshadow other problems making the diagnosing of mental disorders a complicated task, leading to under-diagnosis or misdiagnosis. Hence, these findings require further research to investigate how the presence of ASD and/or different verbal ability levels alter the presentation of PS.

In the present study, the authors found that although severe intellectual disabilities was associated with both PS and CB, it did not retain within the model as an independent factor. Overall, most studies report that prevalence of mental health problems increases in more severe levels of intellectual disabilities (Cooper & Bailey, 2001), but this is always complicated by the difficulty of diagnosing mental health problems in people with more severe intellectual disabilities (Deb et al., 2001).

Age and gender of individuals with intellectual disabilities did not appear related to PS in this study. Increased age was reported as a risk factor for psychiatric disorders in some of the studies which looked into the prevalence of psychiatric disorders (Cooper, 1997; Deb et al., 2001). Some studies report gender differences for individual psychiatric disorders (e.g., personality disorders being more common among men; dementia and adjustment reaction more among women with intellectual disabilities; Tsakanikos, Bouras, Sturmey, & Holt, 2006), but other studies have found that gender is unrelated to the overall rate of psychiatric disorders (Bhaumik, Tyrer, McGrother, & Ganghadaran, 2008). It seems that the relationship between mental health problems and gender and age of adults with intellectual disabilities is not clear in the literature (Smiley, 2005). In the present study, the majority of participants were young with a mean age of 26.06 ± 6.93 years, which could be one of the reasons the present authors could not find any relation between psychiatric symptoms and age. For gender, because the authors used a screening instrument and detected cases at the symptom level, they did not investigate the effects of gender on individual psychiatric disorders.

The present authors did not find an association of epilepsy with mental health problems. Studies are not consistent in their findings. Arshad et al. (2011) highlighted the conflicting evidence of epilepsy as a potential risk factor for mental health problems. These conflicting findings could be related to the fact that on one hand epilepsy itself can present with some neuropsychiatric symptoms, but on the other hand, antiepileptic drugs can act as mood stabilizers with a potential to suppress PS.

The present authors found an association between life events and PS, but it did not retain as an independent factor in this sample. Previous studies demonstrated that stressful life events were associated with psychological problems, and there was even a suggestion for a causal role (Hulbert-Williams & Hastings, 2008; Hulbert-Williams et al., 2014). Findings of the present study suggest that life events alone do not explain the PS and there might be other mechanisms via which life events have their impact on psychological well-being, which should be investigated further, such as the impact of cultural differences.

In the present sample, the authors found that poor verbal ability, ASD, PS including suicidal ideation/attempt, and having a male carer (both family and paid carer) were independently associated with CB.

Some past research has highlighted communication problems and comorbid ASD as correlates of CB, similar to findings of this study (Sheehan et al., 2015). In a population-based cohort study, factors independently associated with CB were lower ability level, female gender, living in a congregate care setting or with paid carer support (rather than living with a family carer), having urinary incontinence, visual impairment, not having Down syndrome and not having severe physical disabilities (Jones et al., 2008). In a systematic review, it was reported that while some physical health conditions such as urinary incontinence and some physical disabilities (cerebral palsy, visual impairment) were associated with CB, others such as hearing impairment, bowel incontinence and epilepsy were not associated with CB (De Winter et al., 2011). Overall, there is a considerable discrepancy in the findings regarding CB in people with intellectual disabilities, due to variations in definition and groups investigated, suggesting future research is needed in this domain.

One of the most significant findings of this study is that CB and PS emerged as significant predictors of each other. This finding might support the hypothesis of Emerson (2001) that CB may be a behavioural equivalent of mental health problems, secondary features of mental health problems, or conversely, that mental health problems may serve to maintain pre-existing CB. Although there are several studies supporting this hypothesis (Moss et al., 2000; Painter, Hastings, Ingham, Trevithick, & Roy, 2018), there are others concluding that they are independent constructs (McCarthy et al., 2010; Sappok et al., 2014), likely due to using different methodological approaches. An important area of future research involves evaluating whether timely recognition and treatment of psychiatric disorders would reduce CB.

Future research is needed to establish the exact mechanism of the relationships identified in this study. Nevertheless, these findings can provide provisional guidance in identifying those at risk for PS and CB in order to prioritize the services for people who need them most and develop better interventions for prevention and management of potential risk factors.

In regard to accessing services, 48% of the present sample were assessed by a psychiatrist in the previous year for clinical purposes or social benefit examination. A significant proportion of these individuals reported some difficulties with the use of psychiatric services. Community mental health teams are new developments in Turkey and are limited in number. They are not allowed to care for people with intellectual disabilities, and they are not equipped to do so, either. Although general practitioners can provide care at home, there is no system for psychiatrists to do home visit assessments; therefore, patients with intellectual disabilities always need to go to a hospital for psychiatric examination unless for repeat prescriptions which can be provided in primary care. Carers reported "waiting in the hospital" as the most commonly experienced difficulty with regard to utilization of psychiatric services, particularly for those with CB. This is not surprising, as hospitals are still hectic places despite the introduction of an appointment system some years ago. The second most common difficulty was the issue of bringing the person to the hospital. This was similarly more evident in people with CB compared to those without, which highlights the need for home visits for certain groups

of patients with intellectual disabilities. Third, people in Turkey book an appointment with specialists themselves either through a centralized online system or call centre without a triage system for prioritization. Among participants, 18.8% reported difficulties with finding an appointment slot with a psychiatrist, which suggests a delay for accessing timely care. Moreover, physical and logistical issues, which are known as general barriers to accessing health care in the literature (Arcury, Preisser, Gesler, & Powers, 2005; Buzza et al., 2011) could also play a role here; for example, lack of training of professionals, lack of specialized services, transport problems for patients due to distance from hospitals and ineffective service collaboration may play a role. However, these were reported not to be specific to either mental health services or intellectual disabilities (Whittle et al., 2018). These barriers and their potential impact on service use in the country could be investigated in future studies.

Despite the barriers experienced in accessing mental health care, nearly one third of people with intellectual disabilities were receiving psychotropic medications and were therefore in contact with psychiatric services. The most common class of drugs prescribed was antipsychotics, most being second-generation, followed by antidepressants. Lithium was only rarely prescribed, which might be related to difficulties with blood sampling in some people with intellectual disabilities (Hemmings et al., 2013). Methylphenidate was prescribed for 4.2% of the individuals studied, and there was none on atomoxetine. Reasons behind the prescription preferences are beyond the scope of this paper, but it seemed that level of prescription was appropriate given that the proportion of people who had been treated with psychotropics was somewhere between the rates of current PS and CB detected in the current sample. Results of the present study seem congruent with the literature in terms of prescription trends in many ways. Deb and Unwin (2007) reported that psychotropic medications are prescribed for 20%–50% of people with intellectual disabilities who are known to various services in the community. More than two thirds of people had a record of prescription of any psychotropic drug in a study by Sheehan et al. (2015), but their sample was a clinical one from primary care. There are some suggestions that the practice of excessive use of medications is changing in this population (Sheehan et al., 2015), and in the present sample, polypharmacy did not appear very common with only 19.4% receiving two psychotropics. Despite the finding that affective disorders were the most common diagnosis as detected by PAS-ADD Checklist (Revised), there was a low level of antidepressant use compared to antipsychotics. This might support the findings of previous studies that depression and anxiety in people with intellectual disabilities tend to be under-recognized (Cooper, Smiley, Morrison, Williamson, & Allan, 2007a; Richards et al., 2001).

5 | CONCLUSION

The present study demonstrates that PS and CB are common for a significant proportion of people with intellectual disabilities in

Turkey and there are various factors independently associated with PS and CB, which overall are in line with what was reported in the international literature. Despite the established finding that mental health problems are overrepresented among people with intellectual disabilities compared to rest of the population, patients and carers of people with intellectual disabilities experience certain barriers to accessing mental health care, some of which might be related to the structure and delivery of the national healthcare system. This paper adds to existing attempts to understand the multiple contributory interacting factors for mental health problems and CB in people with intellectual disabilities in general. It can also be seen as one of the first steps in the long process of understanding the mental health needs of people with intellectual disabilities in Turkey. However, results of the present study are insufficient to identify the specifics of this process, and further high-quality research must be conducted to fill this gap and guide the policymakers.

ACKNOWLEDGMENTS

The authors acknowledge all the organizations contributing to the project: IBB ISEM Centers across the city, Bagcilar Basak Special Education and Rehabilitation Centre, and OTEF (Federation of Organizations for People with Autism and Disabilities). The authors also would like to thank all the people with intellectual disabilities and their carers/families for their cooperation with the study.

ORCID

Aynur Gormez  <https://orcid.org/0000-0002-8537-9413>

Ayşe Kurtulmus  <https://orcid.org/0000-0001-8420-4761>

REFERENCES

- Aktepe, E., & Sönmez, Y. (2012). *Bir Üniversite Hastanesinde Zekâ Geriliği Tanısı Konulan Çocuk ve Ergenlerde Psikiyatrik ve Organik Eş Tanılar*. Paper presented at the Yeni Symposium.
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.
- Arcury, T. A., Preisser, J. S., Gesler, W. M., & Powers, J. M. (2005). Access to transportation and health care utilization in a rural region. *The Journal of Rural Health, 21*(1), 31–38.
- Arshad, S., Winterhalder, R., Underwood, L., Kelesidi, K., Chaplin, E., Kravariti, E., ... Tsakanikos, E. (2011). Epilepsy and intellectual disability: Does epilepsy increase the likelihood of co-morbid psychopathology? *Research in Developmental Disabilities, 32*(1), 353–357.
- Beadle-Brown, J., Murphy, G., & DiTerlizzi, M. (2009). Quality of life for the Camberwell cohort. *Journal of Applied Research in Intellectual Disabilities, 22*(4), 380–390.
- Beadle-Brown, J., Murphy, G., & Wing, L. (2006). The Camberwell cohort 25 years on: Characteristics and changes in skills over time. *Journal of Applied Research in Intellectual Disabilities, 19*(4), 317–329.
- Bhaumik, S., Tyrer, F., McGrother, C., & Ganghadaran, S. (2008). Psychiatric service use and psychiatric disorders in adults with intellectual disability. *Journal of Intellectual Disability Research, 52*(11), 986–995.
- Buckles, J., Luckasson, R., & Keefe, E. (2013). A systematic review of the prevalence of psychiatric disorders in adults with intellectual disability, 2003–2010. *Journal of Mental Health Research in Intellectual Disabilities, 6*(3), 181–207.
- Buzza, C., Ono, S. S., Turvey, C., Wittrock, S., Noble, M., Reddy, G., ... Reisinger, H. S. (2011). Distance is relative: Unpacking a principal barrier in rural healthcare. *Journal of General Internal Medicine, 26*(2), 648.
- Cooper, S.-A. (1997). Epidemiology of psychiatric disorders in elderly compared with younger adults with learning disabilities. *The British Journal of Psychiatry, 170*(4), 375–380.
- Cooper, S.-A., & Bailey, N. M. (2001). Psychiatric disorders amongst adults with learning disabilities-prevalence and relationship to ability level. *Irish Journal of Psychological Medicine, 18*(2), 45–53.
- Cooper, S.-A., Smiley, E., Morrison, J., Williamson, A., & Allan, L. (2007a). An epidemiological investigation of affective disorders with a population-based cohort of 1023 adults with intellectual disabilities. *Psychological Medicine, 37*(6), 873–882.
- Cooper, S.-A., Smiley, E., Morrison, J., Williamson, A., & Allan, L. (2007b). Mental ill-health in adults with intellectual disabilities: Prevalence and associated factors. *The British Journal of Psychiatry, 190*(1), 27–35.
- De Winter, C., Jansen, A., & Evenhuis, H. (2011). Physical conditions and challenging behaviour in people with intellectual disability: A systematic review. *Journal of Intellectual Disability Research, 55*(7), 675–698.
- Deb, S., Thomas, M., & Bright, C. (2001). Mental disorder in adults with intellectual disability. 1: Prevalence of functional psychiatric illness among a community-based population aged between 16 and 64 years. *Journal of Intellectual Disability Research, 45*(6), 495–505.
- Deb, S., & Unwin, G. L. (2007). Psychotropic medication for behaviour problems in people with intellectual disability: A review of the current literature. *Current Opinion in Psychiatry, 20*(5), 461–466.
- Emerson, E. (2001). *Challenging behaviour: Analysis and intervention in people with severe intellectual disabilities*. Cambridge, UK: Cambridge University Press.
- Emerson, E., Kiernan, C., Alborz, A., Reeves, D., Mason, H., Swarbrick, R., ... Hatton, C. (2001). The prevalence of challenging behaviors: A total population study. *Research in Developmental Disabilities, 22*(1), 77–93.
- Emerson, E., Toogood, A., Mansell, J., Barrett, S., Bell, C., Cummings, R., & McCool, C. (1987). Challenging behaviour and community services: 1. Introduction and overview. *Journal of the British Institute of Mental Handicap (APEX), 15*(4), 166–169.
- Gormez, A., & Kirpinar, I. (2017a). Psychiatric disorders in adults with mental retardation: Prevalence and associated factors/Zeka geriliği olan yetiskinlerde psikiyatrik bozuklukların yaygınlığı ve ilişkili etkenler. *Anadolu Psikiyatri Dergisi, 18*(4), 338–344.
- Görmez, A., & Kirpinar, İ. (2017b). The psychiatric assessment schedule for adults with developmental disability checklist: Reliability and validity of Turkish version. *Psychiatry and Clinical Psychopharmacology, 27*(2), 159–163.
- Hemmings, C., Deb, S., Chaplin, E., Hardy, S., & Mukherjee, R. (2013). Review of research for people with ID and mental health problems: A view from the United Kingdom. *Journal of Mental Health Research in Intellectual Disabilities, 6*(2), 127–158.
- Hulbert-Williams, L., & Hastings, R. (2008). Life events as a risk factor for psychological problems in individuals with intellectual disabilities: A critical review. *Journal of Intellectual Disability Research, 52*(11), 883–895.
- Hulbert-Williams, L., Hastings, R., Owen, D., Burns, L., Day, J., Mulligan, J., & Noone, S. (2014). Exposure to life events as a risk factor for psychological problems in adults with intellectual disabilities: A longitudinal design. *Journal of Intellectual Disability Research, 58*(1), 48–60.
- Jones, S., Cooper, S.-A., Smiley, E., Allan, L., Williamson, A., & Morrison, J. (2008). Prevalence of, and factors associated with, problem behaviors

- in adults with intellectual disabilities. *The Journal of Nervous and Mental Disease*, 196(9), 678–686.
- Kaya, N., Cilli, A., Aşkin, R., & Şahinoğlu, D. (1997). Psychiatric symptoms in mentally retarded children. *Genel Tıp Dergisi*, 4(1), 19–23.
- Kozma, A., Mansell, J., & Beadle-Brown, J. (2009). Outcomes in different residential settings for people with intellectual disability: A systematic review. *American Journal on Intellectual and Developmental Disabilities*, 114(3), 193–222.
- Kwok, H., & Cheung, P. W. (2007). Co-morbidity of psychiatric disorder and medical illness in people with intellectual disabilities. *Current Opinion in Psychiatry*, 20(5), 443–449.
- La Malfa, G., Lassi, S., Bertelli, M., Pallanti, S., & Albertini, G. (2008). Detecting attention-deficit/hyperactivity disorder (ADHD) in adults with intellectual disability: The use of Conners' Adult ADHD Rating Scales (CAARS). *Research in Developmental Disabilities*, 29(2), 158–164.
- Matson, J. L., Belva, B. C., Hattier, M. A., & Matson, M. L. (2012). Scaling methods to measure psychopathology in persons with intellectual disabilities. *Research in Developmental Disabilities*, 33(2), 549–562.
- Matson, J. L., & Shoemaker, M. E. (2011). Psychopathology and intellectual disability. *Current Opinion in Psychiatry*, 24(5), 367–371.
- McCarthy, J., Hemmings, C., Kravariti, E., Dworzynski, K., Holt, G., Bouras, N., & Tsakanikos, E. (2010). Challenging behavior and co-morbid psychopathology in adults with intellectual disability and autism spectrum disorders. *Research in Developmental Disabilities*, 31(2), 362–366.
- Moss, S. (2002). *PAS-ADD checklist*. London, UK: Pavilion.
- Moss, S., Emerson, E., Kiernan, C., Turner, S., Hatton, C., & Alborz, A. (2000). Psychiatric symptoms in adults with learning disability and challenging behaviour. *The British Journal of Psychiatry*, 177(5), 452–456.
- Moss, S., Prosser, H., Costello, H., Simpson, N., Patel, P., Rowe, S., ... Hatton, C. (1998). Reliability and validity of the PAS-ADD Checklist for detecting psychiatric disorders in adults with intellectual disability. *Journal of Intellectual Disability Research*, 42(2), 173–183.
- Myrbakk, E., & von Tetzchner, S. (2008). Screening individuals with intellectual disability for psychiatric disorders: Comparison of four measures. *American Journal on Mental Retardation*, 113(1), 54–70.
- Ouellette-Kuntz, H. (2005). Understanding health disparities and inequities faced by individuals with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, 18(2), 113–121.
- Painter, J., Hastings, R., Ingham, B., Trevithick, L., & Roy, A. (2018). Associations between mental health problems and challenging behavior in adults with intellectual disabilities: A test of the behavioral equivalents hypothesis. *Journal of Mental Health Research in Intellectual Disabilities*, 11(2), 157–172.
- Richards, M., Maughan, B., Hardy, R., Hall, I., Strydom, A., & Wadsworth, M. (2001). Long-term affective disorder in people with mild learning disability. *The British Journal of Psychiatry*, 179(6), 523–527.
- Ryan, R., & Sunada, K. (1997). Medical evaluation of persons with mental retardation referred for psychiatric assessment. *General Hospital Psychiatry*, 19(4), 274–280.
- Sappok, T., Budczies, J., Dziobek, I., Bölte, S., Dosen, A., & Diefenbacher, A. (2014). The missing link: Delayed emotional development predicts challenging behavior in adults with intellectual disability. *Journal of Autism and Developmental Disorders*, 44(4), 786–800.
- Scotland, N. (2004). *The learning disabilities health needs assessment*. Edinburgh, UK: NHS Scotland.
- Sheehan, R., Hassiotis, A., Walters, K., Osborn, D., Strydom, A., & Horsfall, L. (2015). Mental illness, challenging behaviour, and psychotropic drug prescribing in people with intellectual disability: UK population based cohort study. *BMJ*, 351, h4326.
- Smiley, E. (2005). Epidemiology of mental health problems in adults with learning disability: An update. *Advances in Psychiatric Treatment*, 11(3), 214–222.
- Smiley, E., Cooper, S.-A., Finlayson, J., Jackson, A., Allan, L., Mantry, D., ... Morrison, J. (2007). Incidence and predictors of mental ill-health in adults with intellectual disabilities: Prospective study. *The British Journal of Psychiatry*, 191(4), 313–319.
- Sutherland, G., Couch, M. A., & Iacono, T. (2002). Health issues for adults with developmental disability. *Research in Developmental Disabilities*, 23(6), 422–445.
- Tsakanikos, E., Bouras, N., Sturmey, P., & Holt, G. (2006). Psychiatric co-morbidity and gender differences in intellectual disability. *Journal of Intellectual Disability Research*, 50(8), 582–587.
- van Schrojenstein Lantman-de, H. M., & Walsh, P. N. (2008). Managing health problems in people with intellectual disabilities. *BMJ*, 337, a2507.
- Whittle, E. L., Fisher, K. R., Reppermund, S., Lenroot, R., & Trollor, J. (2018). Barriers and enablers to accessing mental health services for people with intellectual disability: A scoping review. *Journal of Mental Health Research in Intellectual Disabilities*, 11(1), 69–102.

How to cite this article: Gormez A, Kurtulmus A, Ince Z, Torun P, Uysal O, Citak S. Psychiatric symptoms, challenging behaviour and utilization of psychiatric services among adults with intellectual disabilities in Turkey. *J Appl Res Intellect Disabil*. 2020;33:1038–1048. <https://doi.org/10.1111/jar.12726>