
Discrepancies between youth and parent perceptions of their household environment relevant to smoking: a secondary analysis of the 2004/05 Canadian Youth Smoking Survey

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Abstract

Objective: To compare the perceptions of youth in grades 5 to 9 and parents regarding their household environment relevant to smoking socialization.

Methods: We conducted secondary analysis of the 2004/05 Canadian Youth Smoking Survey and corresponding parent survey, and used the McNemar Test to compare youth and parent responses.

Results: Results showed statistically significant patterns of disagreement between youth and parent responses at most levels of youth smoking uptake regarding parental smoking, household rules around smoking, and smoking in the home and vehicles. When youth and parents disagreed, the following patterns emerged: non-susceptible, non-smoking youth perceived their parents as non-smokers and youth with more smoking experience perceived their parents as smokers; youth at all levels of smoking uptake perceived fewer rules in the home than parents indicated, more smoking in the home than parents indicated, and exposure to smoking in vehicles in contrast to vehicle smoking bans indicated by parents.

Conclusion: To the best of our knowledge, this is the first study to compare the perceptions of youth and parents regarding household variables related to the socialization of tobacco use. The discrepancies between youth and parent responses suggest that there is room to improve on establishing household environments that clearly condemn the use of tobacco, which may affect youth susceptibility to future smoking.

Key Words: youth, smoking, parents, socialization, smoking in the home, smoking in vehicles, Canadian Youth Smoking Survey 2004/05

Introduction

Understanding the factors that affect the decisions youth make about smoking is essential to inform effective public health program and policy development focused on youth health. Although few Canadian youth in grades 5 to 9 are established smokers,¹ they may already be developing susceptibility to trying smoking—defined as the absence of a strong resolve to remain smoke-free in the future—which is a predictor of future experimentation

among adolescents.² Parents may have significant influence over youths' susceptibility to smoking;³⁻⁶ however, we know little about whether there is agreement between parental actions and youth perceptions of those actions. A study of families in San Diego, California, showed discrepancies between parents and children about perceptions of parental actions related to smoking prompts, including requests to clean ashtrays and to retrieve cigarettes.⁷

The home environment is one social context where parents can influence their children's susceptibility to future smoking. The influence of social context on behavioural intentions is supported by social cognitive theory.⁸ In particular, social norms about smoking may be developed through modeling of behaviours, expressed attitudes and associated rules within the home.

Several studies have reported a link between family members' smoking and adolescent smoking.^{3,5,6} Komro et al. suggest that household norms and attitudes towards smoking held by parents affect grade 8 to 10 adolescents' cigarette use and that the presence of role models in the home who smoked increased the odds of adolescents' smoking.⁵ However, the socialization of attitudes towards smoking may be taking place prior to adolescence; Bricker et al. reported that the smoking behaviour of parents when their child is in grade 3 influenced the child's smoking behaviour in grade 12.³ Therefore, youth perception of their parents as smokers may have serious consequences.

The social context of the home environment can also be shaped by household smoking restrictions. Emerging evidence suggests an association between home smoking bans and lower levels of youth smoking⁹⁻¹¹ as well as less perceived susceptibility to trying smoking.^{12,13} In comparison, evidence regarding an association between vehicle smoking bans and youth smoking behaviour has received less attention. Schultz et al. demonstrated that youth in grades 5 to 9 who reported no exposure

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to smoking while riding in vehicles were more likely to not have experimented with smoking and to sustain a resolve to not smoke in the future than youth who had reported exposure to smoking while riding in vehicles.¹² One plausible link between smoking bans and youth behaviour is that bans support the attitude that smoking is unacceptable. Thomson et al. found that among adolescents aged 12 to 17 years household smoking bans were associated with a perceived lower prevalence of adult smoking and lower social acceptability of smoking.¹⁴ In addition, adolescents who perceived that adults disapproved of smoking were less likely to smoke.⁴ Therefore, in addition to protecting against exposure to environmental tobacco smoke (ETS), smoking restrictions within the home can serve as a socialization mechanism that dissuades from the use of tobacco.

Given that both smoking behaviour of youth and their intent to smoke in the future are associated with messages received in the home, it is important that parents are clear in communicating their attitudes towards smoking. Whether or not youth consistently perceive the environment that their parents are trying to shape is not known. We are interested in examining concordance between youth and parental perceptions of their household environment as it relates to tobacco use by comparing youth and parent responses to relevant 2004/05 Youth Smoking Survey (YSS) survey questions.

Methods

Participants

This study involved a secondary analysis of a subset of data from the 2004/05 YSS, a Health Canada-sponsored national survey of grade 5 to 9 youth, and the corresponding parent survey data set. The overall YSS study design was based on sampling that occurred in two stages.¹⁵ The first stage involved sampling school boards which had been stratified based on corresponding adult smoking rates. Boards were randomly selected with probability proportional to the total enrolment in the board. In stage 2, schools were sampled from the selected

school boards and stratified based on the grade levels offered to ensure that selection of schools would produce a relatively fair representation of each of the grades covered in the survey. Within each stratum, schools were randomly selected with equal probability. As well, a random sample of private schools was selected from each province. In the case that a board or school declined to participate, a replacement selection was made from a predetermined substitute list. All students in selected schools were eligible to participate contingent on parental consent. Two classes per school and per grade were randomly selected, and parents* of youth from these classes were invited to participate in a brief telephone survey. The resulting youth and corresponding parent data were used in this analysis (n = 9199). Survey weights were not used; therefore the results of the analysis are only representative of the sample.

Measures

Four dichotomous variables related to tobacco socialization in the household were constructed based on selected questions from the youth and parent surveys. Both youth and their responding parents were asked about the parents' smoking status. Youth were asked if their father/mother or the person who is like their father/mother smokes cigarettes. Responding parents were asked if they themselves smoke cigarettes and if another parent, step-parent or guardian of their children smokes cigarettes. Responses were summarized into two categories of parent smoking status: "no parent smokes" and "one or more parent smokes." Home smoking restrictions were defined as a total home smoking ban or lack of a total home smoking ban. Lack of a total ban included no restrictions about smoking in the home as well as allowing smoking in certain rooms or by special guests. Smoking inside the home was assessed by asking how many people smoke *inside* the home every day or almost every day. Responses were grouped into either no people, or one or more people smoked inside the home. For youth, exposure to people smoking inside a vehicle was derived from responses to the question, "During the past 7 days, on

how many days did you ride in a car with someone who was smoking cigarettes?" Possible outcomes were none ("0 days") and 1 or more days ("1 or 2 days," "3 or 4 days," "5 or 6 days," or "All 7 days"). Parents were asked "Is smoking restricted in your vehicles?" with possible responses being "yes" or "no."

Similar to Schultz et al.,¹² the youth smoking uptake measure drew on the work of Wakefield et al. and was constructed using YSS questions about smoking behaviour (history) and perceived smoking susceptibility (intentions).¹³ While Wakefield et al. identify 5 levels of smoking uptake,¹³ due to few youth respondents in advanced levels of smoking uptake, we used 3 levels of smoking uptake in our analysis: "non-susceptible non-smokers" had never tried a cigarette and intended to not smoke in the future; "susceptible non-smokers" had never tried a cigarette but had weak intentions regarding future non-smoking, or they had tried a few puffs of a cigarette and had strong intentions not to smoke in the future; and "experimenters or smokers," including youth who had tried a few puffs of a cigarette and had weak intentions regarding future non-smoking, and those who had smoked a whole cigarette or more in their lifetime, regardless of intention. See Table 1 for a summary of the stages of youth smoking uptake.

Statistical analysis

Statistical analyses were performed using SAS version 9.1 run on a 64-bit platform Win.NET server.¹⁶ Youth and parent perceptions of household variables related to tobacco use were compared for each of the 3 defined levels of youth smoking uptake. Because the variables of comparison were dichotomous and the responses were paired (youth and parent), we used the McNemar test to determine if there was a significant difference between two paired proportions. For parent smoking status, home smoking restrictions, and smoking inside the home, the wording of the youth and parent questions were equivalent, and therefore the McNemar test was conducted on the youth responses against the parent's corresponding responses. For smoking inside a

* A parent refers to a mother, a father, or a parental figure who is like a mother or a father.

vehicle, the McNemar test was conducted on the youth responses of number of days of exposure to smoking in a vehicle (0, 1 or more days) against the parent's responses to the presence of smoking restrictions in the vehicle (yes, no).

Results

To the best of our knowledge, this is the first study to compare the perceptions of youth and parents regarding household variables related to the socialization of tobacco use.

For characteristics of the youth respondents and parent respondents see Table 2. Statistically significant differences were found between the parent and youth perceptions for each variable and at most levels of youth smoking uptake (see Table 3).

For parent smoking status, the pattern of disagreement between parents and youth were different for each of the three levels of youth smoking uptake: for non-susceptible non-smoking youth, there were more cases in which parents indicated at least one parent was a smoker yet youth perceived their parent(s) as non-smokers than cases in which parents indicated at least one parent was a non-smoker yet youth perceived their parent(s) as smokers; results for susceptible non-smoking youth were not statistically significant for this variable. For experimenters and smokers, there were more cases in which parents indicated that at least one parent was a non-smoker yet youth perceived their parent(s) as smokers.

For home smoking restrictions, there was no significant difference between parent and youth responses for the non-susceptible non-smoking youth. However, for susceptible non-smoking youth along with experimenters and smokers, there was a significant difference between parent and youth responses: where there was disagreement, there were more instances in which parents indicated they had a total smoking ban in the home and youth did not perceive a total ban than cases for which youth perceived a total ban and parents indicated otherwise.

TABLE 1
Stages of youth smoking uptake

	Smoking experience		Strength of intentions to remain smoke-free	
Non-susceptible non-smokers	None	and	Strong	
Susceptible non-smokers	None	and	Weak	or
	A few puffs	and	Strong	
Experimenters or smokers	A few puffs	and	Weak	or
	A whole cigarette	and	Weak or strong	

For smoking inside the home, there were significant differences between parent and youth responses at all levels of youth smoking uptake and the pattern of disagreement was the same: there were more instances in which the parental response indicated no one smoked in the home while the corresponding youth response indicated one or more smokers in the home than instances of the reverse pattern.

Finally, there were significant differences between parent and youth responses to the questions about smoking in vehicles. The pattern of disagreement was the same across the three levels of youth smoking uptake. As for home smoking restrictions, where youth and parents disagreed there were a greater number of instances of parents indicating that they restricted smoking in their vehicle while the corresponding youth indicating riding in a vehicle in the last week with someone who was smoking.

Discussion

Preventing youth from smoking is a health priority.²⁻⁶ Emerging evidence suggests that household environments influence youth decisions about future smoking.^{3,5,6,9-13} Hence, one strategy to achieve this health priority is to support adolescents' resolve to remain smoke-free.¹² However, all four household variables investigated in this study demonstrated systematic differences between the reported perceptions of youth and parents, and these discrepancies pro-

vide unique insights into communication related to tobacco use in the home.

In the current study, parents and youth had statistically significant patterns of disagreement regarding parents' smoking status. When non-susceptible non-smoking youth disagreed with their parents, they were more likely to report that their parents were non-smokers. This might suggest that some smoking parents of non-susceptible non-smoking youth are successfully hiding their smoking behaviour from their children. Alternatively, experimenting and smoking youth were more likely to report that their parents were smokers when there was disagreement with parental responses. In these instances, it is possible that parents are trying to quit smoking and are labelling themselves as non-smokers, while their children still consider them to be smokers. Further, youth with smoking experience may tend to label their parents as smokers to justify their own smoking behaviour.

Parents can communicate anti-smoking messages and influence household social norms about smoking by banning smoking in the home. Such rules have been associated with adolescents holding more negative attitudes towards smoking and perceiving less smoking behaviour by adults.¹⁴ Perceiving a total smoking ban within the home supports youth in maintaining a resolve to remain smoke-free.¹² Moreover, evidence suggests that even when parents are unable to quit smoking themselves, enforcing anti-smoking

TABLE 2
Comparison of youth and parent responses about smoking characteristics

Response by youth stage of smoking uptake								
Youth responses					Parent responses			
Stage of smoking uptake	Total n (%)	Non- susceptible non-smoker ^a n (%)	Susceptible non-smoker ^b n (%)	Experimenter or smoker ^c n (%)	Total N (%)	Non-susceptible non-smoker ^a n (%)	Susceptible non-smoker ^b n (%)	Experimenter or smoker ^c n (%)
Total	9199	5358	2818	1018	—	—	—	—
Gender								
Female	4604 (50.0)	2741 (51.2)	1366 (48.5)	496 (48.7)	7420 (80.7)	4319 (80.6)	2267 (80.4)	829 (81.4)
Male	4595 (50.0)	2617 (48.8)	1452 (51.5)	522 (51.3)	1779 (19.3)	1039 (19.4)	551 (19.6)	189 (18.6)
Grade at school								
5	2569 (27.9)	1732 (32.3)	733 (26.0)	102 (10.0)	—	—	—	—
6	2455 (26.7)	1528 (28.5)	750 (26.6)	174 (17.1)	—	—	—	—
7	1672 (18.2)	911 (17.0)	561 (19.9)	200 (19.6)	—	—	—	—
8	1465 (15.9)	732 (13.7)	480 (17.0)	253 (24.9)	—	—	—	—
9	1038 (11.3)	455 (8.5)	294 (10.4)	289 (28.4)	—	—	—	—
Parent smoking status								
0	6756 (73.4)	4249 (79.3)	1964 (69.7)	542 (53.2)	6704 (72.9)	4160 (77.6)	1962 (69.6)	578 (56.8)
≥ 1	2346 (25.5)	1054 (19.7)	825 (29.3)	466 (45.8)	2469 (26.8)	1179 (22.0)	850 (30.2)	439 (43.1)
Home smoking restrictions								
Full ban	6368 (69.2)	4021 (75.1)	1822 (64.7)	522 (51.3)	6917 (75.2)	4144 (77.3)	2094 (74.3)	675 (66.3)
Lack of a full ban	2537 (27.6)	1161 (21.7)	907 (32.2)	469 (46.1)	2255 (24.5)	1196 (22.3)	715 (25.4)	343 (33.7)
Number of people smoking inside the home								
0	7499 (81.5)	4645 (86.7)	2226 (79.0)	625 (61.4)	8065 (87.7)	4846 (90.4)	2438 (86.5)	777 (76.3)
≥ 1	1612 (17.5)	671 (12.5)	564 (20.0)	377 (37.0)	1125 (12.2)	506 (9.4)	377 (13.4)	241 (23.7)
Days of exposure to smoking inside a vehicle during the past 7 days								
0	7131 (77.5)	4529 (84.5)	2083 (73.9)	516 (50.7)	8016 (87.1)	4756 (88.8)	2471 (7.7)	785 (77.1)
≥ 1	1950 (21.2)	762 (14.2)	702 (24.9)	486 (47.7)	1050 (11.4)	552 (10.3)	311 (11.0)	187 (18.4)

Missing data are not shown. Percentages are based on column totals.

Abbreviations: N, overall sample size; n, sub-sample size.

^a Non-susceptible non-smokers have never tried a cigarette and intend to not smoke in the future.

^b Susceptible non-smokers have never tried a cigarette but have weak intentions regarding future non-smoking, or they have tried a few puffs of a cigarette and intend to not smoke in the future.

^c Experimenters or smokers have tried a few puffs of a cigarette and have weak intentions regarding future non-smoking, or have smoked a whole cigarette or more in their lifetime.

TABLE 3
Comparison of parent and youth responses with the McNemar test

Youth responses	Parent responses					
	Non-susceptible non-smokers ^a		Susceptible non-smokers ^b		Experimenters and smokers ^c	
Parent smoking status	No parent smokes	≥1 parent(s) smoke(s)	No parent smokes	≥1 parent(s) smoke(s)	No parent smokes	≥1 parent(s) smoke(s)
No parent smokes	3935	299	1773	186	470	72
1 or more parent(s) smoke(s)	185	865	169	655	102	363
	$\chi^2 = 26.8512, p < .0001$		$\chi^2 = .8141, p < .3669$		$\chi^2 = 5.1724, p < .0229$	
Home smoking restrictions	Full ban	Lack of a full ban	Full ban	Lack of a full ban	Full ban	Lack of a full ban
Full ban	3461	546	1549	268	439	83
Lack of a full ban	566	592	482	421	219	250
	$\chi^2 = .3597, p < .5487$		$\chi^2 = 61.0613, p < .0001$		$\chi^2 = 61.2450, p < .0001$	
Number of people smoking inside the home	0	≥ 1	0	≥ 1	0	≥ 1
0	4556	84	2168	57	601	24
≥ 1	254	416	248	314	163	214
	$\chi^2 = 85.5030, p < .0001$		$\chi^2 = 119.6098, p < .0001$		$\chi^2 = 103.3209, p < .0001$	
Days of exposure to smoking inside a vehicle during the past 7 days	Restrictions	No restrictions	Restrictions	No restrictions	Restrictions	No restrictions
0	4161	327	1913	149	444	47
≥ 1	537	218	532	155	328	137
	$\chi^2 = 51.0417, p < .0001$		$\chi^2 = 215.4023, p < .0001$		$\chi^2 = 210.5627, p < .0001$	

Analysis excludes unmatched responses, i.e. youth (parent) responses were excluded if corresponding parent (youth) responses were missing. Therefore, totals do not reconcile to Table 2.

Abbreviations: χ^2 , chi-square, ≥, equal or greater than; *p*, *p*-value.

^a Non-susceptible non-smokers have never tried a cigarette and intend to not smoke in the future.

^b Susceptible non-smokers have never tried a cigarette but have weak intentions regarding future non-smoking, or they have tried a few puffs of a cigarette and intend to not smoke in the future.

^c Experimenters or smokers have tried a few puffs of a cigarette and have weak intentions regarding future non-smoking, or have smoked a whole cigarette or more in their lifetime.

socialization practices seems to encourage their children to remain smoke-free.^{9,13} However, the results of our study demonstrate a pattern of disagreement where youth perceive fewer anti-smoking rules but more smoking in the home than their parents indicate. Thus, it appears that parental intent about smoking bans is not always being perceived by their children. This discrepancy is noteworthy as a reflection of the ineffectiveness of parents to influence use of tobacco in the home, which increases the likelihood of their children experimenting with smoking and becoming established smokers.^{12,13,17,18} Thus future prevention strategies may need to focus on parental efficacy in communicating anti-smoking messages and setting rules.

For youth at all levels of smoking uptake, the pattern of disagreement between youth and parent responses suggests that youth are riding in vehicles where someone is smoking, in spite of parents saying their vehicles are smoke-free. It is possible that this discrepancy is because youth are also passengers with older siblings and/or friends who smoke and not in vehicles exclusively driven by their parents, or because they carpool with other adults who smoke inside their vehicles. Laws banning smoking in vehicles carrying children have been instilled in many areas of Canada, the United States and Australia, and in Mauritius, South Africa and Bahrain, among others.¹⁹ In addition to protecting youth from ETS, vehicle smoking bans (either mandated by law or because parents

clearly communicate smoking bans in their own vehicles and disapproval of exposure to ETS in general) may also socialize youth to remain smoke-free,¹² as do home smoking bans.

Limitations

This study is subject to several limitations. First, the results cannot be generalized beyond the sample because survey weights are not available for the parent data. Though sampling of parents was random, participation was voluntary; there may be selection bias in the parents who chose to participate. The YSS 04/05 does not provide a response rate for the parent participants. Despite this limitation, the results do provide insights into discrepancies

between parent and youth perceptions of the household environment.

Next, although the analyses were done on three subsets of data based on level of youth smoking uptake, we can only infer about differences within a subset and not between the subsets of youth. Between-group differences in patterns of disagreement between parent and youth responses may be due to confounding factors such as socioeconomic status. Further analyses to test for between-group differences are not possible because the YSS does not include data on potential confounding variables such as socioeconomic status of the youth. Therefore, we must view the results for the three subsets of data as distinct.

Another limitation exists with respect to the interpretation of the results. The analyses indicate that the disagreement between parent and youth responses was not random; however, we cannot make causal conclusions but must speculate as to the reasons for the disagreements. Nevertheless, it is important to recognize these non-random patterns of disagreement between parents and youth, given the importance of the social environment on adolescent smoking behaviour.

Conclusion

Parent and youth participants in this study had systematic patterns of disagreement regarding perceptions of household factors concerning tobacco use. It is important to acknowledge these discrepancies and to recognize that neither parent nor youth perception alone paints the full picture of what is occurring in their homes. The results suggest there may be room for parents to improve on setting a household environment that condemns the use of tobacco, which in turn encourages youth to cultivate intentions to remain smoke-free.

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