

Television Public Service Announcements as Outreach for Potential Clients¹

Thomas A. McAbee² and Thomas P. Cafferty³

University of South Carolina

Public service announcements (PSAs) aired by local radio or television stations may be useful to human service agencies as a mechanism to reach potential clients during periods of low service demand. To examine the usefulness of PSAs for this purpose, a series of PSAs were videotaped for three aging-service agencies and aired by a television station during a 6-week period. The three agencies recorded the incoming demand for services received each day before and during the intervention period. The data were tested by a multiple-group interrupted time-series analysis. The results of the analysis indicated that for all three agencies the PSAs were effective for increasing the number of service inquiries received from nonclients over the

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²Currently affiliated with the "Feelings Just Are" Children's Television Project, Columbia (South Carolina) Area Mental Health Center.

³All correspondence should be sent to Thomas P. Cafferty, Department of Psychology, University of South Carolina, Columbia, South Carolina 29208.

telephone numbers publicized in the PSAs. At one of the agencies, the number of new clients increased significantly when the PSAs were broadcasted.

At many human service agencies, the number of individuals requesting services fluctuates over time, creating periods when service demand slumps substantially below the amount of services that an agency can provide. As a result, the agency cannot deliver services to its maximum capacity, many community members remain in need of services even though services are readily available, and if the agency receives government funding, tax money is not used to optimal benefit.

During such slump periods, service demand may be increased by linking an agency directly to new clients (Sasser, 1976). Ideally, a linking mechanism for reaching potential clients must be cost-effective and flexible enough so that demand can be developed quickly during nonpeak periods but not when demand reaches the agency's maximum capacity for service delivery.

One technique that could prove effective as a linking mechanism and which is already available to many eleemosynary or government-supported service agencies is publicizing the availability of services by broadcasting public service announcements (PSAs) on local radio or television stations in an agency's catchment area.⁴ If PSAs were effective as linking mechanisms when aired by only one or few local stations, the benefits for human service agencies would be many. A media campaign that relies entirely on radio or television PSAs (a) would probably be less expensive to prepare than a large-scale multimedia publicity campaign, (b) would consume less staff time to implement and manage, and (c) when service demand reached the agency's maximum capacity, the campaign could be quickly stopped by asking the stations to discontinue airing the PSAs, thus avoiding the problem of publicizing services that the agency could not immediately deliver.

A number of field studies have described the use of PSAs and mass media campaigns as linking mechanisms (Freimuth & Van Nevel, 1981; Friedrich, 1977; Iversen, Silberberg, & Belk, 1970; Leach & Associates,

⁴A PSA is defined by the Federal Communications Commission as an announcement "for which no charge is made and which promotes programs, activities or services of Federal, State or local governments (e.g., recruiting, sales of U.S. Savings Bonds, etc.) or the programs, activities or services of nonprofit organizations (e.g. UGF, Red Cross, Blood Donations, etc.) or any other announcements regarded as serving community interests" (47 Code of Federal Regulations 73.1810 (d) (4)).

1975; Neiger, 1970; NIMH, 1975; Schanie & Sundel, 1978). These campaigns were designed to urge a particular target audience to write, visit, or telephone the campaign's sponsoring organization so that the organization could provide information or services to the audience members who responded. A recent review (McAbee, 1979; McAbee & Cafferty, Note 1) of these studies found that a number of the campaigns which relied partially but not entirely on PSAs were effective as linking mechanisms. However, the effects reported in these studies were usually for the total campaign. Thus, the contributions (if any) of the PSAs to the campaign's effects could not be determined, since the effects of the PSAs by themselves could not be extricated methodologically from each campaign's overall results.

Of the campaigns that relied entirely on radio or television PSAs, two reported positive results (Market Facts, 1979; "Radio delivers," 1970). In both campaigns, the PSAs were aired over large geographic areas by many stations. One study ("Radio delivers," 1970) offered no precampaign baseline measures, and the other (Market Facts, 1979) measured changes in the audience's awareness of the PSAs and the publicized service but not the campaign's actual impact on the demand for the service.

No study reported that PSAs alone can be effective as linking mechanisms when aired locally by one or few stations. To the contrary, one field study of a media campaign that used television PSAs on three local stations along with newspaper articles concluded that the campaign was not cost-effective as a linking mechanism for attracting new clients (Stauss, Ousley, & Carlin, 1977-1978); but this conclusion is difficult to interpret because insufficient information was provided about the campaign. In another study, a campaign to disseminate nutritional information to the elderly (Fitzgibbons & Garcia, 1977), four local television stations aired a series of PSAs 112 times in 6 weeks. At the end of the campaign, a majority of a convenience sample of the target audience could not recall seeing the PSAs, and the campaign produced no measurable results. The authors point out, however, that the lack of results may be due to a number of factors, including the length of the campaign and the time of broadcast of the PSAs. Thus, in spite of the frequent use of PSAs by human service agencies and other organizations, almost no definitive evidence has been reported that radio or television PSAs alone can be effective when aired locally by one or few stations (McAbee, 1979).

The purpose of the present study was to examine the effectiveness of using PSAs as a relatively inexpensive linking mechanism for local human service agencies. To accomplish this, 10- and 30-second PSAs were videotaped for three agencies that provide services for the aging. Because television is reportedly a major source of information and entertainment for the elderly (e.g., Davis, 1975; Liebert & Schwartzberg, 1977), television was

chosen as the medium for the PSAs to reach the agencies' potential clients. To assess the PSAs' effectiveness as a linking mechanism, an evaluation was designed that could be implemented in a field setting and, without the benefits of a randomly assigned control group, still test for the effects of the intervention while minimizing the number of alternative hypotheses that could be offered to explain the results (Campbell & Stanley, 1966; Cook & Campbell, 1979). The evaluation tested the following hypotheses to determine the effects of the PSAs: (a) the number of inquiries about services from nonclients received per day on the telephone number publicized in the PSAs would increase significantly during the days that the PSAs were released for broadcast as compared to the number of inquiries received prior to the release of the PSAs for broadcast; and (b) the number of new clients received by the agency per day would increase significantly during the days that the PSAs were released for broadcast as compared to the number of new clients received prior to the release of the PSAs for broadcast.

METHOD

Subjects and Participating Agencies

Three agencies that provide a variety of services for the aging volunteered to participate in the research project. Two of the agencies, the Richland-Lexington Council on Aging and the Columbia Urban League Aging Program, serve the elderly citizens in an urban area (Richland and Lexington Counties) of South Carolina. The third agency, the Newberry County Council on Aging, serves the elderly population in an adjoining rural county.

The subjects for the experiment are the population, especially the elderly population, who live in the catchment area of the three agencies. According to the 1970 census, a total of 34,809 individuals 60 years of age or older lived in the catchment area; by 1976 this age group had grown to an estimated 41,600, or about 10.3% of the total population of the three counties (U.S. Department of Health, Education, and Welfare, 1978).

A commercial television station, WIS-TV, with a signal strong enough to reach the entire catchment area participated in the project by donating air time to broadcast a series of PSAs for the three agencies.

Design

A quasi-experimental design was selected so that the effectiveness of the PSAs could be tested in the natural environment (Riecken & Boruch,

1974) using actual broadcasts from a television station. The specific design used in the project, a multiple group-sequential multiple-intervention time series (derived from designs described by Glass, Willson, & Gottman, 1975) required the agencies to make observations on each weekday during a 12-week period. After a 6-week period of no broadcasts, a 6-week multiple-intervention was introduced: one agency received air time during the first 2 weeks, the second agency received air time during the next 2 weeks, and the third agency received air time during the last 2 weeks (see Figure 1). Introducing the intervention for each agency sequentially permitted testing for intervention effects across all groups at different points in time, thus creating a test of the replicability of the intervention effects within the time series (Cook & Campbell, 1979). The base-line period for each agency was 6, 8, or 10 weeks, depending on when the agency's PSAs were aired. Data were also collected at each agency for 1 week prior to the base-line period so that the data collection procedure could be practiced and "debugged" on a trial basis.

Procedure

After the three aging-service agencies volunteered to participate in the project, the experimenter, using the Fairweather and Tornatzky (1977) model for administrative agreements, drafted and signed written agreements with each agency specifying the commitments made by each party as well as describing in detail the data that the agency would provide. Data-recording forms and written instructions for each form were prepared, reviewed by the staff members who would be responsible for collecting the data, and then modified based on their suggestions.⁵ One person in each agency served as a data collection coordinator. At the end of each day during the quasi-experiment, the data collection coordinators mailed the completed recording forms to the local area agency on aging, Central Midlands Regional Planning Council, where the forms were stored as an archive for the research project. During the data collection, the experimenter periodically scanned the incoming data and consulted with the data collection coordinators.

One 10-second and one 30-second PSA were videotaped for each of the three agencies. The cost of producing the PSAs was minimized by videotaping a series of slides and camera cards rather than videotaping or filming live action. (One advantage of producing PSAs on videotape, especially for a human service agency that intends to use the PSAs as a linking mechanism, is the videotape's availability for immediate reuse whenever service demand slumps at the agency.)

⁵For copies of the final version of the recording forms and written instructions, agreements with each agency, and the scripts for the PSAs that were used in the project, see McAbee, 1979, pp. 104-138.

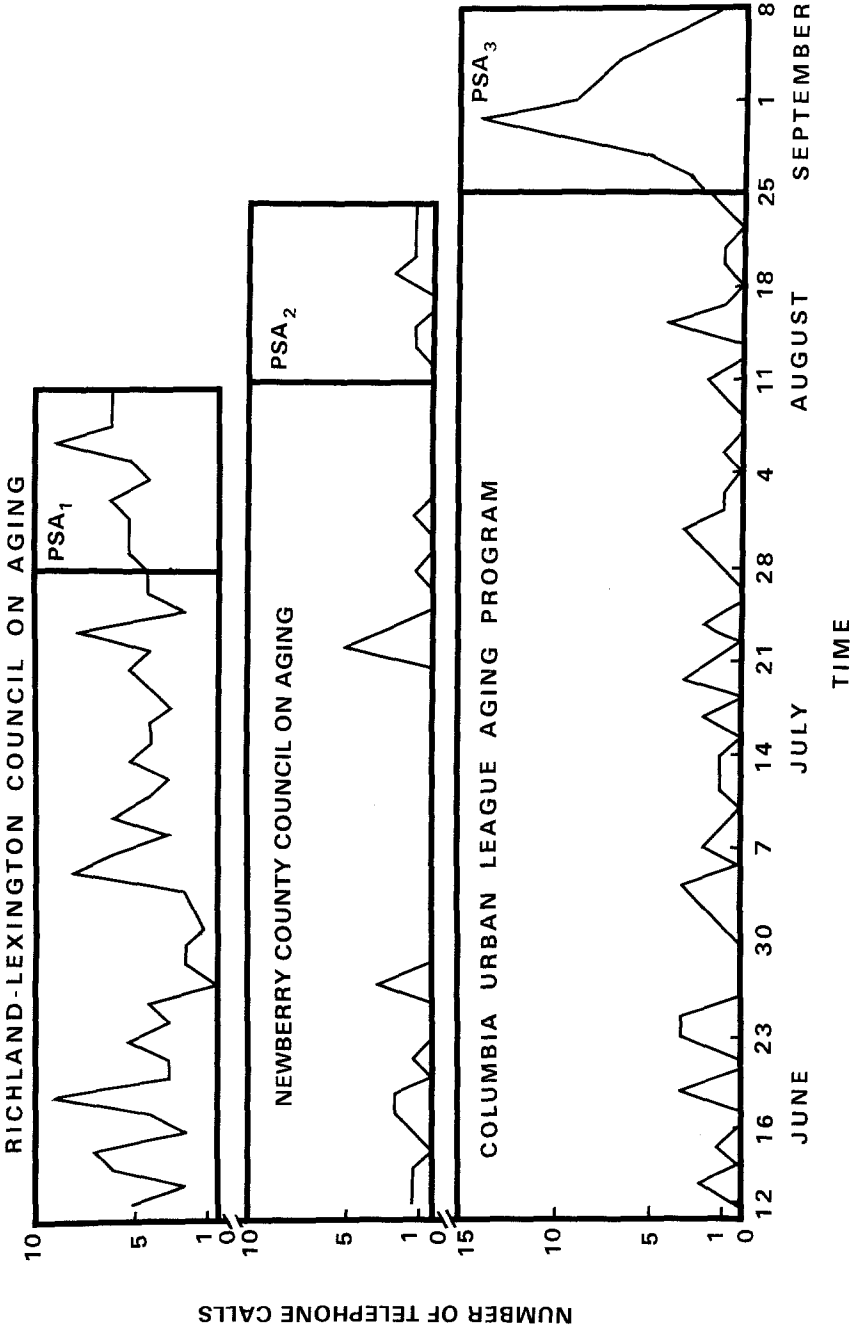


Fig. 1 Number of telephone calls from nonclients received by each of three agencies: (PSA₁ = 10- and 30-second PSAs for Richland-Lexington Council on Aging; PSA₂ = 10- and 30-second PSAs for Newberry County Council on Aging; PSA₃ = 10- and 30-second PSAs for Columbia Urban League Aging Program).

Prior to collecting the data, the proposal for the research project was submitted to the community service director of WIS-TV. The station expressed interest in the project and agreed in writing to (a) accept for broadcast one 10-second and one 30-second PSA for each of the three agencies, (b) provide a minimum of two scheduled broadcasts per day for each day during the 6-week intervention period, (c) broadcast each PSA only during the 2-week period for which the announcement was released, and (d) provide a record of the date and time for each broadcast that the PSAs received.

The PSAs were televised over a 6-week period (July 29, 1978 through September 8, 1978) according to the release dates specified by the experimenter. The number of times that the PSAs were televised during the 6-week intervention period (Table I) was tabulated directly from the original copy of the master log for WIS-TV. The largest number of broadcasts occurred between 9:00 a.m. and 4:30 p.m., coinciding with the hours that staff members were present at each agency to answer the incoming requests for services. The three agencies received approximately the same number of broadcasts, although the Columbia Urban League Aging Program received air time for its 10-second PSA but not its 30-second PSA.

The three agencies recorded all known media coverage, in addition to the PSAs, that was received intentionally or otherwise during the project. The amount of known media coverage received by the three agencies in addition to the PSAs did not appear to change substantially between the base-line and intervention periods, and offered little or no evidence to suggest that changes in the demand for services between the two time periods can be attributed to this media coverage—a conclusion that appeared to be supported on a *prima facie* basis by the number of telephone inquiries from nonclients who reported learning about the agency from media exposure other than the PSAs.

RESULTS

The incoming demand for services at each agency during the base-line period and the intervention period is summarized in Table II. The time-series observations for two of the variables in Table II: (a) the number of telephone inquiries about services received from nonclients and (b) the number of new clients, were examined with the Autoregressive Integrated Moving Average (ARIMA) modeling techniques to test the two hypotheses. The time-series observations for a third variable, the number of telephone calls received from current clients, were also examined with the ARIMA

Table 1. Number of Broadcasts of Each Public Service Announcement Received During the Intervention Period

Time of day	Number of broadcasts of each public service announcement											
	Richland-Lexington Council on Aging ^a			Newberry County Council on Aging ^b			Columbia Urban League Aging Program ^c			Total number of broadcasts received		
	:10	:30		:10	:30		:10	:30		:10	:30	:10 + :30
7:00-9:00 a.m.	0	6		2	3		0	0		2	9	11
9:00-12:00 noon	2	4		4	2		7	0		13	6	19
12:00-4:30 p.m.	3	6		3	2		9	0		15	8	23
4:30-6:00 p.m.	0	2		1	1		0	0		1	3	4
6:00-8:00 p.m.	0	1		1	1		2	0		3	2	5
8:00-11:00 p.m.	0	0		0	2		1	0		1	2	3
11:00-1:00 a.m.	0	1		1	0		4	0		5	1	6
1:00-sign off	0	0		1	0		3	0		4	0	4
Total	5	20		13	11		26	0		44	31	75

^aTelevised from July 29 through August 11, 1978.

^bTelevised from August 12 through August 25, 1978.

^cTelevised from August 26 through September 8, 1978.

Table II. Summary of Incoming Demand for Services

Variable	Agency											
	Richland-Lexington Council on Aging			Newberry County Council on Aging			Columbia Urban League Aging Program			Three agencies combined		
	Base line	Inter-vention	PSAs on the air ^a	Base line	Inter-vention	PSAs on the air ^a	Base line	Inter-vention	PSAs on the air ^a	Base line	Inter-vention	PSAs on the air ^a
Number of inquiries from nonclients	137	127	57	20	11	8	31	78	57	188	216	
Number of telephone inquiries ^b	0	14	9	0	9	8	0	55	55	0	78	
Number reporting learning about agency from television announcement	16	9	6	25	5	0	0	1	0	41	15	
Number of inquiries made in person ^c	0	0	0	0	0	0	0	0	0	0	0	
Number reporting learning about agency from television announcement												
Number of new clients ^d	1	8	1	10	4	3	9	32	24	20	44	
Number of blacks	4	3	2	24	15	5	9	40	31	37	58	
Number of whites	NA ^e	NA	NA	NA	NA	NA	10	51	39	NA	NA	
Number of females	NA	NA	NA	NA	NA	NA	8	21	16	NA	NA	
Number of males	5	11	3	34	19	8	18	72	55	57	102	
Total												
Number of telephone inquiries from current clients ^f	32	14	10	756	718	287	89	88	25	877	820	

^aTwo week period of the 6-week intervention that the public service announcements for the agency indicated were on the air.

^bNumber of inquiries about services received from nonclients on the telephone number publicized in the announcements for each agency.

^cNumber of inquiries about services received from "walk-in's."

^dFor the Richland-Lexington Council on Aging, number of new clients for one service only; the telephone reassurance program.

^eData not available (NA).

^fNumber of inquiries about services received from current clients on the telephone number publicized in the announcements for each agency. The Richland-Lexington Council on Aging operated a number of service delivery centers, each with a different telephone number. In contrast, the Newberry County Council on Aging operated one main service delivery center with a small satellite office, a fact that may account for the relatively large number of inquiries from current clients that was received on the agency's telephone number.

modeling techniques to determine if the PSAs had an effect on this variable as well. (For a discussion of the ARIMA modeling techniques as a means to test for intervention effects in an interrupted time series, see Box & Tiao, 1975; Glass et al., 1975; McCain & McCleary, 1979.)

To test the hypotheses, the amount of incoming demand for services at each agency during the base line (no broadcasts of the PSAs) was compared with the demand for services during the intervention period when the PSAs were televised. Because the observations of the service demand variables were recorded daily as a time series, the observations had to be examined to determine whether or not the error terms were serially correlated. The error terms were tested for serial correlation by computing the autocorrelation function (ACF) and the partial autocorrelation function (PACF) for the observations with CORREL, a computer program by Bower, Padia, and Glass (1974).

The results of the ACF and PACF indicated that most of the time series were a "white noise" or ARIMA (0, 0, 0) model: that is, the error terms were not serially correlated. This conclusion was based on the ARIMA model for the base-line period observations only. A model for the intervention period could not be determined due to an insufficient number of observations. Because the standard deviations for observations in an ARIMA (0, 0, 0) model are not biased, the base-line period observations and the intervention period observations were tested for significant difference using a *t* test for unequal variances (Winer, 1971). For each time series that was identified as an ARIMA (0, 0, 0) model, the change in the level of the time series from the base-line period to the intervention period, and the results of the test for significant difference, are presented in Table III.

The results of the ACF and the PACF indicated that a white noise model did not exist for one variable, the new clients received by the Richland-Lexington Council on Aging (or, more specifically, for the base-line period observations of this variable since a model cannot be identified for the intervention period due to the small number of observations). Because the error terms are autocorrelated in this time series, an appropriate ARIMA model must be identified in order to test for the effects of the intervention. However, no ARIMA model was found that reduced the residuals of the corresponding model equations to a white noise model, a result that may be due to the small number of observations in the series and the large percentage of observations with the same value. Because no appropriate test is known for this time series, the difference between the means for the observations in the base-line period and the intervention period is reported as the change in level without testing for significant difference (Table III).

Table III. Summary of Results of the Interrupted Time-Series Analyses

Agency	Base line			Intervention			ARIMA model ^a	Change in level	Test for significant difference ^b
	N	M	SD	N	M	SD			
	Number of telephone inquiries about services received per day from nonclients								
Richland-Lexington Council on Aging	34	4.0294	2.0071	10	5.7000	1.2689	(0, 0, 0)	1.6706	$t = 3.16, df = 24, p < .005$
Newberry County Council on Aging	44	.4773	.9883	10	.8000	.6000	(0, 0, 0)	.3227	$t = 1.34, df = 22, p < .10$
Columbia Urban League Aging Program	53	.9811	1.1073	9	6.3333	3.8586	(0, 0, 0)	5.3522	$t = 4.13, df = 8, p < .005$
	Number of new clients received per day								
Richland-Lexington Council on Aging ^d	20	.2500	.4330	6	.5000	.5000	(No model) ^e	.2500	No appropriate test available ^f
Newberry County Council on Aging	44	.8864	1.1524	10	.8000	.6000	(0, 0, 0)	-.0864	$t = -.34, df = 27, ns$
Columbia Urban League Aging Program	53	.6604	1.0083	9	6.1111	3.4462	(0, 0, 0)	5.4507	$t = 4.71, df = 8, p < .005$
	Number of telephone inquiries received per day from current clients								
Richland-Lexington Council on Aging	34	.9412	1.1099	10	1.0000	.8944	(0, 0, 0)	.0588	$t = .17, df = 18, ns$
Newberry County Council on Aging	44	22.2500	8.8063	10	28.7000	5.1778	(0, 0, 0)	6.4500	$t = 3.06, df = 23, p < .005$
Columbia Urban League Aging Program	53	2.8679	2.7680	9	2.7778	1.0304	(0, 0, 0)	-.0901	$t = -.18, df = 37, ns$

^aARIMA for base-line observations only; ARIMA for intervention period could not be determined due to insufficient number of observations.

^bFor the ARIMA (0, 0, 0) models, Satterthwaite's approximation (Winer, 1971), which is based in part on the variances of the two samples, was used to compute the degrees of freedom for the test for significant difference. Therefore, the degrees of freedom will differ with the variances of the two samples even though the sample sizes remain the same.

^cNo ARIMA model was found that reduced the residuals to white noise.

^dNumber of new clients for one service only: the telephone reassurance program. New clients were added to this program only during three days (Tuesday through Thursday) of each week.

During the quasi-experiment, the number of telephone inquiries from nonclients increased significantly for each agency when the PSAs were televised (Figure 1; Table III). The mean number of telephone inquiries about services from nonclients received per day by the Richland-Lexington Council on Aging increased significantly ($p < .005$) from 4.03 during the base-line period to 5.70 during the 2 weeks that the agency's PSAs were broadcast. At the Newberry County Council on Aging, the telephone inquiries from nonclients increased from .48 per day during the base line to .80 per day during the intervention (significant at $p < .10$); and the telephone inquiries from nonclients received per day by the Columbia Urban League Aging Program increased significantly ($p < .005$) from .98 to 6.33 during the 2 weeks that the agency's PSAs were televised.

Increasing the number of inquiries about services from nonclients is one of the two intended effects of broadcasting the PSAs, and is an instrumental goal for the second intended effect: increasing the number of new clients received by each agency. During the quasi-experiment, the mean number of new clients received per day by the Columbia Urban League Aging Program increased significantly ($p < .005$) from .66 to 6.11 during the 2 weeks that the agency's PSAs were televised (Table III). However, at the Newberry County Council on Aging, the number of new clients received per day did not change significantly between the base-line period and the intervention period. The mean number of new clients received per day at the Richland-Lexington Council on Aging for one of the services offered by the agency, the telephone reassurance program (data were not available for the other services), increased from .25 during the base line to .50 during the intervention. However, because there is no statistical test appropriate to test the two means for significant differences, it is unknown whether the increase was significant or not.

Broadcasting the PSAs had no apparent effect on the number of telephone calls that were received from current clients by the Richland-Lexington Council on Aging and the Columbia Urban League Aging Program during the quasi-experiment (Table III). Only at the Newberry County Council on Aging did the number of telephone calls from current clients increase significantly ($p < .005$) during the intervention period.

During 4 days of its 2-week intervention period, the Columbia Urban League Aging Program recorded the time that telephone inquiries were received from nonclients. Summarized in Table IV are the exact times that its 10-second PSA was televised on these 4 days (the 30-second announcement received no air time), the number of telephone inquiries from nonclients received by the agency per hour, and the percentage of the nonclients who reported learning about the agency from the television announcement. No inquiries were received after the broadcasts of the PSA during the morning viewing hours (9:00 a.m. to noon) when, based on the audience ratings for WIS-TV for July 1978 (no ratings are available for August or

Table IV. Comparison of Time of Broadcast of Public Service Announcement to Time Telephone Inquiries Were Received From Nonclients

Date ^a	Time of broadcast ^b	Number of telephone inquiries received by agency				Total no. of inquiries received	% reporting learning about agency from TV announcement
		From nonclients preceding broadcast ^c	During 1st hour after broadcast	During 2nd hour after broadcast	From nonclients per day		
August 28	9:59 a.m.	0	0	0			
August 28	2:02 p.m.	0	2	1	3	100	
August 29	10:59 a.m.	0	0	0			
August 29	2:59 p.m. ^{?d}	1	4	0	5	100	
August 30	3:28 p.m.	7	3	0	10	100	
August 31	12:59 a.m. ^e	0	0	0			
August 31	9:59 a.m.	0	11	1	12	100	
August 31	2:29 p.m.	0					

^aDays selected for this table are all of those for which these data are available.

^bAll broadcasts received during the 4 days are listed. The broadcasts are the same PSA: the 10-second announcement for the Columbia Urban League Aging Program.

^cProbably due to errors in recording the data, rather than to telephone inquiries actually preceding the broadcasts.

^dActual broadcast and its exact time unknown due to probable data recording error.

^e Agency's office was closed at this time.

September), the size of the adult viewing audience was less than half of the afternoon adult viewing audience (noon to 4:30 p.m.). All of the telephone inquiries from nonclients that were received by the agency on these 4 days occurred within 2 hours of the afternoon broadcasts of its PSA (assuming data-recording errors were made for several inquiries reported as preceding the exact time of broadcast); and all of the nonclients who telephoned the agency reported learning about the Columbia Urban League Aging Program from the television announcement.

DISCUSSION

To summarize the findings, the quasi-experiment indicated that the PSAs (which were produced at low cost and aired by a single station for 6 weeks) were effective in increasing (a) the number of service inquiries received from nonclients on the telephone numbers publicized in the PSAs, and (b) the number of new clients (for at least one of the three agencies). Broadcasting the PSAs had the expected effects even though few broadcasts were made during prime time; rather, most broadcasts occurred during the daytime viewing hours. Because the PSAs generated demand quickly but not so much as to overwhelm the agencies, the PSAs were apparently effective as a linking mechanism between the human service agencies and potential clients in the community.

The PSAs apparently had the unintended effect (though not necessarily an undesirable one) of increasing the telephone calls from current clients at one of the three agencies. However, no corroborating evidence is available to suggest whether or not the increase can be attributed to the broadcasts of the PSAs. The PSAs had little or no impact on the number of inquiries about services made in person by nonclients at each of the three agencies (Table II) or on the number of inquiries received by one agency on a telephone number which was not publicized by the PSAs. On the unpublicized telephone number at the Newberry County Council on Aging (the only agency that could provide these data), only one inquiry was received from a nonclient who reported learning about the agency from the PSAs. Thus, the PSAs had few known unintended effects on the amount of incoming service demand at the three agencies.

An implication of this quasi-experiment for community psychology derives from using two communication networks, television and telephones, to link the aging-service agencies with community members who needed their services. Comstock (1976) has described the potential benefits of applying behavioral research to examine the effects of television, and Comstock and Lindsey (1975) have noted the importance of determining

how television can be used more effectively to disseminate information to various population groups, including the elderly. Community psychology may be able to contribute to this task by determining how a variety of information (e.g., the availability of services from local agencies, coping skills, affective education, prevention strategies, interpersonal communication skills) can be communicated clearly, concisely, and effectively to those individuals and families in the community who need the information by using some of the communication networks, either technological (radio, television, newspapers, telephones), organizational (schools, civic clubs, churches), or interpersonal, that operate daily in every community.

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