Quit and Win campaigns as a long-term anti-smoking intervention in North Karelia and other parts of Finland

Tellervo Korhonen, Eeva-Liisa Urjanheimo, Paula Mannonen, Heikki J Korhonen, Antti Uutela, Pekka Puska

Abstract

Objective—To evaluate Quit and Win campaigns repeated in North Karelia and rest of Finland.

Design—Repeated comparisons of participation rates, abstinence rates, and other measures between North Karelia and the rest of Finland.

Subjects—Adult daily smokers in Finland participating in the Quit and Win contests in 1986–1997.

Interventions—Quit and Win smoking cessation campaigns targeted at adult daily smokers throughout Finland in 1986, 1989, 1994, 1996, and 1997, including more intensive activities in North Karelia.

Main outcome measures—Participation rates, self reported six-month abstinence rates, other effectiveness measures (% of smokers who attended, intended, tried, and succeeded in cessation).

Results—North Karelia's participation rates were significantly higher in each campaign compared with the rest of Finland. The abstinence rates in North Karelia were also higher, the difference being significant in 1986 and 1994 ($p < 0.05$). In the target population in 1996 over 75% of smokers in North Karelia, compared with 40% of smokers surveyed elsewhere, reported awareness of the campaign ($p < 0.001$). Approximately 9% of the smokers in North Karelia and 6% elsewhere intended to participate ($p = \text{NS}$). Over 2% in North Karelia, compared with less than 1% elsewhere, tried to quit ($p < 0.001$). Among the targeted group, 0.3% of North Karelian smokers were complete abstainers throughout the 12 months of follow up, compared with an average of 0.1% in other areas ($p < 0.001$).

Conclusions—The Quit and Win campaign is a feasible cessation method in long-term community-wide programmes. Intensified community activities are associated with higher success. In repeat campaigns, high participation and abstinence rates can be maintained.

(*Tobacco Control* 1999;8:175–181)

Keywords: smoking cessation, Quit and Win, community intervention

Introduction

The North Karelia project was launched in 1972 to develop and to evaluate a community programme that would reduce the high rates of

cardiovascular disease in North Karelia, an eastern Finnish province. Reducing the high smoking rate among men was one of the main instruments. After the first five years, the project's findings were applied nationwide. The original project was continued as a demonstration and as part of the World Health Organisation/CINDI programme. The project's anti-smoking programme has used comprehensive and novel strategies.¹ On the national level it has contributed to major policy reforms. Population surveys indicate a reduction of smoking among 30–59 year old men in North Karelia from 52% in 1972 to 32% in 1992. This decrease, which continued after 1992, is somewhat greater than that seen in other parts of Finland. Comparing the periods 1969–71 and 1995, the age-adjusted mortality rate of coronary heart disease among 35–64 year old males has decreased by 73%. The same population also showed a 71% decrease in lung cancer. The sizeable reduction in smoking can be seen as one cause for these declines.²

CONTEST APPROACH AS ANTI-SMOKING METHOD

The principle of using a contest approach as a community-wide model is based on such theories as community organisation, behaviour change, diffusion of social innovation and communication, as well as social support.^{3–9} "Quit and Win" contests, which stimulate and encourage smoking cessation, were developed during the 1980s and further applied during the 1990s in American, community-based cardiovascular programmes, such as the Minnesota Heart Health Program.^{10–14}

In the 1980s a smoking cessation contest, the Quit and Win, was started as a new method in the overall community-based, anti-smoking work of the North Karelia project. The first Quit and Win campaign in North Karelia was organised in 1985 with some 250 smokers participating. In 1986 the first national Quit and Win campaign was arranged,¹⁵ combined with national quit-smoking television programmes which the participants were urged to watch. The second national contest was jointly organised in Finland and Estonia in 1989.¹⁶

In 1991 and 1995 regional campaigns were organised in North Karelia in conjunction with a cholesterol-lowering contest which was broadcast on the radio. Within the CINDI framework, in 1994 13 countries implemented the first international Quit and Win contest, applying jointly agreed rules. The second

National Public Health Institute, Department of Epidemiology and Health Promotion, Helsinki, Finland
T Korhonen
H J Korhonen
A Uutela
P Puska

North Karelia Project
E-L Urjanheimo

Finnish Centre for Health Promotion, Helsinki
P Mannonen

Correspondence to:
Mrs T Korhonen, National Public Health Institute, Department of Epidemiology and Health Promotion, Mannerheimintie 166, FIN-00300 Helsinki, Finland;
tellervo.korhonen@ktl.fi

Received 4 February 1998
and in revised form 23 September 1998. Accepted 15 October 1998

Table 1 *Quit and Win campaigns in North Karelia and all Finland*

Year	Regional in North Karelia	National in all Finland	Other countries	Supporters' contest included	Television programme included	Radio programme included	Number of participants	
							North Karelia	Rest of Finland
1985	Yes	No	No	No	Yes	No	250	NA
1986	Yes	Yes	Yes	No	Yes	No	991	15 098
1989	Yes	Yes	Yes (Estonia)	Yes	Yes	No	524	4204
1991	Yes	No	No	No	No	Yes	530	NA
1994	Yes	Yes	Yes (12 others)	No	No	No	618	5261
1995	Yes	No	No	No	No	Yes	55*	NA
1996	Yes	Yes	Yes (24 others)	No	No	No	601	6038
1997	Yes	Yes	No	Yes	No	No	985	15 021

*As part of a local cholesterol awareness campaign.

NA = not applicable.

international campaign was organised in 1996 with 25 participating countries.¹⁷ In both years an intensified campaign was organised in North Karelia. The most recent campaign was a national contest in 1997, combined with a supporter contest.

The Quit and Win model for smoking cessation has been used in other European countries—for example, the United Kingdom^{18–19} and Sweden²⁰—and in other parts of the world such as Australia²¹ and Japan.²² Although the cessation rates for Quit and Win contests have not been as high as the ones for clinical cessation methods, such campaigns offer important advantages: contests tend to draw widespread attention and to recruit high numbers of smokers in the population, resulting in large numbers of successful quitters. The number of quitters depends on the recruitment rate and the cessation rate. Since the cessation rate is likely to vary less than the recruitment rate, the latter is of particular interest in planning and evaluation.²³ Concerning cost-effectiveness, the Quit and Win contest compares favourably with many preventive and treatment programmes.²⁴ Further, it has been suggested that the efficiency could be improved if mass media and community strategies were combined.²⁵

QUIT AND WIN CAMPAIGNS IN NORTH KARELIA AND ELSEWHERE IN FINLAND

The rules were similar in all the Quit and Win campaigns in Finland. The target group was daily smokers who had been smoking for at least one year and who were at least 16 years old in the contest years 1985–89 and at least 18 thereafter, reflecting the changes in Finland's legislated minimum age for the sale of tobacco products. The main components of the Quit and Win contest rules were: registration no later than the quit day, a contest period of two weeks in the years 1985–89 (four weeks in all contests since 1989), a draw of winners after the contest period, and an abstinence test for potential winners. The top prizes were journeys to exotic vacation sites or corresponding amounts of money. Other features of the campaigns are shown in table 1, describing whether the campaign was regional, national, or international. Five of the campaigns incorporated a television or radio broadcast promoting the contest. Some of the campaigns have included a supporters' contest.^{15–17 26}

The Finnish Centre for Health Promotion was responsible for the national Quit and Win

campaigns in 1994, 1996, and 1997. These were organised within the framework of Smoke Free Finland, a loose network of many health organisations including the Finnish Cancer Society, Finnish Heart Association, Association for the Pulmonary Disabled, Public Health Association Folkhälsan, and the North Karelia project. The organisers used their own media channels, but newspapers and magazines also featured the events, and short information spots were televised.

For the three latest contests the main recruiting tool was a leaflet describing the contest and its rules. Over 500 000 copies were distributed nationwide through outlets such as health services, petrol (gas) stations, pharmacies, and local organisations participating in the campaign. The leaflet included a postage-paid registration form. Several thousand posters were also distributed.

Role models were used to promote participation and the benefits of cessation. For example, the campaign for the second national contest organised jointly by Finland and Estonia in 1989 included a television series that was broadcast in both countries on the same days but at different times. The series featured eight volunteers who smoked from both countries meeting in a group that included two experts and discussing how to stop smoking. The Finnish group was from North Karelia only. To draw people's attention to the television series and to the contest, these events were nationally publicised through newspapers and printed material. The beginning of the national smoking cessation contest was organised to coincide with the television programme. Television broadcasts and printed media invited all daily smokers aged 16 or older in both countries to participate in the contest.

In 1989 and 1997 Quit and Win was combined with a supporters' contest. The supporter could be a non-smoker, ex-smoker, or current smoker of any age, professional or lay person. The main idea behind the supporter's contest was to spread information and entry forms more effectively, to offer non-smokers the chance to participate and to strengthen community support for cessation.²⁷ Supporters participated by filling in their own entry forms and sending them to the organisers for a separate draw. The supporters' contest in 1997 gathered 19 500 registrants participating in the prize draw of US\$2000.

The direct expenditure for the 1994 campaign was \$62 000, plus an additional

\$16 000 for the regional activities in North Karelia. The national costs for the Quit and Win 1996 and 1997 amounted to approximately \$130 000, plus a \$20 000 budget for North Karelia. The costs per participant varied from \$20 to \$50 in North Karelia and from \$10 to \$20 in other parts of Finland.

SPECIAL EFFORTS IN NORTH KARELIA

Participant recruitment has been the key issue in all Quit and Win campaigns. In North Karelia special activities took place to increase participation and to improve social support. The North Karelia project used its well established channels in promotional work—for example, with healthcare workers and voluntary lay assistants. Additional press and other campaign information were also used, such as special campaigns in supermarkets. Existing official and voluntary networks were involved as much as possible. In primary and occupational health care in North Karelia, public health nurses and physicians told their smoking patients about the campaign and recruited participants. Information and entry forms were distributed by pharmacies and the central hospital. In vocational schools, teachers, school nurses, and student unions recruited students and teachers who smoked.

The entry forms and posters were also distributed in the university, military garrisons, rehabilitation centres, libraries, post offices, and others. Many campaign activities were carried out in collaboration with non-governmental organisations such as the Heart Association, Cancer Society, Association for the Pulmonary Disabled, Martha Organisation and the Association for the Unemployed. These organisations were active in distributing entry forms, posters, and leaflets in banks, markets, department stores, restaurants, coffee shops, post offices, libraries, sports centres, bingo halls, neighbourhoods, and at various events and meetings. The entry forms were also distributed at ice hockey and volleyball matches.

The role of mass media has been important. The registration forms were published in the main county paper, which reaches about 90% of the population. In addition to general information, behavioural journalism,²⁸ application of a theory-based communication method, was used to modify the messages in the mass media. Local newspapers published role model stories about people who tried to quit with the contest, or stories about ex-smokers such as those who participated in a previous campaign. These stories provided role model messages for persuasion and skills training aimed at increasing the rates of participation and successful cessation.²⁹ The behavioural journalism method also involves recruiting members of peer networks to deliver and briefly discuss messages based on the experiences of peer models who already have stopped smoking or who are planning to quit.³⁰

Special "Quit and Win" programmes were broadcast by the regional radio station and various events, such as the "Quit and Win horse race", the "smoke-free fashion show"

and the "smoke-free dancing ball" were arranged together with non-governmental organisations. Special Quit and Win events, including measurements of carbon monoxide and smoking cessation counselling, were organised in vocational education institutions, military garrisons, major places of employment, pharmacies, and meetings for the unemployed.^{31–33} Concerning the effectiveness of channels by which smokers learned of the contests in North Karelia, the participants of the 1996 campaign cited newspapers and magazines most often.³⁴

EVALUATING THE EFFECTS OF CAMPAIGNS

The six-step communication model developed by Rossiter and his colleagues,^{35–37} originally based on the classical communication-persuasion model by McGuire,⁹ has been applied in health promotion contexts by Donovan and colleagues^{38–39} to evaluate the effectiveness of mass media campaigns. The hierarchy of effects starts at step 1 with exposure of the target audience to the messages, which may be communicated in magazine articles, television advertisements, billboards, news items, posters, magazine articles, videos, and so on. Exposure and attention to the message lead to conscious processing of the message (step 2), involving attention to the message content, comprehension, and learning, acceptance or rejection of the message, and emotional arousal. Processing of the message results in communication effects (step 3), which are beliefs about, attitudes towards, and intentions with respect to the message topic and promoted behaviour. Step 4, behavioural effects, is facilitated by the desired communication effects. The behavioural effects include making further inquiries or actual trial of the recommended behaviour, such as a serious attempt to quit smoking. To achieve the desired outcome, step 4 should also include environmental support. The accumulation of the behavioural effects leads to the achievement of the overall outcome objectives and goals (steps 5 and 6), which in the health arena, may be stated in terms of participation rates or prevalence rates, and risk reductions or more positive life experiences.⁴⁰

PURPOSE OF THE STUDY

As described earlier, evaluation reports on specific smoking cessation programmes, such as Quit and Win, are accumulating. Except for experiences published in the United States,^{13–14} and in Sweden,^{20–24–25} less is known about the usefulness of this method in repeated use, as part of a long-term community-based anti-smoking programme. The relatively long experience in Finland, in more intensive form in a demonstration area and nationally, gives a unique opportunity to assess the feasibility and effects over the long term.

Because mass media are most effective in the early stages of behaviour change, whereas environmental factors, such as local community actions and social support, are more influential at the later intention and behavioural stages,^{28–30–41–42} the model above suggested that

the effectiveness should be measured at each level starting from the targeted audience, following the measurement of the proportion exposed, attended, understood, accepted, intended, and finally of those who really tried the recommended behaviours and succeeded in their attempts.⁴⁰ This multi-level evaluation may provide a more comprehensive picture of the effectiveness of mass media in health campaigns. We applied the model to analyse the 1996 campaign in more detail.

Methods

SURVEYS

To evaluate the awareness and intent among the adult population who were smoking daily, the data from a nationwide health behaviour survey in 1996 were used. The National Public Health Institute carried out the postal survey as part of the national behaviour monitoring system. Two independent random samples of the adult population were drawn from the national population register: 5000 nationally and 1900 from North Karelia. The response rates were 66% in North Karelia and 72% nationally. The survey was in April, one month before the contest quit date. This timing offered a valid estimate of the target population's awareness and intent concerning the Quit and Win campaign.

For the evaluation of abstinence, follow-up surveys were conducted using a mailed questionnaire for data collection. In 1986 and 1989 follow-up surveys after six months were conducted consisting of random samples of the contest registrants.^{15 16} In 1995 and 1997, one year after the contest, similar follow-up studies were carried out. All the participants in North Karelia were followed in addition to a random sample of 1500 participants from elsewhere in the country. The response rates for the follow-up surveys varied from 67% to 72% in North Karelia and from 65% to 74% elsewhere.

The surveys included questions concerning current smoking status, smoking before and after the contest, the smoking cessation process, and the status of abstinence at selected points in time after the quit date. The survey included the question: "When did you smoke for the very first time after the contest?" Based on the responses, it was possible to calculate the proportions of those who either had not smoked at all or who had relapsed after six months.⁴³ Thus, the estimates are comparable with the abstinence rates at six months of the earlier campaigns. The 1997 campaign was followed up in spring 1998.

ESTIMATES

Two estimates were calculated to evaluate the campaigns. The first was the participation rate—the proportion of the registrants in the adult smoking population. The estimated number of adult smokers was based on the available data regarding daily smokers in the 18–64 and 65 and older age groups. In the 18–64 age group, the prevalence of daily smokers in the Quit and Win campaign years varied

from 20.7% to 25.4% in North Karelia and from 23.3% to 25.7% nationwide.

The second estimate was obtained from the six-month follow up of the campaigns, determining the rate of continued cessation. A continuous abstinence rate after six months was calculated as the proportion of complete abstainers in the follow-up sample. The abstainers were defined as those who had been totally smoke free for at least six months after the quit date. This estimate is the cautious estimate, which regards all non-respondents of the follow up as relapsers.

To conduct a more detailed evaluation of the 1996 Quit and Win campaign, the six-step communication model was applied. Of the levels of the hierarchy (targeted, exposed, attended, understood, accepted, intended, tried, and succeeded),⁴⁰ five levels were measured in this study. The target group for this evaluation was defined as daily smokers aged 18–64 in 1996 ($n = 24\,900$ in North Karelia and 715 000 elsewhere). "Attended" was measured as the proportion of the target group who reported in a population health behaviour survey to have heard about the Quit and Win '96 contest. "Intended" was measured as the proportion of the target group who reported an intention to participate in the contest. The number of registrants was used to measure "tried", where the participation rate was estimated by dividing the number of registrants by the number of estimated daily smokers in the target group. Finally, "succeeded" was measured as the proportion of the target population who completely abstained from smoking during the whole one-year follow-up period after the quit date. This estimate was based on the follow-up survey carried out one year after the quit date.

Results

PARTICIPATION RATES

The participation rate in the first national campaign was 3.2% of smokers in North Karelia and 1.6% elsewhere in the country. The second contest in 1989 recruited 1.7% of smokers in North Karelia and 0.4% elsewhere in Finland. In the international Quit and Win contests arranged in 1994 and 1996, the participation rates were 2% in North Karelia, and 0.6–0.7% elsewhere in Finland. Finally, in 1997 3% of North Karelian smokers and 1.8% of smokers elsewhere participated (figure 1).

PARTICIPANTS

In 1996 we compared the Quit and Win participants with the daily smokers in the population. The Quit and Win participants

Figure 1 Participation rates in the Quit and Win contest by year in North Karelia and rest of Finland.

Figure 2 Proportions of self reported abstainers in North Karelia and rest of Finland at six-month follow up.

differed significantly from the daily smoking population (table 2). They were younger with fewer years of smoking, but were also heavier smokers with a greater number of earlier quit attempts. The results also suggested that the Quit and Win contest attracted a greater number of smokers with higher education.

ABSTINENCE RATES

The cautious estimates for self reported abstinence at six months in North Karelia and elsewhere in Finland are shown in figure 2. The abstinence rates varied by year from 18% to 24% in North Karelia and from 15% to 19% elsewhere in the country. The abstinence rate in North Karelia was higher in every campaign.

Table 2 Background information on 1996 Quit and Win participants* and daily smokers† aged 18–64 years (%)

Variable	North Karelia			Rest of Finland		
	Quit and Win	Daily smokers	p	Quit and Win	Daily smokers	p
Sex						
Men	59.6	62.2	0.465	56.3	56.8	0.838
Women	40.4	37.8		43.7	43.2	
Age (years)						
18–24	18.5	15.1	0.026	23.3	15.4	0.000
25–34	24.8	19.8		30.7	24.4	
35–44	29.9	28.1		25.8	24.1	
45–54	18.8	23.7		16.3	25.2	
55–64	8.0	13.3		3.9	10.9	
Years of smoking						
1–9	32.5	23.6	0.021	31.5	23.8	0.000
10–19	27.9	28.4		34.0	31.3	
≥20	39.6	48.0		34.5	44.9	
Cigarettes smoked/ day						
1–14	34.6	41.8	0.045	33.4	38.5	0.017
≥15	65.4	58.2		66.6	61.5	
Previous quit attempts						
None	6.7	22.6	0.000	8.4	27.2	0.000
1–2	40.2	46.9		36.2	43.4	
≥3	53.1	30.6		55.5	29.4	

*From a random sample of registrants. †From the health behaviour survey.

Figure 3 Effectiveness of the Quit and Win '96 campaign among daily smokers aged 18–64 years: estimated percentage of smokers in North Karelia ($n = 24\ 900$) and elsewhere in Finland ($n = 715\ 900$).

The difference was statistically significant in 1986 and 1994 ($p < 0.05$).

FIVE-STEP EVALUATION

More than 75% of the smokers targeted in North Karelia—compared with about 40% of those elsewhere—reported having heard about the Quit and Win contest in 1996 ($p < 0.001$). About 9% in North Karelia and 6% elsewhere reported an intention to participate ($p = 0.262$). More than 2% in North Karelia, compared with less than 1% elsewhere, tried to quit ($p < 0.001$). Finally, the proportions of complete abstainers among the initially targeted group was 0.3% in North Karelia but 0.1% elsewhere ($p < 0.001$) (figure 3).

Discussion

VALIDITY OF THE STUDY

We evaluated the abstinence of participants with conservative measures. Even if the cautious estimate regarding all non-respondents as non-abstainers may be too pessimistic, we contend that it may nevertheless be relatively close to the real abstinence rates. No biochemical measures were used to validate the self reported smoking status during the year after the contest started. We assume that there was some underreporting of smoking status, especially among the respondents to the follow up, which may represent an overly positive result. However, a high degree of consistency between the self reported and the biochemical measures for smoking status has been found among the Finnish population (E Vartiainen *et al*, unpublished manuscript).

Another question of validity is whether all registrants were, in fact, smokers.⁴⁴ According to the rules, the smoking status upon entry was verified on the entry form by the signatures of the registrant and witnesses. After the 1997 campaign in North Karelia a pilot study was conducted, which verified smoking status by telephone interviews. Only 3% of those who had reported being smokers at the time of registration in actuality were not (written communication, Eeva-Liisa Urjanheimo, North Karelia project, 1998).

SIGNIFICANCE OF FINDINGS

The proportions of smokers recruited into the Quit and Win contest have been consistently higher in North Karelia than elsewhere. The success of recruiting may partly be explained by differences in the intensity of the effort. The higher financial input for recruitment in North Karelia allowed more intensive campaigning and special activities. Another factor explaining the different participation rates may be the smoking population's stage of change. For example in the 1996 national survey, 28% of adult daily smokers were in contemplation or preparation stages, whereas the corresponding rate was 34% in the North Karelian sample (T Korhonen *et al*, unpublished manuscript). The campaign may be more successful in recruiting participants from a population with a higher proportion of smokers in the preparation stage. In evaluating the effect of the campaign on the whole smoking population, it would be

important to measure smokers' progress through the stages of change process.

This kind of community-based campaign using mass media may also have had positive effects on the intentions to quit among those smokers who did not register in the previous contests but were motivated by a repeat campaign. The campaign may have also had a "latent" effect on the smokers who were in the pre-contemplation stage and starting to move towards further stages of the change process. Given that these campaigns were arranged regularly, the participation rate among smokers—despite the decline after the first campaign—has become progressively higher because of an increasing resolve to quit.

A crucial question is how to increase community awareness, support, and participation, and success in abstinence. First, it seems important to create close and extensive collaboration through official and voluntary service in the community. Second, extensive distribution of registration forms is needed. Third, it is important to have community-wide information through many channels such as mass media, role models, posters, and special Quit and Win events. Finally, role model stories in the media should support the maintenance of abstinence after the contest period.

The variation by year in the numbers of smokers participating seemed to reflect changes in the rules (numbers of witnesses required, contest time, and different age limit), and the composition and organisation of the campaign itself (supporter contest, recruiting methods, marketing, and degree of involvement of collaborators). The highest results are from contests where, exceptionally, no witnesses were required for the registration (1986, 1997). In the first national campaign in 1986 many public health organisations were intensively involved and the media coverage was good, whereas during the next effort in 1989, the enthusiasm and the news value had somewhat faded. In this decade, the Finnish Centre for Health Promotion and the Smokefree Finland programme took care of the arrangements, and the main trend in the participation has been upwards, because of the development of and widening of recruiting and marketing methods. The exceptional rise from 1996 to 1997 can be explained, in addition to the lack of witnesses, by the addition of a separate supporter contest. Better targeted advertising and direct mailing probably also helped improve the results.

The more detailed evaluation of the 1996 campaign applied a modified version of Donovan's model,⁴⁰ originally based on McGuire's persuasion-communication model.⁹ The results suggested that the intensified activities in North Karelia resulted in higher proportions of smokers who attended, intended, tried, and succeeded. In both areas, however, the analysis revealed a gap between awareness of the campaign and intention to participate, as well as between intention and final attempt. This result supports the principle that Quit and Win—as a media campaign—is more effective

in the early stages of the hierarchy, such as raising awareness, whereas environmental factors and other elements of the campaign mix, such as local community actions, may be more influential at the later stages.^{38–42} This result suggests considering ways to improve these recruitment steps. Media information can be impersonal and thus effective in raising awareness,⁴⁵ but not in leading to behavioural changes.⁴⁶ The significantly higher participation rates in North Karelia suggested that community action combined with a mass media approach may be an effective way to improve the effectiveness of the Quit and Win campaign.

Concerning the success rates of quitters, it may be that the participants in a more intensive recruitment process include quitters with lower motivation for long-term abstinence. The experience comparing North Karelia with the rest of Finland indicated that the success rate among the participants was not dependent on the participation rate—the success rate was not lower in an area with a higher participation rate. In 1994 particularly, the abstinence rate was significantly higher in North Karelia than elsewhere in Finland. This greater success was analysed in an earlier paper,⁴⁵ which suggested that more intensive combined support from health professionals and lay persons may partly explain the difference.

Finally, behavioural journalism^{28–30} may be one way of modifying the messages in the media—for example, by using role models that make the message more personal to the individual smoker. In addition, involving members of peer networks and various organisations to recruit participants might be an effective approach. The combination of mass media and community strategies were found to be effective in earlier studies.^{25–47} We confirmed these findings based on the long-term evidence in North Karelia.

Conclusions

Even the cautious estimates indicate satisfying abstinence rates with these campaigns. The Quit and Win campaign seems to be a feasible cessation method that can be repeated with predictable abstinence results in community-wide and national programmes. Repeat campaigns in active demonstration areas can increase effectiveness.

- 1 Puska P, Tuomilehto J, Nissinen A, et al, eds. *The North Karelia project: 20 year results and experiences*. Helsinki, Finland: National Public Health Institute, 1995.
- 2 Puska P, Korhonen HJ, Urjanheimo EL, et al. 25 year results of community-based antismoking activity as part of the North Karelia Project (abstract). In: *Proceedings of the tenth world conference on tobacco or health, Beijing, China, 1997*. (In press.)
- 3 Thompson B, Kinne S. Social change theory: applications to community health. In: N Bracht. *Health promotion at the community level*. Newbury Park: California: Sage, 1990.
- 4 Desi EL. Effects of externally mediated rewards on intrinsic motivation. *J Pers Soc Psychol* 1971;18:105–15.
- 5 Green LW, McAlister A. Macro-intervention to support health behaviour: some theoretical perspectives and practical reflections. *Health Educ Q* 1984;11:323–39.
- 6 Solomon DS, Maccoby N. Communication as a model for health enhancement. In: Matarazzo JD, Weiss SM, Herd JA, Miller NE. *Behavioral health: a handbook of health enhancement and disease prevention*. New York, New York: Wiley, 1984.

- 7 Mittelmark M, Luepker R, Jacobs D, *et al.* Community-wide prevention of cardiovascular disease: education strategies of the Minnesota Heart Health Program. *Prev Med* 1986; 15:1-17.
- 8 Rogers E. *Diffusion of innovations*. New York: Free Press, 1983.
- 9 McGuire WJ. The nature of attitudes and attitude change. In: Lindsay G, Aronson E, eds. *Handbook of social psychology, vol III*. Reading, Massachusetts: Addison-Wesley, 1969.
- 10 Glasgow RE, Klesges RC, Mizes JS, *et al.* Quitting smoking: strategies used and variables associated with success in a stop-smoking contest. *J Consult Clin Psychol* 1985;53:905-12.
- 11 Altman DG, Flora JA, Fortmann SP, *et al.* The cost-effectiveness of three smoking cessation programs. *Am J Public Health* 1987;77:162-5.
- 12 Elder JP, McGraw S, Rodrigues A, *et al.* Evaluation of two community-wide smoking cessation contests. *Prev Med* 1987;16:221-34.
- 13 Lando HA, Pechacek TF, Pirie PL, *et al.* Changes in adult cigarette smoking in the Minnesota Heart Health Program. *Am J Public Health* 1995;85:201-8.
- 14 Lando HA, Pirie PL, Dusich KH, *et al.* Community incorporation of quit and win contests in Bloomington, Minnesota. *Am J Public Health* 1995;85:263-4.
- 15 Korhonen HJ, Niemensivu H, Piha T, *et al.* National TV smoking cessation program and contest in Finland. *Prev Med* 1992;21:74-87.
- 16 Korhonen HJ, Puska P, Lipand A, *et al.* Combining mass media and contest in smoking cessation. *Hygie* 1993; 12:15-18.
- 17 Puska P, Korhonen HJ, Korhonen T, *et al.* International Quit & Win '96: a global campaign to promote smoking cessation. *Tobacco Control* 1996;5:342-7.
- 18 Health Education Authority. *Quit and Win 1990. UK evaluation summary*. London: Health Education Authority, 1991.
- 19 Roberts C, Smith C, Catford J. Quit and Win Wales: an evaluation of the 1990 pilot contest. *Tobacco Control* 1993; 2:114-19.
- 20 Tillgren P, Haglund BJA, Gilljam H, *et al.* A tobacco quit and win model in the Stockholm Cancer Prevention program. *Eur J Cancer Prev* 1992;1:361-6.
- 21 Chapman S, Smith W, Mowbray G, *et al.* Quit and Win smoking cessation contests: how should effectiveness be evaluated? *Prev Med* 1993;22:423-32.
- 22 Kinoshita T, Nakamura M. Stop-smoking contests in Japan (abstract). In: *Proceedings of the tenth world conference on tobacco or health, Beijing, China, 1997*. (In press.)
- 23 Brownell KD, Felix MRJ. Competitions to facilitate health promotion: review and conceptual analysis. *Am J Health Prom* 1987;1:28-36.
- 24 Tillgren P, Rosen M, Haglund BJA, *et al.* Cost-effectiveness of a tobacco "Quit and Win" contest in Sweden. *Health Policy* 1993;26:43-53.
- 25 Tillgren P, Haglund BJA, Ainettin T, *et al.* Effects of different intervention strategies in the implementation of a nationwide tobacco "Quit and Win" contest in Sweden. *Tobacco Control* 1995;4:344-350.
- 26 Korhonen T, Kamardina T, Salto E, *et al.* Quit and Win 1994: evaluation in three countries. *Eur J Public Health* 1998;8:150-3.
- 27 Pirie PL, Rooney BL, Pechacek TF, *et al.* Incorporating social support into a community-wide smoking-cessation contest. *Addict Behav* 1997;22:131-7.
- 28 McAlister A. Behavioral journalism: beyond the marketing model for health communication. *Am J Health Prom* 1995; 9:417-20.
- 29 McAlister AL, Ramirez AG, Amezcua C, *et al.* Smoking cessation in Texas-Mexico border communities. *Am J Health Prom* 1992;6:274-9.
- 30 McAlister A. Population behavior change: a theory-based approach. *J Public Health Policy* 1991;12:345-61.
- 31 Urjanheimo E-L, Korhonen HJ, Puska P. *Quit and Win Campaign '96 in North Karelia* (abstract). *Proceedings of the smokefree Europe conference on tobacco or health, Helsinki, Finland, 1996*. Finnish Centre for Health Promotion, 1996.
- 32 Urjanheimo E-L, Korhonen HJ, Puhakka P, *et al.* The Smokefree North Karelia Project: theory and practice (abstract). *Proceedings of the smokefree Europe conference on tobacco or health, Helsinki, Finland, 1996*. Finnish Centre for Health Promotion, 1996.
- 33 Puska P, Urjanheimo E-L, Korhonen HJ, *et al.* Repeated use of Quit and Win campaign in long-term antismoking programme in North Karelia, Finland (abstract). In: *Proceedings of the tenth world conference on tobacco or health, Beijing, China, 1997*. (In press.)
- 34 Puska P, Korhonen HJ, Korhonen T. International Quit and Win 1996: one-year evaluation of success (abstract). *Proceedings of the XVI world conference on health promotion and health education, San Juan, Puerto Rico, 1998*.
- 35 Rossiter JR, Percy L. *Advertising and promotion management*. New York: McGraw-Hill, 1987.
- 36 Rossiter JR, Percy L, Donovan RJ. The advertising plan and advertising communication models. *Australian Marketing Researcher* 1984;8:7-44.
- 37 Rossiter JR, Percy L, Donovan RJ. A better advertising planning grid. *J Advert Res* 1991;31:11-21.
- 38 Donovan RJ, Francas M. Understanding communication and motivation strategies. *Aust Health Rev* 1990;103-114.
- 39 Donovan RJ, Owen N. Social marketing and population interventions. In: Dishman RK, ed. *Advances in exercise adherence*. Champaign, Illinois: Human Kinetics, 1994.
- 40 Donovan RJ. The effective use of mass media for tobacco control (abstract). In: *Proceedings of the tenth world conference on tobacco or health, Beijing, China, 1997*. (In press.)
- 41 Prochaska JO, Velicer WF, DiClemente CC, *et al.* Measuring processes of change: applications to the cessation of smoking. *J Consult Clin Psychol* 1988;56:520-8.
- 42 Rogers T, Feighery EC, Tencati EM, *et al.* Community mobilization to reduce point-of-purchase advertising of tobacco products. *Health Educ Q* 1995;22:427-42.
- 43 Korhonen T, Sun S, Korhonen HJ, *et al.* Evaluation of a national quit and win contest: determinants for successful quitting. *Prev Med* 1997;26:556-64.
- 44 Chapman S, Smith W. Deception in quit smoking lottery entrants. *Am J Health Prom* 1994;8:328-30.
- 45 Wallack L. Two approaches to health promotion in the mass media. *World Health Forum* 1990;11:143-54.
- 46 Korhonen T, Uutela A, Korhonen HJ, *et al.* Impact of mass-media and interpersonal health communication on smoking cessation attempts: a study in North Karelia 1989-1996. *J Health Commun* 1998;3:105-18.
- 47 Lando HA, Loken B, Howard-Pitney B, *et al.* Community impact of a localized smoking cessation contest. *Am J Public Health* 1990;80:601-3.