Post-intervention effect of a computer tailored smoking cessation programme

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Face to face advice for smoking cessation is effective,1 but few smokers are willing to attend smoking cessation clinics, and many do not receive smoking cessation advice from their physician. Self help smoking cessation materials may not be very effective,2 but computer technology can be used to produce effective individualised self help smoking cessation materials and disseminate them widely at a low cost per participant.3 Most studies assessed the effect of computer tailored programmes on smoking cessation after one year or less.2 Only one programme was evaluated during 18 and 24 months.3 These programmes usually produced quit rates<5% higher than in control groups who received standard self help materials or no intervention.2 Because over one third of ex-smokers who achieve 12 months of abstinence eventually relapse five years later,4 it is not yet known whether computer tailored programmes have a long term impact on smoking abstinence.

We showed previously that a computer tailored programme doubled the odds of quitting smoking, after seven months.5 In this study, we tested whether this effect was maintained 24 months after entry in the programme—that is, 12 months after the end of the intervention.

METHODS

In 1998, we sent the baseline questionnaire to a representative (random) sample of 20 000 residents aged 18–60 in French speaking Switzerland. We sent out follow up questionnaires six and 23 months later to the 2934 baseline participants. We randomly assigned participants to the intervention or control group (fig 1).

The intervention consisted of personal counselling letters, written by a computer according to the answers made by participants to a 62 item questionnaire, and of stage matched brochures. Each counselling letter included about 20 paragraphs of text, and was compiled by the computer from a library of over 300 paragraphs. The content of the letters was based on extensive research conducted in the same population,3 and on relevant theory, in particular the transtheoretical model of behaviour change.3 The questionnaires used to produce the tailored counselling letters assessed the participants’ demographic characteristics, stage of change (“pre-contemplation”: no intention to quit smoking in the next six months, “contemplation”: seriously considers quitting in the next six months, “preparation”: has decided to quit in the next 30 days),3 level of tobacco dependence, perceived

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Figure 1 Flow chart of participants in the randomised controlled trial.
follow up were considered to be smokers, to have not used a nicotine replacement (no puff of tobacco in the past seven days). We used an intention to treat analysis, in which all people absent at the six month and 24 month follow up surveys.

We recruited 2934 daily smokers at baseline. The participation rate to the first follow up was 84% (2456 of 2934), seven months later. The participation rate to the second follow up was 88% (2571 of 2934), 24 months after baseline.

At baseline, participants were on average 36 years old, 48% were men, they had 14 years at school on average, they smoked on average 20 cigarettes per day and smoked their first cigarette on average 70 minutes after waking up, 40% had made a quit attempt in the year before the study, 41% were in the precontemplation stage of change, and 8% in the preparation stage.

After seven months, the four week abstinence rates were 5.8% in the intervention group and 2.2% in the control group (p < 0.001), and the seven day quit rates were 8.0% and 3.3% (p < 0.001), respectively. After 24 months, abstinence rates were similar in the two groups, but more participants in the intervention group than in the control group had made a one month quit attempt and had used nicotine replacement products during the study (table 1). The number of days of smoking abstinence during the study was higher in the intervention group than in the control group. After 24 months, the distribution of participants by “stage of change” was the same in the two groups.

Among participants who had quit smoking at seven month follow up, using the criterion of four weeks’ abstinence, the proportions of non-smokers at 24 months were similar in the intervention and control groups (55.3% versus 57.6%, p = 0.8). Among smokers at seven months, the proportions of non-smokers at 24 months were similar in the two groups (8.4% versus 9.4%, p = 0.3).

DISCUSSION

In daily smokers, a computer tailored smoking cessation programme carried out by mail doubled the odds of quitting smoking, seven months after entry in the programme, but this effect was not maintained after two years—that is, one

<table>
<thead>
<tr>
<th>Stage of change</th>
<th>Programme (n = 1467)</th>
<th>Control (n = 1467)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precontemplation</td>
<td>613 (41.8)</td>
<td>593 (40.4)</td>
<td>0.41</td>
</tr>
<tr>
<td>Contemplation</td>
<td>576 (39.3)</td>
<td>611 (41.6)</td>
<td></td>
</tr>
<tr>
<td>Preparation</td>
<td>80 (5.5)</td>
<td>84 (5.7)</td>
<td></td>
</tr>
<tr>
<td>Action (that is, quit smoking less than six months ago)</td>
<td>77 (5.2)</td>
<td>81 (5.5)</td>
<td></td>
</tr>
<tr>
<td>Maintenance (that is, quit smoking more than six months ago)</td>
<td>121 (8.2)</td>
<td>98 (6.7)</td>
<td></td>
</tr>
</tbody>
</table>

Individualised computer tailored letters can be effective in helping smokers quit smoking, but it is not known whether this effect is maintained after the intervention is stopped.

Even though a computer tailored programme doubled the odds of quitting smoking seven months after entry in the programme, this effect was not maintained one year after the intervention was stopped.

The post-intervention effect of available computer tailored smoking cessation programmes should be further tested, for example, two or five years after the intervention is stopped.
year after the end of the intervention. This programme was effective only as long as it was active. This calls for an experimental test of various durations of the intervention (for example, one year compared with two or five years).

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