



Short Communication

Adolescents' self-reported reasons for using nicotine replacement therapy products: A population-based study

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ABSTRACT

Background: Available research provides evidence that adolescents use nicotine replacement therapy (NRT) products. Yet, little is known about reasons and motives behind their use. The present study examined the reasons for NRT use among 14–18-year-old Finnish adolescents.

Method: A national Adolescent Health and Lifestyle Survey was conducted in Finland in 2009 ($N=4834$, response rate 55%). Main measures were prevalence of NRT use, self-reported reasons for using NRT and smoking status.

Results: Overall, 10% had used NRT. Boys used NRT more often than girls (11.5% versus 8.7%, $p<.001$). The three most commonly reported reasons were 'just try' (56%), 'to quit' (33%) and 'smoking not possible' (24%). "Just try" was the most common reason given by non-smokers/experimental smokers whereas daily/occasional smokers used NRT mainly for quitting purposes and when smoking was impossible.

Conclusions: These findings suggest that when planning treatment plans for adolescent smokers, health care personnel should pay particular attention to adolescents' primary reasons and motives for using NRT before suggesting its use.

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1. Introduction

Available research provides evidence that adolescents use nicotine replacement therapy (NRT) products (Hyland, Bradford, & Gitchell 2005; Klesges, Johnson, Somes et al., 2003; Rainio, Huhtala, & Rimpelä, 2010). However, very little is known about reasons and motives behind their NRT use. To date, evidence of reasons for NRT use has mainly been obtained from adult samples with somewhat inconsistent results. Based on data from the 2002 California Tobacco Survey, Al-Delaimy, Gilpin, and Pierce (2005) reported that Californian adult smokers had used NRT mainly for cessation purposes. On the other hand, findings from the International Tobacco Control Four Country Survey indicated that of the surveyed adult NRT users, one-third had used it for other reasons than quitting smoking (Hammond, Reid, Driezen et al., 2008). A study by Shiffman et al. (2007) concluded that many adult smokers are interested in reducing but not quitting smoking.

Adolescents may use NRT for variety of reasons and reasons may differ within different stages of smoking. Some of the reasons may also refer to temporary abstinence such as using the product to reduce nicotine withdrawal symptoms when smoking is not allowed (Dalton et al., 2009; Klesges et al., 2003). Results from a survey of eleventh-grade students in Memphis, Tennessee, revealed that the most

frequently reported reason for the NRT use among daily smokers and those smoking from 1 to 6 cigarettes per week was a situation in which they were unable to smoke (Klesges et al., 2003). The limitation of this study was, however, that only two reason categories were given ("to try to quit" and "unable to smoke"). Greater understanding of adolescents' reasons and motives for NRT use will eventually have an impact on the development of adolescent smoking cessation strategies and therefore warrants further investigation.

As far as we know, no population-based study assessing reasons of NRT use among adolescents has been conducted. Using a nationally representative sample of 14-, 16- and 18-year-old Finnish adolescents, we examined the use of NRT, self-reported reasons for NRT use and their relation to smoking status.

2. Material and methods

2.1. Study design, sampling and participants

The study is based on the nationwide, cross-sectional Adolescent Health and Lifestyle Survey conducted in Finland in 2009. Nationally representative sample of 14-, 16- and 18-year-olds ($n=4834$; response rate 55%) was obtained from the Finnish Population Register Centre so that all Finns born on the sample days were included. Three re-inquiries were sent to non-respondents. The study was approved by the Ethical Committee of the Pirkanmaa Hospital District, Finland. The number of respondents and response rate (%) by age and gender was: in boys, 735 (50%) of 14-year-olds, 690 (47%) of 16-year-olds

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and 537 (36%) of 18-year-olds. In girls, the corresponding rates were: 999 (68%), 962 (70%) and 911 (61%).

2.2. Measures

2.2.1. Smoking status

Adolescent smoking was classified into four categories: (i) non-smokers (never smoked any cigarette or experimented once); (ii) experimental smokers (smoked 2–50 in all); (iii) occasional smokers (smoked over 50 cigarettes in all but were not daily smokers); and (iv) daily smokers (smoked over 50 cigarettes in all, had smoked during the past week and at least once per day).

2.2.2. NRT use

The use of NRT was elicited with the following question: “Have you used nicotine replacement therapy products?” with response options “I don’t know what they are”, “No”, “I have tried few times”, “I have used maximum 20 times”, and “I have used more than 20 times”. The three latter responses were combined to category of “had used NRT” to provide more cases.

2.2.3. Reasons for NRT use

Those who reported that they had used NRT were further asked “If you have used the product, for what reasons?” with response options “just try”, “to quit”, “cigarettes were not available”, “in situation where smoking was not possible”, and “other, please specify?” (open-ended). Respondents were allowed to tick several reasons.

2.3. Data analysis

We first calculated the prevalence of NRT use separately for both genders and all age groups. Since NRT use was not very common in the younger age groups, we combined the age groups of 14 and 16 to provide more cases. Among the NRT users, we assessed the reasons for their use by conducting cross-tabulation analyses for each of the reason categories, and in relation to age, gender and smoking status. The Pearson’s chi-square test (two-tailed p -value < 0.005) was used to test whether there were statistically significant associations between reported reasons for NRT use and gender, age or smoking status. Data were analyzed by using SPSS for Windows version 14.0 software.

3. Results

Overall, 10% ($n = 471$) of the total sample had used NRT. Boys used NRT more often than girls (11.5% versus 8.7%, $p < .001$). Among NRT users, 82% reported having tried NRT few times, 12% had used

maximum of 20 times, and 6% had used NRT over 20 times. Of all NRT users, majority (76%) were daily smokers.

Table 1 presents the reasons given for the use among 471 NRT users. The three most common reasons were “just try” (56%), followed by “to quit” (33%) and “smoking was not possible” (24%). There were only few statistically significant age or gender differences in the reported reasons. Only fourteen reported having used NRT for “other reason” and the most commonly stated reason was because it was offered to them for free by friends or other adults.

When examined the reasons within different smoking categories, majority of non-smokers and experimental smokers had just tried NRT. Of those NRT users who were daily/occasional smokers, approximately one third had used NRT to quit smoking and one fourth reported having used it in situation in which smoking was not possible (Table 1).

4. Discussion

The overall prevalence of NRT use among 14–18-year-olds was relatively low (10%). The most often reported reason category for NRT use was “just try”. When examined the reported reasons within different smoking categories, one fourth of daily/occasional smokers who had used NRT reported having used it when smoking was not possible. There were only few statistically significant age or gender differences in the reported reasons.

The relatively low prevalence of NRT use found here accords well with our previous paper (Rainio et al., 2010) and those few other studies conducted in adolescent populations (Hyland et al. 2005; Klesges et al., 2003). When considering the reported reasons for NRT use, the majority of adolescents reported that they had “just tried”. It is most likely that adolescents are curious to try this more or less novelty product. Approximately one fourth of daily/occasional smokers in our study reported having used NRT when they were unable to smoke. They are most likely to use NRT to support temporary abstinence. A key question here is whether this kind of behavior reduces motivation to quit.

The strength of this study lies in the population-based sample. However, some limitations should be taken into account when interpreting these results. First, data were based on self-reports, and smoking status, for example, could not be validated by biochemical measures due to large sample size. Another limitation in our study is that the study design is cross-sectional. Although the overall response rate in the present study was 55%, it is still considered acceptable for population-based surveys (Diem 2002), especially when taking into account that declining response rates have been a common trend concerning tobacco surveys (Biener, Garrett, Gilpin, Roman, & Currvan, 2004).

Table 1
Reasons given for nicotine replacement therapy (NRT) product use among adolescent NRT users ($n = 471$), by demographic characteristics and smoking status. The Adolescent Health and Lifestyle Survey 2009.

Reason for using NRT			Just try% (n)	To quit% (n)	Cigarettes not available% (n)	Smoking not possible% (n)	Other reason% (n)
Total sample		$n = 471$	56.1 (252)	33.2 (149)	15.8 (71)	23.6 (106)	3.1 (14)
Gender	Boys	47.3 (223)	61.1 (129)	33.2 (70)	13.3 (28)	22.3 (47)	3.3 (7)
	Girls	52.7 (248)	51.7 (123)	33.2 (79)	18.1 (43)	24.8 (59)	2.9 (7)
	p value		.044	.997	.164	.531	.819
Age	14–16	57.5 (271)	58.4 (149)	30.6 (78)	19.2 (49)	25.1 (64)	4.7 (12)
	18	42.5 (200)	53.1 (103)	36.6 (71)	11.3 (22)	21.6 (42)	1.0 (2)
	p value		.259	.180	.023	.394	.026
Smoking status	Non-smoker	2.3 (11)	90.0 (9)	10.0 (1)	0.0 (0)	0.0 (0)	20.0 (2)
	Experimental	7.5 (35)	90.6 (29)	6.3 (2)	0.0 (0)	6.3 (2)	3.1 (1)
	Occasional	13.9 (65)	60.0 (36)	30.0 (18)	13.3 (8)	20.0 (12)	1.7 (1)
	Daily	76.3 (358)	51.0 (176)	37.1 (128)	18.3 (63)	26.7 (92)	2.9 (10)
	p value		≤ .001	.001	.021	.014	.020

Multiple responses were allowed.
 p value; Pearson’s chi-square test (two-tailed).

It remains unclear whether experimenting with NRT increases potential for its abuse (Klesges et al., 2003) and this warrants further exploration in future studies. Research has shown that a substantial proportion of young smokers can be appropriately classified as dependent on nicotine (Colby, Tiffany, Shiffman, & Niaura, 2000). Therefore in some countries, clinical practice guidelines for treating tobacco dependence suggest the use of NRT products with adolescents (Raw, McNeill, West, Arnott, & Armstrong, 2005). When planning and implementing youth smoking cessation strategies, public health practitioners should first carefully identify adolescents' primary reasons and motives for using NRT before suggesting its use. Internationally, there are yet limited number of high quality randomized control trials to assist health care personnel in treatment plans for adolescent smokers. This area also warrants further research.

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Contributors

AR and SR had the original idea for the study and they designed it together with DD. SR drafted the manuscript and conducted all statistical analyses. DD and AR contributed to and have approved the final version.

Conflicts of Interest

All authors declared that they have no conflicts of interest.

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