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# Polypharmacy in individuals with intellectual disability

## Abstract

The practice of polypharmacy has become increasingly prevalent in the treatment of individuals with psychiatric disorders. This has become a controversial issue due to the lack of safety and efficacy studies that would support its use. The purpose of the current study is to evaluate the frequency of polypharmacy in individuals with IDD. It is expected that the individuals with IDD will have a high percentage of poly-pharmaceutical use. Additionally, the present study examines the use of antipsychotic medications in individuals with IDD.

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## Introduction

The practice of polypharmacy has become increasingly prevalent in the treatment of individuals with psychiatric disorders. This has become a controversial issue due to the lack of safety and efficacy studies that would support its use. More specifically, several studies have reported an increase in the use of multiple psychotropic medications for intellectually disabled individuals.[1–6] Spencer, et al.,[7] reported on 33,565 children with ASD (Autism Spectrum Disorder), noting 35% of them were prescribed multiple psychotropic medications. A recent study demonstrated increased use of polypharmacy in individuals with dual diagnosis (IDD and Mental Health Disorder). In fact, 62% of the individuals with dual diagnosis were prescribed multiple psychotropic medications.[8] Chakos, et al.,[9] reported that people with better neuro-cognitive functioning are less likely to be on multiple psychotropic medications.

Individuals with intellectual disabilities are also more likely to be prescribed antipsychotic medications.[3,5,10–17] Coury, et al.,[18] found that Atypical Antipsychotics (Aripiprazole and Risperidone) were used quite frequently in individuals with ASD; specifically, 4% of 3-5year olds, 14% of 6-11year olds, and 23% of 12-17year olds were taking Atypical Antipsychotics. The side effects of these medications, present several concerns including metabolic abnormalities, hyperprolactinemia, and extrapyramidal symptoms. Bobo, et al.,[19] found a 3-fold increased risk of type 2 diabetes in children 6-17years of age who were using antipsychotic medications. Additionally, the risk was increased for those treated with *atypical* antipsychotics.

The purpose of the current study is to evaluate the frequency of polypharmacy in individuals with IDD. It is expected that the individuals with IDD will have a high percentage of poly-pharmaceutical use. Additionally, the present study examines the use of antipsychotic medications in individuals with IDD.

## Methods

**Subjects:** Thirty-four (34) children and sixty-four (64) adults diagnosed with IDD, who are members of a Kansas managed care organization, are included in this study. These members were referred for intervention with the Rapid Crisis Response System at the managed care organization.

**Procedure:** Each member's medication list was reviewed through the Managed Care Organization's electronic record system. The medications were then coded by class. Any member receiving two or more medications from a single class of psychotropic medications was considered to be in the polypharmacy category. Additionally, an analysis was conducted to determine the most frequent class of psychotropic medications used in people with IDD. Finally, the percentage of children and adults prescribed antipsychotic medications was computed.

## Results

Thirty-eight percent of children and forty-two percent of adults with IDD, who were referred to RCRS for a behavioral crisis, were prescribed two or more medications from the same pharmaceutical class. While children were typically on more than one mood stabilizer (excluding those who were treated with the same class for seizure disorders), adults were predominantly prescribed two or more antipsychotic medications. Finally, eighty-five percent of the children referred to RCRS with IDD had been taking an antipsychotic medication, while sixty-nine percent of the adults referred to RCRS with IDD were taking antipsychotic medications. Sixteen percent of the adults taking antipsychotic medications were taking typical or first generation antipsychotic medications, while none of the children were prescribed typical antipsychotic medications. The most frequently prescribed medications in adults were Quetiapine, Olanzapine, and Risperidone. While children were also frequently prescribed these medications, Aripiprazole was also one of the high frequency medications (Table 1).

## Discussion

In accordance with reported research, individuals with IDD were prescribed multiple psychotropic medications. Additionally, these individuals were receiving two or more medications from the same class of pharmaceuticals. Clinical records from the managed care organization revealed that many medical providers do not know how to evaluate individuals with IDD to determine the functional basis for the individual's behavior. There are even a limited number of medical providers who are willing to service individuals with IDD due to the lack of expertise with this population. Those who are willing to

provide services, often prescribe medications that will help to control the behavior, without assessing why the behavior is occurring.

**Table 1** Incidence of Prescribe Anti-Psychotic Medications

| Medication | Children | Percent | Adults | Percent |
|---|---|---|---|---|
| Quetiapine | 7 | 24 | 12 | 27 |
| Olanzapine | 7 | 24 | 11 | 25 |
| Risperidone | 6 | 21 | 11 | 25 |
| Aripiprazole | 6 | 21 | 8 | 18 |
| Lurasidone | 2 | 7 | 3 | 7 |
| Ziprasidone | 3 | 10 | 2 | 5 |
| Asenapine | 1 | 4 | 1 | 2 |
| Paliperidone | 2 | 7 | 5 | 11 |
| Loxapine | 0 | 0 | 6 | 14 |
| Clozapine | 1 | 4 | 3 | 7 |
| Haloperidol | 0 | 0 | 6 | 14 |
| Fluphenazine | 0 | 0 | 1 | 2 |

When prescribers seek to control behaviors, especially those involving assault or severe self-abuse, anti-psychotic medications are often the first choice. Unfortunately, 85% of children and 69% of adults with IDD were prescribed anti-psychotic medications. Common side effects of the atypical anti-psychotics include agitation, aggressive behavior, anxiety, difficulty concentrating, restlessness, memory problems, confusion, insomnia, blurred vision, difficulty speaking, and even tics. When these behaviors/symptoms are exhibited in individuals with IDD, it is often attributed to their diagnosis, not to the medication they are taking every day.

In addition to the impact on the individuals with IDD, the economic impact, due to the high cost of many of these medications, also impacts the rest of society. Aripiprazole, one of the more frequent medications given to children, is very expensive (approximately $550 for 30, 2mg pills). Polypharmacy and the overuse of anti-psychotic medications results in impaired quality of life for individuals with IDD and creates higher healthcare costs without enhancing the individual's well-being. Studies have confirmed that individuals receiving atypical antipsychotics (i.e. clozapine, risperidone, olanzapine, quetiapine, ziprasidone) are at an increased risk of developing hyperglycemia and/or diabetes mellitus. With the increase in Diabetes throughout society, it is imperative to decrease unnecessary risks.

In order to address the healthcare concerns in Kansas, the managed care organization collaborated with LifeShare, an agency that specializes in supporting individuals with IDD. The Rapid Crisis Response System of LifeShare was established to provide intervention and education to providers and caregivers for individuals in behavioral crisis. Members, who were having a crisis, received consultative services from a team of professionals including a psychologist, a behavioral neuroscientist, and a behavioral care coordinator. Eight areas of the individual's life were examined for quality, as well as specific concerns. A medication review was conducted, including contact with the individual's prescriber, as well as suggesting changes to the present regime. After seven months of implementation, several positive outcomes were realized. First, the individuals were diverted from emergency department visits and inpatient treatment. Second, the polypharmacy was reduce, resulting in less physical complaints from individuals. Finally, cost savings resulted from the diversions and medication reviews (Table 2).

**Table 2** RCRS Cost Savings Report

| | #Of | % Of Total | | Std Avg. Cost | Savings |
|---|---|---|---|---|---|
| Total Consults | 282 | | | | |
| Polypharm Reductions | 190 | 67 | 1 | $2,400 | $456,000 |
| ER Diversions | 85 | 30 | 2 | $2,000 | $170,000 |
| Inpatient Diversions | 134 | 48 | 3 | $6,480 | $868,320 |
| PRTF Diversions | 77 | 27 | 4 | $33,333 | ######### |
| Total | | | | | $ 4, 060, 987 |
| 1. Average 3 month saving for RCRS alternatives vs. Abilify and Latuda. | | | | | |
| 2. Average cost of ER visit in the US. | | | | | |
| 3. Average inpatient stay is 7.2 days for mental health at a cost of $900 per day. | | | | | |
| 4. Average annual PRTF cost is $200,000 and minimum stay is 60 days. | | | | | |
| Value Analysis | | | | | |
| Direct Diversion Savings | | | | | ######### |
| Life Share Costs | | | | | $ (903, 270) |
| Total Savings | | | | | ######### |

## Conclusion

In order for persons with IDD to receive appropriate therapeutic treatment, training to providers regarding the individual's specific needs and abilities must occur. More research is needed to determine best practices in prescribing medications to aid in mood and behavioral stabilization for people with IDD. Finally, ongoing reviews of current medication regimes should occur in order to ensure the health and safety of individuals with IDD.

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## Conflicts of interest

Author declares there are no conflicts of interest.

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