Employment Patterns and Work Injury Experience Among Canadian 12 to 14 Year Olds

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ABSTRACT

Background: Work participation is a common activity for young adolescents. Yet it may impact upon other aspects of their lives and their health. We sought to provide some of the first Canadian population-based estimates of 12 to 14 year olds' employment and work injury experiences, a group typically excluded from labour force statistics.

Methods: Secondary data analysis of school-based surveys in Ontario (ON) in 2003 and British Columbia (BC) in 2005. Questions provided information on participation in formal and informal work during the school year, number of hours worked, and the occurrence of a medically attended work injury for students 12 to 14 years old. Different sampling strategies were accounted for in the analyses, including the calculation of 95% confidence intervals (CI) on prevalence estimates.

Results: Overall, 52.9% (95% CI 48.7-57.1) of ON and 41.5% (39.7-43.3) of BC 12 to 14 year olds reported working during the school year. Mean hours per week ranged from 3.3 (2.5-4.0) among Ontario 12 year olds engaged in non-formal work up to 11.7 (10.0-13.3) among British Columbia 14 year olds engaged in formal work. Work injuries were reported by 6% (4.0-8.9) of ON young workers and 3.5% (2.6-4.8) of BC workers.

Interpretation: Our findings point to the active presence of young adolescents in the labour market. Systematic approaches to active surveillance of work participation and work health and safety for young adolescents across Canada should be developed. Differences in work injury patterns by province may be worthy of further investigation.

Key words: Occupations; childhood; wounds and injuries

La traduction du résumé se trouve à la fin de l'article.

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Even though US studies point to some 12 to 14 year olds working,¹ there are no official statistics on Canadian 12 to 14 year olds' employment patterns. With regard to work injury, Canadian emergency department records have indicated that injuries attributed to work accounted for 28 per 10,000 cases among youth 10 to 15 years of age.² However, even injuries that required medical attention short of emergency room care can have health consequences for youth.^{3,4}

In recent years, there has been a trend in Canada towards fewer restrictions on formal employment for 12 to 14 year olds. In both British Columbia (BC) and Alberta, recent legislation places responsibility for deciding the nature and amount of work by 12 to 14 year olds on parents and the youth themselves.⁵ Raising concern about this deregulation, 22.2% of 12 to 14 year olds in BC reported no supervision while working.⁶ This lack of supervision occurs despite the new regulations in BC requiring the presence of an adult supervisor.

In this study, we conducted secondary data analyses of two school-based surveys in order to examine the types of employment and the prevalence of work injuries among 12 to 14 year old Canadians in Ontario (ON) and BC.

METHODS

Ontario survey: Sample

We obtained data from the 2003 cycle of the Ontario Student Drug Use Survey, a repeated cross-sectional survey of ON students enrolled in grades 7 through 12.⁷ This survey research was approved by the ethics committee at the Centre for Addiction and Mental Health. The 2003 cycle employed a regionally stratified two-stage cluster design (school, class) and surveyed 6,616 students from 126 schools between January and June 2003. The sample was allocated equally within grade level and proportionally within region. This sampling method therefore required weighting to produce prevalence estimates.⁷ The student completion rate of the questionnaire was 72%.

The current analyses were restricted to those aged 12 to 14 years of age who were asked the work and work injury items of the survey (n=1,397). Of this number, 79 students were ineligible due to missing

TABLE I

Work Patterns Among 12-14 Year Olds by Type of Work Setting and Demographic Characteristics, by Province

Survey of Junior High School Students in Ontario†					
	Total Survey Sample, 12-14 Year Olds (n)	Yes to Work	Working Subsample		
			Formal Work§ % of row total, 95% CI	Odd Jobs % of row total, 95% CI	Other Work¶ % of row total, 95% CI
Survey Sample	1318 (100%)	52.9% (48.7, 57.1)	12.5% (10.4, 14.9)	44.3% (39.8, 49.0)	23.2% (20.5, 26.2)
Gender					
Male	645 (100%)	53.0% (48.2, 57.9)	17.8% (14.0, 22.5)	41.1% (35.9, 46.4)	26.6% (22.6, 31.1)
Female	673 (100%)	52.8% (47.2, 58.4)	7.5% (5.6, 10.1)	47.3% (41.4, 53.2)	20.0% (16.8, 23.6)
Age (years)					
12	302 (100%)	49.0% (41.7, 56.4)	8.1% (5.0, 13.0)	40.8% (33.2, 49.0)	22.1% (16.9, 28.5)
13	500 (100%)	55.7% (48.4, 62.9)	11.9% (8.8, 15.6)	49.0% (40.9, 57.1)	24.7% (20.9, 28.9)
14	516 (100%)	52.7% (47.2, 58.1)	15.9% (12.1, 20.8)	41.9% (36.7, 47.2)	22.3% (17.5, 28.1)
Survey of Junior High School Students in British Columbia‡					
	Total Survey Sample, 12-14 year olds (n)	Yes to Work	Working Subsample*		
			Formal Work % of row total, 95% CI	Odd Jobs % of row total, 95% CI	Other Work % of row total, 95% CI
Survey Sample	2788 (100%)	41.5% (39.7, 43.3)	11.8% (10.6, 13.0)	31.7% (30.0, 33.5)	14.4% (13.1, 15.7)
Gender					
Male	1356 (100%)	40.5% (37.9, 43.2)	13.8% (12.0, 15.7)	28.5% (26.2, 31.0)	13.4% (11.6, 15.3)
Female	1432 (100%)	42.3% (39.8, 44.9)	9.9% (8.5, 11.6)	34.7% (32.3, 37.2)	15.3% (13.5, 17.2)
Age (years)					
12	99 (100%)	29.3% (21.2, 39.0)	7.0% (3.4, 14.1)	23.2% (15.9, 32.5)	17.1% (10.9, 25.9)
13	1081 (100%)	41.2% (38.4, 44.2)	9.5% (7.9, 11.4)	33.2% (30.5, 36.1)	13.3% (11.4, 15.5)
14	1608 (100%)	42.4% (40.0, 44.8)	13.6% (12.0, 15.4)	31.2% (29.0, 33.5)	14.9% (13.2, 16.7)

* The numbers of those formally employed, working odd jobs and other jobs add up to more than number working because youth could report on more than one job.

† 2003 Cycle of the Ontario Student Drug Use Survey

‡ 2005 Cycle of the British Columbia Youth Survey on Smoking and Health

§ Formal Work defined as paid work in restaurant/food services, retail store or office, or physical labour (construction, assembly line)

|| Odd Jobs defined as paid work such as mowing lawns, yard work and babysitting

¶ Other Work defined as paid work in less formal work settings such as newspaper delivery, or recreation and entertainment jobs

data, leaving a total of 1,318 students for our analyses (i.e., those employed or not employed). Further, out of 718 students in the study sample who reported working, only 634 completed the item on work injury.

Ontario survey: Measures

Work Patterns

Questions on the type of job and number of hours were adapted from the National Longitudinal Survey of Children and Youth.⁸ Students were asked to respond to the following set of questions on work in various work settings: "In the last 7 days, about how many hours in total did you work for pay...": a) in a restaurant/fast food; b) in a store or office (e.g., grocery or clothing store clerk); c) at physical labour or in a factory (e.g., construction, landscaping, janitor, assembly line); d) at odd jobs (e.g., babysitting, newspaper delivery); and e) at other types of jobs not listed above.

Categorical responses provided for each question ranged from zero hours for that type of job to 20 or more hours per week, with an additional response option of "Don't work for pay." Students who reported one or more hours of work were defined as working for pay.

The first three work settings were grouped together as the formal employment category because these settings are also where teenagers 15 to 17 years typically work their first regular job as paid employees.⁹ Based on the responses from the more comprehensive assessment in the BC survey below, "other" jobs usually reflect paid work in formal but less traditional workplaces such as the recreation or entertainment industries.

Work Injury

Students were also asked "In the last 12 months, were you hurt or injured at work, and had to be treated by a doctor or nurse?" Response options included yes, no, and "did not work in the last 12 months."

British Columbia survey: Sample

Data on work and injuries among high school students aged 12 to 14 years was collected as part of the *British Columbia Youth Survey on Smoking and Health*.¹⁰ The BC sample consisted of students in grades 7 to 12 attending randomly selected secondary schools in five regional areas of the province. The proportional allocation of students by grade and region allowed for unweighted prevalence estimates. The 14 school districts covered by these areas were

selected to include students from urban, rural and remote communities. The survey was administered in class from January to June 2005. Completion and return of the survey was accepted as agreement and consent to participate. The survey provided 8,225 responses for an overall 90% response rate. The analyses for this paper were restricted to data on 12 to 14 year olds (n=2,788 or 33.9% of the total survey respondents).

British Columbia survey: Measures

Work Patterns

Questions on work, the type of job and number of hours were adapted from a survey developed by Dunn and colleagues.⁴ Students were asked to respond to the following set of questions on work: "In the past 12 months, have you worked at a paid job at any of the following places?" with response options of 12 work settings (e.g., convenience store). The categories were aggregated to three groups for comparison with ON findings (as specified in Table I). Finally, students who worked were asked to report how many hours they usually worked for pay each week during the past September to December (reflecting a three-month recall during the school year).

TABLE II

Work Hours Among 12-14 Year Olds by Type of Work Setting and Demographic Characteristics, by Province

Survey of Junior High School Students in Ontario† Mean Current Work Hours/Week During School Year				
	All Workers	Working Subsample		
		Formal Work Mean hours/week (95% CI)	Odd Jobs Mean hours/week (95% CI)	Other Work Mean hours/week (95% CI)
Survey Sample	8.31 (7.1, 9.5)	9.23 (6.6, 11.9)	5.12 (4.6, 5.6)	4.22 (3.5, 4.9)
Gender				
Male	8.06 (6.6, 9.5)	9.41 (6.5, 12.3)	4.00 (3.5, 4.5)	3.58 (3.0, 4.2)
Female	8.54 (7.1, 9.9)	8.84 (5.4, 12.3)	6.01 (5.1, 6.9)	5.01 (3.8, 6.2)
Age (years)				
12	6.77 (5.0, 8.5)	9.47 (4.6, 12.4)	4.48 (3.7, 5.3)	3.27 (2.5, 4.0)
13	7.66 (6.3, 9.0)	6.17 (3.5, 8.8)	5.13 (4.2, 6.1)	4.13 (3.2, 5.0)
14	9.95 (7.3, 12.6)	11.44 (7.0, 15.8)	5.52 (4.7, 6.4)	4.94 (3.4, 6.4)
Survey of Junior High School Students in British Columbia‡ Mean Hours Per Week Past Sept-Dec (School Year)				
	All Workers	Working Subsample		
		Formal Work Mean hours/week (95% CI)	Odd Jobs Mean hours/week (95% CI)	Other Work Mean hours/week (95% CI)
Survey Sample	8.79 (8.2, 9.4)	11.60 (10.3, 12.9)	8.94 (7.9, 9.9)	7.92 (7.3, 8.5)
Gender				
Male	9.97 (9.0, 10.9)	13.08 (11.2, 15.0)	10.39 (8.5, 12.3)	8.54 (7.6, 9.5)
Female	7.72 (7.1, 8.4)	9.52 (7.9, 11.1)	7.74 (6.8, 8.7)	7.43 (6.8, 8.1)
Age (years)				
12	9.65 (5.9, 13.4)	11.71 (5.0, 18.4)	8.87 (5.4, 12.3)	9.53 (5.2, 13.8)
13	7.98 (7.2, 8.8)	11.44 (9.0, 13.8)	8.19 (6.7, 9.7)	7.55 (6.7, 8.4)
14	9.28 (8.5, 10.1)	11.67 (10.0, 13.3)	9.38 (8.0, 10.8)	8.10 (7.3, 8.9)

† 2003 Cycle of the Ontario Student Drug Use Survey

‡ 2005 Cycle of the British Columbia Youth Survey on Smoking and Health

Work Injury

Students were also asked “Were you injured while working for pay during the past 12 months?” Those who responded “yes” were further asked “Thinking about your most serious injury on the job during the past 12 months, were you injured badly enough that you had to go to a doctor, nurse or hospital?”

Analyses

Due to the complex survey designs of both the ON and BC surveys, we used the survey procedures in the statistical software package Stata 7.0 to calculate the 95% confidence intervals for the percentages and means of work status, types of jobs, hours of work and work injuries by province.

RESULTS

Work participation

Table I shows the percentage of employed students and the percentage holding formal, odd jobs and other jobs by gender and age. Across all types of employment, slightly more than half of ON 12 to 14 year olds reported working for pay in the past week (52.9%). In this age group, 12.5% of ON students reported working in formal settings such as food establishments, store/office, or construction/landscaping.

Of the 2,788 BC respondents, a total of 1,157 students aged 12-14 years (41.5%) indicated they worked for pay during the past 12 months, an employment rate somewhat lower than that observed in ON. Similarly, a slightly lower but comparable percentage of BC students reported working in formal settings (11.8% of 12-14 year olds).

Similar proportions of boys and girls reported working during the school year (53.0% and 52.8%, respectively in ON and 40.5% and 42.3%, respectively in BC). However, more boys than girls held formal jobs (17.8 vs. 7.5%, respectively in ON, 13.8% vs. 9.9%, respectively in BC) whereas the opposite was true for odd jobs (41.1 vs. 47.3 respectively in ON, 28.5 vs. 34.7 respectively in BC). As would be expected, the percentage of formal employment increased with age, particularly in BC where 12 year olds showed a substantially lower overall employment rate (29.3%) compared to 13 and 14 year olds (41.2% and 42.4%, respectively). In ON, 12 and 13 year olds had comparable overall employment rates as 14 year olds because of the younger groups' participation in odd jobs and other work.

Working hours

Table II presents the usual hours worked per week during the school year. Worked

hours were not significantly different between males and females in ON, but BC males worked significantly more hours per week during the school year than females (9.97 vs. 7.72 hours per week, respectively). Ontario youths' working hours increased with age while BC 12 year olds reported slightly more work hours than 13 year olds during the school year (9.65 and 7.98 hours per week, respectively), but this difference was not statistically significant. Ontario youths reporting formal employment spent almost twice as much time per week working compared to those having odd jobs and other work (9.2, 5.1, and 4.2 hours/week, respectively). BC students engaged in formal employment reported significantly longer work hours than those working odd jobs and other work (11.6, 8.9, and 7.9 hours/week, respectively), but the differences were not as marked as in ON.

Work injury

Among ON youth, a higher percentage reported a medically attended work injury (6.0%) than among BC youth (3.5%), though the confidence limits overlapped. Across types of employment, BC youth showed generally comparable work injury rates, but ON youth working odd jobs reported the lowest work injury rate (6.7 per 100 workers) and those in other work

jobs the highest injury rate (12.1 per 100 workers), though again these differences were not statistically significant.

Among ON 12 to 14 year olds, the percentage of boys and girls who experienced a work injury was similar (5.6 and 6.3 per 100 workers, respectively). In BC, proportionally more males experienced a work injury compared to females (5.3% and 2.0% respectively). With regard to age, ON 12 year olds had the highest work injury rate (11.5 per 100 workers), though this was not significantly different from ON 13 and 14 year olds. Little difference by age was observed among BC youth.

DISCUSSION

This study provides rarely documented information on the employment patterns and work injury experience for 12 to 14 year old Canadians. One apparent difference is that the overall employment rate was higher in ON than in BC. There were also several points of convergence. Both provinces showed similar prevalence of employment in formal work settings (about one in six youth). Another similarity was that 12 to 14 year olds in both provinces reported working a similar number of hours per week.

Approximately 1 in 20 of these youth experienced a medically attended injury in the course of his/her work. The rates of work injury in the provinces appeared generally comparable, although the somewhat different gender and job distribution of injuries among BC students, given comparable proportion of workers and hours of work in formal work settings with ON students, is worthy of further investigation.

In comparison to older adolescents and young adults (15 to 24 years old), where 80% report having worked in the past year,¹¹ fewer 12 to 14 year olds appear to be working. However if one considers that the ON survey only asked the 12 to 14 year olds about current employment, the employment rate across an entire year may be higher. Medically attended work injury rates have been estimated for Canadian adolescents and young adults at 3.51 per

TABLE III

Work Injuries Among 12-14 Year Olds by Type of Work Setting and Demographic Characteristics, by Province

	Survey of Junior High School Students in Ontario†	
	Yes to Work and Responded to Question on Work Injury n=634	Yes to Injury n=31, 6.0% (4.0, 8.9)‡ row % (95% CI)
Type of Work§	n	
Formal Work	124 (100%)	8.6% (4.5, 8.9)
Odd Jobs	345 (100%)	6.7% (3.7, 11.8)
Other Work	189 (100%)	12.1% (6.8, 20.6)
Gender		
Male	312 (100%)	5.6% (3.1, 10.0)
Female	322 (100%)	6.3% (3.4, 11.4)
Age (years)		
12	121 (100%)	11.5% (6.3, 20.0)
13	240 (100%)	4.3% (1.4, 12.5)
14	273 (100%)	4.8% (2.6, 8.7)

	Survey of Junior High School Students in British Columbia	
	Yes to Work n=1157	Yes to Injury n=41, 3.5% (2.6, 4.8)¶ row % (95% CI)
Type of Work	n	
Formal Work	329 (100%)	5.5% (3.5, 8.5%)
Odd Jobs	884 (100%)	3.6% (2.6, 5.1%)
Other Work	400 (100%)	3.5% (2.1, 5.8%)
Gender		
Male	550 (100%)	5.3% (3.7, 7.5%)
Female	607 (100%)	2.0% (1.1, 3.4%)
Age (years)		
12	29 (100%)	3.5% (0.5, 20.8%)
13	446 (100%)	3.1% (1.9, 5.2%)
14	682 (100%)	3.8% (2.6, 5.5%)

† 2003 Cycle of the Ontario Student Drug Use Survey

‡ Percentages weighted due to disproportional sampling

§ Youth with multiple jobs were not asked on which job the injury occurred, so event counted for each job worked

|| 2005 Cycle of the British Columbia Youth Survey on Smoking and Health

¶ Percentages unweighted due to proportional sampling

100 workers,¹¹ which is quite comparable to those reported by these 12 to 14 year olds.

Methodological limitations are: a) the differences in the design and items of the two surveys; and b) the difficulty in interpreting prevalence estimates by type of employment when some students held multiple jobs. In addition, the surveys did not provide sufficient detail to determine the degree of compliance with provincial minimum work age restrictions.

In summary, 12 to 14 year olds are already making the life-course transition into the workplace, with exposure to workplace health and safety risks that exist in most workplaces. Basic surveillance information on where they work and their work injury experiences should be a priority in a globalized world seeking to maximize benefits and minimize harms associated with informal and formal work of children.¹²

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RÉSUMÉ

Contexte : Beaucoup de jeunes adolescents travaillent, mais leur activité sur le marché du travail peut nuire à d'autres aspects de leur vie et à leur santé. Nous avons produit de premières estimations, fondées sur la population canadienne, de l'emploi et des accidents de travail chez les 12 à 14 ans, un groupe généralement exclu des statistiques de la population active.

Méthode : Nous avons analysé les données secondaires d'enquêtes menées dans des écoles de l'Ontario en 2003 et de la Colombie-Britannique (C.-B.) en 2005. Les questions des enquêtes portaient sur la participation à l'emploi structuré et non structuré pendant l'année scolaire, le nombre d'heures travaillées et la survenue d'un accident de travail ayant nécessité des soins médicaux chez les élèves de 12 à 14 ans. Les différentes méthodes d'échantillonnage ont été prises en compte dans nos analyses, notamment par le calcul d'intervalles de confiance (IC) de 95 % pour les estimations de la prévalence.

Résultats : Globalement, 52,9 % (IC de 95 % = 48,7-57,1) des élèves de 12 à 14 ans de l'Ontario et 41,5 % (39,7-43,3) des élèves de la C.-B. ont déclaré travailler pendant l'année scolaire. La moyenne hebdomadaire des heures travaillées variait entre 3,3 (2,5-4,0), chez les élèves ontariens de 12 ans ayant un emploi non structuré, et 11,7 (10,0-13,3), chez les élèves britanno-colombiens de 14 ans ayant un emploi structuré. Des accidents de travail ont été déclarés par 6 % (4,0-8,9) des jeunes travailleurs de l'Ontario et par 3,5 % (2,6-4,8) des jeunes travailleurs de la C.-B.

Interprétation : Ces chiffres confirment que les jeunes adolescents participent activement au marché du travail. Il faudrait donc systématiser la surveillance active de la participation au marché du travail et de la santé et de la sécurité au travail des jeunes adolescents au Canada. On pourrait aussi étudier plus avant les écarts provinciaux dans la structure des accidents de travail.

Mots clés : professions; enfance; plaies et blessures

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