

## Health and Disability

# Smoking cessation among Norwegian adolescents and young adults: preferred cessation methods

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Despite generally declining smoking rates, particularly among young people, a large number of people remain smokers and many young people still pick up smoking. Helping smokers quit therefore remains a high priority for the public health sector. In the present study we examined adolescents and young adults' preferences regarding cessation methods and if these differed between genders and depended on smoking frequency. The data came from a nationally representative survey in Norway among 16–20 year olds. Only regular (weekly and daily) smokers were included in the statistical analyses ( $n = 509$ , 51% females). The findings suggest that the majority of both male (83.6%) and female (78.4%) smokers would prefer to quit smoking without help. More males than females reported that they would consider using snus as a cessation aid, while females more often reported willingness to attend cessation classes or use brochures and diaries as cessation aids. Both males and females had similar preferences albeit low, regarding the use of health services, nicotine gum or patches and internet and sms-services to quit smoking. Daily smokers would more often than weekly smokers prefer to attend cessation classes, seek help from health services, use nicotine gum or patches or use brochures and diaries. In contrast, weekly smokers preferred to use snus as a cessation aid more often than daily smokers. Identifying and making appropriate cessation methods attractive may lead to successful quitting and consequently public health gains.

**Keywords:** Smoking cessation methods, preferences, adolescents and young adults, Norway.

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## INTRODUCTION

Smoking is perceived to be the primary cause of preventable mortality and morbidity in most Western countries (Vineis, 2008). Information gathered from "The Public Health Portal of the European Union (EU)" suggests that 650,000 deaths per year are associated with smoking in the EU. In Norway, smoking among young adults has declined in the last decade. In 2009, the prevalence of daily smoking among the general population (16–74 years) was 21% while for young people (16–24 years) the prevalence was 17%. The respective figures in 1999 were 32% and 30% (Statistics Norway, 2010). If this positive trend is maintained, smoking prevalence in the population will continue its reduction over the coming years, which again should lead to public health gains. A range of tobacco control measures have been used in Norway, including: a complete ban on tobacco advertisement, a total ban on smoking in all public places, anti-smoking campaigns, imposition of high taxes on tobacco products, health education to discourage smoking and smoking cessation programs to assist smokers to quit the behavior (Braverman, Svendsen, Lund & Aarø, 2001; Helsedepartementet (Ministry of Health) Press Release, 2004. Regardless of general declining smoking rates, a number of young people still remain smokers or start their smoking careers today. Preventing health problems through helping smokers quit smoking will remain a high priority also in the years to come (Royal College of Physicians, 2007).

Smoking cessation methods that have been used in Norway include smoking cessation classes, counselling from health per-

sonnel, nicotine replacement therapy, internet and telephone services, and smoking cessation brochures and diaries. While the efficacy of several of these measures has been observed in a number of Cochrane reviews (e.g., Stead, Perera, Bullen, Mant & Lancaster, 2008; Stead, Perera & Lancaster, 2006), we know less about the extent of their use (Hammond, McDonald, Fong & Borland, 2004; Reynoso, Susabda & Cepeda-Benito, 2005). The use of smoking cessation methods tends to differ between males and females (Ismailov & Leatherdale, 2010; Reid, Pipe, Riley & Sorensen, 2009). In a study by Reid *et al.*, 2009, male smokers (age 25 years and above) were less likely than their female counterparts to use medication and counselling for smoking cessation. And in contrast, young adult females were more likely than their male counterparts to get enrolled in cessation services involving nicotine replacement therapy (Elis, Perl, Davis & Vichinsky, 2008). Ismailov and Leatherdale (2010), however, observed that male former smokers were more likely to use pharmacological aids to quit smoking than females.

In the last couple of years in Norway, there has been a sharp increase in the use of snus (Øverland, Hetland & Aarø, 2008), a moist smokeless tobacco product used by placing the product under the upper lip. The increase in snus use has generally been observed among males, especially among young males. Among females, the behavior is mainly experimental, although the proportion of regular users also in this group is reported to be increasing (Øverland *et al.*, 2008). While the sale of snus products is not permitted in the European Union (EU), Norwegians (Norway is not an EU member), and Swedes (Sweden was exempt from the ban

when joining the EU in 1992) have unrestricted access to snus. In Sweden, studies suggest that snus is being used as a substitute for cigarettes, and every so often as an aid to stop smoking (Lindstrom, 2007; Rodu & Phillips 2008; Ramström & Foulds, 2006). Yet other studies suggest that snus is used as a supplement to smoking, especially among young people (Wickholm, Galanti, Soder & Gilljam, 2003). Within the public health community, some advocate the promotion of smokeless tobacco (snus) as a harm reduction alternative to smoking (Henningfield & Fagerstrom, 2001; Rodu & Godshall, 2006). Others, however, imply that the idea of counteracting a tobacco problem with a tobacco product is counterintuitive and represents an incompatible way of dealing with a health problem (Tomar, Fox & Severson, 2009).

While quitting smoking without the use of any cessation aid may be challenging, previous studies suggest that most smokers quit the behavior or would like to do so on their own, although just a few are able to quit permanently without any relapse (Duke University Medical Center, 2009; Hammond *et al.*, 2004). The use of smoking cessation aids (e.g., nicotine replacement therapy) when combined with counseling is argued to be more effective in the long run (Reynoso *et al.*, 2005). Even without counseling, nicotine replacement therapy, in all of its commercially available forms has been observed to be effective in smoking cessation (Stead *et al.*, 2008). Previous studies also suggest that quitting smoking during young adulthood is usually more likely and more successful than quitting at a later stage (Messer, Trinidad, Al-Delaimy & Pierce, 2008). Therefore, identifying smoking cessation methods acceptable to this sub-population is of importance. Beyond preventing people from starting smoking at all, helping cessation among young people may yield significant public health benefits.

In the present study, we examine the patterns in preferences of smoking cessation methods among adolescent and young adult smokers in Norway and the extent to which these preferred methods are associated with gender and smoking frequency. Based on previous findings, we hypothesized that: (1) Compared to other smoking cessation methods, more smokers would prefer to quit smoking without relying on help; (2) Male smokers would differ from their female counterparts regarding the use of snus as a smoking cessation aid. In addition to the above hypotheses, we examine the extent to which smoking frequency (weekly versus daily smokers) is associated with preferences of the various cessation methods.

## METHODS

Data from the present study forms part of a cross-sectional survey on the use of tobacco that was conducted among a representative sample of Norwegian adolescents and young adults. The study included measures of smoking behavior, use of snus and preferences of smoking cessation methods.

### Sample

The Norwegian Population Registry provided a list of 16 to 20-year-olds living in Norway (6,642 persons) selected randomly for the study sample. This procedure was to ensure that a representative sample reflecting gender, age and the five regions of Norway was obtained. Successful interviews were conducted with 2,400 individuals, which constituted a

predetermined goal number of participants. The present study is based on data collected among regular (weekly and daily) smokers only ( $n = 509$ ).

### Data collection

A commercial marketing research institute (Opinion Inc.) carried out the data collection. Prior to the survey, letters were sent to all 6,642, informing them of the content of the study and the procedure involved. During the period 4–23 October 2004, 2,400 people were interviewed on the phone by trained interviewers from Opinion. There were 3,642 unsuccessful interviews: 736 because of wrong telephone numbers, 790 because people on the list were not within the required age, 1,768 because people did not answer the phone, while 348 were because people refused to participate in the survey. Six hundred people were not interviewed because enough data had been collected.

### Measurement

**Smoking cessation methods:** To assess preferred smoking cessation methods, participants were asked the following questions: Should you decide to stop smoking, to what extent would you use the following smoking cessation methods: Attend cessation classes; Seek help from health services; Use nicotine gum or patches, Use internet or sms-services; Use brochures and diaries; Use snus; Quit without help. Responses to these items were (1) not at all, (2) to a very limited extent, (3) to some extent, and (4) to a large extent.

**Smoking frequency:** Smoking among participants was measured by two items. For the first item – “Have you ever smoked”, responses were coded (1) “Yes”, and (2) “No”. Participants answering “yes” were asked a second question: “How often do you smoke at present?” The responses were coded using a four-point scale: (1) “Not at all”, (2) “Less than once a week”, (3) “Every week” and (4) “Every day”. Weekly and daily smoking comprised option (3) and (4), respectively.

### Statistical analysis

Data analysis involved only regular (weekly and daily) smokers. The statistical analysis included running frequency distributions for the various smoking cessation methods, which served as the outcome variables of this study. Simple descriptive statistics (e.g., mean, standard deviation) and correlations were estimated for the study variables. Descriptive statistics were calculated with SPSS version 15. Using the Mplus statistical programme, version 5 (Muthén & Muthén, 1998 - 2007), a series of bivariate and multiple ordinal logistic regression models were carried out to examine the relationship between gender and each of the smoking cessation methods. The relationship between smoking frequency and the different smoking cessation methods were also examined. To estimate ordinal logit models, the ML estimator was used. About 7% of the participants had missing on one or more of the items used in the study. Missing observations were handled by using the Full Information Maximum Likelihood (FIML) method in Mplus.

## RESULTS

Females formed 51% of this sample of 509 regular smokers; 29% of the participants were engaged in an occupation, while 50% were attending either a general upper secondary school or a vocational school. The remaining 21% were in military or other civil services, at the university or high school, while a few were unemployed. Concerning participants' places of settlement, about 48% lived in an urban area. Participants' age ranged from 16 to 20, with a mean age of 18.51 ( $SD = 1.33$ ) and 18.28 ( $SD = 1.32$ ) for males and females, respectively. The majority (84.7%) reported

daily smoking, while 15.3% reported to be weekly smokers. Specifically, 83.0% and 86.3% of males and females respectively, reported daily smoking. The difference was not statistically significant. For daily smokers in general, 10.9% were also regular (weekly or daily) users of snus, while the respective figure for weekly smokers was 32.1%.

#### *Frequency distribution of the preferred smoking cessation methods*

In Table 1, the frequency distribution of the preferred smoking cessation methods are presented separately for males and females. For males, attending cessation classes, seeking help from health services, using nicotine gum or patches, using internet or sms-services and using brochures and diaries were the least attractive cessation aids as the majority of them (93.0%, 86.4%, 62.0%, 86.6% and 78.4%, respectively) would not use these methods at all or to a very limited extent. The trend was similar for females with the following respective frequencies: 87.9%, 82.8%, 66.2%, 89.7 and 62.3%. About half of the male participants (49%) would use snus as a smoking cessation aid to some or large extent, compared to 10.6% of their female counterparts. The majority of both male and female participants (83.6% and 78.4%) reported that they would stop smoking on their own to some or a large extent (Table 1).

#### *Descriptive statistics and correlations among study variables*

Table 2 presents a summary of the results from descriptive analysis of the study variables. Significant correlations were found between gender and the following cessation aids: attend cessation classes, use brochures and diaries and use snus (0.17, 0.21 and –0.60, all significant at  $p < 0.05$ ). In particular, females were more likely than males to prefer attending cessation classes and using brochures and diaries, while males were more likely than females to prefer using snus as a cessation aid. Age only correlated significantly with attending cessation classes ( $-0.13$ ,  $p < 0.01$ ). Significant associations were found between smoking frequency and several of the cessation methods. Also, significant correlations

were found among the various cessation methods (see Table 2). Using snus as a cessation aid only correlated significantly with using nicotine gum or patches as a cessation aid (0.21,  $p < 0.01$ ).

#### *Gender and preferences for smoking cessation methods*

In Table 3, results from a series of bivariate and multiple ordinal logistic regression analyses of the preferred smoking cessation methods on gender are presented. In bivariate regression analyses, gender difference was found for cessation aids such as attending cessation classes, using brochures and diaries, and using snus. The respective unstandardized coefficients are as follows: (0.47,  $p < 0.05$ ; 0.58,  $p < 0.01$  and  $-1.78$ ,  $p < 0.01$ ). In models with multiple predictors, when smoking frequency and age were adjusted for, the above associations between gender and the different cessation aids remained fairly the same. In terms of odds ratio, the proportional odds assumption was applied (see Fullerton, 2009). Thus, for the relationship between gender and attending cessation classes in bivariate analysis for example, the odds of attending cessation classes to a large extent versus the combined categories of attending cessation classes “to some extent”, “to a very limited extent” and “not at all” were 1.59 times higher for females than for males. As well, the odds of the combined categories of attending cessation classes “to a large extent”, “to some extent” and “to a very limited extent” versus not attending cessation classes at all were 1.59 times higher for females than for males. For more details on the odds ratio results, see Table 3. Gender differences were not found for the following cessation methods: seek help from health services; use nicotine gum or patches; use internet or sms-services and quit without help (Table 3).

#### *Smoking frequency and preferences for smoking cessation methods*

In Table 4, significant associations between smoking frequency and several of the cessation methods are presented from a series of bivariate and multiple ordinal logistic regression analyses. Specifically, daily smokers differed significantly from weekly smokers regarding preference of the following cessation methods:

Table 1. Percentage distribution of preferred smoking cessation methods by gender

		Not at all	To a very limited extent	To some extent	To a large extent	Total	
Smoking cessation methods		%	%	%	%	%	N
Males	Attend cessation classes	66.4	26.6	4.1	2.9	100	241
	Seek help from health services	51.5	34.9	11.6	2.1	100	241
	Use nicotine gum or patches	43.0	19.0	28.1	9.9	100	242
	Use internet or sms-services	61.8	24.8	8.4	5.0	100	238
	Use brochures and diaries	55.6	22.8	14.1	7.5	100	241
	Use snus	39.4	11.6	22.0	27.0	100	241
	Quit without help	8.4	8.0	23.1	60.5	100	238
Females	Attend cessation classes	55.7	32.2	9.0	3.1	100	255
	Seek help from health services	51.2	31.6	14.1	3.1	100	256
	Use nicotine gum or patches	44.9	21.3	24.0	9.8	100	254
	Use internet or sms-services	66.4	23.3	7.9	2.4	100	253
	Use brochures and diaries	43.1	19.2	26.3	11.4	100	255
	Use snus	77.3	12.1	6.3	4.3	100	256
	Quit without help	9.0	12.5	22.7	55.7	100	255

Table 2. Mean, standard deviation, and correlation among study variables (gender, age, smoking frequency and preferred smoking cessation methods)

Study variables	Descriptive statistics			Correlation coefficients <sup>+</sup>									
	Mean	SD	Range	2	3	4	5	6	7	8	9	10	
1. Gender <sup>++</sup>	0.51	—	0–1	−0.11*	0.09	0.17*	0.04	−0.04	−0.09	0.21**	−0.60**	−0.08	
2. Age	18.39	1.33	16–20	—	−0.03	−0.13**	−0.00	−0.04	−0.10	−0.04	−0.03	−0.03	
3. Smoking frequency <sup>+++</sup>	0.85	—	0–1		—	0.22**	0.24**	0.17*	0.03	0.27**	−0.17*	−0.02	
4. Attend cessation classes	0.52	0.75	0–3			—	0.56**	0.34**	0.34**	0.40**	−0.01	−0.34**	
5. Seek help from health services	0.67	0.80	0–3				—	0.40**	0.45**	0.50**	0.05	−0.32**	
6. Use nicotine gum or patches	1.02	1.05	0–3					—	0.39**	0.34**	0.21**	−0.18**	
7. Use internet or sms-services	0.51	0.80	0–3						—	0.46**	0.10	−0.19**	
8. Use brochures and diaries	0.90	1.03	0–3							—	−0.07	−0.15**	
9. Use snus	0.86	1.15	0–3								—	0.12*	
10. Quit without help	2.30	0.97	0–3									—	

Notes: <sup>+</sup> All study variables other than age were treated as dichotomous or ordered categorical variables in the correlation analysis, done in Mplus.

<sup>++</sup> Gender: (0) males and (1) females; <sup>+++</sup> Smoking frequency: (0) weekly and (1) daily.

\*Significant at  $p < 0.05$ ; \*\*Significant at  $p < 0.01$ .

Table 3. Preferred smoking cessation methods (as outcome variables) by gender (247 male and 262 female regular smokers): a series of ordinal logistic regression analyses in Mplus

A series of ordinal logistic regression analyses	Bivariate regression models					Multiple regression models – adjusted for age and smoking frequency	
	$\beta^+$	S.E.	Sig. Two-tailed	OR <sup>+</sup>	95%CI	OR <sup>+</sup>	95%CI
Attend cessation classes	0.47	0.18	<0.05	1.59	1.12–2.28	1.51	1.05–2.16
Seek help from health services	0.07	0.17	0.670	1.08	0.77–1.50	1.05	0.75–1.47
Use nicotine gum or patches	–0.11	0.17	0.517	0.90	0.65–1.24	0.88	0.63–1.22
Use internet or sms-services	–0.23	0.18	0.221	0.80	0.56–1.15	0.77	0.54–1.11
Use brochures and diaries	0.58	0.17	<0.01	1.79	1.28–2.50	1.76	1.26–2.46
Use snus	–1.78	0.19	<0.001	0.17	0.12–0.25	0.16	0.11–0.24
Quit without help	–0.22	0.18	0.215	0.80	0.57–1.14	0.79	0.56–1.12

Note: <sup>+</sup> For females.

Table 4. Preferred smoking cessation methods (as outcome variables) by smoking frequency (78 weekly smokers and 431 daily smokers): a series of ordinal logistic regression analyses in Mplus

A series of ordinal logistic regression analyses	Bivariate regression models					Multiple regression models – adjusted for gender and age	
	$\beta^+$	S.E.	Sig. Two-tailed	OR <sup>+</sup>	95%CI	OR <sup>+</sup>	95%CI
Attend cessation classes	0.73	0.29	<0.05	2.07	1.18–3.64	1.99	1.13–3.52
Seek help from health services	0.73	0.26	<0.01	2.08	1.24–3.48	2.08	1.24–3.49
Use nicotine gum or patches	0.58	0.25	<0.05	1.78	1.10–2.89	1.79	1.10–2.90
Use internet or sms-services	0.06	0.26	0.819	1.06	0.64–1.78	1.06	0.63–1.78
Use brochures and diaries	0.89	0.27	<0.01	2.43	1.45–4.09	2.38	1.41–4.03
Use snus	–0.50	0.24	<0.05	0.60	0.38–0.97	0.59	0.36–0.97
Quit without help	–0.07	0.26	0.786	0.93	0.57–1.54	0.94	0.57–1.55

Note: <sup>+</sup> For daily smokers.

cessation classes ( $\beta = 0.73$ ,  $p < 0.05$ ); health services ( $\beta = 0.73$ ,  $p < 0.01$ ); nicotine gum or patches ( $\beta = 0.58$ ,  $p < 0.05$ ); brochures and diaries ( $\beta = 0.89$ ,  $p < 0.01$ ); and snus ( $\beta = -0.50$ ,  $p < 0.05$ ). Thus, while daily smokers were more likely to prefer using the first four cessation aids listed above, weekly smokers were more likely to prefer using snus as a cessation aid. In multiple

regression models, when gender and age were accounted for, the findings were identical to the above. For results on the odds ratio, see Table 4. No significant association was found between smoking frequency and use of internet or sms-services or quitting without help as cessation aids, neither in bivariate nor multiple regression analysis (Table 4).



## DISCUSSION

### *Main findings*

Both males and females were unlikely to prefer attending cessation classes, seeking help from health services, or using internet or sms-services if attempting to quit smoking. Males reported preferences for quitting smoking without help, using snus and to some extent nicotine gum or patches as aids in their attempts. Like males, females preferred to quit smoking without help but also preferred to use nicotine gum or patches and brochures and diaries to a degree. Concerning the relationships with smoking frequency, daily smokers were more likely to prefer using cessation classes, health services, nicotine gum or patches and brochures and diaries, while weekly smokers were more likely to prefer using snus as a cessation aid. Weekly and daily smokers did not differ in their preferences concerning the use of internet and sms-services, and quitting smoking without help.

### *Preferences for smoking cessation methods*

As hypothesized, most smokers were more likely to indicate that they would prefer to quit smoking without using help compared to the other cessation methods examined in the present study. The findings suggest that the young adults held low opinions on several of the cessation methods. Nicotine gum and patches, which have long been used as cessation aids (Burton, Gitchell & Shiffman, 2000) were not the most popular cessation methods preferred among adolescents and young adults. Using snus as a preferred smoking cessation aid was relatively popular among males but not among females. The findings on snus use as a smoking cessation aid have been used as an argument for promoting snus (another tobacco product but suggested to be less harmful) as an aid to quit smoking (a more harmful behavior) (see Britton, 2008; Hall & Gartner, 2009). Others have found this argument contradictory and inappropriate (Macara, 2008; Tomar *et al.*, 2009).

Quitting smoking without help was the most popular cessation method preferred among the participants. Whether the cessation aids examined in the present study are unattractive to adolescents and young adults is not conclusive. What is clear is that young people would prefer to quit smoking on their own, a finding that is consistent with several others (Hammond *et al.*, 2004; Reid *et al.*, 2009). However, what is interesting about the finding in the present study (which was also observed in the Hammond *et al.* 2004 study) is the link between quitting without help and the other cessation methods. In preliminary analyses, only 22.6% of 199 males and 37.5% of 200 females who indicated that they would prefer to quit without help would solely use this method. For the others, quitting without help was one of several methods they would prefer to use. Preferring to quit smoking without and with help may represent two contradictory ways of addressing the problem but the contradiction may also connote smokers' implicit acknowledgement of the challenges that may ensue by solely relying on the former. The methods that eventually would be used as smoking cessation methods thus appear to overlap, suggesting different clusters of preferred methods among users. This was evident in the present study as the different cessation methods tended to correlate with each other. A critical examination of these clus-

ters and their association with successful quitting of smoking among young people is thus recommended in future studies.

### *Gender, smoking frequency and preferences for smoking cessation methods*

The hypothesis that male smokers would differ from their female counterparts regarding the use of snus as a smoking cessation aid was confirmed. Males preferred to use snus as a smoking cessation aid more than females. The above finding is consistent with those of previous studies (Fagerstrom & Schildt, 2003; Foulds, Ramstrom, Burke & Fagerstrom, 2003; Lindstrom, 2007; Ramsrøm & Foulds 2006). Foulds *et al.* (2003) observed an association between males' high consumption of snus and a decrease in smoking related mortality, apparently also suggesting a decrease in smoking. The authors did not find this association among females whose smoking levels were observed to be comparatively high.

Gender difference was not only observed for the use of snus as a cessation aid but also for cessation aids such as cessation classes and use of brochures and diaries. Both males and females had similar preferences, albeit low, regarding the use of health services, nicotine gum or patches and internet and sms-services to quit smoking. This is contrary to previous findings that have found females to be more likely to use several of these methods (see Ferriman, 2001; Reid *et al.*, 2009). No gender difference was found for quitting without help as a cessation method. Females' preferences for the use of brochures and diaries, and cessation classes may suggest that they are more likely to prefer smoking cessation methods that involve a systematic procedure than males are.

An examination of the associations between smoking frequency and the various smoking cessation methods revealed that daily smokers differed significantly from weekly smokers on several of the cessation methods. Specifically, daily smokers more than weekly smokers would prefer to attend cessation classes, seek help from health services, use nicotine gum or patches or use brochures and diaries. These findings are expected as daily smoking may be regarded as more of a problem than weekly smoking. However, because weekly smoking may lead to more regular (daily) smoking, the behavior may be appropriately and equally regarded as a problem that requires similar attention as daily smoking. In contrast to the above findings on the relationship between smoking frequency and the cessation methods, weekly smokers were more likely to prefer to use snus to quit smoking. In our preliminary analysis, weekly smokers were actually more likely to use snus on a regular basis compared to daily smokers, thus possibly explaining the former's less frequent consumption of cigarettes. The greater likelihood of preferring to use snus as a smoking cessation method in the weekly smokers group, may also suggest that they already are dual users.

### *Limitations of the study*

It is important to point out that the present study examined preferred cessation methods, should a decision be made to quit smoking. It is most likely that preferences may differ from the actual cessation aids individuals would use to quit smoking. Social cognition models that have been used to study the relationship

between attitudes (which may relate to preferences; see Phillips, Johnson & Maddala, 2002) and behavior propose a strong link between the two factors when the principle of compatibility is observed (see Ajzen, 1991). However, this suggested strong link has not always been found (Wallace, Paulson, Lord & Bond, 2005). Future studies assessing smoking cessation aids that tend to be used by young people and their effectiveness in this group may be worthwhile.

While a sampling procedure that would ensure a nationally representative sample was used, less than 50% of the targeted sample took part in the survey. The extent to which non-participation has influenced the findings of the present study is unclear. However, it is argued that non-participation tends to influence overall estimates of means and prevalences more than patterns of associations among variables.

It is argued that in interviews participants may provide socially desirable responses or incorrect responses as a result of characteristics related to the research, researcher or respondents (e.g. sensitive questions, age and sex of the researcher, and fallible memory of respondents) (Foley, Manuel & Vitolins, 2005; Schacter, 1999). For the present study, several of these disadvantages may not readily apply as the questions asked were not sensitive, data were collected through the phone (thus reducing the influence of the interviewer) and responses were not cognitively demanding. In addition, although the use of telephones for the interviews may suggest that respondents were selectively sampled, it need not be the case in Norway as almost all households and the adult population had access to telephones when data was collected.

## CONCLUSION

Based on previous findings that have examined the actual cessation methods used and the findings of the present study, there is an indication that young adults would like to quit smoking without help. This could mean that young adults see this cessation method as a feasible strategy, likely to yield results. The motivation to employ cessation tools beyond relying on their self-determination for quitting, may increase with age but not until after having experienced unsuccessful attempts at quitting, reducing the optimism in quitting without help. Young adult males would also like to use snus as a cessation aid. Snus is in itself addictive and maintains nicotine dependence, and there is evidence for health risk in snus, albeit lower than for smoking (Levy, Mumford, Cummings *et al.*, 2004). Snus use and quitting without help as cessation methods thus have their own associated problems regarding their success rate or appropriateness. The identification of the methods young people would prefer to use as cessation aids remains essential as preferred cessation aids may lead to higher and more successful quit rates. Enabling young adults to have easy access to the knowledge about effective and available cessation methods should be the key feature. The use of nicotine replacement therapy with or without counselling in smoking cessation has proved effective (Reynoso *et al.*, 2005; Stead *et al.*, 2008).

We suggest that relevant authorities such as the Norwegian Ministry of Health and the Norwegian Directorate of Health take action to promote smoking cessation through general practitio-

ners, school health services, workplace smoking cessation programmes and NGOs. This should include efforts to educate the general public about cessation methods and training of health professionals in appropriate use of aids to stop smoking. This may hold the key to successful quitting and consequently lead to public health gains.

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