

Are Stop Smoking Services Successful?

An Evaluation of Smoking Cessation Clinics in Malta

Mario R Sammut

Abstract

Introduction. Smoking cessation clinics in Malta have been organised by the Health Promotion Department in government primary health care centres on a regular basis since 1991.

Aim. A research project was set up to evaluate the clinics' process, outcome and consequent cost-benefit.

Methods. The qualitative procedure involved questionnaire completion and interpretation by a total of 40 clients who attended the last session of all clinics held during one year from October 1999. The quantitative method entailed measurement and analysis of participants' smoking status at the quit session, final session and following a six-month period.

Results. The thirty participants (75% response rate) who completed the questionnaire spoke quite favourably of the clinic process. Of the 101 clients attending quit sessions, there were 27 quitters by the final session (giving an immediate success rate of 27%), and only ten were still not smoking at the six-month follow-up (long-term success rate of 10%).

Discussion. The consequent savings to lung cancer treatment were conservatively estimated at Lm 3245 during the first year of diagnosed disease, more than five times the clinics' running costs over one year. Recommendations for service improvement include:

- The integral use of pharmacotherapy and carbon monoxide monitoring;
- The organisation of clinics on a more frequent basis, with follow-up support meetings;
- The setting-up of state-of-the-art training for facilitators;
- The introduction of an on-going quantitative and qualitative evaluation system;
- The classification of nicotine addiction as a Schedule 5 disease to enable pharmacotherapy to be available free on prescription; and
- Full support and funding of smoking cessation and other tobacco control services.

Key Words

Smoking cessation; program evaluation; cost-benefit analysis; Malta

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Introduction

Tobacco smoking today is recognised as a manifestation of nicotine addiction and thus as a treatable chronic condition^{1,2}. A number of interventions have been shown to help people stop smoking³, with two of the most successful being group behaviour therapy programmes⁴ and nicotine replacement therapy (NRT)⁵, both individually and more so in combination^{6,7}. Another effective form of pharmacotherapy, bupropion^{1,6}, was not yet available in Malta at the time of this study.

In Malta, while 38% of 25-64 year old men and 17% of women (of the same age) smoked in 1995⁸, 32% of schoolchildren aged 11-16 smoked cigarettes in 1998⁹. The number of yearly deaths in Malta attributable to smoking has risen by 28% from 289 in 1987 to 371 in 1999, i.e. approximately one death a day (Agius Muscat H, personal communication, 2000). On the other hand, 72% of Maltese smokers do consider they would be much healthier after quitting, with about nine in ten believing in quitting with help and having tried quitting more than once, and over half thinking they would not be smoking a year later¹⁰.

Arising out of the above needs, smoking cessation clinics in Malta have been organised on a regular basis in government health centres by the Department of Health Promotion since 1991. Based on the Prochaska & Diclemente 'stages of change' model (see Figure 1), the programme of these clinics (Table 1) was adapted from that described by Steele¹². It consists of seven group-counselling sessions (reduced to five in 2000) where behavioural treatment is combined with nicotine replacement therapy.

Table 1: Smoking Cessation Clinic Programme, Health Promotion Department

Session 1		Introduction
Session 2	<i>After one week</i>	Quit Day
Session 3	<i>After one week</i>	Follow-Up
Session 4	<i>After one week</i>	Follow-Up
Session 5	<i>After two weeks</i>	Follow-Up
Session 6	<i>After two weeks</i>	Follow-Up
Session 7	<i>After two weeks</i>	Final session

NB: The first clinic (in the series of 13 evaluated) ended at the 6th session, while the last 4 clinics were reduced from 7 to 5 sessions.

Figure 1: Process of changes of attitude in stopping smoking (adapted from Raw¹¹).

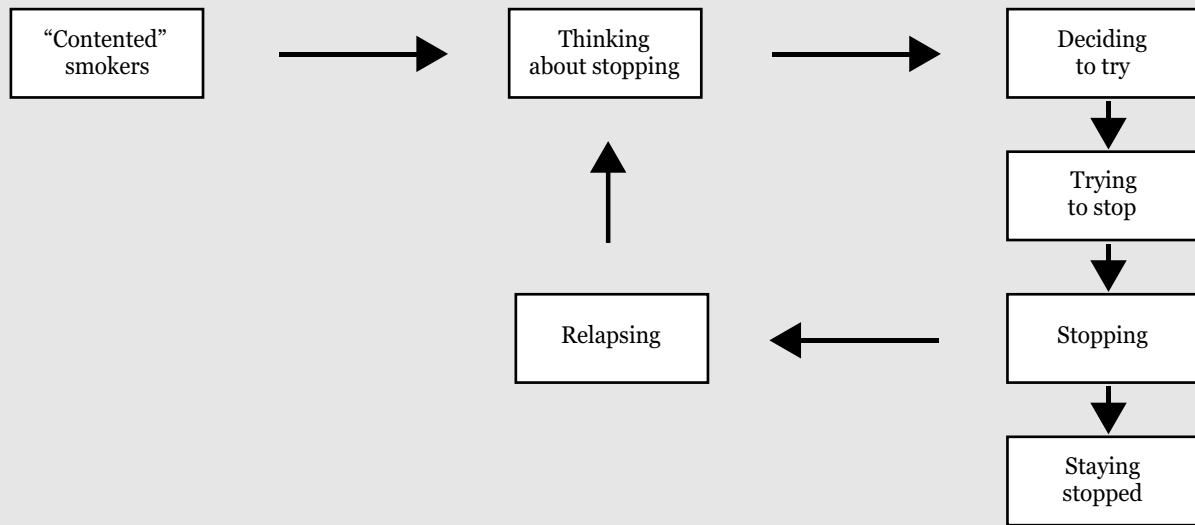


Table 2: Participation and success rates of smoking cessation clinics held by the Health Promotion Department over one year starting in October 1999

Clinics <i>date, venue, facilitator initials</i>	Original Number of Applicants	Attended Intro Session <i>No 1</i>	Attended Quit Session <i>No 2</i>	Attended Final Session <i>No 5/7*</i>	Quit smoking by Final Session <i>% Quit Sess.</i>	Immediate Success Rate <i>% Quit Sess.</i>	Still not smoking after 6 months <i>% Quit Sess.</i>
<i>Oct-Dec 1999</i>							
<i>Gzira (MS)</i>	18	10	11	6	6	55%	3 27%
<i>Feb-Apr 2000</i>							
<i>Qormi (AB)</i>	24	11	10	3	3	30%	3 30%
<i>Feb-Apr 2000</i>							
<i>Mosta (AB)</i>	22	7	5	3	3	60%	1 20%
<i>Feb-Apr 2000</i>							
<i>Mosta (LB)</i>	13	7	6	3	2	33%	0 0%
<i>Feb-Apr 2000</i>							
<i>Floriana 1 (MC)</i>	21	4	4	2	2	50%	0 0%
<i>Feb-Apr 2000</i>							
<i>Floriana 2 (MC)</i>	15	6	2	0	0	0%	0 0%
<i>Feb-Apr 2000</i>							
<i>Paola 1 (AL)</i>	26	12	9	0	0	0%	0 0%
<i>Feb-Apr 2000</i>							
<i>Paola 2 (AL)</i>	22	10	9	2	0	0%	0 0%
<i>Feb-Apr 2000</i>							
<i>Gzira (JB)</i>	14	9	4	0	0	0%	0 0%
<i>May-Jun 2000</i>							
<i>Mosta (JB)</i>	18	11	5	1	0	0%	0 0%
<i>May-Jun 2000</i>							
<i>Paola (RB)</i>	26	24	17	9	6	35%	3 18%
<i>May-Jun 2000</i>							
<i>Gzira (AB)</i>	7	7	6	3	2	33%	0 0%
<i>May-Jun 2000</i>							
<i>Floriana (LB)</i>	20	16	13	8	3	23%	0 0%
Total	246	134	101	40	27	27%	10 10%

* Clinic held on Oct-Dec 1999 in Gzira was 6 sessions long, and clinics starting in May 2000 were reduced from 7 to 5 sessions.

Table 3: Themes arising from replies to questionnaires

Aspects of the meetings liked:

- Meetings in general, and facilitators in particular
- Teaching and explanations, with the video as a teaching aid
- Quitting as a collective effort in a group

Most important changes made during the weeks attended:

- Physical changes: stopping smoking / smoking less / health-related changes
- Psychological changes: role of programme / personal roles

Future plans to remain healthy:

- Not smoking again / stopping completely
- Healthy food / exercise
- On-going psychological battle / assistance to others

Rationale & Purpose of Study

As smoking cessation/reduction treatments provide quality-of-life benefits to the individual and economic benefits to the country, the need for development and evaluation of such interventions has been emphasised¹³.

The purpose of this study was to evaluate the process, long-term outcome and effectiveness (including success, satisfaction and costs) of local smoking cessation clinics, and enable the Health Promotion Department to confirm its strategy of organising such a service while making any necessary changes to improve it. After establishing the clinics' performance, this was compared against the expected standards, and appropriate action recommended.

Methods

This study evaluated clinics organised by the Health Promotion Department over one year starting in October 1999. The qualitative section of this evaluation entailed questionnaire completion and interpretation, and involved participants who attended the final session of these clinics. The quitters among them were followed up at six months after the end of each clinic to fulfil the criteria for the quantitative part of the research project through measurement and analysis of their smoking status. Other forms of evaluation (including facilitator assessment / rating, and subjective assessment and peer review) were not considered in this project.

Quantitative

In order to assess the smoking status of each client, the locally-trained facilitators asked the following question at each session of the clinic:

- How many cigarettes do you smoke daily?

At six months after the end of the clinic, the author telephoned those clients who had quit smoking by the final session and asked them:

- Are you smoking?
- If so, how many cigarettes per day?
- If not, when did you stop?
- If you stopped, did you use nicotine replacement therapy?

Dropouts whose smoking status at follow-up was not known were counted as smokers¹⁴.

The immediate impact was taken as the number of quitters at the final session compared to the baseline number of participants attending the 'quit' session. Quitters must have not smoked at all during the previous two weeks¹⁴.

The main long-term outcome measure was abstinence from smoking at six months from the end of the clinic compared to

Table 4: Estimation of savings in lung cancer treatment (first year of diagnosed disease) for the Maltese public health system resulting from smoking cessation clinics (October 1999 - September 2000)

Gender of quitters	Age (yrs) when stopped	Age (yrs) to nearest decade	Cumulative risk of lung cancer* (A)	Cumulative risk if had smoked till 75 yrs (B)	Decrease in risk consequent to quitting (B-A=C)	Estimated cost (Lm) of treatment per patient for first year of diagnosed disease** (D)	Estimated savings (Lm) per quitter (DxC)
F	52	50	2.20%	9.50%	7.30%	3160	231
F	55	50	2.20%	9.50%	7.30%	3160	231
F	64	60	5.30%	9.50%	4.20%	3160	133
M	30	30	1.70%	15.90%	14.20%	3160	449
M	30	30	1.70%	15.90%	14.20%	3160	449
M	37	40	3.00%	15.90%	12.90%	3160	408
M	44	40	3.00%	15.90%	12.90%	3160	408
M	49	50	6.00%	15.90%	9.90%	3160	313
M	50	50	6.00%	15.90%	9.90%	3160	313
M	54	50	6.00%	15.90%	9.90%	3160	313
TOTAL							Lm3245

* From Peto R, Darby S, Deo H, Silcocks P, Whitley E, Doll R²¹

** Lm286,000 divided between 104 smokers during 1995 (source: university dissertation²⁰), and adjusted for inflation.²²

Table 5: Estimation of cost of smoking cessation clinics (October 1999 – September 2000)

Clinics	Number of 2-hour sessions
Total number of sessions	79
Cost per 2 hour session*	Lm8
Total Clinic Cost	Lm632

* Cost estimated from tuition fee paid to smoking cessation facilitators, and excludes the setting-up expenses (training, video-players, video-cassettes, monitors, whiteboards) incurred once only in 1991, and other minimal running costs (handouts, writing materials).

the baseline^{4,5}. Both point-prevalent abstinence (at the time of asking) and continuous abstinence (throughout the previous six months) were assessed.

Analysis and presentation of data was performed on computer using the spreadsheet software, Microsoft Excel 97 Æ.

Qualitative

An anonymous evaluation form compiled by the Health Promotion Department was given to participants to complete at the end of the final session. The form consisted of three open-ended questions, presented in Maltese:

- What aspects of the meetings did you like most?
- What were the most important changes you made during the weeks attended?
- What are your plans for the future in order to remain healthy?

The analysis of the questionnaires was performed in two stages. First, key data were highlighted in the replies to each question to enable cross analysis on a case-by-case basis - this is termed 'data reduction'. In the second stage, called 'data interpretation', a model or table was used to present in a lucid manner the differences and similarities within the clients' recommendations, thus allowing any trends to be more easily identified and interpreted¹⁵.

Ethical considerations

Participants were informed that they would be part of a voluntary research study that would assist the Department to evaluate and improve the service provided by smoking cessation clinics in Malta. The completion of the anonymous evaluation forms during the final session of the clinic was entirely voluntary and participants could refuse to answer all or any specific questions. The confidentiality of participants was ensured as the answers to questions were not given to anybody else outside the research team, and no reports of this study would ever identify participants in any way.

Results

Quantitative Results

There were 246 applicants who applied for the 13 smoking cessation clinics organised by the Health Promotion Department in Malta during the year starting in October 1999. Out of these, only 134 presented themselves for the introductory session, with this number falling to 101 for Session No. 2 - the quit session (see Table 2). While the immediate success rate at the final session was 27% (n=27) as a percentage of the participants attending the quit session, the six-month success rate dropped to 10% (n=10), with dropouts being counted as smokers.

Of these ten quitters who were still not smoking at six months after the end of the clinic:

- seven were males, while three were females;

Table 6: Recommendations of study

Section	Recommendations
Content	<ul style="list-style-type: none"> • The use of pharmacotherapy (NRT and/or bupropion) as a cornerstone of smoking cessation clinics. • Carbon monoxide monitoring should be used routinely in each session of every clinic as a motivational tool. • Questionnaires used for qualitative evaluation should be structured to allow both positive and negative feedback.
Operations	<ul style="list-style-type: none"> • Frequent clinics (e.g. every month) should be held in one central venue furnished with facilities for audio-visual aids. • Follow-up support meetings should be offered at various times after course-completion, e.g. every month for up to 12 months. • State-of-the-art training should be provided to facilitators on a regular basis. • Quantitative evaluation should be carried out on an on-going basis, with validation of cessation and follow-up.
Finance	<ul style="list-style-type: none"> • Investment in smoking cessation should be maximised to the benefit of the health and economy of the nation.
Strategy	<ul style="list-style-type: none"> • The classification of nicotine addiction as a Schedule 5 Disease to make NRT products (together with bupropion) available free by prescription on this Schedule. • The Health Division should lend its full support to the Health Promotion Department for its smoking cessation programme together with the other tobacco-related strategies.

- three were aged 30-39 years (30%), two were between 40 and 49 years old (20%), four were in their 50's (40%), and one was 64 years old;
- nine were continuously abstinent for the whole duration of the six months (one male had re-started smoking, only to quit again 3 months before the six-month follow-up);
- and only two (20%) had used nicotine replacement therapy as an aid to stopping.

Also of note is the fact that 9 of the 13 clinics provided no quitters at 6 months, as the ten long-term quitters all came from just four clinics.

Qualitative Results

Of the 40 clients who attended the last session of the smoking cessation clinics reviewed, 30 participants completed the questionnaire, giving a 75% response rate. The themes arising from the questionnaire replies are summarised in Table 3.

Discussion

Implications for improving the outcome

The 10% prevalent abstinence rate (9% continuous abstinence rate) at six months after the end of the Malta clinics is low compared to international standards (20-30% in the UK¹⁶ and 15-30% in the USA¹), particularly as these are measured at one year, and assuming no differences in the methods used and their application.

One significant factor that may account for this difference is the freedom of choice for use of pharmacotherapy (in this case, nicotine replacement therapy). While UK and US recommendations^{1,6,7,14,17} put pharmacotherapy (NRT and bupropion) as the cornerstone of therapy, Maltese smoking cessation clinics still leave the choice for use or non-use of NRT to the participants. In fact, of the 10 quitters who were not smoking at six months after the end of their respective clinics, only two (20%) had used nicotine replacement therapy.

While fear of the side effects of NRT (as explained before use by facilitators) may be one reason for this, another perhaps more significant reason may be its high cost, which has to be borne by the would-be quitters. In this regard, the Maltese Health Division would do well to follow the lead of the UK National Health Service (NHS), which has recognised the cost-effectiveness of NRT products by making them available for NHS prescription by general practitioners^{14,18}.

Another factor that may improve quit rate is the routine use (in each session of every clinic) of carbon monoxide monitors to monitor the level of participants' exhaled carbon monoxide. This is accepted as being good practice in view of its usefulness as a motivational tool for clients, besides being helpful to validate quit rates¹⁴.

Further investigation needs to be carried out in the form of a comparative evaluation of each session and facilitator to clarify the fact that the 10 long-term quitters came from just 4 of the 13 clinics held.

Implications for improving the process

The sub-optimal response rate to the evaluation questionnaires might have been due to participants' unwillingness to

participate or the facilitators' omission to distribute the questionnaires. However the qualitative analysis did give favourable results concerning the internal process of the meetings and their physical and psychological outcomes, emphasising the fact that behavioural counselling depends heavily on motivational skills. Recruitment criteria of facilitators therefore should include communicational, interpersonal and motivational skills, together with the ability to develop group dynamics. Besides appropriate introductory training, facilitators should be provided also with on-going training to promote good practice and ensure the best level of care¹⁴.

The fact that only 54% (n=134) out of 246 applicants actually presented themselves for the introductory sessions is probably due to the long time lag from application to commencement. One way of tackling this is if clinics were to start on a more frequent basis (e.g. every month) in one accessible central venue. This system would also result in an increase in the number of participants starting each clinic and enable optimal use to be made of the few smoking cessation facilitators available.

Another positive outcome of a short waiting time is that clients' want power and will power would still be fresh and keen enough to facilitate quitting. This in turn could minimise the drop of 25% (n=33) between the introductory and quit sessions, and possibly improve the result that five out of the thirteen clinics produced no quitters at all by the last session.

Also of concern was the steep decline of 63% (17 out of 27) in the number of quitters who did not manage to remain smoke-free for six months after the end of the clinics, with most citing a stressful situation as the cause. Here, follow-up support meetings could be offered at various times (e.g. monthly) after course-completion, for up to 12 months^{7,14,16}.

Cost-benefit analysis and implications

An important economic aspect of treating tobacco dependence is through the prevention of costly chronic diseases and their complications, which, besides heart disease, lung disease and delayed wound healing, include cancer¹. Lung cancer is known to be the disease most closely associated with tobacco use, with 90% of cases occurring in smokers⁹.

The cost incurred by the Maltese public health service during 1995 with regard to smokers diagnosed with lung cancer during that year has been estimated by a university dissertation as Lm 286,000²⁰. Stopping smoking after many years, even well into middle age, has been shown to result in a decrease in the subsequent risk of lung cancer²¹. Using these two studies, an estimation was made in Table 4 of the savings in lung cancer treatment (during the first year of diagnosed disease) that the Maltese public health system will make as a result of smoking cessation clinics held during the one-year period starting in October 1999. This was of Lm 3245 over one year, which is more than five times as much as the Lm 632 that the year's clinics actually cost to run (see Table 5).

This calculation is based on the assumption that the quitters will remain non-smokers in the years ahead. The calculated savings pertain only to the direct medical costs for the first year of diagnosed lung cancer disease, and exclude the cost of all staff time and materials, morbidity costs, non-medical/external costs (tangible and intangible), and the costs of other

smoking related diseases (notably cardiovascular and other lung disease). Further savings that are not addressed include individual benefits (years of life, psychological effects) and costs (time, transport, pharmacotherapy), together with state costs (planning, setting up and evaluation of sessions and their eventual needs re follow up and training). Therefore, the potential savings gained from a smoking cessation programme are much greater than the odd thousand liri estimated here.

Limitations of study methods

Quantitative

As this study was bound by a time limit, the number of participants was small, which could have a dramatic effect on results. Since patients are treated in groups, each person's chance of success could be influenced by the group which he or she was part of. Validation of cessation through biochemical measures (e.g. blood nicotine, urinary cotinine and expired-air carbon monoxide) was not possible due to financial constraints, as was follow up after one year due to the limited time-span of this project¹⁴. Finally, due to unavailability of information, further analysis of the results according to background (e.g. social class and profession), besides age and sex, could not be carried out.

Qualitative

One limitation could have been the reactivity of participants, in that the person filling the questionnaire would have wanted to leave a good impression by giving the facilitator a reply the former thinks would have pleased the latter (the 'halo effect'). A bias could also have been introduced from two aspects: that of the response (as questionnaire response was guided by different facilitators) and of the interpretation (which the researcher forestalled by avoiding pre-conceived ideas regarding possible results).

Another limitation that became apparent was that the three questions in the evaluation form did not allow for any negative comments or suggestions for improvement. Correction of this limitation would allow participants to comment on the process from all angles, both positive and negative, thus enabling the programme to benefit from any constructive criticism.

Concluding Recommendations

The recommendations made to the Health Promotion Department for service improvement at the levels of content, operations, finance and strategy are listed in Table 6. As treatment of tobacco addiction is more cost-beneficial than care of tobacco-related disease⁷, smoking cessation services which are adequately funded should form a key component in a comprehensive, effective and sustained programme to stem the tobacco epidemic¹⁷.

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