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Psychotropic Drug Use in Intellectually Disabled Group-Home Residents with Behavioural Problems

Little is known about psychiatric and behavioural factors associated with psychotropic drug use and how appropriately these drugs are prescribed in settings for people with intellectual disabilities. The aim of this study was to measure the point prevalence of psychotropic drug use in a problem-behaviour group (PBG) consisting of intellectually disabled residents of group homes compared to a random group (RG), and to gain insight in possible factors that are associated with group membership. From all group homes in the Netherlands, 573 problematic residents were selected by the staff (one resident from each home) and 1479 residents were randomly sampled from all of the homes. Mental health problems were measured using the Reiss Screen for Maladaptive Behaviour and the Psychopathology Instrument for Mentally Retarded Adults. The response rate in the PBG was 68.9% and in the RG 71.7%. Psychotropics (excluding anticonvulsants) were used by 52.6% of the PBG and by 22.8% of the RG. Young age, psychotic, anxiety, and aggression symptoms were significantly associated with the PBG, as was the use of antipsychotics and antidepressants. The PBG more often used multiple (three or more) drugs (17.3%) than the RG (7.3%). A low prevalence of antidepressants or mood stabilisers, antipsychotics, and anxiolytics was found in residents with affective, psychotic, or anxiety symptoms. We conclude that psychotropic drug use in the PBG compared to the RG was high. It is likely that the group-home staff finds it difficult to deal with young people with socially disruptive behaviour, which is underlined by our finding of high prevalence of antipsychotics and multiple-drug therapy in the PBG. Finally, our findings suggest that a considerable number of residents with psychiatric or behavioural symptoms are undertreated.

Introduction

Although studies on mental health problems among people with intellectual disabilities vary greatly in sampling and identification techniques [4], there is a consensus that people with intellectual disabilities are at higher risk of mental health problems than people from the general population [4, 5, 16, 19, 27].

Because of the complicated behavioural problems in this population, psychotropic drug therapy is often attempted, but is suspected to interfere with cognitive and behavioural skills [28]. Nevertheless, prevalence rates of psychotropic and/or anticonvulsant drug use among persons with intellectual disabilities are high, ranging from 44% to 60% in institutional populations and from 35% to 45% in community settings [22]. According to a recent Dutch survey, psychotropic agents including anticonvulsants were prescribed to 41% of an institutionalised population and to 29% of group-home residents. Overall, antipsychotic agents were prescribed to 17.5%, anxiolytics to 6.8%, antidepressants to 3.6% and anticonvulsants to 18.4% of the total sample [20].

Little is known about psychiatric and behavioural factors associated with the prescription of psychotropic drugs and how ap-

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propriately these drugs are prescribed in settings for people with intellectual disabilities [1]. Examining the relation between psychiatric diagnosis and medication regime in a group of 242 institutionalised people with intellectual disabilities and psychiatric disorders, 55% of the diagnosis-medication combinations were found to be either uncertain or probably inappropriate [2]. According to a more recently published review, many people receiving psychotropic agents had no psychiatric diagnosis in their case files, and medication was sometimes prescribed without any specific target symptom or diagnosis [18].

The present study was designed to measure the point prevalence of psychotropic drug use in intellectually disabled group-home residents with behaviour problems. Furthermore, we wanted to gain insight into this group of residents by analysing the possible factors associated with the problem-behaviour group.

Materials and Methods

Setting

In the Netherlands, the term "group home" refers to a multitude of community-based settings, ranging from houses with over 20 residents (living in three to four units) to annexes of these houses where fewer persons reside, sometimes only two or three. In contrast to the larger group homes, the employees are not continuously present in the annexes. If possible, residents of group homes make use of general health care facilities. All group-home residents have mild or moderate intellectual disabilities. In total, there are 573 group homes in the Netherlands that house 15,622 persons with intellectual disabilities.

Subjects

The staff in each group home was instructed to select one resident they considered as having the most severe behavioural problems for the problem-behaviour group (PBG). A random group (RG) of 1479 residents with intellectual disabilities was drawn up by selecting every ninth resident from a random list in each group home [9]. As a consequence of this method, larger group homes provided more residents for the RG.

Procedure

Information on residents was collected in 1996 using a questionnaire to be completed by the staff. The questionnaire included the following topics: gender, age, previous mental health care and somatic disorder or handicap. Mental health problems were measured with the Dutch versions of the Reiss Screen for Maladaptive Behaviour and the Psychopathology Instrument for Mentally Retarded Adults (PIMRA). Information on the current use of psychotropic drugs was recorded in terms of type and daily dosage.

Psychotropic agents

Psychotropic drugs were mainly prescribed by general practitioners. Psychotropic use was coded according to the WHO Anatomical Therapeutic Chemical (ATC) coding system. Actual daily exposure to psychotropics (antipsychotics, anticholinergics, antidepressants, anxiolytics, hypnotics/sedatives, antihistamines – promethazine – and anticonvulsants) was converted into the number of Defined Daily Dosages (DDD equivalents), a standardised technical unit of measurement, defined as the average dose per day for a drug used for its main indication in adults [14].

Instruments

The Dutch versions of the Reiss Screen for Maladaptive Behaviour [13] and the Psychopathology Instrument for Mentally Retarded Adults (PIMRA) [12] were used for measuring mental health problems.

The Reiss Screen for Maladaptive Behaviour

The Reiss Screen for Maladaptive Behaviour is a questionnaire for informants developed to assess the risk of mental health problems among persons with mental retardation [15]. It consists of 35 items describing problem behaviour resulting in a total score indicative of general mental health. The Reiss Screen has eight subscales – psychosis, aggression, autism, paranoia, depression behavioural signs, depression physical signs, dependent disorder and avoidant personality disorder, each resulting in a subscale score. The Dutch version has good internal consistency for the total score with a Cronbach's alpha of .90 and moderate reliability for most subscales, ranging from .50 (autism) to .85 (aggression) [17].

Psychopathology Instrument for Mentally Retarded Adults

This instrument is based on DSM-III-R and consists of 56 items in eight subscales: schizophrenia, affective disorders, psychosexual disorders, adaptation disorders, anxiety disorders, somatoform disorders, personality disorders and inadequate (social) adaptation (not a DSM-III-R classification) [21]. Two versions were developed – a self-report version and an informant version, which was used in this study. All PIMRA subscales consist of seven items (symptoms), four of which must be present for the disorder to be diagnosed [21]. The Dutch version of the PIMRA has good internal total-score consistency (.90) with subscale reliabilities ranging from .46 (personality disorder) to .81 (somatoform disorder) [11].

Behavioural and psychiatric symptoms

To gain insight into intellectually disabled group-home residents with problem behaviour, four groups of symptoms were selected – affective, psychotic, anxiety, and aggression symptoms. Because there are no conclusive studies regarding the validity of the subscales of the Reiss Screen and the PIMRA, scale scores must be interpreted with caution. On basis of these instruments, we could not establish a diagnosis in terms of DSM-IV or ICD-10. Additionally, drugs are often prescribed for target symptoms in this population, not for disorders. Therefore, we will present the mental health problems in terms of symptoms.

In the **Results** section, residents were considered to have affective symptoms when they were positive for two of the three depression subscales (behavioural and physical signs for depression according to the Reiss Screen, and affective disorders according to PIMRA). Residents positive for two of the three psychosis subscales (psychosis and paranoia according to the Reiss Screen and schizophrenia according to the PIMRA) were considered as people with psychotic symptoms. Residents had aggressive symptoms if they scored above the cut-off in the similar Reiss Screen subscale. Where residents scored above the cut-off in the anxiety disorder subscale according to the PIMRA, they were considered as having symptoms.

Analysis

Using logistic regression analysis, we compared the PBG with the RG and calculated prevalent odds ratios for various possible factors associated with the PBG including gender, age, affective, psychotic, anxiety, and aggression symptoms, and psychotropic drug use. Adjustment for possible confounding was performed with the PBG as dependent variable and all possible factors associated with the PBG as independent variables.

We used the Statistical Package for the Social Sciences [25] to analyse the data.

Results

The response rate for the PBG was 68.9% (395 returned questionnaires) and 71.7% (1.061 returned questionnaires) for the RG. The mean age of residents in the PBG was 39 years (SD: 11.8) and 42 years (SD: 13.4) in the RG. The prevalence of people with Down's syndrome was 6.1% in the PBG and 14.8% in the RG. In the PBG, 8.2% had experienced seizures in the past and a similar percentage of 7.3% was identified in the RG. 70.4% of the PBG had previous contact with the mental health services, the figure being 18.5% for the RG. Anxiety and aggression symptoms were most prevalent in the PBG. Of these residents, 52.9% and 43.1% suffered from these symptoms, compared to 22.0% and 4.9% in the RG. 39.2% of the PBG suffered from more than one type of symptom in contrast to 7.0% in the RG.

Table **1** reveals the prevalence rates of patient characteristics and the associations between these characteristics and group membership (PBG or RG). Pipamperone, a serotonine-2/dopamine-2 antagonist, and thioridazine were the most frequently used antipsychotic drugs in both groups. In the PBG, pipamperone was prescribed to 31.4% of antipsychotic users and to 20.9% of all psychotropic users, and thioridazine to – 0.6% and 11.7%, respectively. In the RG, pipamperone was used by 17.7% of antipsychotic users and by 8.9% of all psychotropic users, thioridazine by 14.9% and 7.4%, respectively. Young age, psychotic symptoms, anxiety symptoms and aggression symptoms were found to be significantly associated with the PBG. Antipsychotics and antidepressants were significantly more prescribed in the PBG.

Table **2** shows the prevalence rates of psychotropic drug use. In the PBG, 61.8% of the residents used a psychotropic agent in contrast to 33.2% in the RG. These prevalence rates were 52.6% and 22.8% with anticonvulsants left out. The prevalence of residents using three or more drugs in the PBG was 17.3%, whereas 7.3% of the RG used three or more drugs. People using psychotropic drugs of three or more drug categories (antipsychotics, anticholinergics, antidepressants, anxiolytics, hypnotics/sedatives, antihistamines and anticonvulsants) of the PBG (11.1%) outnumbered people of the RG using drugs of three or more drug categories (2.8%).

The lowest dosages were found in the antipsychotic group, with a mean dosage of levomepromazine of 0.2 DDD (SD: 0.1) in the PBG and 0.1 DDD (SD: 0.1) in the RG. More potent antipsychotics were used in higher dosages. For example, the mean dosage of haloperidol in the PBG was 0.7 DDD (SD: 0.6) and 0.6 DDD (SD: 0.6) in the RG.

In order to gain more insight into the use of medication, prevalence rates of drugs calculated for affective, psychotic and anxiety symptoms are shown in Table **3**. Antipsychotics were the most frequently prescribed agents in both groups. In the PBG, 28.6% of the patients with affective symptoms used antidepressants. In the RG, 15.6% of the patients with affective symptoms used these drugs. Antipsychotics were prescribed in 52.5% of the pa-

Table 1 Gender, age, psychiatric-/behavioural symptoms and psychotropic agents associated with the problem-behaviour group (PBG) (n = 395*) compared to the random group (RG) (n = 1061*). Crude odds ratios and adjusted odds ratios calculated with 95% confidence interval (95% CI). Significant associations are printed in bold.

	PBG n (%)	*RG n (%)*	*Crude odds ratios (95% CI)*	*Adjusted odds ratios (95% CI)*
Male	213 (54.1)	521 (49.3)	0.8 (0.7 – 1.0)	0.8 (0.6 – 1.1)
Age group (years)				
18 – 35	172 (44.7)	337 (32.2)	1.0 (reference)	1.0 (reference)
36 – 50	149 (38.7)	437 (41.7)	**0.7 (0.5 – 0.9)**	0.8 (0.5 – 1.1)
51 – 65	58 (15.1)	207 (19.8)	**0.6 (0.4 – 0.8)**	**0.5 (0.3 – 0.7)**
≥ 66	6 (1.6)	67 (6.4)	**0.2 (0.1 – 0.4)**	**0.3 (0.1 – 0.7)**
Psychiatric/behavioural symptoms**				
Affective symptoms	98 (26.3)	64 (6.4)	**5.2 (3.7 – 7.4)**	1.2 (0.7 – 2.1)
Psychotic symptoms	80 (21.3)	22 (2.2)	**12.1 (7.3 – 20.4)**	**2.6 (1.4 – 5.0)**
Anxiety symptoms	202 (52.9)	224 (22.0)	**4.0 (3.1 – 5.1)**	**1.9 (1.4 – 2.7)**
Aggression symptoms	163 (43.1)	50 (4.9)	**14.6 (10.2 – 21.1)**	**10.0 (6.6 – 15.2)**
Psychotropic drugs				
Antipsychotic	159 (41.2)	175 (16.7)	**3.5 (2.7 – 4.6)**	**2.1 (1.4 – 3.1)**
Antidepressant	59 (15.3)	48 (4.6)	**3.8 (2.5 – 5.7)**	**2.4 (1.5 – 3.7)**
Anxiolytic	60 (21.5)	65 (6.2)	**2.8 (1.9 – 4.1)**	1.3 (0.8 – 1.9)
Anticonvulsant	83 (21.5)	167 (15.9)	**1.4 (1.1 – 2.0)**	0.9 (0.7 – 1.2)

* In most analyses the n was slightly smaller due to missing values.

** Psychiatric/behavioural symptoms: 1) Affective symptoms: positive for 2 of 3 depression subscales (depression behavioural signs and depression physical signs of the Reiss Screen and affective disorder of the PIMRA). 2) Psychotic symptoms: positive for 2 of 3 psychosis subscales (psychosis and paranoia of the Reiss Screen and schizophrenia of the PIMRA). 3) Anxiety symptoms: positive for the anxiety disorder subscale of the PIMRA. 4) Aggression symptoms: positive for the aggression subscale of the Reiss Screen.

Table 2 Prevalence of psychotropic drug use in the PBG (n = 395*) and the RG (n = 1061*).

	PBG n (%)	RG n (%)
Psychotropic drugs		
Including anticonvulsants	239 (61.8)	349 (33.2)**
Excluding anticonvulsants	203 (52.6)	240 (22.8)**
Number of drugs used		
1	107 (27.7)	170 (16.2)**
2	65 (16.8)	102 (9.7)**
3	43 (11.1)	59 (5.6)**
≥4	24 (6.2)	18 (1.7)**
Number of drug categories used		
1	123 (31.9)	233 (21.3)**
2	73 (18.9)	97 (9.2)**
3	32 (8.3)	28 (2.7)**
≥4	11 (2.8)	1 (0.1)**

* In most analyses the n was slightly smaller due to missing values.
** p-value < 0.05 PBG compared to the RG.

tients with psychotic symptoms in the PBG compared to 45.5% of the patients in the RG. Residents with anxiety symptoms from the PBG more often used anxiolytics (21.3%) than residents from the RG with anxiety symptoms (10.7%).

Discussion

The present study involving 1,456 intellectually disabled group-home residents showed, as expected, that psychotropic drug use was much higher in problematic group-home residents than in the random study group. We hypothesise that the administration of psychotropic drugs, especially antipsychotics, is often the result of difficulties in dealing with problematic residents. Furthermore, it is likely that considerable numbers of residents with psychiatric or behavioural symptoms are undertreated.

We found that 61.8% of the PBG compared to 33.2% of the RG used at least one psychotropic agent including anticonvulsants, and 52.6% compared to 22.8% excluding anticonvulsants. This high use in the PBG is consistent with the findings of Jacobson [7], who found an even higher prevalence rate (70.8%) of psychotropic drug use (excluding anticonvulsants) in residents with psychiatric disorders living in community-care facilities. High prevalence rates are not surprising since the use of psychotropic drugs is one of the mainstay strategies in coping with behavioural and psychiatric problems. The high use of antipsychotics and the low use of antidepressants in 41.2% and 15.3% of the PBG and 16.7% and 4.6% of the RG tallies with other studies, although varying prevalence rates for different samples from community-based facilities have been found [1,18,24].

We observed a tendency to prescribe antipsychotic agents in dosages below 1 DDD in the PBG and the RG. One reason for this could be the reports of beneficial effects from using low dosages of antipsychotic agents in intellectually disabled people with behavioural disorders [10].

In this study, the response rate was approximately 70% for both the problem-behaviour group (PBG) and the random group (RG). Although we did not collect data from the non-responders, the differences in comparing demographic data from our sample to the data from the Dutch registration of all group-home residents were relatively minor. It is therefore likely that our results are representative of the total population of group-home residents. However, selection bias may have been introduced by letting staff select the subjects for the PBG on their own. This would be the case if the staff had selected a resident for the PBG according to psychotropic medication use. Although we cannot rule out this possibility, we instructed staff specifically to look at problematic behaviour, and we did not find any evidence that they did not follow these instructions. Subjects in the PBG were younger and had psychotic, anxiety or aggression symptoms more often. Apparently, the staff found it difficult to deal with this group since they chose these residents for the PBG. This is emphasised by the high prevalence of antipsychotics often prescribed in low dosages and for a broad spectrum of indications and multiple drug therapy in the PBG. It also tallies with the results from other studies involving people with intellectual disabilities, in which an association was found between socially disruptive behaviour and the prescription of antipsychotics [8,26]. Heavy use of antidepressants in the PBG compared to the RG may be explained by the fact that antidepressants, mainly SSRIs, are sometimes prescribed for people with poor impulse control or self-injurious behaviour [23].

There is much evidence for the treatment of mood, psychotic, or anxiety disorders with antidepressants or mood stabilisers, antipsychotics and anxiolytics [3,6,23,30]. Nevertheless, we found a

Tab. 3 Number of residents using a psychotropic drug calculated for different symptom clusters in the PBG (n = 395) and the RG (n = 1061). Mental health problems were measured by using Dutch versions of the Reiss Screen for maladaptive behaviour and the PIMRA.

	Affective symptoms n (%)*		*Psychotic symptoms** n (%)*		*Anxiety symptoms† n (%)*	
	PBG n = 98	*RG n = 64*	*PBG n = 80*	*RG n = 22*	*PBG n = 202*	*RG n = 224*
Antidepressants	28 (28.6)	10 (15.6)	17 (21.3)	3 (13.6)	41 (20.3)	19 (8.5)
Antipsychotics	58 (59.2)	26 (40.6)	42 (52.5)	10 (45.5)	107 (53.0)	69 (30.8)
Anxiolytics	26 (26.5)	13 (20.3)	18 (22.5)	2 (9.1)	43 (21.3)	24 (10.7)
Hypnotics/sedatives	11 (11.2)	1 (1.6)	7 (8.8)	0 (0)	12 (5.9)	3 (1.3)
Anticonvulsants	20 (20.4)	10 (15.6)	21 (26.3)	4 (18.2)	41 (20.3)	41 (18.3)

* Positive for 2 of 3 depression subscales (depression behavioural signs and depression physical signs of the Reiss Screen and affective disorder of the PIMRA).
** Positive for 2 of 3 psychosis subscales (psychosis and paranoia of the Reiss Screen and schizophrenia of the PIMRA).
† Positive for the anxiety disorder subscale of the PIMRA.

low prevalence of these agents in subjects with the corresponding symptoms. This finding suggests that a considerable number of residents with psychiatric or behavioural symptoms are undertreated. It is most likely that residents' symptoms were not detected due to atypical presentation, difficulties in obtaining information, and/or limited access to psychiatric services [29]. It is also possible that, before resorting to medication, psychotherapeutic techniques were used to treat the symptoms.

In conclusion, we found considerable differences in the prevalence rates of psychotropic drugs between a problem-behaviour and a random group of group-home residents with a high prevalence of antipsychotics. It is likely that low dosages of antipsychotics as well as a broad spectrum of drugs were often used for treating socially disruptive behaviour, as was indicated by the association between psychotic and aggression symptoms and group membership. Our findings suggest that a considerable number of residents with psychiatric or behavioural symptoms were undertreated. In order to determine causal relations between symptoms and treatment, our findings should be confirmed in another study design with the data collection on the effectiveness of drug use.

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