

Factors influencing cigarette access behaviour among 14–15-year-olds in New Zealand: a cross-sectional study

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ABSTRACT

INTRODUCTION: Young people access tobacco from both retail and social sources such as family or friends. Both social influences and density of tobacco retail outlets may be associated with frequency of youth smoking.

AIM: To update New Zealand data on demographic factors and social influences associated with retail access and social sources.

METHODS: The sample consisted of 14–15-year-old New Zealand youth who self-reported as current smokers. Outcome measures were participants' reporting of three different methods of cigarette access. Descriptive data was presented and multiple logistic regressions were used to examine associations between demographic and social influence factors and cigarette sources.

RESULTS: Current smoking habits was found to be the strongest predictor of cigarette source, with daily smokers much more likely to report retail purchase than less than monthly smokers (adjusted OR 11.23, 95% CI 10.10–12.47). The second strongest predictor was parental smoking habits—students with both parents smoking being much more likely to obtain from family than students with neither parent (adjusted OR 2.10, 95% CI 1.95–2.26). Socioeconomic status and living in highly populated areas were also factors significantly associated with particular sources of tobacco.

DISCUSSION: Though this study is cross-sectional, many potential confounders were controlled for, and results are consistent with the notion that financial means and urban proximity to tobacco retailers are enabling some students to use retailers as a cigarette source. Increased taxation and persuading adult family members to quit and to be more possessive about their cigarettes will help protect youth from smoking.

KEYWORDS: Smoking; youth; adolescent; supply; availability; nicotine; social; retail

Introduction

In 2008, 39.5% of New Zealand's Year 10 students had smoked at least once in their lives and 12% were smoking at least monthly.¹ Youth smoking rates are falling,¹ but remain a problem in New Zealand (NZ) and elsewhere: it is estimated that in the United States, 75–90% of smokers begin smoking before 18 years old.² Despite policies implemented to restrict youth access to cigarettes, such as a minimum purchase age of 18 years, controlled purchase operations to check retailer compliance and banning cigarettes from schools, the average age of youth smoking initiation in NZ is 14.6 years.³

Interventions targeting youth access to cigarettes are considered inefficient because retailer compliance is expensive to enforce and cigarettes are often sold on by youth. However, perceived accessibility is a strong predictor of both smoking initiation and progression to heavier smoking.^{4,5} Furthermore, youth who smoke daily are more likely, and able, to buy cigarettes.^{6,7} Finally, cigarettes in 'social' circulation originate from adults, such as retailers or parents: obtaining cigarettes from friends is not a form of supply that can sustain itself. Thus, it is important to address supply and increasing tax has had a measurable effect in reducing access to tobacco in other countries.^{8,9}

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The 2002 New Zealand Youth Lifestyle Survey reported that 35.3% of smokers aged 14–16 usually purchased their cigarettes from shops,⁶ while others obtained tobacco from social sources. Scragg et al.¹⁰ found that relative risk of obtaining cigarettes from family members doubled if one parent smoked and almost tripled when both parents smoke. Friends and parents were significant social sources in New Zealand and globally.^{4,6,7,11,12}

This study updates previous studies conducted by Darling et al.⁶ and Scragg et al.¹⁰ and investigates more recent trends in sources of cigarettes for youth in New Zealand. Variables considered in the study were investigated in other studies of youth sources of tobacco such as Leatherdale.⁷ The variables include age and gender, plus parental, sibling and friend smoking habits on supply of tobacco. Level of urbanisation was also considered because recent studies have found associations between the youth smoking and density of tobacco retail outlets.¹³ Finally, the frequency of a student's current smoking was considered, as Darling et al.⁶ measured an association between it and youths' source of tobacco.⁶

Methods

This study examines a subset of data from the National Year 10 ASH Snapshot Survey collected from 2002 to 2005,¹ which also provided data for Scragg et al.'s study.¹⁰ This is an annual census style survey and all New Zealand schools with Year 10 students were invited to administer a questionnaire to all Year 10 students.¹⁴ The questionnaire was an anonymous, pen-and-paper questionnaire completed during class time and supervised by teachers. The Ministry of Health Auckland Ethics Committee gave permission to survey without formal referral to the Committee.

Eligibility

Students were included in this study based on whether or not they were current smokers. This was determined by students' answers to the following question: "How often do you smoke now?" Students had the options of "I have never smoked/I am not a smoker now."; "At least once a day."; "At least once a week."; "At least once a month."; and "Less often than once a month".

WHAT GAP THIS FILLS

What we already know: Perceived accessibility to tobacco is a predictor of youth smoking. Youth obtain tobacco from both retail and social sources. There have been some changes in laws relating to retail sale of tobacco in New Zealand in recent years.

What this study adds: This study adds a detailed examination of factors associated with obtaining tobacco from either retail or social sources and demonstrated a significant association between socioeconomic status, population density and purchase of tobacco.

Those who answered: "I have never smoked/I am not a smoker." were not included in this study. Eligibility was also restricted to students of 14 or 15 years of age (students outside this age bracket are likely to be atypical for their school level).

Access to tobacco variables

Students' tobacco access behaviours were determined by the following question: "Where do you get your cigarettes?" and students were asked to tick as many places as applied out of: "I buy them myself."; "From a family member."; and "From a friend or someone else."

Covariates

The survey asked age, gender, and self-assigned ethnicity. Students could choose more than one ethnic group and a priority system was used to group the students for analysis. Maori, Pasifika, Asian, New Zealand European then other ethnicities is the order of prioritisation. This order of prioritisation is also used in the New Zealand Tobacco Use Survey.¹⁵

School decile was used as a proxy measure for socioeconomic status (SES). Decile 1 schools are those in the 10% of New Zealand schools with the highest proportion of students from low socioeconomic status backgrounds, whereas decile 10 schools are those in the 10% of New Zealand schools with the lowest proportion of these students.

Urban category was determined by dividing participants into three categories based on their

District Health Board (New Zealand is divided into 21 DHBs) and the DHB each participant belonged to was determined by the student's school address. Participants in category 1 (least urban) were from those DHBs with less than 50% of their population living in one of New Zealand's 16 main urban areas. Participants in category 2 were from DHBs with between 50% and 85% of their population living in these areas. Participants in category 3 were from DHBs with more than 85% living in these areas. Demographic characteristics of the DHBs were courtesy of the New Zealand Ministry of Health as well as Statistics New Zealand.^{16,17}

To obtain data about smoking by friends and family, students were asked: "Which of the following people smoke?" They could choose as many options as applied out of "Mother", "Father", "older brother or sister" or "best friend". The question: "Do people smoke inside your house?" was also asked, with participants given the options of "Yes" or "No".

Statistical analysis

All descriptive data and crude odds ratios were obtained using Stata version 10 (StataCorp, USA). Adjusted odds ratios were estimated by using three two-level multiple logistic regression models (Stata 10) for each of the three different sources of tobacco (retail, family or friends) and the covariates age, gender, ethnicity, year, school socioeconomic status, parental smoking, sibling smoking, peer smoking, smoking in the home, current smoking frequency and urban category. These variables formed the first level and the second level was a school identity variable included to account for clustering of the data by school. All variables were categorical variables, with the exception of year, which was treated as a continuous variable. Students with missing data for any one of these variables were excluded from logistic regression analysis.

Results

The annual school response rate was 67% in 2002 (n=312), 66% in 2003 (n=312), 65% in 2004 (n=319) and 58% in 2005 (n=278).

Demographic characteristics and smoking behaviours are shown in Table 1. As only smokers were eligible to be participants in this study, certain demographic groups such as females were more strongly represented than groups with proportionally fewer smokers (e.g. males). Additionally, for each demographic, Table 1 shows the number and unadjusted proportion of participants reporting retail purchase, obtaining from family and obtaining from friends or others. The results of multiple logistic regression analysis are shown in Table 2 and 3.

Year

Odds of a teenager reporting they had purchased tobacco from a shop were significantly lower in 2005 compared to 2002. When adjusted for confounders, the odds ratio for retail purchase still showed a small but significant decline. Adjusted odds ratios for obtaining from family showed a small increase over time. Odds ratios for obtaining from friends or others did not change significantly.

Age

Both crude and adjusted odds ratios showed 15-year-olds are more likely to make retail purchase than 14-year-olds. Conversely, 15-year-olds are less likely to report obtaining cigarettes from friends or others less than 14-year-olds.

Gender

Females were significantly less likely to purchase cigarettes but more likely to report obtaining cigarettes from social sources.

Ethnicity

Maori smokers were more likely to obtain cigarettes via retail purchase and from family than NZ Europeans, but less likely to obtain them from friends or others. Asians had the highest crude and adjusted odds ratios for retail purchase (adjusted OR 1.52, 95% CI 1.43–1.76), and the lowest crude and adjusted odds ratios for obtaining from friends and others (adjusted OR 0.54, 95% CI 0.47–0.63).

Table 1. Descriptive statistics of sample 1

Variable	Number	Retail purchase (%)	From family (%)	From friends or others (%)
n	36441	22.3	26.0	74.2
Year				
2002	9927	24.0	23.3	75.1
2003	10257	22.9	26.8	73.4
2004	8155	20.3	26.7	73.5
2005	8102	21.6	27.7	74.7
Age				
14 years	17356	19.9	25.7	76.0
15 years	19085	24.5	26.3	72.5
Gender				
Male	14603	23.4	22.3	70.1
Female	21700	21.5	28.5	77.0
Ethnicity				
NZ European	21437	19.5	21.1	78.8
Maori	10133	26.3	37.3	67.0
Pasifika	2744	23.6	26.5	72.6
Asian	1355	31.3	19.8	62.8
Other	413	21.6	19.9	70.2
School decile				
1	1356	25.2	36.4	66.7
2	3034	22.9	35.3	68.8
3	3131	23.1	32.3	69.8
4	3773	22.6	30.4	71.0
5	4530	22.4	27.4	74.8
6	4590	21.6	26.8	76.2
7	4628	21.4	23.6	75.2
8	3948	21.0	21.0	76.8
9	2791	21.5	20.3	77.6
10	4460	23.2	16.6	77.9
Urban category				
1	8768	18.4	29.0	74.5
2	15358	22.3	26.8	73.4
3	12315	25.2	22.9	74.9
Current smoking				
Daily	13940	40.4	40.4	59.1
Weekly	5324	22.1	21.5	79.4
Monthly	5481	11.4	17.0	85.4
Less than monthly	11696	5.90	15.1	84.5
Parental smoking				
Neither smoke	15662	19.4	14.3	81.2
One smokes	11248	22.1	31.1	72.2
Both smoke	9012	27.5	40.3	64.6
Smoking in home				
No	20562	20.0	18.3	78.9
Yes	15137	25.4	36.6	68.0
Sibling smoking				
No	20618	19.1	18.4	79.2
Yes	15304	26.5	36.5	67.6
Friend smoking				
No	13758	14.7	21.5	74.7
Yes	22164	26.9	29.0	73.9

Table 2. Association between demographic variables and cigarette source

Variable	Retail purchase				Obtaining cigarettes from family				Obtaining cigarettes from friends or others			
	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value
Year	0.88 (0.87–0.90)	<0.001	0.94 (0.91–0.97)	<0.001	1.00 (0.99–1.02)	0.414	1.05 (1.02–1.08)	<0.001	0.98 (0.96–1.00)	0.023	1.00 (0.98–1.03)	0.950
Age												
14	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
15	1.36 (1.32–1.41)	<0.001	1.27 (1.20–1.35)	<0.001	1.05 (1.01–1.08)	0.006	1.04 (0.98–1.09)	0.184	0.83 (0.80–0.87)	<0.001	0.88 (0.83–0.93)	<0.001
Gender												
Male	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
Female	0.86 (0.82–0.92)	<0.001	0.85 (0.79–0.93)	<0.001	1.41 (1.33–1.50)	<0.001	1.37 (1.29–1.46)	<0.001	1.44 (1.36–1.53)	<0.001	1.46 (1.37–1.56)	<0.001
Ethnicity												
NZ European	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
Maori	1.34 (1.27–1.42)	<0.001	1.16 (1.04–1.20)	0.004	2.06 (1.96–1.26)	<0.001	1.38 (1.29–1.47)	<0.001	0.55 (0.52–0.58)	<0.001	0.76 (0.71–0.81)	<0.001
Pasifika	1.15 (1.06–1.24)	<0.001	1.03 (0.92–1.17)	0.597	1.24 (1.14–1.34)	<0.001	1.09 (0.97–1.23)	0.131	0.73 (0.66–0.80)	<0.001	0.86 (0.77–0.97)	0.013
Asian	1.59 (1.43–1.76)	<0.001	1.52 (1.30–1.77)	<0.001	0.91 (0.82–1.01)	0.079	0.87 (0.74–1.02)	0.085	0.46 (0.40–0.53)	<0.001	0.54 (0.47–0.63)	<0.001
Other	1.18 (0.99–1.39)	0.063	0.92 (0.71–1.20)	0.548	0.88 (0.73–1.06)	0.176	1.00 (0.77–1.29)	0.992	0.70 (0.57–0.87)	0.001	0.66 (0.52–0.84)	0.001
SES												
1	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
2	0.93 (0.77–1.12)	0.437	1.05 (0.83–1.34)	0.681	1.07 (0.86–1.33)	0.543	1.07 (0.88–1.31)	0.502	1.06 (0.88–1.28)	0.555	0.96 (0.79–1.16)	0.667
3	0.99 (0.81–1.20)	0.889	1.15 (0.91–1.45)	0.235	0.94 (0.76–1.18)	0.602	1.07 (0.88–1.32)	0.497	1.17 (0.98–1.39)	0.089	0.92 (0.77–1.11)	0.380
4	0.93 (0.76–1.14)	0.499	1.21 (0.95–1.53)	0.129	0.85 (0.68–1.05)	0.130	1.03 (0.84–1.26)	0.779	1.24 (1.02–1.50)	0.027	0.92 (0.76–1.12)	0.404
5	0.95 (0.79–1.15)	0.621	1.39 (1.11–1.74)	0.005	0.75 (0.60–0.93)	0.011	0.96 (0.78–1.17)	0.663	1.40 (1.18–1.67)	<0.001	1.05 (0.89–1.25)	0.565
6	0.95 (0.79–1.15)	0.586	1.37 (1.09–1.73)	0.008	0.70 (0.57–0.88)	0.002	0.98 (0.80–1.21)	0.850	1.59 (1.32–1.92)	<0.001	1.06 (0.88–1.28)	0.558
7	0.92 (0.74–1.13)	0.419	1.33 (1.05–1.69)	0.016	0.63 (0.50–0.79)	<0.001	0.90 (0.73–1.12)	0.351	1.57 (1.30–1.89)	<0.001	0.95 (0.79–1.14)	0.590
8	0.89 (0.72–1.10)	0.278	1.51 (1.20–1.90)	<0.001	0.56 (0.45–0.70)	<0.001	0.89 (0.72–1.10)	0.280	1.67 (1.37–2.04)	<0.001	0.97 (0.80–1.18)	0.789
9	0.93 (0.75–1.15)	0.491	1.59 (1.22–2.06)	<0.001	0.52 (0.41–0.66)	<0.001	0.94 (0.75–1.18)	0.596	1.76 (1.46–2.13)	<0.001	0.92 (0.76–1.11)	0.403
10	1.16 (0.96–1.40)	0.126	1.91 (1.46–2.49)	<0.001	0.44 (0.35–0.54)	<0.001	0.89 (0.73–1.10)	0.277	1.76 (1.47–2.12)	<0.001	0.81 (0.66–1.00)	0.053
Urban category												
1	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
2	1.24 (1.13–1.37)	<0.001	1.33 (1.18–1.50)	<0.001	0.89 (0.81–0.98)	0.022	0.91 (0.84–0.98)	0.018	0.96 (0.87–1.07)	0.470	0.93 (0.86–1.01)	0.085
3	1.53 (1.39–1.69)	<0.001	1.55 (1.36–1.78)	<0.001	0.75 (0.68–0.82)	<0.001	0.80 (0.73–0.88)	<0.001	0.98 (0.89–1.09)	0.744	1.03 (0.94–1.14)	0.472

Note: Adjusted ORs adjusted for all variables listed in this table, as well as the following social influence-related variables: current smoking, parental smoking, smoking in the home, sibling smoking and friend smoking. The odds ratio reported for year is the measure of each increase in odds per year.

Table 3. Association between social influence variables and cigarette source

Variable	Retail purchase				Obtaining cigarettes from family				Obtaining cigarettes from friends or others			
	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value
Current smoking												
Less than monthly	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
Monthly	1.88 (1.74–2.04)	<0.001	2.06 (1.83–2.33)	<0.001	1.14 (1.07–1.22)	<0.001	1.12 (1.02–1.24)	0.016	1.10 (1.02–1.19)	0.014	1.00 (0.91–1.10)	0.982
Weekly	3.99 (3.70–4.30)	<0.001	4.45 (3.99–4.96)	<0.001	1.50 (1.40–1.60)	<0.001	1.37 (1.25–1.50)	<0.001	0.70 (0.65–0.75)	<0.001	0.66 (0.60–0.72)	<0.001
Daily	9.08 (8.50–9.69)	<0.001	11.23 (10.10–12.47)	<0.001	3.66 (3.48–3.85)	<0.001	2.73 (2.54–2.94)	<0.001	0.26 (0.25–0.28)	<0.001	0.27 (0.25–0.29)	<0.001
Parental smoking												
Neither	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
One	1.22 (1.16–1.29)	<0.001	0.89 (0.83–0.96)	0.003	2.74 (2.60–2.88)	<0.001	1.87 (1.75–1.99)	<0.001	0.60 (0.57–0.63)	<0.001	0.75 (0.70–0.80)	<0.001
Both	1.62 (1.53–1.71)	<0.001	0.91 (0.85–0.98)	0.016	4.22 (4.00–4.47)	<0.001	2.10 (1.95–2.26)	<0.001	0.42 (0.40–0.45)	<0.001	0.64 (0.60–0.69)	<0.001
Smoking in home												
No	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
Yes	1.41 (1.34–1.48)	<0.001	0.99 (0.92–1.05)	0.685	2.61 (2.48–2.75)	<0.001	1.52 (1.43–1.62)	<0.001	0.56 (0.54–0.59)	<0.001	0.84 (0.79–0.90)	<0.001
Sibling smoking												
No	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
Yes	1.53 (1.45–1.61)	<0.001	1.09 (1.03–1.16)	0.006	2.53 (2.40–2.67)	<0.001	1.80 (1.70–1.90)	<0.001	0.55 (0.53–0.58)	<0.001	0.71 (0.67–0.75)	<0.001
Friend smoking												
No	1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)		1.00 (reference)	
Yes	2.12 (2.00–2.25)	<0.001	1.27 (1.19–1.36)	<0.001	1.49 (1.41–1.57)	<0.001	0.83 (0.78–0.88)	<0.001	0.97 (0.92–1.02)	0.260	1.62 (1.53–1.72)	<0.001

Note: Adjusted ORs adjusted for variables listed in this table, as well as the following demographic variables: year, age, gender, ethnicity, SES and urban category.

Socioeconomic status

Students who attended schools in a higher decile were more likely to purchase tobacco. (Adjusted OR 1.91, 95% CI 1.46–2.49, $p < 0.001$). There was no significant association between decile and obtaining tobacco from social sources.

Urban category

Odds of retail purchase increased with higher population density (Urban category 3), with category 3 students having an odds ratio of 1.55 (95% CI 1.36–1.69) over category 1 students. Odds of obtaining from family were lower in areas of higher population density.

Current smoking

Current smoking was the strongest predictor of cigarette source. Daily smokers reported much higher odds of retail purchase compared to less than monthly smokers (adjusted OR 11.23, 95% CI 10.10–12.47), and also had higher odds of obtaining cigarettes from family. More frequent smokers had much lower odds of obtaining cigarettes from friends or others.

Parental smoking, sibling smoking and smoking in the home

Each of these three variables had independent effects on cigarette source. Students who reported parents and siblings who smoked, or smoking in their home, were more likely to obtain cigarettes from family. These students were less likely to get cigarettes from friends or others. Crude odds of retail purchase also increased with parental smoking, sibling smoking and smoking in the home, but this effect was removed or reversed when odds ratios were adjusted (apart from sibling smoking, which had a slightly elevated adjusted odds ratio for retail purchase). Parental smoking was the second strongest predictor of cigarette source after frequency of smoking.

Friend smoking

Adjusted odds of obtaining cigarettes from friends significantly increased when one or more friends were smokers (1.62, 95% CI 1.53–1.72).

Students with a friend that smoked also had an increased adjusted odds ratio for retail purchase, as well as slightly decreased, adjusted odds of obtaining from family.

Discussion

Variables which had the strongest associations with a student's source of cigarettes were current smoking, parental smoking and socioeconomic status. Friends and family smoking had a marked effect on where a youth sought cigarettes. Smoking in the home had an impact on the likelihood of obtaining from family that was independent of parental and sibling smoking status. Youth may be offered cigarettes by family members in the home environment, or alternatively obtain them by scavenging whatever cigarettes are in the house.

Beyond the effects of friends and family smoking, youths' broader demographic context also had an impact on access behaviours. Asian students were significantly more likely to buy their own cigarettes than obtain them from friends or family. Cultural aspects or differences in parenting style may be a reason for this.

Socioeconomic status and degree of urbanisation were positively correlated with retail purchase. These two variables directly relate to a student's ability to go to a nearby shop and have money for cigarettes.

Strengths and limitations

This study was able to examine a number of variables associated with access to tobacco due to a very large sample size of youth smokers. Due to the large sample size, most variables had some significance in predicting access behaviours. However, certain variables were more strongly associated with access to tobacco. The quality of the data was upheld by collection at schools in a standardised, supervised yet confidential manner. Only a small proportion of current smokers had missing data on at least one of the seven questions asked. This meant that over 95% of participants were used in logistic regression analyses.

A limitation was the response rate of Year 10 students. Over the four-year period, 129 315 out of a total of 247 336 Year 10 students completed the questionnaire (52.3%), creating some self-selection bias.¹⁵ However, much (although not all) of this non-response was due to a student's school's non-participation, rather than from individuals choosing to opt out. Other limitations were the measures of socioeconomic status and degree of urbanisation. School decile is unlikely to be a precise measure of socioeconomic status, but collapsing the deciles into three categories will compensate for this imprecision. All participants of the same DHB were classed in the same urban category, despite considerable variability within some DHBs. However, the looseness of these measures is likely to mean that the true effects of these two variables are likely to be under-estimated.

An additional limitation was the use of cross-sectional data, which meant that direction of causality cannot be determined. For example, the relationship between intensity of current smoking and retail purchase may be due to the fact that regular smokers rely on a regular source (as suggested by DiFranza)¹⁸ However, more alarmingly, it may be that regular smokers become regular smokers due to the existence of a reliable source.

Another limitation was the use of odds ratios instead of risk ratios—a requirement due to the use of logistic regression. Odds ratios over-estimate risk ratios in cross-sectional studies, particularly when there is a high prevalence of the outcome variable.

Comparison with literature and implications

Many findings of this study concur with those found by Leatherdale.⁷ For example, male students and older students are more likely to buy their own cigarettes. This study's strongest finding, that regular smokers are more likely to seek retail purchase, reaffirms what was found in another New Zealand study by Darling et al.⁶ Despite increases in controlled purchase operations in some areas, retail supply is still a significant problem in New Zealand.

Research has been carried out on the effect of cigarette taxes on youth smoking rates. Two studies^{8,9} made quantitative estimates of the effect of raising cigarette prices on youth smoking rates, with one reporting that “the real price of cigarettes has a negative and significant impact on the number of youth and young adults who smoke and average level of smoking among those who smoke”. This evidence is supported by results from this study which suggest that barriers for retail purchase exist for low SES students. Increasing tax beyond inflation will extend barriers to students of higher SES. Moreover, NZ-based research is required to examine the effect of taxation on youth smoking rates and cigarette access.

Two observational studies^{13,19} have found increased smoking prevalence was associated with higher population density and this study found significantly increased odds of retail purchase of cigarettes with higher urbanisation. Reasons for this may be that a lack of physical proximity to tobacco retailers acts as a barrier to retail purchase or less anonymity of the students. One study⁴ has established perceived accessibility as a strong predictor of youth smoking rates. Urban youth, who have more tobacco retailers within close proximity, are at higher risk of seeing cigarettes as easily accessible commodities.

Primary care practitioners have the potential to reduce family and social access to cigarettes in the first instance by encouraging cessation and also by highlighting the importance of social sources in maintaining or allowing experimentation by younger family members.

Conclusion

This study illustrates the presence of a wide number of circumstantial and demographic factors which affect the cigarette access behaviours of youth smokers. The smoking habits of those around them act as an influence on the sources that they seek, suggesting an opportunistic method of access. Financial means and the physical proximity to tobacco retailers in cities are both variables which are strongly associated with retail purchase acting as a viable source of cigarettes for some youth.

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COMPETING INTERESTS

None declared.

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