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Medication Management in Adults with Intellectual and Developmental Disabilities: Psychiatric Pharmacists in Primary Care

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Abstract:	This study describes the role of psychiatric pharmacists (PPs) in medication management at a county-hospital-based primary care clinic serving adults with intellectual and developmental disabilities (IDD). During a 20-week period, PPs provided 308 interventions for 97 patients with IDD, 55% of whom had a concomitant psychiatric/behavioral disorder and 70% of whom were taking at least one psychotropic. PP services included medication reviews (48%), medication histories (13%), collaborative care (12%), pharmacotherapy interventions (11%), advisory services (9%), and patient/caregiver education (7%). Psychotropics were involved in 66% of interventions. Our results demonstrate that PPs may address psychotropic-related challenges in this practice setting by performing a variety of services. Additional studies are needed to fully evaluate the impact of this integrative model.

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Abstract

This study describes the role of psychiatric pharmacists (PPs) in medication management at a county-hospital-based primary care clinic serving adults with intellectual and developmental disabilities (IDD). During a 20-week period, PPs provided 308 interventions for 97 patients with IDD, 55% of whom had a concomitant psychiatric/behavioral disorder and 70% of whom were taking at least one psychotropic. PP services included medication reviews (48%), medication histories (13%), collaborative care (12%), pharmacotherapy interventions (11%), advisory services (9%), and patient/caregiver education (7%). Psychotropics were involved in 66% of interventions. Our results demonstrate that PPs may address psychotropic-related challenges in this practice setting by performing a variety of services. Additional studies are needed to fully evaluate the impact of this integrative model.

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Introduction

Intellectual disability (ID) is characterized by significant limitations in both intellectual functioning and adaptive behavior and is one of several conditions known collectively as developmental disabilities (American Association on Intellectual and Developmental Disabilities [AAIDD], 2023). Developmental disabilities (DD) are severe, chronic disabilities attributable to mental and/or physical impairments leading to substantial functional limitations in three or more areas of major life activity (Developmental Disabilities Assistance and Bill of Rights Act of 2000 [DD Act] Sec. 102. (8)(A)). Intellectual and developmental disabilities (IDD) manifest before the age of 22 years and are expected to be lifelong (AAIDD, 2023; DD Act Sec. 102. (8)(A)).

The prevalence of multimorbidity in individuals with IDD contributes to increased use of medications, leading to higher rates of drug-related problems (DRPs) and hospitalizations compared to the general population (Erickson et al., 2020; Lee et al., 2021; O'Dwyer et al., 2016). Medication management is a significant area of need that pharmacists could address, but there are limited studies on pharmacist services for people with IDD. A 2021 review by Lee et al. identified 26 studies describing pharmacist interventions for the IDD population with 12 conducted in the U.S., primarily in institutional settings.

Of particular significance, psychotropics are one of the most frequently prescribed drug classes in people with IDD, with rates exceeding that of the general population (Lee et al., 2021; O'Dwyer et al., 2016). Though individuals with IDD are at higher risk for developing mental illness, several studies have described inappropriate, suboptimal use of psychotropics in this population. (Cooper et al., 2007; O'Dwyer et al., 2016; Sheehan et al., 2015). People with IDD may be especially vulnerable to adverse effects (AEs) of psychotropics due to reasons such as greater complexity of medication regimens, atypical presentation of symptoms, communication barriers, and varying responses/sensitivities to medications (Erickson et al., 2020; Lee et al., 2021; O'Dwyer et al., 2016).

Psychiatric pharmacists (PPs) have specialized training and experience in psychotropic use, and their expertise may help address associated challenges experienced by this population. To the authors' knowledge, no published studies have explored the role of PPs embedded in an IDD primary care clinic (PCC). The objective of this study is to describe the implementation of this novel practice.

Methods

Practice Description

This study was conducted at a PCC that serves approximately 450 adults with IDD annually. The clinic is affiliated with a regional safety-net teaching institution and staffed by attending physicians, resident physicians, nurses, and medical assistants. In August 2022, two pharmacists (one board certified PP and one postgraduate year two psychiatric pharmacy resident) were integrated into the clinic to provide services every Monday morning. Before appointments, a pharmacist huddled with the clinical team to discuss goals of the encounter and review anticipated drug-related issues. Then, the pharmacist collaborated with the physician(s) to interview the patient and caregiver(s) and develop treatment plans. If there remained additional medication-related questions/concerns, the pharmacist individually counseled the patient and caregiver(s). Pharmacists also conducted medication consultations telephonically when requested by physicians.

Data Collection

Patients included in this study were adults 18 years or older with a diagnosis of IDD. Data were collected through electronic health records (EHR) for 20 weeks from August 29, 2022 to January 9, 2023 to examine demographics, IDD-related diagnoses, level of ID, concomitant psychiatric/behavioral disorders, psychotropics, number of health conditions, and number of medications. Pharmacist services were categorized as medication reviews (MRs), medication histories (MHs), patient/caregiver education (ME), provider advisory services (AS), pharmacotherapy interventions (PI), and collaborative care (CC). Each service was classified as psychiatric or nonpsychiatric in nature.

Pharmacist Service Types

The MR process consisted of evaluating medication regimens while assessing clinical history (e.g., from previous clinic visits and specialist notes) and laboratory results, in addition to identifying potential DRPs and formulating pharmacotherapy recommendations.

The MHs were conducted through interviews with patients and caregivers to clarify discrepancies, address medication-related concerns, and update medication profiles.

The ME category encompassed counseling on pharmacologic and nonpharmacologic therapy as well as guidance on effectively communicating with providers regarding medications.

The PIs were defined as recommendations that led to direct implementation or change during the appointment. Subcategories comprised medication initiation/discontinuation, dose adjustments, laboratory monitoring, addressing drug-drug interactions (DDIs), and managing AEs.

The AS involved provision of drug information for physicians. This included interventions that did not lead to direct change due to recommendations not being accepted or not being feasible when medications were managed by external specialists.

The CC category comprised any other service that optimized coordination of care, such as communicating with third-party healthcare vendors regarding DRPs or pharmacies for prescription-related issues.

Results

Patient Characteristics

A total of 97 adults with IDD were included. The mean age was 32 ± 12 years and 66% were male. Fifty-one patients (52%) had a diagnosis of a seizure disorder, 41 (42%) autism spectrum disorder, 37 (38%) cerebral palsy, and 25 (26%) a genetic/chromosomal disorder. Of 74 (76%) patients with documented ID, seven (7%) had mild severity, nine (9%) moderate, 16 (16%) severe, 24 (25%) profound,

and 18 (19%) unspecified. The mean number of health diagnoses per patient was 12 ± 6, and the mean number of medications (scheduled and as needed) was 10 ± 8.

More than half of the patients (55%) had at least one comorbid psychiatric/behavioral disorder, with the most common being sleep disorders (21%), anxiety disorders (19%), depressive disorders (8%), and obsessive-compulsive disorders (8%). Of the 97 patients, 70% were taking at least one psychotropic; the most frequently prescribed classes were mood stabilizers/antiseizure medications (ASMs) (46%), benzodiazepines/hypnotics (32%), antidepressants (30%), and antipsychotics (25%). The relative frequencies of psychiatric/behavioral disorders and psychotropic usage patterns may have been influenced by several factors, including being based in the community (i.e., family residence or group homes), level of ID, and use of psychotropics for more than one indication.

Refer to *Table 1* for more patient characteristics.

Pharmacist Service Outcomes

Of the 147 scheduled appointments, pharmacists engaged in 62 patient encounters due to some limitations, such as rescheduling and simultaneous appointment times. At the completion of 60 hours, the pharmacists conducted a total of 308 services, which included 147 MRs (48%), 39 MHs (13%), 38 CC (12%), 35 PIs (11%), 27 AS (9%), and 22 ME (7%). The PIs involved 12 AE cases, eight medication initiation/discontinuation events, eight dose adjustment events, four laboratory monitoring cases, and three DDI cases. Psychotropics were involved in 66% of interventions, examples of which are provided in *Table 2*.

Discussion

Our model highlights several areas of support that PPs provide in medication management in primary care for patients with IDD. This adds to the limited but mostly positive studies on pharmacist interventions for the IDD population in the community setting. Furthermore, our practice aligns with the 2018 Canadian consensus guidelines on primary care of adults with IDD, which strongly recommend

engaging pharmacists in interprofessional healthcare teams and involving pharmacists to regularly review medications due to polypharmacy and chronic medication use (Sullivan et al., 2018). In literature specific to psychotropic management for people with IDD, data from institutional and residential/long-term care settings have shown that pharmacist involvement in MRs compliment initiatives to decrease inappropriate prescribing, reduce DRPs, and optimize time and cost savings (Lee et. Al., 2021; Nabhanizadeh et al., 2019).

Though our model was initially created as a pharmacy residency learning experience, a PP continues to provide specialized services in the IDD clinic following the study period. Our practice presents a unique opportunity not only for trainees but also for PPs to expand their role in serving this population, especially considering the prevalence of psychotropic use. A future consideration for expansion of this service model includes developing a collaborative practice agreement through which a PP manages psychotropics for patients who have difficulty accessing a psychiatric provider. For example, in Gerrard's study (2018), a clinical pharmacist independently managed 62 patient cases at an IDD clinic designed to reduce overuse of psychotropics and saved 150 hours/year for a psychiatrist. Further research on clinically validated tools and core outcome sets on psychotropic management in the community setting may assist in implementing PP services for the IDD population.

Limitations

There are several limitations to our study. First, the majority of patients were followed by external specialists, including psychiatrists who managed psychotropics. Ergo, the feasibility of directly changing certain medications was limited. Nevertheless, practicing in the primary care setting allowed for opportunities to communicate recommendations to specialists. We also did not evaluate patient/caregiver or healthcare team satisfaction, cost-time effectiveness, or clinical outcomes pre/post-pharmacist interventions. It is difficult to compare our practice to other settings as this is the first reported model to embed PPs in an IDD PCC.

Conclusion

This study explores the role of PPs integrated in an IDD PCC. Our results demonstrate that PPs may perform a variety of interventions related to medication management in this setting, particularly related to psychotropics. Our observations add to the small but growing number of studies highlighting provision of clinical pharmacy services for people with IDD. Additional outcomes studies are needed to fully evaluate the impact of this model.

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Table 1

Patient Characteristics

	Frequency (%) or mean (± SD)
Age (years)	32 (± 12)
Male gender	64 (66)
Number of total diagnoses	12 (± 6)
Number of total medications	10 (± 8)
IDD-related diagnosis	
Seizure disorder	51 (52)
Autism spectrum disorder	41 (42)
Cerebral palsy	37 (38)
Genetic/chromosomal disorder[a]	25 (26)
Hydrocephalus	9 (9)
Fetal alcohol syndrome	1 (1)
Spina bifida	1 (1)
Intellectual disability	74 (76)
Mild	7 (7)
Moderate	9 (9)
Severe	16 (16)
Profound	24 (25)
Unspecified	18 (19)
Comorbid psychiatric/behavioral disorder, at least one	53 (55)
Sleep disorder	20 (21)
Anxiety disorder	18 (19)
Depressive disorder	8 (8)
Obsessive compulsive disorder	8 (8)

Attention-deficit/hyperactivity disorder (ADHD)	7 (7)
Intermittent explosive disorder	3 (3)
Eating disorder	2 (2)
Bipolar disorder	2 (2)
Post-traumatic stress disorder	1 (1)
Other[b]	25 (26)
Psychotropic use, at least one	68 (70)
Mood stabilizer/Antiepileptic	45 (46)
Benzodiazepine/Hypnotic	31 (32)
Antidepressant	29 (30)
Antipsychotic	24 (25)
Alpha-2 agonist	11 (11)
Non-benzodiazepine anxiolytic	6 (6)
Other ADHD agent (i.e., stimulant, atomoxetine)	4 (4)

a. Including Down syndrome, DiGeorge syndrome, Fragile X syndrome, Angelman syndrome, chromosome 1 anomaly and other rare disorders

b. Including unspecified psychosis, mood disorder, adjustment disorder, compulsive behaviors (e.g., self-biting, skin-picking, self-injurious behavior), mixed obsessional thoughts and acts, aggressive behavior, impulsiveness, and unspecified behavioral and emotional disorders with onset in childhood/adolescence

Table 2

Example Interventions with Psychotropics

Drug-Related Problem	Summary of Pharmacist Intervention	Service Type
Caregiver/sister requested for evaluation of psychotropic regimen as patient had been taking risperidone for years but exhibited no behavioral concerns	- Recommended slowly decreasing scheduled risperidone dose and provided as-needed doses for any intermittent agitation - Clarified with caregiver that diphenhydramine was prescribed for extrapyramidal symptoms (EPS) and discussed feasibility of decreasing/discontinuing the medication with risperidone dose change - Recommended continuing citalopram for benefit in neurodermatitis	- AS - CC - ME - MH - MR - PI
Caregiver/grandfather believed that trazodone and azithromycin were contraindicated and feared giving azithromycin to patient	- Provided education that there is no contraindication and reassured caregiver that the patient could take the medications together	- AS - ME - MH - MR
Patient taking quetiapine 12.5 mg with unclear indication	- Educated that antipsychotics are not recommended to be used solely for sleep without primary psychiatric diagnosis - Recommended discontinuing quetiapine as risks outweigh benefits	- AS - ME - MH - MR - PI
Caregiver concerned about patient's behavioral changes after clomipramine was switched to sertraline by psychiatrist	- Provided education that sertraline is at starting/suboptimal dose of 25 mg daily and recommended discussing dose increase with psychiatrist	- ME - MH - MR - PAS

Caregiver overwhelmed with psychotropic polypharmacy, medication administration burden, and suspected side effects, including urinary retention	- Discussed consolidating aripiprazole administration to once daily dosing - Educated on anticholinergic side effects of benztropine and clomipramine - Recommended switching clomipramine to different antidepressant with better safety/tolerability profile, such as selective serotonin reuptake inhibitors (SSRIs) - Recommended trialing taper of high-dose clonazepam - Counseled on appropriate dosing administration of hydroxyzine	- AS - ME - MH - MR - PI
Patient on atomoxetine and risperidone presented with increased agitation and irritability	- Educated that atomoxetine may be associated with adverse effect of increased agitation and irritability - Discussed possible options of decreasing/discontinuing atomoxetine and/or increasing risperidone	- AS - ME - MH - MR
Patient on quetiapine presented with increased appetite and weight gain	- Provided education regarding antipsychotic-induced metabolic syndrome - Discussed option of starting metformin for antipsychotic-induced weight gain	- AS - ME - MR
Patient taking multiple sedative hypnotics, including clonazepam, diphenhydramine, quetiapine, and trazodone	- Discussed concern for psychotropic polypharmacy and recommended therapy optimization to decrease the risk of additive side effects	- ME - MH - MR - PI

AS (advisory services); CC (collaborative care); ME (caregiver/patient education); MH (medication history); MR (medication review); PI (pharmacotherapy intervention)