

## Original Research

# Individual Change in Methylphenidate Use in a National Sample of Children Aged 2 to 11 Years

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**Objectives:** To determine methylphenidate use in children aged 2 to 13 years. To provide age- and sex-specific estimates of methylphenidate initiation and cessation during a 2-year period.

**Method:** Data from 2 cycles of a Canadian household survey yielded a sample of over 10 000 children aged 2 to 11 years at Cycle 1 who continued to participate at Cycle 2. We used logit modelling to estimate Cycle 2 methylphenidate use, methylphenidate use over a 2-year period, and methylphenidate initiation and cessation from Cycles 1 to 2.

**Results:** In 1996 and 1997, methylphenidate use ranged from 0.32% to 6.31% among children aged 4 to 13 years. School-aged boys were more likely than girls to use methylphenidate. Odds were greater for boys aged 6 to 7 years than for boys aged 4 to 5 years; they were also greater for boys aged 10 to 11 years than for boys aged 12 to 13 years. Almost 1% of children used methylphenidate at both data cycles. Odds of Cycle 2 methylphenidate use were 135 times greater for children using methylphenidate at Cycle 1, compared with nonusers. Methylphenidate initiation ranged from 0.20% to 3.34%, and school-aged boys had higher initiation rates than girls. Cessation rates ranged from 18% to 78%, and there were no statistically significant differences by age and sex.

**Conclusions:** Methylphenidate prevalence findings are consistent with past studies. We found an age-by-sex interaction on methylphenidate use. We also found both continuity and discontinuity in methylphenidate use.

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### Clinical Implications

- Methylphenidate use depends on both the child's age and sex: school-aged boys had the highest rates of use, compared with younger children and girls.
- The probability of using methylphenidate was very high if the child used the medication 2 years earlier. However, very few children used methylphenidate across the 2 data cycles.
- Few children started using methylphenidate over a 2-period period, and initiation rates were higher for school-aged boys. In contrast, many children stopped using methylphenidate over the same time period, and there were no age or sex differences.

### Limitations

- There could have been variability in methylphenidate use over the 2-year collection period, but we did not have information on the duration of medication use or on related aspects, such as dosage level.
- We did not directly link methylphenidate use and hyperactivity and inattention problems.
- The relatively low rates of methylphenidate use did not make it possible to examine potential moderating effects (for example, socioeconomic status); this would have yielded imprecise estimates.

**Key Words:** methylphenidate, stimulant use, general population sample, age effects, sex effects, prevalence, initiation, cessation

There is evidence of an increasing trend in methylphenidate use among children, according to epidemiologic studies from Canada (1,2) and the US (3–5). Comparing 1994–1995 with 1996–1997, the National Longitudinal Survey of Children and Youth (NLSCY) showed a 36% increase in methylphenidate use among children aged 2 to 11 years (2). This increase could be caused by a relatively circumscribed number of children using methylphenidate for longer periods of time, by a greater number of children using methylphenidate for short periods of time, or by a greater number of children using methylphenidate for long periods of time. These patterns of use could vary with age and sex, as well as with many other determinants. For instance, it may be that more children are being diagnosed with attention-deficit hyperactivity disorder (ADHD), for which methylphenidate is the most commonly prescribed medication in Canada. It also is possible that mental health practitioners are turning to methylphenidate more quickly to treat children with problematic behaviour other than hyperactivity and inattention (for example, oppositional behaviour or aggression).

Information is limited on whether ADHD is being overdiagnosed and overtreated with methylphenidate and on whether methylphenidate is being used to treat other behaviour problems in children. Several epidemiologic studies, however, have found that methylphenidate is often not being adequately used to treat children with ADHD (1,6,7). A review of prescription records for a general population sample of Manitoba children aged 0 to 19 years showed that 1.52% had received a diagnosis of ADHD in 1995 and 1996. Among these diagnosed children, only 6 in 10 (58.6%) were being treated with stimulant medication (1). Similarly, a US population-based study of children and adolescents aged 9 to 17 years found that among the 5% who were diagnosed with ADHD, slightly over 1 in 10 (12%) had been treated with stimulant medication over the previous year (6). Finally, a study of children in Grades 1 through 5 in a North Carolina county indicated that 7 in 10 children with ADHD were receiving stimulants (7).

Another issue for which we currently have limited information is the possible impact on methylphenidate use of socio-demographic variables (for example, whether the child is living in an urban or rural area or whether the child is in a single- or 2-parent household) and of socioeconomic variables (for example, household income, parental education, and parental occupation). The Manitoba population-based study of children and adolescents aged 0 to 19 years found that subjects living in urban areas had ADHD rates that were 4 times higher and stimulant rates that were 8 times higher than rates among youth living in rural areas. There also was an income-by-area interaction: in rural areas, increased neighbourhood income level was associated with higher ADHD

and stimulant use rates (1). In the US, a 1995–1996 study of children in Grades 2 through 5 in 2 school districts found that, among white children with ADHD, lower household income predicted methylphenidate use (8). Other US studies also have shown ethnicity to be a predictor of methylphenidate use: in particular, white children are at increased risk, compared with black and Hispanic children (7,9).

Numerous randomized controlled trials (RCTs) have been conducted on the effectiveness of stimulant medication (mainly methylphenidate) for children with ADHD (10–16). Along with reviews of RCTs, these studies indicate that stimulants are effective in reducing the core behavioural features of ADHD, namely, age-inappropriate inattention, motor overactivity, and impulsivity (17–22). However, 3 major limitations plague most studies of stimulant effectiveness. First, most studies focus on school-age children, so there is limited information on stimulant treatment for preschool-age children. However, there is some empirical evidence that methylphenidate treatment is effective for this age group (17,23). Second, study samples comprise mainly boys, so we know very little about the effectiveness of stimulants for girls. Third, most studies are short (approximately 4 weeks), so the effectiveness of stimulant medication for children over a longer period of time remains an open question. One exception is the National Institute of Mental Health Multimodal Treatment Study of ADHD (MTA). Its 14-month clinical trial duration demonstrated long-term benefits of stimulant use for children with ADHD (15). A recent review of RCTs also suggests long-term improvements in ADHD symptoms among children treated with stimulants (24).

Findings from well-controlled RCTs of stimulant effectiveness have contributed to the development of practice guidelines. The American Academy of Pediatrics recently published recommendations for the treatment of children with ADHD that emphasize 1) recognition of ADHD as a chronic condition, 2) explicit negotiations about target outcomes, 3) use of stimulant medication and (or) behaviour therapy, 4) monitoring of treatment outcomes, and 5) reevaluation of treatment failure (25). Recognition of ADHD chronicity implies that stimulant treatment should be maintained over a long period of time. The American Academy of Child and Adolescent Psychiatry also recently published a practice parameter for stimulant use with children, adolescents, and adults (23). Interestingly, there is a lack of consensus regarding the discontinuation of stimulants. While the practice parameter acknowledged that stimulants work only as long as they are taken by a child, it also noted that many parents favour a “drug holiday” to address any concerns related to medication use. The practice parameter also noted that the Food and Drug Administration does not recommend methylphenidate use in children aged under 6 years. This

**Table 1 Children with methylphenidate data during both NLSCY data collection cycles (1994–1995 and 1996–1997)**

Age, years (1994–1995)	Girls	Boys
2 to 3	1166	1257
4 to 5	1077	1081
6 to 7	969	985
8 to 9	1003	1001
10 to 11	1019	1036
Total	5234	5360

NLSCY = National Longitudinal Survey of Children and Youth

contraindication of medication use is also specified in the *Compendium of Pharmaceuticals and Specialties of the Canadian Pharmacists Association* (26).

## Study Objectives

The overall objective of this study was to investigate a population sample prospectively for patterns of medication use within children over time. Specifically, we examined individual changes in methylphenidate use over a 2-year period among Canadian children aged 2 to 11 years. Our main questions were as follows: What is the prevalence of methylphenidate use over a 2-year period? At what age are children most likely to initiate and to cease methylphenidate use? Are there sex differences in the initiation and cessation of methylphenidate use? We expected initiation rates to be higher in children at the beginning of elementary school, given the greater demands for sustained attention and decreased motor activity in the classroom. We also expected boys to be more likely than girls to initiate methylphenidate use over time. We based this hypothesis on past overall research findings showing that preschool-aged, school-aged, and adolescent boys in the general population have a higher prevalence of ADHD than girls (27–35). However, recent longitudinal studies of population samples from Canada, New Zealand, and the US indicate that the frequency of hyperactivity symptoms either decreases or remains stable from childhood to adolescence (36–38). We therefore wanted to investigate whether methylphenidate use follows this same pattern (that is, whether it decreases or remains stable with age) or whether it follows the greater classroom demands for sustained attention and decreased motor activity as children grow older (that is, whether it increases with age). It is also important to examine the impact of sociodemographic and socioeconomic variables on rates of methylphenidate use, initiation, and cessation. However, our previous work showed that the frequency of methylphenidate use in children is relatively low, and consequently, there is often a high level of

error associated with estimates of its use (2). Thus we anticipated that adding more variables in our present study would yield even less precise estimates of methylphenidate use and would compromise the validity of our findings.

## Method

### Sample and Procedure

We selected children from the NLSCY, a nationwide Canadian household survey that is being conducted by Human Resources Development Canada and Statistics Canada. Its objective is to follow on a biennial basis a representative sample of Canadian children aged newborn to 11 years and living in private households. These households were selected from the Statistics Canada Labour Force Survey (LFS), which uses a stratified, multistage probability sample design to conduct monthly surveys of approximately 59 000 Canadian households to produce unemployment estimates. Children living in institutional facilities, on Aboriginal reserves, and in the 2 Canadian territories were excluded from the NLSCY, as they are not targeted by the LFS. It should be noted, however, that data for Aboriginal children and children living in the Canadian territories are being collected in separate surveys (39–40). The first NLSCY data collection cycle (1994–1995) surveyed a maximum of 4 children per household, aged newborn to 11 years. In each household, informed consent was obtained from the person most knowledgeable about the child (in 89.4% of cases, the child's mother), who completed a personal interview on parental, family, and child characteristics. Complete Cycle 1 data were obtained for 22 831 children, aged newborn to 11 years, from 13 439 households. The overall response rate was 86.3%. The second data collection cycle (1996–1997) had complete longitudinal data for 15 435 children aged 2 to 13 years. For the present study, we selected children aged 2 to 11 years at Cycle 1 who continued to participate in the survey at Cycle 2 ( $n = 10\,746$ ) and whose mother responded to the methylphenidate interview question at both data collection cycles ( $n = 10\,594$ ). Table 1 indicates the number of children who participated in the study by age and sex. There were approximately equal numbers of girls and boys across age groups. Loss of participants owing to missing data on the methylphenidate question was minimal (1% to 2%).

### Statistical Analyses

We used logit modelling to investigate individual change in methylphenidate use over a 2-year period (41). Logit modelling employs observed frequencies to produce estimates of methylphenidate use. To maintain participant anonymity and confidentiality, given that several observed frequencies were low, we did not present these raw data. The independent variables in our models were Cycle 1 methylphenidate use ( $M_1$ ), sex (S), and age at Cycle 1 (A); Cycle 2 methylphenidate use ( $M_2$ ) served as the dependent variable. We first tested a model

in which we removed the 4-way interaction term (that is,  $M_2M_1AS$ ). We followed with models in which, one at a time, we removed each of the 3-way interaction terms involving  $M_2$  (that is,  $M_2M_1A$ ,  $M_2M_1S$ ,  $M_2AS$ ). Finally, we tested a model in which we removed the 2-way interaction term  $M_2M_1$ . This modelling made it possible to estimate the initiation of methylphenidate use, defined as the conditional probability that a randomly selected Canadian child aged 4 to 13 years was using methylphenidate on a regular basis at Cycle 2, given that he or she was not using methylphenidate 2 years earlier. We also estimated the cessation of methylphenidate use, defined as the conditional probability that a randomly selected Canadian child aged 4 to 13 years was not using methylphenidate on a regular basis at Cycle 2, given that he or she was using methylphenidate 2 years earlier. We used the Pearson chi-square ( $\chi^2$ ) and likelihood ratio chi-square ( $L^2$ ) statistics to assess model fit. We employed a conservative alpha value of 0.01 because of the NLSCY's design effect, which artificially reduces the variance associated with maximum likelihood estimates. We conducted statistical analyses with the freely distributed IEM computer program for the analysis of categorical data (41). Analyses used longitudinal sampling weights to take into account nonresponse and stratification.

## Results

### *Methylphenidate Use at Cycles 1 and 2*

Previous findings from the NLSCY indicated that methylphenidate use for children aged 2 to 11 years in 1994–1995 ranged from 0.09% to 0.87% for girls and from 0.42% to 3.89% for boys (2). Two years later, in 1996–1997, the odds of methylphenidate use in the Canadian population aged 2 to 11 years were estimated to be 1.36 times greater (99%CI, 1.04 to 1.77) (2). Note that this effect was independent of the child's age and sex. For example, the prevalence of methylphenidate use for boys aged 8 to 9 years was 3.89% in 1994–1995 and 5.29% in 1996–1997 (2). These findings were based on a comparison between methylphenidate use in 1994–1995 vs 1996–1997 that used independent samples of girls and boys aged 2 to 3, 4 to 5, 6 to 7, 8 to 9, and 10 to 11 years.

### *Continuity and Discontinuity in Methylphenidate Use Over a 2-Year Period*

The logit model that specified an association between Cycle 2 and Cycle 1 methylphenidate use ( $M_2M_1$ ) and among Cycle 2 methylphenidate use, age, and sex ( $M_2AS$ ) provided the best fit to the data ( $\chi^2 = 20.16$ ,  $P = 0.02$ ;  $L^2 = 23.17$ ,  $P = 0.01$ ;  $df = 9$ ). The odds of using methylphenidate at Cycle 2 were 135.29 times greater (99%CI, 75.14 to 243.56) for children who were using the medication on a regular basis 2 years earlier, compared with nonusers. This effect was independent of the

child's age and sex. In total, 0.82% of children were observed to use methylphenidate at the 2 data collection cycles (0.12% of girls and 0.70% of boys), while 1.56% were observed to use methylphenidate at only 1 of the 2 data collection cycles (0.32% of girls and 1.24% of boys). Note that these estimates were based on weighted means using sample size for each sex and age group (see Table 1).

### *Initiation of Methylphenidate Use Over a 2-Year Period*

Figure 1 presents estimates of initiation of methylphenidate use from Cycle 1 to Cycle 2. Over this 2-year period, initiation estimates ranged from 0.20% to 0.86% for girls and from 0.39% to 3.34% for boys. With reference to age, there was not much variability in methylphenidate initiation rates for girls. In contrast, methylphenidate initiation rates for boys appeared to follow an inverted U-shape pattern with reference to age. Specifically, there was a statistically significant lower rate of methylphenidate initiation from ages 2 and 3 to ages 4 and 5 years than from ages 4 and 5 to ages 6 and 7 years and a higher rate of methylphenidate initiation from ages 8 and 9 to ages 10 and 11 years than from ages 10 and 11 to ages 12 and 13 years. Boys had statistically significant higher initiation rates than girls from ages 4 and 5 to ages 6 and 7 years, from ages 6 and 7 to ages 8 and 9 years, and from ages 8 and 9 to ages 10 and 11 years. It should be noted that the 99%CIs associated with these estimates were generally large. In addition, the coefficients of variation (determined by dividing the estimate's standard error by the estimate itself) showed a high level of error for all girls' age groups and for boys aged 2 and 3 years at Cycle 1. For the remaining boys' age groups, coefficients of variation ranged from acceptable (0% to 16.6%) to marginal (16.6% to 33.3%).

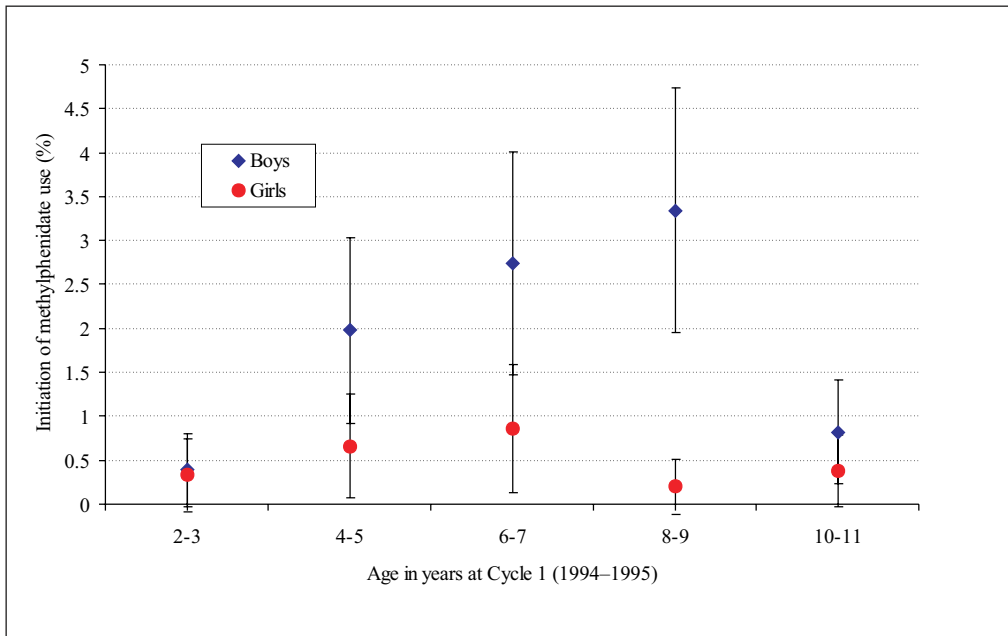
### *Cessation of Methylphenidate Use Over a 2-Year Period*

Figure 2 shows methylphenidate cessation estimates over this 2-year period; these ranged from 46% to 78% for girls and from 18% to 65% for boys. With reference to age, there were no statistically significant differences in cessation estimates for girls. Cessation estimates for boys showed a U-shape pattern with reference to age. However, these age differences were not statistically significant. Boys had lower cessation rates than girls, but again, these differences were not statistically significant. The 99%CIs associated with these estimates were generally large. The coefficients of variation for the estimates ranged from marginal to acceptable.

### *Prevalence of Methylphenidate Use in Boys and Girls Aged 4 to 13 Years*

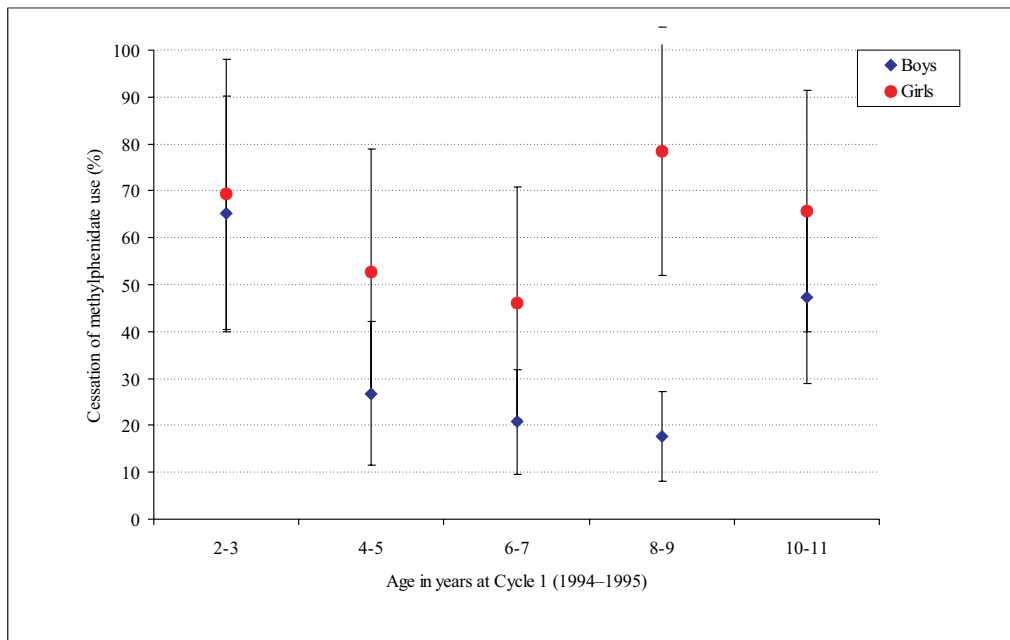
Table 2 presents prevalence estimates for the longitudinal sample of children ( $n = 10\,594$ ) aged 2 to 11 years at Cycle 1 who continued to participate at Cycle 2 and whose mother responded to the methylphenidate interview question at both data collection cycles. Note that these estimates are based on

**Figure 1** Estimates of initiation (%) of methylphenidate use from the first to second NLSCY data collection cycle



Note: Lines show 99%CI for the estimate.  
 NLSCY = National Longitudinal Survey of Children and Youth.

**Figure 2** Estimates of cessation (%) of methylphenidate use from the first to second NLSCY data collection cycle



Note: Lines show 99%CI for the estimate.

the logit model described above. Methylphenidate use ranged from 0.32% to 1.09% for girls aged 4 to 13 years and from 0.58% to 6.31% for boys aged 4 to 13 years. The odds of methylphenidate use at Cycle 2 were significantly greater for boys aged 6 to 7 years, compared with boys aged 4 to 5 years

(odds ratio [OR] = 5.09; 99%CI, 1.60 to 16.21), and significantly lower for boys aged 12 to 13 years, compared with boys aged 10 to 11 years (OR = 0.24; 99%CI, 0.11 to 0.54). For girls, there were no statistically significant age effects on Cycle 2 methylphenidate use. Turning to sex effects, the odds

**Table 2 Methylphenidate prevalence estimates for girls and boys aged 9 to 13 years, from the second NLSCY data collection cycle (1996–1997)**

Age, years	Prevalence for girls, %		Prevalence for boys, %	
	Mean (SD)	99%CI	Mean (SD)	99%CI
4 to 5	0.39 (0.18)	0.00 to 0.85	0.58 (0.21)	0.03 to 1.14
6 to 7	0.83 (0.28)	0.12 to 1.55	2.41 (0.47)	1.21 to 3.62
8 to 9	1.09 (0.33)	0.23 to 1.95	5.14 (0.70)	3.33 to 6.96
10 to 11	0.32 (0.18)	0.00 to 0.77	6.31 (0.77)	4.32 to 8.29
12 to 13	0.67 (0.26)	0.01 to 1.33	2.23 (0.46)	1.05 to 3.42

Standard errors are given in parentheses. Prevalence estimates are controlled for age and sex effects on Cycle 1 methylphenidate use.

of methylphenidate use at Cycle 2 were significantly greater for boys aged 6 to 7 years, compared with girls in the same age group (OR = 3.05; 99%CI, 1.05 to 8.85), for boys aged 8 to 9 years, compared with girls in the same age group (OR = 3.25; 99%CI, 1.23 to 8.55), and for boys aged 10 to 11 years, compared with girls in the same age group (OR = 16.98; 99%CI, 3.52 to 81.84). For children aged 4 to 5 years and 12 to 13 years, there were no statistically significant sex differences on Cycle 2 methylphenidate use.

## Discussion

During 1996–1997, methylphenidate use in this population sample of Canadian children aged 4 to 13 years ranged from 0.32% to 6.31% across girls and boys. Contrary to recommendations by the Canadian Pharmacists Association and the US Food and Drug Administration, our study found that children younger than 6 years of age were taking methylphenidate. It should be noted, however, that these prevalence estimates were quite low. The prevalence findings from the present study are in keeping with the findings from several studies that have estimated methylphenidate use among youth diagnosed with ADHD (3,7,9,43). Our prevalence estimates, however, tended to have a wider range. For example, a US study that compiled regional and national data from 1990 to 1995, using various sources (for example, prescription data, school nurse reports, and physician surveys), found the prevalence of methylphenidate use for ADHD to range from 1.1% to 4.7% for patients aged 5 to 14 years (43). Interestingly, a 1995–1996 US study of 2 school districts in which nurses recorded the number of students using methylphenidate to treat ADHD during school hours reported a prevalence ranging from 8% to 10% for students in Grades 2 to 5 (8). The authors noted that this high prevalence suggests overdiagnosis of ADHD in this group of children.

Our study results clearly show that methylphenidate use among children aged 4 to 13 years depends on both the child's age and sex. For boys, the odds of using methylphenidate at the second data collection cycle (controlled for Cycle 1 use) were greater for those aged 6 and 7 years, compared with those aged 4 and 5 years, and greater for those aged 10 and 11 years, compared with those aged 12 and 13 years. These findings are consistent with past studies that have found the peak age of stimulant use to be between ages 8 and 11 years (44,45). The odds of Cycle 2 methylphenidate use also were greater for boys than for girls, which is in keeping with past studies on methylphenidate prevalence (1,2,4,7–9,46). These sex effects, however, were not found for the youngest (aged 4 and 5 years) and oldest (aged 12 and 13 years) children in our sample. This appears to be primarily due to the lower prevalence of methylphenidate use among boys in these age groups. These findings differ from the cross-sectional results we previously obtained, which did not show an age-by-sex interaction effect on methylphenidate use (2). It will be important to continue investigating age and sex effects on methylphenidate use with data from upcoming NLSCY cycles. These data will make it possible to track patterns of use over a longer period of time and better clarify the impact of age and sex on a child's use of methylphenidate.

Results indicated that 0.82% of children used methylphenidate at the 2 data collection cycles. The odds of using methylphenidate at the second cycle were 135 times greater for children using the medication regularly 2 years earlier, compared with nonusers. This effect was similar for girls and boys across age groups. Thus the probability of a child's using methylphenidate at Cycle 2 was very high when the child was using methylphenidate at Cycle 1. However, our results show that only about 1% of children were using methylphenidate at both data collection cycles—a finding that seems rather low when we consider that methylphenidate is used to treat

ADHD, which is regarded by the medical community as a chronic condition. It should be noted, however, that our finding does not necessarily reflect continued use throughout the 2-year period. It may be that some children using methylphenidate at Cycle 1 and Cycle 2 also had periods of disuse between the 2 data collection cycles.

Over a 2-year period, a small proportion of children aged 2 to 11 years started using methylphenidate (0.20% to 3.34%). As hypothesized, boys had higher initiation rates than girls, although this finding was limited to school-aged boys. Boys turning age 6 and 7 years at the second data collection cycle were more likely to start using methylphenidate than those turning age 4 and 5 years. Similarly, boys turning age 10 and 11 years at Cycle 2 were more likely to start using methylphenidate than those turning age 12 and 13 years. These age differences in initiation rates help explain our earlier findings that the prevalence of methylphenidate use at Cycle 2 is higher 1) for boys aged 6 and 7 years, compared with boys aged 4 and 5 years, and 2) for boys aged 10 and 11 years, compared with boys aged 12 and 13 years. These findings do not appear to mirror findings on the development of hyperactivity symptoms, which generally show a stable or decreasing pattern from childhood to adolescence (36–38). It may be that medication use is positively correlated with increasing classroom demands for sustained attention and reduced motor activity. However, this explanation does not address the higher methylphenidate initiation rates for boys aged 10 and 11 years, compared with boys aged 12 and 13 years. It also may be that the start of medication use in boys is related more to disruptive problems other than hyperactivity; previous studies have, in fact, found that methylphenidate is not being adequately used to treat children with ADHD (1,6,7). We intend to continue using data from the NLSCY to further investigate the proper use of methylphenidate to treat children with ADHD.

Our study indicated that about two-thirds of girls and one-third of boys stopped using methylphenidate over a 2-year period. It is possible that some of these children simply switched to another type of medication to treat their behaviour problems, but this information was not gathered through interviews. Cessation rates were similar for girls and boys and across age groups. However, the prevalence of children using methylphenidate at Cycle 1 was relatively low, so the lack of significant age and sex differences could have been due to low statistical power to detect such differences.

### Limitations

Our estimates of methylphenidate initiation and cessation over a 2-year period provide important information about continuity and discontinuity in medication use. To our knowledge, no other study has estimated these rates for a population

sample of children aged 2 to 11 years. Our estimates, however, do not provide direct information on the duration of methylphenidate use, and this is important because there could have been variability in children's medication use over the 2-year data collection period. In other words, children using methylphenidate at Cycle 1 but not at Cycle 2 may have stopped using the medication at any time between the 2-year data collection period, or they may have switched to another type of medication to treat their behaviour problems. Further, these children might have stopped using methylphenidate, started its use again, and then stopped again throughout the 2-year cycle. Our study relied on mothers' reports of children's regular medication use because only mothers were asked this question in the NLSCY interviews. While it may have been valuable to have multiple informant data, mothers' reports nonetheless appear to be a relatively reliable source of information. Our study did not directly link psychiatric diagnoses and methylphenidate use, initiation, and cessation. However, our next research initiative is to investigate this issue further. Previous findings using data from Cycles 1 and 2 of the NLSCY have shown physical aggression in boys and girls to be stable. In other words, school-aged children who exhibit a low (or high) level of physical aggression at Cycle 1 continue to have low (or high) physical aggression 2 years later (47). We expect the same pattern of findings with hyperactive behaviours because previous longitudinal findings using a Quebec population sample of toddlers found a high level of stability in the levels at which these behaviours were exhibited (48). Finally, we were not able to examine the impact of sociodemographic and socioeconomic variables on methylphenidate use, initiation, and cessation; there was a high level of error associated with some of our estimates, and the inclusion of additional variables would have further compromised their validity.

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**Résumé : Changement individuel de l'utilisation du méthylphénidate dans un échantillon d'enfants de 2 à 11 ans**

**Objectifs :** Déterminer l'utilisation du méthylphénidate chez les enfants de 2 à 13 ans. Fournir des estimations selon l'âge et le sexe de l'initiation et de la cessation du méthylphénidate, sur une période de 2 ans.

**Méthode :** Des données de 2 cycles d'enquêtes auprès de ménages canadiens ont livré un échantillon de plus de 10 000 enfants de 2 à 11 ans au 1<sup>er</sup> cycle qui ont continué à participer au 2<sup>e</sup> cycle. Un modèle logit a servi à estimer l'utilisation du méthylphénidate au 2<sup>e</sup> cycle, l'utilisation du méthylphénidate sur une période de 2 ans, et l'initiation et la cessation du méthylphénidate du 1<sup>er</sup> au 2<sup>e</sup> cycle.

**Résultats :** En 1996 et 1997, l'utilisation du méthylphénidate allait de 0,32 % à 6,31 % chez les enfants de 4 à 13 ans. Les garçons d'âge scolaire étaient plus susceptibles que les filles d'utiliser le méthylphénidate. Les probabilités étaient plus grandes pour les garçons de 6 à 7 ans que pour ceux de 4 à 5 ans; elles étaient également plus grandes pour les garçons de 10 à 11 ans que pour ceux de 12 à 13 ans. Presque 1 % des enfants utilisaient du méthylphénidate aux 2 cycles de données. Les probabilités d'utilisation du méthylphénidate au 2<sup>e</sup> cycle étaient 135 fois plus fortes pour les enfants utilisant le méthylphénidate au 1<sup>er</sup> cycle, comparativement aux non-utilisateurs. L'initiation du méthylphénidate allait de 0,20 % à 3,34 %, et les garçons d'âge scolaire avaient des taux d'initiation plus élevés que ceux des filles. Les taux de cessation allaient de 18 % à 78 %, et il n'y avait pas de différences statistiquement significatives selon l'âge et le sexe.

**Conclusions :** Les résultats de la prévalence du méthylphénidate concordent avec les études passées. Nous avons constaté une interaction âge-par-sexe sur l'utilisation du méthylphénidate. Nous avons également trouvé une continuité et une discontinuité de l'utilisation du méthylphénidate.