Cost-effectiveness of a community anti-smoking campaign targeted at a high risk group in London

Stevens W, Thorogood M, Kayikki S

Record Status

This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology

A community smoking cessation intervention was examined. The intervention consisted of a 10-minute play, a poster campaign, a media campaign, and a series of purpose-designed leaflets. As the intervention was targeted at the Turkish community, the whole campaign was written in Turkish. The aims of the campaign were to promote non-smoking as the norm and to reduce the prevalence of smoking.

Type of intervention

Primary prevention.

Economic study type

Cost-effectiveness analysis.

Study population

The study population comprised the Turkish community.

Setting

The setting was the community. The economic study was conducted in the UK.

Dates to which data relate

The effectiveness and resource use data were gathered between 1996 and 1997. Other evidence on effectiveness came from studies published between 1994 and 1997. The price year was not reported.

Source of effectiveness data

The effectiveness evidence was derived from a single study and a review of completed studies.

Link between effectiveness and cost data

The costing was conducted prospectively on the same sample of patients as that used in the effectiveness study.

Study sample

Power calculations were not conducted. The participants in the study were identified through a panel survey carried out between May and August 1996, using the community network. Both community centres, where Turkish people were likely to attend, and doorstep interviews were used. A final sample of 303 Turkish speakers was contacted and included in the analysis. After one year, the same individuals were contacted to assess the 12-month change in smoking habits and awareness.

Study design

This was a within-group comparison study that was conducted in the areas of Camden and Islington, two inner London boroughs. The follow-up period was one year. The response rate was 47% (142 individuals), meaning that more than half of the initial study sample was lost to the follow-up assessment. All information was obtained from unverified self-reporting.

Analysis of effectiveness

The authors considered two extreme scenarios when evaluating the effectiveness because of the substantial loss to follow-up. The more optimistic scenario was when the responders represented the true effect (responders analysis). The most pessimistic case was when there was no change in nonresponders (all study subjects analysis). The outcome measures used in the analysis were:

smoking levels (stratified by gender, age groups, and social class distribution) and quit rates;

the proportion of the sample who reported that they had seen or heard any advertising or publicity about stopping smoking;

the proportion of individuals aware of the detrimental effects of smoking on immediate and future health;

the proportion of individuals who started smoking; and

the change in the mean number of cigarettes smoked per day among smokers.

Effectiveness results

At baseline, the smoking rate was 56.8% in the overall sample, 55.4% in men and 59% in women. It was particularly high in young women. There was no indication of any trend associated with social class.

Forty per cent of the sample reported that they had seen or heard any advertising or publicity about stopping smoking.

The majority of smokers appeared to be unaware of any relationship between smoking and ill health. While the smokers showed greater awareness, the majority of them still denied any long-term detrimental effect on health. Only 39% of smokers thought that the risk of smokers becoming ill with heart disease was "a big deal".

At follow-up, in the responders analysis, the reduction in the smoking rate was 6% (95% confidence interval, CI: 0 - 14), as 13% (95% CI: 7 - 18) of the participants had quit smoking but 6% (95% CI: 2 - 11) had started smoking.

In the all study subjects analysis, the reduction in the smoking rate was 3% (95% CI: 0 - 6), as 6% (95% CI: 3 - 9) of the participants had quit smoking but 3% (95% CI: 1 - 5) had started smoking.

Most cessation was obtained in people aged 25 to 34 years, and in people who completed their education after the age of 21.

Among those who continued to smoke, the mean number of cigarettes smoked per day fell from a mean of 10.4 to 8.6 at weekends (difference 1.8, 95% CI: 0.2 - 3.5), and from 9.5 to 8.2 on weekdays (difference 1.3, 95% CI: 0.2 - 2.8).

Overall, the awareness of smoking prevention activities was unchanged (42%) and 51% recognised a Turkish language play, poster or leaflet when prompted.

The play was the most commonly recognised (38%) activity, followed by the poster (36%) and then the leaflet (28%).

Non-smokers were more aware than smokers (57% versus 44%).

Awareness of the campaign was twice as high in individuals giving up smoking (61%) as in those taking it up (44%).

Clinical conclusions

The effectiveness study showed that the smoking cessation campaign was moderately successful in terms of the quit rate and awareness of the detrimental effects of smoking.

Outcomes assessed in the review

The outcomes estimated from the literature were the annual smoking trend, the one-year quitters who remained non-smokers, and the difference in life-years between smokers and non-smokers.

Study designs and other criteria for inclusion in the review

The evidence came from the UK Office of National Statistics and two published studies, the methodology and design of which were not reported.

Sources searched to identify primary studies

Not stated.

Criteria used to ensure the validity of primary studies

Not stated.

Methods used to judge relevance and validity, and for extracting data

Not stated.

Number of primary studies included

The effectiveness evidence was derived from three primary studies.

Methods of combining primary studies

Not stated.

Investigation of differences between primary studies

Not stated.

Results of the review

The annual smoking trend was 0 (range: -2 - 2).

The proportion of one-year quitters who remained non-smokers was 33% (range: 25 - 45).

The long-term difference in life expectancy between smokers and non-smokers was 8 (range: 6 - 10).

Measure of benefits used in the economic analysis

The summary benefit measures used were the life-years saved and the rates of one-year quitters. These were either estimated from the literature or based on authors' assumptions, and then applied to the patient sample considered in the single study.

Direct costs

Discounting was not relevant since the costs were incurred during a one-year timeframe. The unit costs were not

presented separately from the quantities of resources used. The costs included in the economic evaluation were salary costs, other labour expenses, non-pay costs and overheads. The cost/resource boundary appears to have been that of the local Health Authority. Resource use was estimated using actual data derived during the campaign. The source of the costs was not stated. The price year was not reported.

Statistical analysis of costs
The costs were treated deterministically.

Indirect Costs
The indirect costs were not considered.

Currency
UK pounds sterling ().

Sensitivity analysis
Sensitivity analyses were conducted to assess the variability in the estimated data, both when they were derived from the single study and when they were derived from the literature. The ranges of values were those reported already. A Monte Carlo simulation was conducted within an analytic framework of all possible outcomes. This provided probabilistic estimates of cost-effectiveness ratios with CIs.

Estimated benefits used in the economic analysis
The benefit results were not explicitly reported. To estimate the benefits, the one-year quit rate and the long-term difference in life expectancy between smokers and non-smokers (reported in the effectiveness sections) were used as parameters in an algorithm of outcomes.

Cost results
The estimated costs of the programme were 56,987. The alternative of no programme was therefore assumed to cost 0.

Synthesis of costs and benefits
An incremental cost-effectiveness analysis comparing the smoking cessation programme with no programme was conducted to combine the costs and benefits.

The incremental cost per life-year gained (LYG) was 105 (95% CI: 33 - 391), with a modal value of 90.

The incremental cost per one-year quitter was 825 (95% CI: 300 - 3,500).

Authors' conclusions
The implementation of a smoking cessation campaign targeted at groups with high smoking prevalence could be cost-effective in comparison with no intervention.

CRD COMMENTARY - Selection of comparators
The choice of the comparator (no intervention) was appropriate as it represented the standard approach in the authors' setting. You should decide whether this is a valid comparator in your own setting.

Validity of estimate of measure of effectiveness

The analysis of effectiveness used data derived from different sources. The validity of the single study was limited due to the design and the substantial loss to follow-up. In order to overcome possible bias due to loss to follow-up, the authors considered pessimistic and optimistic scenarios for the outcomes associated with patients who could not be contacted after one year. This enhanced the robustness of the analysis as it provided extreme values that could represent different settings. Information on data derived from published studies was not provided. A formal review of the literature does not appear to have been conducted. Further, the reference used for the assumptions about the number of LYG was not provided. However, extensive sensitivity analyses were carried out through Monte Carlo analysis in order to assess reasonable CIs for all estimates.

Validity of estimate of measure of benefit

Two summary benefit measures were used in the analysis. While the rate of one-year quitters was specific to the intervention considered in the study, the use of LYG will permit more extensive comparisons with the benefits of other health care interventions. Both measures were estimated from actual data (one-year quitter rate) or from the literature (LYG). However, the approach to estimating the benefit results was unclear.

Validity of estimate of costs

The authors did not explicitly report which perspective was adopted in the study, although it appears to have been that of the local Health Authority who were in charge of the smoking cessation campaign. Therefore, only those costs strictly related to the programme were considered. However, the impact of the intervention on treatment costs for those patients who developed smoking-related illnesses would have been interesting. Little information on the cost analysis was provided. The price year, source of costs, quantities of resources used, and unit costs were not given. This reduces the possibility of replicating the study in other settings. The costs were treated deterministically and no sensitivity analyses were conducted on the economic estimates.

Other issues

The authors did not compare their findings with those from other studies. They also did not address the issue of the generalisability of the study results to other settings. Sensitivity analyses were conducted only for the impact of the intervention on efficacy and LYG. The study referred to a community with a high smoking rate and this was reflected in the conclusions of the analysis.

Implications of the study

The study results suggested that targeting a smoking cessation campaign at groups with high smoking rates might be more cost-effective than general population campaigns. However, due to the limitations highlighted, some caution is required when interpreting the results of the analysis.

Source of funding

None stated.

Bibliographic details

Stevens W, Thorogood M, Kayikki S. Cost-effectiveness of a community anti-smoking campaign targeted at a high risk group in London. Health Promotion International 2002; 17(1): 43-50

PubMedID

11847137

Other publications of related interest

Doll R, Peto R, Wheatley K, et al. Mortality in relation to smoking: 40 years observation on medical doctors. BMJ 1994;309:901-11.

Peto R, Lopez A-D, Boreham J, et al. Mortality from smoking worldwide. British Medical Bulletin 1996;52:12-21.

Indexing Status

Subject indexing assigned by NLM

MeSH

Adolescent; Adult; Aged; Algorithms; Community Health Services /economics; Cost-Benefit Analysis; Female; Health Promotion /economics; Humans; London /epidemiology; Male; Middle Aged; Prevalence; Smoking /epidemiology /prevention & control; Smoking Cessation /statistics & numerical data; Social Class; Turkey /ethnology

AccessionNumber

22002008062

Date bibliographic record published

30/11/2004

Date abstract record published

30/11/2004