

Mass Media and Smoking Cessation: A Critical Review

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Abstract: Evaluations of 40 mass media programs/campaigns designed to influence cigarette smoking were reviewed. Information/motivation programs/campaigns generally produced changes in awareness, knowledge, and attitudes. Extensive national campaigns also produced meaningful behavioral change. Programs/campaigns designed to promote some specific smoking-related action produced mixed results, depending in large part on the type of promotion involved. Mass media cessation clinics were found to be effective, with media plus social support being more effective than

viewing plus printed material, and either combination being more effective than viewing alone. It was concluded that mass media health promotion programs can be more effective than many academics may have thought, but that the knowledge necessary to ensure such success is seriously lacking. Research studies, rather than simple evaluations, are needed to improve our knowledge base and build a science of mass media health promotion. (*Am J Public Health* 1987; 77:153-160.)

Introduction

Ninety per cent of current smokers wish to quit, but over two-thirds of them do not wish to attend a clinic to do so.²⁻⁴ Over the past 20 years, approximately 35 million adults have already quit smoking, and the overwhelming majority of them did so without the help of any organized clinic.⁵ It is conceivable that the mass media played some role in increasing awareness of the dangers of smoking,⁶ motivating so many smokers to want to quit, and helping so many ex-smokers to successfully quit. This paper provides a comprehensive review of evaluated mass media programs and campaigns designed to reduce smoking behavior.

Over the past 30 years, mass media programs and campaigns have been used in three major ways to influence smoking related knowledge, attitudes, and behavior: to inform the public of the negative health consequences of cigarette smoking and to try to motivate existing smokers to quit; to promote specific smoking cessation actions to those smokers motivated to quit, such as calling a hotline or requesting specific materials such a tip-sheet or a self-help manual; and to provide smoking cessation "self-help clinics" to those smokers who desire to quit. These three ways of using mass media for smoking control reflect an historical development in the use of media, that has followed Cartwright's⁷ suggested stages of change (awareness, motivation, and then individual behavior change). A parallel historical development has occurred in the progression from discrete media programs to the incorporation of greater community involvement.

To date, at least 40 evaluated antismoking programs or campaigns have been conducted.* Nine of these were information/motivation programs/campaigns, 11 were promotions of specific cessation activities, and 20 were mass media cessation "self-help clinics". Characteristics of all

programs are summarized in Tables 1 and 2. All but two programs/campaigns utilized television, and most also utilized an average of 1.2 other forms of media (radio or printed materials). Considerable variation occurred in airing frequency of messages, duration of the program/campaign, and documented reach. Frequency of airing was less than 12 times for all but community/national programs. Program duration averaged 5.3 weeks for all but the community programs (40 weeks) and community/national campaigns (37 months). The proportion of the target audience reached ranged from 16-100 per cent, with an overall average of 63 per cent.

Comparison Baselines

Clear inferences about program effects cannot be drawn from any one of the studies to be reviewed when considered alone, because of limitations in research design, with most studies consisting of posttest-only and/or single-group designs. When it comes to assessing program effects on knowledge, attitudes, or behavior of individual smokers, many studies relied upon the comparison of responses from smokers who viewed or could recall the program and responses from people who did not view or could not recall the program. This practice is problematic, in that those who viewed might be those who would have changed anyway, even if the mass media program had never existed. One approach to evaluating nationwide programs is time-series analysis (c.f., the monitoring impact approach of Flay and Cook⁸); several investigators have reported such analyses of the effects of national "campaigns". For city-wide or community programs, it is possible to compare prevalence in the exposed city/community with the smoking prevalence of the population in a comparable city or community. However, only a few studies have done this. Moreover, only a few studies have even reported population prevalence of smoking, and changes in prevalence, for the city or community in which the mass media program or campaign was implemented.

The lack of good comparison groups in most studies makes it necessary to provide a method of comparing the results of these studies with some acceptable baselines. Three some appropriate:

- the average effectiveness of face-to-face clinics;
- the effectiveness of a widely used self-help smoking cessation program for smokers who request it;
- the natural quitting behavior of the population of smokers without any particular program.

The effectiveness of the average face-to-face clinic has been estimated by several reviewers.^{9,10} There seems to be

*Detailed descriptions (1,000-2,000 words) of most of these studies are available on request; please send \$5.00 to the University of Southern California, c/o the author. The author would also appreciate receiving copies or notices of evaluations of mass media smoking cessation programs/campaigns not reviewed herein for inclusion in a monograph-length report.

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TABLE 1—Number of Evaluated Mass Media Smoking Cessation Programs/Campaigns by Type of Program

Type of Program	N ^a	PSA	TV	Radio	Print	Total ^b
Information/Motivation Programs/Campaigns						
Discrete media programs	2	1	2	0	0	2
Community/National campaigns	7	7	7	5	4	15
Total	9	8	8	5	4	17
Promotion Programs/Campaigns						
Action alone	3	3	3	3	2	8
Cessation kits	3	2	2	2	1	5
Community	5	5	5	5	5	15
Total	11	10	10	10	8	28
Media Self-help Clinics						
Laboratory	1	—	1 ^c	—	—	1
With print alone	11	—	11	2	11	24
With community action	8	—	8	1	8	17
Total	20	—	20	3	19	42
Grand Total—all programs	40	18	38	18	21	87

a) Total number of programs of each type.
 b) Program by media (TV + Radio + Print) combinations.
 c) Closed-circuit.

general agreement that close to 100 per cent of participants quit smoking with these programs; however, that figure reduces at follow-up to 20–30 per cent who quit continuously for three months to a year. Most clinic studies do not report the total prevalence of nonsmoking at follow-up points.

Davis, *et al.*,¹¹ have provided one of the clearest tests of a commonly used self-help smoking cessation program—the American Lung Association’s (ALA) “Freedom from Smoking in 20 Days.” From an experimental study involving four different combinations of materials, Davis, *et al.*, provide data that allow us to plot quitting curves for both continuous quitting and nonsmoking prevalence for one year. When both ALA manuals were used, 20 per cent initially quit, 5 per cent stayed quit for 1 year, and non-smoking prevalence after one year was 18 per cent.

Terry Pechacek (personal communication, October 1984, University of Minnesota, now of the National Cancer Institute) has calculated the quitting curve for the population of smokers in the United States. He estimates that 35–40 per

cent of smokers make some attempt to quit smoking during any one month, and at any one point in time between 10 and 20 per cent report not smoking and having quit sometime during the previous month. However, only 1.5–2 per cent of smokers are able to stay quit continuously for one month, and only about 0.5 per cent are able to stay quit continuously for one year. During any one month, however, the nonsmoking prevalence will be near 6 per cent with 1.5–2 per cent having quit for only one month, about 0.5 per cent for a year, and all others for some time in between.

Pechacek’s estimates, the Davis, *et al.*, results, and clinic results will be used as the “baseline,” the “gold standard,” and the “ultimate standard,” respectively, against which the results of mass media programs will be compared. A mass media program with effects no greater than what is occurring in the population is probably not of much value, and a mass media clinic that includes printed material will need to perform better than the ALA printed material alone. Whether a media-alone program (promotion program or clinic) needs to perform as well as the ALA program to be cost-effective is unclear. Finally, results from face-to-face clinics probably provide the ultimate level of success toward which media programs can aspire.

Information/Motivation Programs/Campaigns

The use of mass media for the dissemination of information about the negative health consequences of cigarette smoking increased dramatically after the first government reports of the causal relationship between cigarette smoking and disease.^{12–15} Intensive television campaigns in the United States,^{16–24} Canada, Britain,²⁶ Greece,²⁷ Norway,²⁸ and Austria^{29–30}, have all been evaluated at some level. British groups have evaluated a cinema public service advertising campaign³¹ and a pair of films shown on nationwide television.³² A set of public service films aired on Israeli television has been evaluated.³³ Evaluations of two discrete media programs (Thames TV³² and Israel TV³³) each demonstrated that changes in awareness or salience are easily produced; however, only the Thames TV study assessed (and demonstrated) change in smoking behavior.

TABLE 2—Frequency, Duration, and Reach of Evaluated Smoking Cessation Programs/Campaigns (number of studies reporting, mean, median, and range)

Type of Program	Frequency ^a				Duration ^b				Reach ^c			
	N	\bar{x}	Md	R	N	\bar{x}	Md	R	N	\bar{x}	Md	R
Information/Motivation Programs/Campaigns												
Discrete media programs	2	6 ^c	—	2–9	2	20d	—	30mi–41d	2	39	—	33–45
Community/National programs	1	150000 ^d	—	—	7	40w	17w	3w–3y	5	90	96	65–100
Promotion Programs/Campaigns												
Action alone	0	—	—	—	3	8w	1w	1–21w	2	88	—	80–95
Cessation kits	2	11 ^e	—	1–20	3	7w	1m ^f	15mi–4mo	1	77	—	—
Community	1	389 ^d	—	—	5	37mo	2y	1mo–10y	3	93	100	80–100
Media Self-help Clinics												
Laboratory	1	7 ^g	—	—	1	4w	—	—	—	—	—	—
With print alone	11	31 ^g	6	3–236	10	4w	2w	1–17w	3 ^j	28	27	16–42
With print + community	8	11 ^h	8	5–20	8	6w	2w	1–17w	5	37	38	13–60

a) Number of occasions programs was aired.
 b) mi = minutes, d = days, w = week, mo = months, y = years.
 c) Proportion of target audience recalling program or signing up to participate in self-help clinics.
 d) 30–60 second spots.
 e) One of 15 minutes; one of 30–60 second spots.
 f) One-hour shows.
 g) Two of 30–60 second spots; all others 3–20 minutes.
 h) Three of 30–45 minutes; all others 3–5 minutes.
 j) Three other studies reported numbers of people reached, \bar{x} = 2.6 million, R = 7,800–8 million.

Of seven community and national campaigns, four were much more intensive (USA Counteradvertising,¹⁶⁻²⁴ Greece,²⁷ Norway,²⁸ and Austria²⁹⁻³⁰) than the remaining three (Ontario,²⁵ British Health Education Council,²⁶ and British Cinema³¹). All seven campaigns obtained very high exposure, but only the four more intensive campaigns obtained substantive changes in the smoking behavior of the population. While these results should not be unexpected, they have never been demonstrated as clearly as in this review. Nevertheless, each of the successes occurred under some very special conditions. In three of the countries (Greece, Norway, and Austria), the mass media are government monopolies or government controlled, so that it was relatively easy for them to ban cigarette advertising and to conduct an antismoking campaign. Other government-initiated antismoking activities were also occurring there at the time of the campaign. Although most of the antismoking activities relied upon the mass media for their contributions to the observed changes, it is difficult to estimate the exact impact of the mass media in causing such changes.

The USA counteradvertising campaign, 1967-70, under the Fairness Doctrine, also took place within a context of other activities; nevertheless, time-series analyses conducted by Hamilton,¹⁷ and Warner²¹⁻²² demonstrate convincingly that mass media played an important role in changes in smoking prevalence. Our confidence in these findings is enhanced because cigarette consumption started to increase again upon the removal of counterads after cigarette advertising was banned from radio and television.^{21,22,34,35} (These actions also led to the censoring of information on the health effects of smoking in news and magazine outlets.³⁶⁻³⁹) Similar patterns of effects were observed for multiple "media events". The series of events around cigarette advertising created a natural time-series "experiment" where similar treatments (media events) were applied at different points in time, then subsequently removed, and where the observed effects occurred when the treatments were applied and reversed when the treatments were removed.

Studies of the USA counteradvertising campaign¹⁶⁻²⁴ clearly establish that an intensive and extensive counter advertising campaign can influence smoking-related beliefs of a substantial portion of the population and the smoking behavior of a relatively small but numerically substantial portion of smokers. The theory that the magnitude of these effects can increase with continuous exposure (i.e., a dose-response relationship) is also confirmed. Subsequent population surveys have confirmed early findings by O'Keefe¹⁸ of attitude and belief changes, and demonstrated continuing improvement,⁴⁰⁻⁴² although there is still a surprising level of ignorance when it comes to specific facts.⁴³⁻⁴⁵

The experience of the Fairness Doctrine antismoking corrective advertising also demonstrates that a Public Service Announcement (PSA) campaign can be effective under certain conditions. The conditions of importance must include:

- a number of novel spots, rather than just one or two shown repeatedly;
- widespread dissemination, ensured in this case by legislation;
- high saturation, ensured by airing one PSA for every three to 12 cigarette advertisements, including a few during prime time, with an estimated value of \$75 million in 1970;⁴⁶ and
- endurance, ensured in this case for the almost three years between implementation of the Fairness Doctrine

ruling and the subsequent voluntary removal by tobacco companies of all cigarette advertising from radio and television.

These conditions also served to optimize two other important mediators of media effects—selectivity and interpersonal communication.^{47,48} Selectivity problems were reduced because high saturation reduced the opportunity for audiences to avoid the issue. Interpersonal communication probably increased because of the presentation of opposing points of view—those of the tobacco industry and those of the various health agencies sponsoring the corrective advertisements.

Each of the successful campaigns also demonstrated the communication principle of "monopolization".⁴⁹ Near monopolization of information by tobacco companies, at the expense of antismoking interests, was broken by government action. The breaking of a communication monopoly, so that "corrective" information could be provided, had substantial impact on the knowledge, attitudes, and behavior of whole populations. However, the finding that only the more intensive campaigns produced such effects emphasizes the importance of high frequency, extended reach, and long duration campaigns.

Each successful campaign also demonstrated two other basic mass communication principles⁴⁹—canalization and supplementation. People had already been exposed to some information about the negative consequences of cigarette smoking, and the evaluated campaigns served to reinforce such information and effect further changes in population attitudes and behavior (i.e., canalization). In all successful cases, existing antismoking activities provided the initiative for the evaluated campaign, and probably also served to further increase controversy. Thus, supplementing these activities contributed to increased interpersonal communication and decreased opportunities for people, even heavy smokers, to avoid antismoking information.

Intensive television and radio programming of high frequency, extended reach, and long duration can produce behavioral effects, but a note of caution is necessary. Most PSA campaigns do *not* produce behavioral effects,⁵⁰⁻⁵⁴ mainly because they consist of a small number of spots, sometimes of questionable quality, that are shown a few times at odd (non prime-time) hours, and therefore are not of sufficient reach, frequency, and duration to be effective.

Promoting Specific Cessation Activities

The 11 programs in this group were devised to promote specific activities presumed to precede actual smoking cessation. Their objectives were to persuade smokers who wanted to quit to take the first steps in doing so by either quitting for a day, requesting written hints, tips, or printed smoking cessation kits for home use, or enrolling in a clinic or with community agencies. These approaches are in contrast to those programs that try to motivate people to *want* to quit smoking.

Most evaluations of the 11 promotion programs reported the number or proportion of the target audience who called a hotline, quit for a special day, ordered or purchased program materials, or enrolled in cessation clinics; many also reported on the effectiveness of the materials or clinics for smoking cessation. The studies in this section can be classified into three subcategories:

TABLE 3—Nonsmoking Prevalence (per 100) among Populations of Smokers after Four Media Plus Community Promotion Programs (by condition)

Study	Controls	Media-only	Media + Community	Follow-up time
Stanford*	3	8	24	3yrs
N. Karelia	—	10	42	10yrs
N. Coast	12	27	35	2yrs
Sydney	7	13	—	6mos
Means**	7	15	34	

*Data from reference 75 which reports the most complete Stanford data on smoking.

**Compared with 15% at 1yr for users of the ALA cessation manual and 18% at 1yr for users of both ALA manuals.

- campaigns promoting action alone,^{55-64**}
- programs/campaigns promoting specific cessation materials,⁶⁵⁻⁶⁸ and
- community programs/campaigns promoting kits and clinics.⁶⁹⁻⁹⁵

The duration of these 11 programs varied from 15 minutes to 10 years (Table 2). The response to the 15-minute program⁶⁶ (600,000 requests) suggests, however, that it was probably aired during prime-time and preceded by extensive promotion. The response to a one-week PSA radio campaign in New York⁶⁵ was not high. The one-week promotions of one day of nonsmoking in the USA⁵⁵⁻⁶¹ and Australia^{62,63} seem to have had significant impact for a day, but information about long-term impact is lacking. Long-term follow-up studies are probably warranted; if even 1 per cent of smokers quit for a year, this would represent a doubling of the naturally occurring rate, and would be considered very cost-effective.

The five community studies (Greenfield, Iowa;⁶⁹ Stanford;⁷⁰⁻⁷⁷ North Karelia, Finland;^{78-92***} Australia North Coast;⁹³ and Sydney^{94,95}) all seem to have had an impact on smoking prevalence. When individuals were followed over time, substantial numbers reported themselves as not smoking. These results, summarized in Table 3, illustrate that media plus community programs do twice as well, on average, as media-only programs. Nevertheless, the media-only programs produced effects that were, on average, comparable with one-year effects of the ALA self-help program. On average, intensive media campaigns can affect the behavior of the smoking population as much as good self-help manuals affect the behavior of people who request them—leading them to quit at twice the rate of the smoking population without such programs. Adding community resources and activities doubles the effectiveness of media programming.

Self-Help Clinics

There are at least six reasons why mass media self-help clinics could serve as a very important component of quitting smoking without a formal face-to-face clinic:

- a large population of smokers who might not otherwise receive assistance can be reached;⁹⁶
- television and radio afford the advantage of a structured program within the privacy of the home;

**See also, Stein JA: The Cancer Information Service: Evaluation of a large-scale telephone information program. Presented at the 1984 Joint Meeting of Evaluation Research Society and Evaluation Network.

***See also, Puska P, Wio J, McAlister A, Koskela K, Maccoby N: Mass media in national health promotion: Development and evaluation of a theory-based method (the "Keys to Health" TV program in 1982 in Finland). Unpublished manuscript.

- such programming has the potential for creating a social milieu supportive of behavioral change,^{97,98} by encouraging a large number of people to quit simultaneously;

- television programming can provide demonstrations of behavioral skills not possible in written self-help material;⁹⁹

- behavioral change achieved with the aid of a television or radio program can be attributed to one's own efforts, because it does not involve seeking help from a professional or a face-to-face clinic; and

- mass media are a potentially cost-effective approach to reducing the smoking problem.

Perhaps the most promising use of mass media for smoking control during the past decade has consisted of the airing of smoking cessation "self-help clinics." Most of these programs followed individuals or groups on television as they attempted to quit smoking with the aid of a self-help or clinical-type program. The target audiences were expected to follow the programs and attempt to quit smoking themselves. In most cases, written self-help materials were also available to the audiences.

Twenty studies were located that provided tests of electronic media smoking cessation self-help clinics.^{84,85,96,102-117†} Together, they provided approximately 34 tests of media-alone, media plus printed materials, and media plus social support (usually by group discussion). Programming ranged from 30-second spots to 45-minute sessions, ranged in number from three to 236, and ranged in duration from one week to four months (Table 2).

Most evaluations of media self-help clinics had methodological shortcomings that limit the interpretability of their findings when considered alone. However, when viewed together, and particularly when compared with results from the test of the ALA self-help program,¹¹ the reported results are promising (Table 4). The results of McAlister's† laboratory-based investigation of the relative efficacy of viewing versus participating in a smoking cessation clinic suggest that

†See also, Asheim H: Effects of the stop-smoking TV campaign ("Well Puffed"). Unpublished manuscript, Psychology Department, University of Oslo, 1973.

Flay BR, Hansen WB, Johnson CA, Sobel JL: Involvement of children in motivating smoking parents to quit smoking with a television program. Presented at Fifth World Conference on Smoking and Health, Winnipeg, Canada, 1983.

Flay BR, Johnson CA, Hansen WB, Grossman LM, Sobel JL, Collins LM: Evaluation of a school-based, family-oriented, television-enhanced smoking prevention and cessation program: The importance of implementation evaluation. Presented at Joint Meetings of Evaluation Network and Evaluation Research Society, Chicago, 1983.

Korchin J, Froh F, Li R, Dosman JA: Freedom from smoking campaign in two Saskatchewan cities. Presented at the Canadian Lung Association meeting, Halifax, 1983.

Strong W: Freedom from smoking: The Newfoundland experience. Presented at Canadian Lung Association meeting, 1983.

Korchin J: The Lloydminster community experiment, Winter/84. Presented at Canadian Lung Association meeting, Edmonton, 1984.

McAlister A: Television as a medium for delivering behavior therapy: A pilot study of a televised smoking cessation program. Presented at the Association for the Advancement of Behavior Therapy 18th Annual Convention, New York, 1976.

Pechacek TF, Madden M, Wackman D, Pirie P, Rocella E, Fruetel J: Estimating the impact of a televised smoking cessation program. Presented at American Psychological Association meeting, Anaheim, 1983.

Pechacek TF, Madden M, Wackman D, Pirie P, Fruetel J, Danaher B, Rocella E: Estimating the impact of a televised smoking cessation program. Manuscript, University of Minnesota, 1984.

Sallis JF, Solomon DS, Flora JA, Adler E, Balkrishnan R, Cardillo B: Quit smoking by mail: An evaluation of the quit Kit. Presented at American Psychological Association, Anaheim, California, 1983.

Strong W: Freedom from smoking: 1983 CBC television project. Included in the 1983-84 Annual Report of the Executive Director to the Newfoundland Lung Association, 1984.

TABLE 4—Summary of Effects of Media Self-help Clinics Compared with ALA Self-help Manuals: Number, Means, Median, and Range in Proportion of Participants Attempting to Quit, Successfully Quitting, and Staying Quit (and length of follow-up)

Condition	Attempts ^b To Quit					Initial ^c Success				Continuous ^d Success				Prevalence ^e of Quitters				Length of ^f Follow-up				
	Total N ^a	N	\bar{x}	Md	R	N	\bar{x}	Md	R	N	\bar{x}	Md	R	N	\bar{x}	Md	R	N	\bar{x} ^g	Md	R	
ALA Cessation only	1					20				4				10				6mo				
ALA Cessation and Maintenance	1					20				3				15				1y				
										6				13				6mo				
										5				18				1y				
Media alone	7	5	26	17	10-49	6	12	12	7-17	6	5	5	3-7	3	13	12	12-15	6	11mo	9mo	3mo-2y	
Media + Print	10	8	49	52	21-72	8	24	22	9-47	6	8	7	6-13	6	6mo	4.5mo	1-12mo	3	9mo	12mo	3mo-1y	
Media + Support	4	2	63	—	60-66	4	36	37	26-41	3	16	13	13-21	9	21	21	9-30	9	5mo	3mo	1-12mo	
										3	24	20	18-35	3	10mo	3mo	3mo-2y	3	6mo	3mo	3mo-1y	
Laboratory	1									63								3mo				

- a) Total number of comparisons available across studies.
- b) Percentage of viewers/requesters attempting to quit with the program.
- c) Percentage of viewers/requesters successfully quit at an immediate posttest.
- d) Percentage of viewers/requesters successfully quit continuously until follow-up.
- e) Percentage of viewers/requesters reporting that they are not smoking at follow-up, regardless of when they quit.
- f) Length of follow-up: mo = months, y = years.
- g) Different sets of studies assessed continuous success and follow-up prevalence—hence the presentation of different mean follow-up times for the two outcome measures.

a televised clinic can be as effective as face-to-face counseling, at least when viewed in a group setting with discussion. This study needs replicating and extending. Two studies involved tests of maintenance programming (New York¹⁰² and Vermont¹⁰⁸); while results from both studies suggest that the media can be used to reduce relapse, major differences in approaches and methodological limitations limit conclusions that can be drawn from them.

Results in Table 4 illustrate that media alone is about as effective for viewers as the ALA manuals are for requesters; media plus manuals are more effective than ALA manuals alone (particularly the cessation manual alone) for requesters; and media plus social support is substantially more effective than any other tested condition (at least for group participants), being three to four times as effective as viewing alone or the ALA self-help program alone, and twice as effective as the combination of television programming and printed materials. None of these approaches is as effective as face-to-face clinics that produce continuous one year quit rates of 20-30 per cent on average,^{9,10} but mass media self-help clinics are probably more cost-effective because they can reach more people for the same or less costs, and may be more appealing to the majority of smokers who cannot or do not wish to attend face-to-face clinics.

While the continuous quit rate percentage might seem low, the absolute numbers of smokers helped is impressive. For example, a nationwide continuous quit rate of 10 per cent would represent approximately five million fewer smokers in the United States (compared to two million less if the price of cigarettes were increased by 8 cents a pack¹¹⁶). If we assume that approximately one in four lifetime smokers will die prematurely from smoking-related causes, a 10 per cent continuous quit rate could avert approximately 1.25 million smoking-induced premature deaths (compared to 450,000 if the price of cigarettes were increased by 8 cents a pack¹¹⁶).

Persons who request manuals to accompany media clinics are probably similar to the requesters of ALA manuals used in the Davis, *et al*, study;¹¹ thus the finding that mass media self-help clinics can improve the effectiveness of

self-help manuals alone seems to be robust and not prone to alternative interpretations. From a public health perspective, the improvement in effectiveness provided by mass media (plus manuals) might have even greater impact than the evaluation results suggest. Mass media programming probably reaches more smokers than the ALA manuals without media support, and more smokers might attempt quitting using a particular manual when there is an accompanying mass media program than when there is no such program.

Direct comparisons of viewers or participants in social support situations with requesters of ALA manuals are somewhat tenuous. Viewers who do not request manuals, even though they are available, might be less motivated to quit smoking than requesters. The lower effectiveness of media-alone could also be due to investigators including all smokers who saw even one of their segments as viewers; stronger effects might have been obtained if only viewers of half or more of the programming were investigated. For most studies, it is not possible to determine whether group participants quit at higher rates because they were more motivated or because social support adds to the effectiveness of a media self-help clinic. Fortunately, the Chicago study¹²² allows some of these factors to be separated. Corporations were randomly assigned to providing group discussion opportunities to people attempting to quit with the televised clinic (and ALA manuals). Results indicate that group discussion improved outcomes.

Unfortunately, the reviewed studies tell us very little about those for who the different mass media approaches are most effective, or the conditions of viewing/participating under which they are most effective. We do not know, for example, whether people who request written materials feel a definite need for them and would be less successful without them, or whether they are people who collect information but do not use it in a way that contributes to program effectiveness.

Conclusions

It is probably neither possible nor useful to attempt to determine the relative cost-effectiveness of the different ways

of using mass media for smoking cessation. The mass media can be, and have been, used in different ways for different purposes. Large scale campaigns are appropriate for improving awareness, knowledge, and motivation, and have been effective. Large scale campaigns are also appropriate for promoting specific actions that are steps to permanent quitting; these also seem to have been effective, particularly the community-based campaigns. For those smokers whose knowledge, attitudes, and intentions are already consistent with quitting, the mass media can be used to provide cessation self-help clinics successfully. Given that different people are at different stages of awareness, motivation, and readiness for behavioral change,¹⁰ it would seem appropriate to continue to use and test all three approaches further.

Several policy implications are also clear:

- consider maximizing the availability of counter information by extending the scope of the Fairness Doctrine, or something like it, to cover all forms and forums of the advertising and promotion of cigarettes, and preventing or minimizing "corporate censorship" of the content of print media;

- any ban of tobacco advertising and promotion would have to be comprehensively applied to all forms of media, and accompanied by educational programming to counter the myth of the social acceptability of smoking created by years of advertising and promotion; and

- mass media self-help cessation clinics, with written materials and community organization, need to be provided on a regular basis, and should be included in any counter-informational strategy.

Some might argue that there is a decreasing need for information/motivation campaigns because the population is now more aware of the dangers of smoking. However, as long as the tobacco companies have freedom to promote their product, smoking information/motivation programs and campaigns will be necessary. Campaigns targeted at adolescents and designed for prevention also need to be tried and evaluated.^{114,117-120,††}

It has been worthwhile to include all available evaluations of mass media programs/campaigns for smoking cessation in this review regardless of their methodological shortcomings, although application of sophisticated meta-analytic techniques^{121,122} was not warranted. If we had been restricted to only those studies that satisfied the conditions of minimal scientific validity,⁸ there would have been very little to review. The next thorough review of this area, however, will probably be confined to only those studies that satisfy minimal requirements of scientific validity. These minimal requirements will probably include some level of randomization to experimental conditions, pretested panels, and intensive measurement and analysis of process. That is, the next review is likely to focus on research studies, and may not include basic demonstration program evaluations.

Significant advances in our knowledge about what types of media programs work best, for what types of changes, for whom, and under what conditions of delivery/participation can only come from studies that compare planned variations

in one or more of these variables. If such studies are done in sufficient number, including replications, then a science of the use of mass media for health promotion can develop.

This review makes it clear that mass media can be used successfully in the reduction of one of the most life-threatening behaviors of today. However, little is known about the use of mass media for smoking control in particular and health promotion in general. We cannot afford to sit back and simply do more of the same. The levels of success obtained are still somewhat modest, and could be improved dramatically. Even in this review, the very best programs were much more effective than the worst or even the average, yet the published reports provided very few ideas on why some were more successful and others less so. A great deal of theoretical development and scientifically valid research will be necessary to determine the crucial elements of successful mass media programs.¹²³

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