



Psychotropic medication use in school-aged children in foster care and residential care within child protective services

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ABSTRACT

Background: Children in the care of child protective services are treated with psychotropic medication at rates that far exceed those seen in the general population.

Objective: This study documents the rates of psychotropic medication use among school-aged children in two groups: 1) foster care; and 2) residential care. Socio-demographic variables and mental disorders that predict psychotropic medication use, polypharmacy (≥ 2 medication), and multiclass polypharmacy (≥ 3 medication classes) were also examined.

Participants and setting: The sample consisted of children aged 5 to 12 years in foster care ($n = 125$) and residential care ($n = 106$) in the province of Quebec (Canada).

Methods: Caregivers reported the children's medication use and completed questionnaires on the children's symptoms and diagnoses.

Results: Children in foster care and residential care showed few differences, with the exception of two specific medications (antipsychotic and clonidine). Fifty-nine percent of all children in the sample were prescribed psychotropic medication. The majority (93%) of these children received at least one ADHD medication. Polypharmacy was common, with 21% of all children being prescribed more than one medication. Multiclass polypharmacy was rare. Unique predictors of psychotropic medication usage included male sex, cumulative adversity and a diagnosis of ADHD. Polypharmacy was predicted by diagnoses of ADHD, Tourette's Syndrome and of an eating disorder. The rarity of multiclass polypharmacy ($n = 5/231$) limited inferential analyses.

Conclusions: Further research is needed to better understand the high rates of ADHD diagnosis and ADHD-medication among children in the care of child protective services, particularly given that ADHD medications account for most prescriptions.

1. Introduction

Children placed in out-of-home care (OHC), that is foster care (FC) and residential care (RC), present very high rates of mental disorders (Bronsard et al., 2016) and are prescribed psychotropic medication at significantly higher rates than children in the general

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population (McLaren et al., 2018; Zima et al., 1999; Breland-Noble et al., 2004). However, very few studies have investigated psychotropic medication use among children in FC and RC. Moreover, the majority of existing studies have been conducted in the United States and very few studies have focused specifically on school-aged children. Although prevalence studies have documented elevated rates of psychotropic medication use among children involved with child protective services (CPS), much less is known about the factors that may explain these prescribing patterns. The goal of this study is therefore to document the rates of psychotropic medication use among children in OHC in Quebec (Canada) and to identify predictive factors associated with medication use in this population.

1.1. Psychotropic medication among children of the general population

Radel et al. (2023) conducted a large-scale study including 31,473,608 children in the U.S. general population enrolled in Medicaid and reported a psychotropic medication prevalence of 9.06%. Servais et al. (2021) conducted a large-scale pan-Canadian study and reported that 4% of children aged 6–11 were prescribed psychostimulants, while fewer than 1% were prescribed antipsychotics. In addition, a population-based study conducted in Ontario by Antoniou et al. (2023) found that 7.7% of youth aged 0–24 used psychotropic medication. These figures are consistent with those reported by the Institut national de santé publique du Québec (INSPQ, 2022), which found that 7.7% of children (and 11.3% of those aged 6–11) were prescribed ADHD medication in Quebec between 2019 and 2020, with substantial regional variation (from 3.2% to 14.4%). Canadian data remain limited, but available studies suggest that between 4% and 8% of children and youth receive psychotropic medication. Rates are particularly high for ADHD medication, especially in Quebec, where prescription rates vary considerably across regions. Overall, rates of psychotropic medication use among children vary considerably across countries. In the United States, approximately 6–9% of children receive a psychotropic medication, and nearly 3% are prescribed more than one. In Western Europe, rates are generally much lower (Gómez-Lumbreras et al., 2021). Canada aligns more closely with the North American pattern, where psychostimulants and other psychotropic medications are prescribed more frequently.

1.2. Psychotropic medication prescribing trends over time

Many studies have documented a marked increase in psychotropic medication prescriptions among youth over time (Wong et al., 2004; Zito et al., 2003). In Quebec, the Institut national de santé publique du Québec (INSPQ, 2022) reported that prescriptions for ADHD medication among youth increased from 2.1% to 11.9% between 2000 and 2020. Because evidence supporting the safety and efficacy of polypharmacy in children remains limited, many authors have raised concerns about potentially inappropriate prescribing practices (e.g., Essock et al., 2009). These concerns have contributed to the emergence of a movement toward deprescribing, which appears to be developing alongside the increase in psychotropic medication use among children and youth. Deprescribing refers to the clinically supervised, planned withdrawal of a medication judged inappropriate, undertaken to limit polypharmacy and improve patient outcomes (Reeve et al., 2015; Scott et al., 2015). For example, prescriptions of certain medication classes to children have declined in some countries, including anxiolytics in Australia (Klau et al., 2022) and antipsychotics in Canada (Pringsheim et al., 2019). In summary, research indicates a substantial increase in psychotropic medication prescriptions among youth both in the United States and internationally, with Canada exhibiting some of the highest prevalence rates. In Quebec, prescriptions for ADHD medication have risen sharply since 2000. At the same time, concerns regarding polypharmacy have contributed to the emergence of a movement toward deprescribing.

1.3. Psychotropic medication among school-age children in foster care

Almost all children in FC have experienced trauma and maltreatment (McLaren et al., 2018). Accordingly, these children present much higher rates of mental disorders than children in the general population (Bronsard et al., 2016; McLeigh et al., 2023; Monette, Long, et al., 2025). For example, McLeigh et al. (2023) reported that 54.7% of school-aged children in FC had been diagnosed with at least one mental disorder. Children in FC also receive psychotropic medication at significantly higher rates than those observed in the general population (Ferguson et al., 2006; McLaren et al., 2018; McLeigh et al., 2023 Palmer et al., 2023; Radel et al., 2023; Zima et al., 1999), with studies estimating prevalence rates between 13% and 67%. For instance, Brenner et al. (2014) found that 59% of children in FC were taking psychotropic medications, including 77% of those aged 6–12. The same study reported that 35.8% of children were prescribed more than one medication, placing rates of polypharmacy among children in FC between 13% and 35.8%. To the best of our knowledge, no prior study has documented the prevalence of psychotropic medication use among FC children in Quebec. Overall, children in FC present substantially higher rates of mental disorders than those observed in the general population and are prescribed psychotropic medications far more frequently. Although prevalence rates vary across jurisdictions and time periods, studies consistently show that children in out-of-home care are significantly more likely to receive psychiatric diagnoses and pharmacological treatment than their peers in the general population.

1.4. Psychotropic medication among children in residential care

Children in RC are diagnosed with mental disorders at significantly higher rates than children in FC (Monette, Long, et al., 2025) and also appear to receive psychotropic medications at higher rates than children in FC (Breland-Noble et al., 2004). In RC settings, medication decisions may also be influenced by institutional constraints, as staff must often manage acute behavioural crises while ensuring safety in group living environments. The proportion of adolescents in RC prescribed psychotropic medication has been

estimated at around 76%–77% (Breland-Noble et al., 2004; Ryan et al., 2008). Compared with adolescents in FC, those in RC are particularly more likely to receive antipsychotics and mood stabilizers, while antidepressants, stimulants, and anxiolytics are prescribed at rates similar to those observed among youth in FC (Breland-Noble et al., 2004). Children in RC are also much more likely to receive multiple medications (polypharmacy), with 42–45% receiving two or more medications (Connor & McLaughlin, 2005; Ryan et al., 2008). Evidence also suggests that polypharmacy rates have increased over time among youth in RC. To our knowledge, three studies have examined psychotropic medication use among children in RC in Quebec. Lafortune et al. (2004) reported a medication rate of 36.6% and a polypharmacy rate of 15% among children aged 6–17, a finding replicated in a population-based study of all children in RC in Quebec, produced by the Quebec Ministry of Health (medication rate: 37%, polypharmacy: 12%; Ministère de la Santé et des Services sociaux, MSSS, 2007). For children aged 6–11, this same study reported rates of 67.5% for the use of at least one psychotropic medication, 60.5% for ADHD medication, 27.5% for antipsychotics, 11.4% for clonidine, and 3.0% for antidepressants. A decade later, Desjardins et al. (2017) reported similar rates among a sample of RC children aged 6 to 12: 70% for the use of at least one psychotropic medication, 49% for polypharmacy, 64% for ADHD medication, 36% for antipsychotics, 13% for clonidine, and 8% for antidepressants. Overall, children in RC present even higher rates of mental disorders and psychotropic medication use than those in FC. Many enter RC already receiving medication, and antipsychotics seems particularly common in these settings. As a result, children in RC appear to be among the most heavily medicated populations within the child welfare system.

1.5. Predictors of psychotropic medication among children in CPS

1.5.1. Medication

Antoniou et al. (2023) found that typically developing young boys were prescribed significantly more psychotropic medications across all categories than their female counterparts. This pattern has also been observed among children involved with CPS (McLeigh et al., 2023; Raghavan et al., 2005). Raghavan et al. (2005) reported that a history of physical abuse was significantly associated with psychotropic medication use among children in CPS. Similarly, McLeigh et al. (2023) found that male children and those who had experienced sexual abuse were more likely to receive psychotropic medication. The presence of an ADHD diagnosis has also been associated with medication use (Lafortune et al., 2004). Finally, longer durations of OHC have also been associated with increased medication use (Brenner et al., 2014).

1.5.2. Polypharmacy

Breland-Noble et al. (2004) identified an association between age and polypharmacy, with younger children in FC being more likely to receive multiple medications. Higher externalizing and internalizing behaviors also predicted polypharmacy. Interestingly, Zito et al. (2008) found no association between the use of three or more psychotropic medications and specific psychiatric diagnoses in children in FC. This suggests that decisions to prescribe multiple medications may be influenced more by the child's specific symptoms than by categorical diagnoses. Symptom overlap across disorders may therefore lead to similar medication choices despite different diagnostic labels.

1.5.3. Multiclass polypharmacy

We refer to the concomitant prescription of medications from three or more drug classes as multiclass polypharmacy (Fontanella et al., 2014). Although few studies have examined the predictors of multiclass polypharmacy, Fontanella et al. (2014) identified time (more recent years) and Medicaid eligibility category (including FC, disability, and low-income status) as significant predictors.

1.6. Objectives

Against this background, we undertook a study with two objectives. The first aim was to document and compare the proportions of school-aged children receiving psychotropic medication in Quebec (as reported by caregivers) in two groups of children in OHC: 1) children in FC and 2) children in RC. Comparing these two settings is important because they differ in caregiving structure (a single continuous caregiver in FC versus rotating, shift-based staff managing group living in RC), which may shape both prescribing indications and the monitoring of medication; yet the two settings have rarely been compared within a single jurisdiction and methodology. The second aim was to identify which socio-demographic variables and mental disorders predict psychotropic medication use according to three different modalities: 1) at least one psychotropic medication, 2) polypharmacy (≥ 2 medication), and 3) multiclass polypharmacy (≥ 3 medication classes).

2. Method

2.1. Participants

The study sample consisted of 231 children aged 5 to 12 years living in the province of Quebec. These children were recruited from two settings: FC and RC, as part of a larger research project. Children with autism spectrum disorder (ASD) were excluded from the study. The primary caregivers of these 231 children participated in the study. For children in FC ($n = 125$), the respondent was a foster parent. For children in RC ($n = 106$), the respondent was a childcare worker. In all cases, the child had to have been placed in the current setting with the same primary caregiver for at least six months prior to participation. This criterion was adopted to ensure that respondents had sufficient familiarity with the child to provide reliable information on the child's medication use, symptoms, and

diagnoses. In the present study, FC refers to children placed in kinship or regular foster homes, whereas RC refers to children placed in group homes or specialized rehabilitation units. Both are out-of-home placements administered by CPS under Quebec's Youth Protection Act. Placement in RC is not conditional on a psychiatric diagnosis; all placements are ordered (or as a voluntary measure when the parents agree to the placement) on child-protection grounds. The decision to place a child in FC versus RC depends on protection needs, the severity of the situation, behavioural difficulties, age, placement history (including prior placement breakdowns), and the level of supervision required, rather than on the presence of a diagnosed mental disorder. The diagnostic rates for each disorder were as follows, for children in FC, CR and total sample, respectively: ADHD (56%, 57%, 56%), Developmental language disorder (10%, 13%, 11%), Developmental coordination disorder (6%, 2%, 4%), Specific learning disorder (3%, 3%, 3%), Tourette Syndrome (5%, 7%, 6%), Attachment disorder (RAD or DSED: 22%, 38%, 30%), Oppositional-defiant disorder (22%, 25%, 23%), Conduct disorder (4%, 2%, 3%), Any anxiety disorder (19%, 8%, 14%), Post-traumatic stress disorder (6%, 10%, 8%), Depressive disorder (4%, 2%, 3%), Obsessive-compulsive disorder (4%, 0%, 2%), Eating disorder (3%, 8%, 5%), Elimination disorder (7%, 7%, 7%) and Intellectual disability (3%, 3%, 3%).

2.2. Procedure and recruitment

2.2.1. FC children

A total of six CPS agencies (out of a total of 16) were contacted, and all agreed to participate in the project and assist with the recruitment of foster parents. These agencies were located in different urban and suburban regions of Quebec (Montréal, Montérégie, Laurentides, Lanaudière, Capitale-Nationale, and Estrie) and participated in the study on a voluntary basis. Foster parents associated with these agencies were contacted by postal mail. Recruitment packages—including the consent form and questionnaires—were mailed to their homes by CPS staff involved in the project. All foster parents caring for at least one child aged 5 to 12 years (without a diagnosis of autism spectrum disorder) within the previous six months received a recruitment letter. Participating foster families were entered into a draw to win a \$100 gift card (one gift card for every five participants). Based on the total number of recruitment letters sent, the participation rate among foster parents is estimated at approximately 10%.

2.2.2. RC children

Among the six CPS agencies contacted for the recruitment of FC participants, four agreed to participate in the recruitment of childcare workers in RC. These agencies were located in urban and suburban regions of Quebec (Montréal, Laurentides, Capitale-Nationale, and Estrie). The RC childcare workers of these agencies were contacted by their respective department heads via an email prepared by the research team. The email included a link to the information and consent form as well as the questionnaires, and workers were invited to complete them on a voluntary basis. RC centres received \$25 for each worker who participated in the study. Based on the total number of recruitment emails sent, the participation rate among childcare workers ranged between approximately 10% and 90%, depending on the agency.

2.3. Instruments

2.3.1. Sociodemographic data, diagnoses and medication

2.3.1.1. Caregiver questionnaire. This questionnaire included questions regarding the child's characteristics: age, sex, ethnicity, region, type of placement, duration of the current placement and known mental health problems diagnosed by qualified professionals (physicians or psychologists for all diagnoses, and speech therapists for developmental language disorder). A dichotomous variable was created for the region within the province of Quebec because a provincial research report (INSPQ, 2022) indicated that two urban regions (Montréal and Laval) have lower rates of ADHD medication prescriptions among children (3.2%–4.2%) compared with other regions of the province (7.6%–14.4%). All questionnaires were completed by foster parents for the FC group and by childcare workers for the RC group.

2.3.2. Symptoms of mental disorders

2.3.2.1. Conners Comprehensive Behavior Rating Scales, parent version (Conners CBRS). The Conners CBRS (Conners, 2008), later updated according to DSM-5 criteria (Conners, 2014), was completed by the child's caregiver to assess the severity of symptoms characteristic of several mental disorders, including ADHD, oppositional defiant disorder, conduct disorder, major depressive episode, obsessive-compulsive disorder, separation anxiety disorder, social anxiety disorder, generalized anxiety disorder and ASD. The questionnaire comprises 201 items assessing children's behavior, rated on a four-point Likert scale (not true at all, just a little true, pretty much true, very much true). The technical manual reports that the DSM-5 scales demonstrated good test-retest reliability (mean $r = 0.85$), excellent internal consistency (mean $\alpha = 0.83$), and that scales scores are strongly associated with children's clinical diagnoses (Conners, 2008). The questionnaire generates T-scores based on norms specific to age and sex. The reported score (CBRS Sum score) is the sum of the T-scores across all DSM-5 scales and was used as a proxy measure of overall psychopathology severity.

2.3.3. Functional impairment

2.3.3.1. Barkley Functional Impairment Scale for Children and Adolescents (BFIS-CA). The BFIS-CA (Barkley, 2012) is a caregiver-report questionnaire assessing the severity of children's functional impairment. The questionnaire comprises 15 items evaluating children's functioning across several areas of daily life (e.g., functioning with caregivers, with friends, when doing homework, when performing household chores, when participating in sports, when learning at school, etc.). Items are rated on a ten-point Likert scale (0 = no impairment, 10 = severe functional impairment). The BFIS-CA demonstrates excellent psychometric properties (McGill, 2014) and has been validated with community samples of children ($n = 1800$). The technical manual reports that the scale shows excellent internal consistency (Cronbach's $\alpha = 0.95$) and strong test–retest reliability ($r = 0.86$). The reported score (BFIS-CA Mean score) represents the average over the 15 items (possible range: 0 to 10).

2.3.4. Adversity/maltreatment indicator

2.3.4.1. Extended modified maltreatment classification system (EMMCS). The EMMCS (Monette, 2024; Monette, Hélie, et al., 2025) is a coding grid that allows for the standardized coding of various maltreatment dimensions (types/subtypes, severity, frequency, developmental periods of exposure, chronicity) based on CPS investigation narrative reports, as several of these dimensions (e.g., severity) cannot be extracted from CPS administrative data. The EMMCS enables the extraction of eight types of maltreatment: Physical abuse, Sexual abuse, Physical neglect, Psychological/educational neglect, Supervisory neglect, Psychological maltreatment, Exposure to domestic violence, and Exposure to other potentially traumatic events. It also allows for the extraction of several parental risk factors and other adverse childhood life events. A recent validation study (Monette, Hélie, et al., 2025) conducted on 240 files of children reported to CPS demonstrated excellent inter-rater reliability and good convergent validity. In order to reduce the number of predictors, a composite maltreatment cumulative risk score was calculated, named “EMMCS Cumulative 25 score”. This score is the sum 25 dichotomous indicators: the eight maltreatment types, five parental risk factors for the mother (history of: alcohol/drug problem, physical aggression, incarceration, CPS involvement during childhood, out-of-home placement during childhood), the same five risk factors for the father, four adverse life events for the child (severe illness of a parent, death of a parent, a never-involved parent, and alcohol/drug use during pregnancy), maltreatment chronicity (0 = one developmental period of exposure, 1 = two or more), the number of living environments (0 = 1 to 3 environments, 1 = 4 or more: extracted from administrative data), and the presence of a reunification breakdown (0 = none, 1 = at least once: extracted from administrative data).

2.4. Data analysis

2.4.1. Documenting and comparing psychotropic medication

Descriptive statistics (frequencies and percentages) for psychotropic medication use were computed for both groups, and medication use was compared between the FC and RC groups using chi-square tests.

2.4.2. Predictive factors of psychotropic medication use

Correlations were first computed between the potential predictor variables and the three medication modalities (use of at least one medication, polypharmacy, and multiclass polypharmacy). Logistic regression analyses were then conducted for the two modalities with a sufficient number of cases-use of at least one medication and polypharmacy-entering, for each model, the predictors that had shown a significant correlation with the corresponding modality. Because only five children met the criterion for multiclass polypharmacy, this modality was not modelled with logistic regression and is described descriptively instead.

3. Results

3.1. Sample characteristics

Descriptive statistics indicate that most children were of White ethnicity (84%) and male (58%). The mean age of participants was 9 years ($SD = 1.85$). Children were placed in different types of out-of-home care: kinship FC (26%), regular FC (28%), group homes (25%), and specialized treatment units (21%). The average duration of out-of-home care at the time of the study was 2.91 years.

3.2. Psychotropic medication use

Descriptive statistics (number of cases and percentages) for psychotropic medication use in the two study groups (based on caregiver reports) are presented in Table 1. Fifty-nine percent of children in the total sample were prescribed psychotropic medication, including 54% of those in FC and 65% of those in RC. This difference was not statistically significant. The most commonly prescribed medications were those used to treat ADHD, which were prescribed to 55% of children. Nearly all medicated children in the sample (93.2%) received at least one ADHD medication. Antipsychotics, the second most commonly prescribed drug class, were prescribed to 3% of children in FC and 10% of children in RC, a statistically significant difference. Similarly, the adrenergic receptor agonist clonidine was prescribed to 3% of children in FC and 9% of children in RC, and this difference was also statistically significant. Use of other drug classes was negligible (<1%) in both groups. Polypharmacy (defined as the prescription of two or more medications) was

observed in 18% of children in FC and 25% of children in RC, this difference was not statistically significant. Fifteen percent of children were prescribed two ADHD medications simultaneously, indicating that combinations of ADHD medications account for a substantial proportion of the polypharmacy observed in this sample. Finally, 1% of children in FC and 4% of children in RC were prescribed multiclass polypharmacy (three or more drug classes).

Children with only one medication ($n = 87$) scored significantly higher than non-medicated children ($n = 95$) on both the CBRS sum score ($M = 789.17$, $SD = 108.28$ vs. $M = 717.17$, $SD = 136.18$) and the BFIS-CA ($M = 4.32$, $SD = 1.66$ vs. $M = 3.36$, $SD = 1.83$). Children with polypharmacy ($n = 49$) were similar to children with one medication (higher scores, but non-significant differences). Regarding cutoffs, the Conners CBRS classifies DSM-5 symptom-scale T-scores ≥ 70 as very elevated; we therefore report the mean number of DSM-5 scales (out of 11) in the very elevated range: non-medicated children had a mean of 4.26 ($SD = 3.68$) very elevated scales, children with only one medication had a mean of 6.21 ($SD = 3.08$); and children with polypharmacy (two or more medication) had a mean of 7.55 ($SD = 2.52$). The differences between the three groups were all significant [$F(2, 228): 18.39$, $p < .001$, all scheffe post hoc comparison significant].

3.3. Predictive factors of psychotropic medication use

Table 2 presents correlations between potential predictive factors and the three medication modalities. The results indicate that the use of at least one psychotropic medication is strongly correlated with a diagnosis of ADHD ($r = 0.67$, $p < .001$). Other diagnoses showing significant correlations include developmental language disorder, Tourette syndrome, oppositional defiant disorder, and eating disorders. In addition, the CBRS sum score, BFIS-CA Mean score, EMMCS cumulative 25 score, age, sex, and ethnicity were also correlated with the use of at least one psychotropic medication. Polypharmacy was correlated with diagnoses of ADHD, specific learning disorder, Tourette syndrome, oppositional defiant disorder, obsessive-compulsive disorder (OCD), and eating disorders, as well as with CBRS sum score, BFIS-CA mean score, and age. Finally, multiclass polypharmacy was correlated with eight diagnoses: ADHD, developmental language disorder, Tourette syndrome, attachment disorders (RAD or DSED), conduct disorder, anxiety disorders, OCD, and intellectual disability.

Logistic regression analyses are presented in Table 3. The model predicting the use of at least one psychotropic medication indicates that male sex, EMMCS cumulative 25 score and a diagnosis of ADHD were the only variables that significantly predicted medication use when controlling for all other variables. The logistic regression model predicting polypharmacy (two or more medications) showed that diagnoses of ADHD, Tourette syndrome, and eating disorders were the only significant predictors when controlling for all other variables. With only five cases of multiclass polypharmacy (2%), the events-per-variable ratio (5 event/8 predictors = 0.6) is far below accepted thresholds (Peduzzi et al., 1996) and the model shows clear signs of implausible odds ratios and degenerate confidence intervals. Under these conditions, standard logistic regression does not yield interpretable estimates. A qualitative description of these

Table 1
Children's current psychotropic medication regimen (as reported by caregivers).

Medication variables	FC ($n = 125$)	RC ($n = 106$)	Total ($n = 231$)	$\chi^2(1)$
	n (%)	n (%)	n (%)	
Medication class/category				
ADHD medication	66 (53%)	62 (59%)	128 (55%)	0.75 n.s.
Methylphenidate	38 (30%)	38 (36%)	76 (33%)	0.75 n.s.
Amphetamine	23 (18%)	15 (14%)	38 (17%)	0.77 n.s.
Guanfacine (Intuniv)	17 (14%)	22 (21%)	39 (17%)	2.09 n.s.
Atomoxetine (Strattera)	5 (4%)	4 (4%)	9 (4%)	0.01 n.s.
Two-ADHD medication	17 (14%)	17 (16%)	34 (15%)	0.77 n.s.
Adrenergic receptor agonist (Clonidine)	4 (3%)	10 (9%)	14 (6%)	3.92*
Antipsychotics	4 (3%)	11 (10%)	15 (6%)	4.87*
Antidepressants	1 (<1%)	1 (<1%)	2 (<1%)	0.01 n.s.
Mood stabilizers	0 (0%)	0 (0%)	0 (0%)	n.a.
Anxiolytics	0 (0%)	1 (<1%)	1 (<1%)	1.18 n.s.
At least one medication	67 (54%)	69 (65%)	136 (59%)	3.13 n.s.
Two medications or more (polypharmacy)	23 (18%)	26 (25%)	49 (21%)	1.29 n.s.
Three medications or more	2 (2%)	6 (6%)	8 (4%)	2.83 n.s.
At least one category of medication	67 (54%)	69 (65%)	136 (59%)	3.13 n.s.
Two categories of medication or more	7 (6%)	12 (11%)	18 (8%)	2.48 n.s.
Three categories of medication or more (multiclass polypharmacy)	1 (1%)	4 (4%)	5 (2%)	2.39 n.s.

Two categories of medication or more: All of these children have a prescription for ADHD, combined with a medication such as clonidine or an antipsychotic.

Adrenergic receptor agonist: 8/14 also takes ADHD medication.

Antipsychotics: 14/15 also takes ADHD medication.

Only one child was taking more than three medication (4 medication for one child: 2 ADHD medication + antipsychotic + clonidine).

Polypharmacy: Two medications or more.

Multiclass polypharmacy: Three categories/classes of medication or more, $n = 5$ (1 child took an ADHD medication + antipsychotic + antidepressant and 4 children took an ADHD medication + Clonidine + antipsychotic).

* $p < .05$.

Table 2
Correlations between possible predictive factors and medication modalities.

Predictor variables	At least one medication	Polypharmacy	Multiclass polypharmacy
ADHD	0.67***	0.40***	0.13*
Developmental language disorder	0.16*	0.08	0.14*
Developmental coordination disorder	0.03	0.00	−0.03
Specific learning disorder	0.10	0.22***	−0.03
Tourette Syndrome	0.20**	0.33***	0.22**
Attachment disorder (RAD or DSED)	0.08	0.08	0.17*
Oppositional-defiant disorder	0.29***	0.27***	0.06
Conduct disorder	0.05	0.03	0.15*
Any anxiety disorder	0.00	0.04	0.20**
Post-traumatic stress disorder	0.08	0.05	−0.04
Depressive disorder	0.05	0.09	−0.03
Obsessive-compulsive disorder	0.00	0.14*	0.18**
Eating disorder	0.20**	0.36***	−0.03
Elimination disorder	0.02	−0.02	−0.04
Intellectual disability	0.05	0.09	0.32***
CBRS Sum Score	0.34***	0.27***	0.12
BFIS-CA Mean Score	0.27***	0.14*	0.07
EMMCS cumulative 25 score	0.20**	0.02	0.01
Age	0.22***	0.18**	0.05
Sex	−0.22***	−0.12	−0.00
Ethnicity	0.15*	−0.12	−0.01
Type of placement	0.12	0.07	0.10
Region	0.10	0.07	−0.06

Notes. Polypharmacy: At least 2 medications; Multiclass polypharmacy: At least 3 classes of medication; RAD, reactive attachment disorder; DSED, Disinhibited social engagement disorder; CBRS Sum score, Sum of all DSM-5 scales T scores on the Conners Comprehensive Behavior Rating Scale; BFIS-CA Mean score, Mean item score on the Barkley Functional Impairment Scale for Children and Adolescents; EMMCS cumulative 25 score, cumulative 25 score on the Extended Modified Maltreatment Classification System; Sex (1 = male, 2 = female); Ethnicity (1 = white, 2 = black/other); Type of placement (1 = FC, 2 = RC), Region (0 = Montreal, 1 = others).

* $p < .05$.

** $p < .01$.

*** $p < .001$.

cases is thus provided. For these cases, the medication profile was as follows: one child received an ADHD medication, an anti-psychotic, and an antidepressant; four received an ADHD medication, clonidine, and an antipsychotic. Regarding the associated variables in Table 2, 5/5 (100% vs 55% in the rest of the sample) presented with ADHD, 2/5 (40% vs 11% in the rest of the sample) with a developmental language disorder, 2/5 (40% vs 5% in the rest of the sample) with Tourette's disorder, 4/5 (80% vs 28% in the rest of the sample) with RAD or DSED, 1/5 (20% vs 3% in the rest of the sample) with conduct disorder, 3/5 (60% vs 13% in the rest of the sample) with an anxiety disorder, 1/5 (20% vs 2% in the rest of the sample) with OCD, and 3/5 (60% vs 2% in the rest of the sample) with an intellectual disability. These five children had an average of 4.4 diagnoses, compared to 1.7 for the remainder of the sample.

4. Discussion

The purpose of this study was to compare caregiver-reported psychotropic medication use in two groups of children in OHC: children living in FC and those living in RC. We also sought to identify which specific socio-demographic variables and mental disorders predict psychotropic medication use, polypharmacy, and multiclass polypharmacy. Results indicate psychotropic medication prevalence rates of 54% among school-aged children in FC and 65% among those in RC. Children in FC had a polypharmacy rate of 18% and a multiclass polypharmacy rate of 1%, while children in RC had polypharmacy and multiclass polypharmacy rates of 25% and 4%, respectively. Overall, the rates of medication modalities (at least one medication, polypharmacy, and multiclass polypharmacy) were broadly comparable between the two groups. The only medications that showed statistically significant differences in usage between the groups were antipsychotics (FC: 3%; RC: 10%) and the adrenergic receptor agonist clonidine (FC: 3%; RC: 9%). In RC settings, medication decisions may be influenced by the institutional context, as staff must often manage acute behavioural crises while ensuring safety within group living environments. Such conditions may contribute to a greater reliance on pharmacological stabilization with antipsychotics.

These findings also suggest that medication rates for children in RC are stable, as the two other sources of Quebec data (Desjardins et al., 2017; MSSS, 2007) reported medication rates of 67.5% and 70%, respectively, among children placed in RC within this age group. Despite this high rate of use of at least one psychotropic medication, the rates of antipsychotic (10%) and antidepressant (<1%) prescriptions appears lower than in earlier Quebec samples (36% and 8%, respectively, in Desjardins et al. (2017), and 27.5% and 3% in MSSS (2007), a pattern consistent with a population-level trend toward deprescribing, although our cross-sectional design does not allow us to document deprescribing at the individual level. Regarding children in FC, no prior Quebec data are available, which prevents us from identifying a possible temporal trajectory. However, it should be noted that the medication rate (equivalent to that of

Table 3

Logistic regression examining links between predictors and psychotropic medication modalities.

Predictor variables	B	SE B	OR	95% CI
Psychotropic medication (at least one psychotropic medication)				
Constant	−3.99	1.98	0.02	
ADHD	3.04***	0.46	20.90	[8.6–50.98]
Developmental language disorder	1.27	0.73	3.55	[0.9–14.7]
Tourette syndrome	20.95	9527.70	1,258,412,917.80	[0]
Oppositional-defiant disorder	0.37	0.56	1.44	[0.5–4.3]
Eating disorder	20.31	9839.72	662,155,676.82	[0]
BFIS-CA Mean score	0.09	0.16	1.09	[0.8–1.5]
CBRS Sum score	0.00	0.00	1.00	[0.9–1.0]
Age	0.21	0.12	1.23	[1–1.6]
Sex	−0.91*	0.41	0.40	[0.2–0.9]
Ethnicity	0.19	0.57	0.83	[0.3–2.5]
EMMCS Cumulative 25	0.14*	0.06	1.15	[1–1.3]
Polypharmacy (at least two psychotropic medications)				
Constant	7.4***	2.16	0.00	
ADHD	2.31**	0.71	10.10	[2.5–40.4]
Dyslexia	1.85	1.08	6.40	[0.8–52.4]
Tourette syndrome	2.41**	0.81	11.10	[2.3–54.7]
Oppositional-defiant disorder	0.83	0.45	2.29	[1–5.5]
Obsessive-compulsive disorder	0.99	1.20	2.68	[0.2–29.9]
Eating disorder	2.93**	0.95	18.78	[2.9–120]
BFIS-CA Mean score	−0.33	0.16	0.97	[0.7–1.3]
CBRS Sum score	0.00	0.00	1.00	[1–1]
Age	0.18	0.12	1.20	[0.9–1.5]

Note. CBRS Sum score, Sum of all DSM-5 scales T scores on the Conners Comprehensive Behavior Rating Scale; BFIS-CA mean score, Mean item score on the Barkley Functional Impairment Scale for Children and Adolescents; EMMCS cumulative 25, cumulative 25 score on the Extended Modified Maltreatment Classification System; Sex (1 = male, 2 female); Ethnicity (1 = white, 2 = black/other).

Nagelkerke $R^2 = 0.64$ for psychotropic medication, 0.49 for polypharmacy.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

children in RC) appears to be highly elevated when compared to the studies in the United States.

4.1. Use of psychotropic medication

4.1.1. Diagnosis of ADHD and maltreatment composite score

A diagnosis of ADHD was the strongest predictive factor of psychotropic medication use in our sample. Because 93.2% of medicated children in our sample were receiving medication for ADHD, it is not surprising that this diagnosis strongly predicted medication use. Another study using the same sample (Monette, Long, et al., 2025) found that ADHD is diagnosed at much higher rates among children in FC (49%) and RC (54%) in Québec (Canada) than among children in out-of-home care in other countries (4% in French RC; Bronsard et al., 2011; 19% in Norwegian FC; Lehmann et al., 2013; and 21.8% in American FC; Turney & Wildeman, 2016). Data from the province of Quebec also indicate that the profile of ADHD prescribers has changed over the past decade: general practitioners now prescribe ADHD medication more frequently, while pediatricians and psychiatrists prescribe it less often (INSPQ, 2022). A similar trend has been observed in the United States (American Academy of Child and Adolescent Psychiatry Committee on Health Care Access & Economics Task Force on Mental Health, 2009). The cumulative 25 score on the EMMCS, which is an indicator of overall adversity experienced by the child, was also a predictor of psychotropic medication use, even when controlling for other predictors. These findings raise important questions, particularly in the context of children in OHC. Differentiating between neurodevelopmental disorders (such as ADHD) and the other mental disorders or consequences of trauma can be challenging for clinicians, especially when operating within strained health care systems (McLaren et al., 2018). More broadly, these results may raise concerns about the potential medicalization of trauma-related symptoms among children involved with CPS. Among these children, behavioural symptoms may sometimes represent adaptive responses to trauma rather than manifestations of neurodevelopmental disorders. Distinguishing trauma-related symptoms from conditions such as ADHD therefore represents a major clinical challenge and may partly contribute to elevated prescription rates (and ADHD-diagnostic rate) in this population. Behavioural and emotional manifestations of maltreatment can mimic symptoms of ADHD, which may increase the likelihood of pharmacological responses to complex developmental and relational difficulties. For this reason, prescribing clinicians should remain cautious when assessing children exposed to maltreatment. Misidentification may therefore lead to the pathologization and medicalization of children's normal reactions to adverse experiences (Palmer et al., 2023). This concern is particularly salient for ADHD, given the significant overlap between trauma-related symptoms and ADHD symptomatology. Clinical guidelines from several professional organizations (APA, 2013; Lee et al., 2015 for the AACAP; Keeshin et al., 2020 for the AAP) recommend conducting thorough and comprehensive diagnostic assessments when evaluating

children involved with CPS. Such assessments should consider the full range of possible mental disorders while also taking into account the child's psychosocial history in order to arrive at valid diagnoses and appropriate treatment plans. Although very time-consuming and sometimes involving complex consent procedures, clinicians assessing mental disorders should take the time to obtain the child's complete psychosocial file from the CPS and always assess whether the timing for a mental disorder assessment is optimal and the possible confounding factors (e.g., recent trauma, recent placement, reliability of current and past caregivers, possible impacts of parent-child visitation on the child's behavior, drug use in adolescents, sleep-related problems, excessive screen-time exposure, etc.).

4.1.2. Male sex

Many studies report higher rates of psychotropic medication use among boys than among girls, a pattern observed both in the general population (Antoniou et al., 2023; Zhang et al., 2013) and among children involved with CPS (McLeigh et al., 2023; Raghavan et al., 2005). Specifically, boys receive psychostimulants at much higher rates than girls (Gómez-Lumbreras et al., 2021; INSPQ, 2022). For example, in one study, 68.8% of all psychostimulant prescriptions were issued to boys (Antoniou et al., 2023). This interpretation is consistent with the fact that ADHD medications are the most frequently prescribed psychotropic drugs in many samples and that ADHD itself is more prevalent among boys than girls, with reported ratios of 2:1 (Faraone et al., 2021). The fact that sex remains a predictor of psychotropic medication use, despite statistical control for the presence of an ADHD diagnosis, is concerning and suggests that boy-specific variables (not measured in the present study) might influence medication rates.

4.2. Polypharmacy

4.2.1. Diagnosis of ADHD

A diagnosis of ADHD was not only the strongest predictor of overall psychotropic medication use but also a strong predictor of psychotropic polypharmacy. In our sample, this result can largely be explained by the substantial number of children prescribed two different ADHD medications. The most commonly prescribed ADHD medications were methylphenidate (33%), amphetamines (17%), guanfacine (17%), and atomoxetine (4%). Overall, 15% of children in the sample - or 27.3% of children receiving ADHD medication - were prescribed two ADHD medications concurrently. Considering that the overall polypharmacy rate in the sample was 21%, the presence of two ADHD medications accounted for a large proportion (71%) of polypharmacy cases, which explains why an ADHD diagnosis predicted polypharmacy in this study. The concomitant prescription of two ADHD medications is relatively common, and some evidence supports its clinical utility. A literature review by Baker et al. (2021) found that combining a stimulant with an alpha-agonist was consistently more effective than using alpha-agonists alone, although not always more effective than stimulants alone. In addition, Canadian ADHD clinical practice guidelines (CADDRA, 2020) indicate that guanfacine XR may be used as an adjunct treatment for children aged 6–17 when stimulants alone do not produce an optimal response.

4.2.2. Diagnosis of Tourette syndrome

Tourette syndrome was identified as another significant predictor of polypharmacy in our sample. Two factors may help explain the higher rates of polypharmacy observed in this population. First, treatment options for Tourette syndrome are largely pharmacological and often involve medications such as antipsychotics and the alpha-agonists clonidine and guanfacine (Eddy et al., 2011), which were represented in our sample at rates of 6%, 6%, and 17%, respectively. Second, Tourette syndrome is associated with very high rates of psychiatric comorbidity. Indeed, the majority of individuals diagnosed with Tourette syndrome (88%) also present at least one additional mental disorder, most commonly ADHD (60%) or obsessive-compulsive disorder (27%; Freeman et al., 2000). The presence of multiple co-occurring disorders complicates the clinical management of Tourette syndrome and may require a combination of pharmacological treatments (Eddy et al., 2011), thereby increasing the likelihood of polypharmacy.

4.2.3. Diagnosis of an eating disorder

The strongest unique predictor of polypharmacy in our sample was a diagnosis of an eating disorder. The reason for this association remains unclear, although several hypotheses may help explain it. First, eating disorders rarely occur in isolation and frequently co-occur with other severe psychiatric conditions. Second, among children involved with child protection services, eating disturbances may reflect histories of neglect or trauma. Third, in residential settings, eating disorders may generate acute crises requiring intensive clinical management. Pharmacological treatment is not considered a first-line treatment for eating disorders. Only two medications are currently approved to treat eating disorders in adults: fluoxetine for bulimia nervosa and lisdexamfetamine for binge eating disorder (Costandache et al., 2023). Though they can sometimes be used off-label, no medications are formally approved to treat eating disorders in children. In our sample, less than 1% of children were using any antidepressant, suggesting that fluoxetine use does not explain the association observed. While lisdexamfetamine—a psychostimulant—may occasionally be used off-label to treat binge eating disorder in children, it is unlikely that this practice alone explains the observed pattern. Interestingly, 8 of the 12 children diagnosed with an eating disorder in our sample were prescribed the alpha-agonist guanfacine. In Canada, the only approved indication for prescribing guanfacine to children is the treatment of ADHD (Takeda Canada Inc., 2020). We found no reports in the literature describing the off-label use of guanfacine for eating disorders in either pediatric or adult populations.

4.3. Multiclass polypharmacy

For the purpose of this study, multiclass polypharmacy was defined as the prescription of medications from three or more drug classes. In our sample, only 1% of children in FC and 4% of children in RC were prescribed multiclass polypharmacy. Because only five

children met this criterion, the rarity of the outcome precluded reliable inferential analysis, and these cases are described rather than modelled. The children receiving this regimen presented with a complex diagnostic profile (an average of 4.4 diagnoses), most of them with a combination of ADHD, intellectual disability, attachment disorder (RAD or DSED), and anxiety disorder. The co-occurrence of these diagnoses is best interpreted as a descriptive, hypothesis-generating observation. Previous research suggests that polypharmacy may be relatively common among children with intellectual disabilities. For example, McLaren et al. (2021) found that 86% received at least one psychotropic medication and 74% received polypharmacy. Furthermore, 44% received medications from three (25%) or more (19%) different drug classes, meeting criteria for multiclass polypharmacy. Several factors may help explain these high rates of polypharmacy. Children with intellectual disabilities frequently present challenging behaviors. Emerson et al. (2010), for example, reported that children with intellectual disabilities were significantly more likely than their peers without intellectual disability to present hyperactivity (26% vs. 8%), conduct difficulties (24% vs. 8%), and emotional problems (13% vs. 6%). Such behavioural difficulties are often managed with psychopharmacological treatments. At the same time, access to specialized non-pharmacological interventions may be limited, further contributing to reliance on pharmacological approaches.

4.3.1. Influence of sociodemographic variables

As presented above, logistic regression analyses identified which variables predicted the different medication modalities in our sample while controlling for other factors. Interestingly, many variables that initially showed significant correlations no longer predicted medication use once other variables were included in the models. For example, none of the sociodemographic variables—except male sex—predicted any of the medication modalities when controlling for other factors. This finding is noteworthy because, contrary to reports from several previous studies (Breland-Noble et al., 2004; Raghavan et al., 2005; Ferguson et al., 2006; Handwerk et al., 2008), we observed no ethnic differences in psychotropic medication prescriptions in our sample. To our knowledge, this study is the first Canadian study to examine the influence of ethnicity on psychotropic medication prescriptions among children in OHC, making it difficult to compare our results with other Canadian data. Most studies that have identified ethnicity as a significant predictor have been conducted in the United States, where issues related to race, racism, and access to health care may differ from those observed in Canada. In a study examining racial disparities in psychotropic medication use, Cummings et al. (2017) suggested that cultural factors—such as minority parents preferring psychosocial interventions over pharmacological treatments—may contribute to these disparities in the United States. However, it remains unclear how such preferences might influence prescription patterns among children who are no longer living with their parents, or how these dynamics may differ in Quebec compared with the United States.

4.4. Clinical and policy implications

4.4.1. Practice and case-management implications

In RC, the higher use of antipsychotics and clonidine warrants particular vigilance: structured medication review, attention to metabolic and other side effects, and assurance that these agents do not substitute for adequate non-pharmacological supports or crisis-management capacity, especially as monitoring continuity may be weaker under shift-based staffing. In FC, where a single caregiver provides continuity but may have less clinical training, the priority may be supporting and educating foster parents to recognize medication effects and side effects and to advocate for comprehensive assessment.

4.4.2. Policy implications

The concentration of the FC–RC difference in antipsychotics and clonidine supports setting-specific oversight, for example, monitoring of antipsychotic prescribing in residential settings and investment in non-pharmacological supports and staff training to reduce reliance on pharmacological stabilization. More broadly, the high rates of ADHD diagnosis and medication among CPS-involved children in Quebec argue for system-level investment in comprehensive assessment capacity.

4.5. Limitations

The current study presents some limitations. First, the correlational nature of the research design restricts the conclusions to non-causal associations. Because the design is cross-sectional, we were also unable to examine whether clinically elevated symptom and impairment levels among medicated children predict subsequent changes in their medication regimens; longitudinal data would be needed to address this question. Second, reported medication use and mental disorder diagnoses relied on caregiver reports and were not corroborated by medical records. This approach may be subject to recall bias. Third, we did not collect detailed information on specific diagnoses within several diagnostic categories (e.g., anxiety disorders, eating disorders, specific learning disorders). This limitation restricts the conclusions that can be drawn from some of our findings. For example, eating disorders were recorded as a single diagnostic category even though the DSM-5 (APA, 2013) distinguishes several different eating disorders with distinct clinical presentations. This limitation reduced our ability to explain why eating disorders emerged as the strongest unique predictor of polypharmacy in our sample. Fourth, we did not collect data on non-pharmacological treatments. As a result, we were unable to determine whether children receiving psychosocial or behavioural interventions had higher or lower rates of psychotropic medication use. Brenner et al. (2014), for example, found that youth in FC receiving psychotropic medication were also more likely to receive non-pharmacological treatments, and it would have been informative to examine whether a similar pattern existed in our sample. Additionally, the representativeness of the sample constitutes another limitation. Both samples in the present study were convenience samples, and it is therefore unknown whether participating foster parents or childcare workers differ from non-participants on socio-demographic characteristics. Sampling at the agency level was also non-random: the participating agencies were drawn from major

urban and suburban regions, and more remote, rural regions, where ADHD-medication prescribing rates tend to be higher (INSPQ, 2022), were not represented. Although region was not associated with medication use within our sample, this limits the extent to which our prevalence estimates can be generalized to the entire province. In addition, the sample size is modest compared with studies relying on large administrative databases. Also, the requirement that children be settled in their current placement for at least six months may have excluded youth experiencing acute placement instability, who are sometimes among the most clinically impaired. The direction of the resulting bias is uncertain, however, as psychotropic medication is also used to stabilize behavior and support placement maintenance. Our estimates therefore apply to children in relatively stable placements.

5. Conclusion

In conclusion, this study identified high rates of psychotropic medication use among school-aged children in FC and RC. Rates observed among children in FC were somewhat higher than those reported in several previous studies, whereas rates among children in RC were broadly comparable to those reported elsewhere. Additional Canadian research is needed to enable more robust comparisons across jurisdictions. Unique significant predictors of psychotropic medication use (male sex; maltreatment cumulative risk, ADHD) and polypharmacy (ADHD; Tourette syndrome; eating disorders) were identified. The high prevalence of ADHD diagnoses among children in out-of-home care warrants further investigation, particularly because ADHD medications accounted for the majority of prescriptions and polypharmacy cases in our sample. Similarly, the association between eating disorders and polypharmacy requires further study, as it was difficult to explain based on the available data.

CRedit authorship contribution statement

Eloïse Parizeau: Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization. **Denis Lafortune:** Writing – review & editing, Writing – original draft. **Sebastien Monette:** Writing – review & editing, Writing – original draft, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

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Declaration of competing interest

The authors report there are no competing interests to declare.

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Data availability

The authors do not have permission to share data.

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