

ACKNOWLEDGMENTS

This paper was presented in part at the 108th Annual Meeting of the American Public Health Association, Detroit, Michigan, October

1980. The authors wish to thank Mary Moien of the National Hospital Discharge Survey, NCHS, for her assistance in the preparation of this manuscript.

Indicators of Response to a Mass Media CPR Recruitment Campaign

MAIJA L. SELBY, RN, MPH, JUDITH A. KAUTZ, PhD, THOMAS J. MOORE, MS,
WILLIAM R. GOMBESKI, JR, MPH, MBA, AMELIE G. RAMIREZ, MPH,
EMILE J. FARGE, PhD AND RONALD N. FORTHOFFER, PhD

Abstract: Respondents to a mass media cardiopulmonary resuscitation (CPR) recruitment campaign in Harris County, Texas were more likely than non-respondents to be White, female, and under 45 years of age, to have had previous CPR training, experienced an incident in which knowledge of CPR might have been useful, or to have a friend or relative with a relevant medical history. The majority of the respondents were housewives, and professionals or technical workers, particularly in the health field. Findings can be used to identify audiences for future mass media CPR campaigns. (*Am J Public Health* 1982; 72:1039-1042.)

cardiopulmonary resuscitative techniques by 1983.⁵ To recruit sufficient numbers of citizens, the effective use of the mass media is required. Communications literature maintains that media campaigns are most likely to succeed if "targeting" techniques are utilized for specific population groups.⁶⁻¹² If CPR campaigns are to recruit the greatest number of people in the most efficient manner, target groups for CPR must be identified.

This study describes the demographic and relevant life experience characteristics of respondents and non-respondents to a mass media CPR recruitment campaign in Harris County, Texas, which includes the City of Houston.

Introduction

Studies indicate that mortality by myocardial infarction can be significantly reduced by cardiopulmonary resuscitation (CPR) initiation within 4 minutes and definitive care within 10 minutes.¹⁻⁴ To meet the 4-minute standard, citizen-initiated CPR is essential. In recognition of the importance of citizen CPR, the American Heart Association's Texas Affiliate has set a goal for Texas of having 20,000 trained instructors to educate 20 per cent of the adult public in

Materials and Methods

From 1975 to 1978, over 5,000 persons in Houston were trained in CPR by one volunteer program.* In an effort to increase enrollment for the subsequent year, an intensive 14-week multi-stage print and broadcast media public service CPR recruitment campaign was developed.

A post-campaign survey was administered to a randomly selected sample of households in Harris County, the geographic focus of the CPR recruitment campaign. The interviewers reached 685 households, of which 125 (18.2 per cent) refused to be interviewed. The age and ethnic distribution of the remaining 560 persons reflected that of the Harris County population.

Respondents were defined as those adults age 18 and over who telephoned the number in the campaign announcements (n = 628). Respondents were further classified by status of call: whether the call produced an enrollment in a CPR class (n = 459) or was for information only (n = 169). Non-respondents were defined as those persons from the post-campaign survey who had not called the specified number (n = 558). The non-respondents' age and ethnic

Address reprint requests to Amelie G. Ramirez, MPH, Director, Communications Core, Office of Public Affairs, Room 176B, Baylor College of Medicine, 1200 Moursund, Houston, TX 77030. Ms. Selby is a doctoral candidate, Dr. Kautz is Assistant Professor, Mr. Moore is Senior Health Communicator with the Communications Core, Mr. Gombeski was Coordinator for Market Research and Evaluation with the Communications Core (he is now with the Cleveland Clinic Foundation, Ohio), and Dr. Farge is Assistant Professor, all with the Baylor College of Medicine in Houston; Dr. Forthofer is Associate Professor, University of Texas School of Public Health, Houston. This paper, submitted to the *Journal* March 16, 1981, was revised and accepted for publication March 12, 1982.

* Sponsored by Baylor College of Medicine, Communications Core of the National Heart, Lung, and Blood Vessel Research and Demonstration Center, with the American Heart Association, Houston Chapter, and the Junior League of Houston.

TABLE 1—Age, Sex, and Ethnicity by Response

Variable	Respondents	Non-Respondents
Age		
Total N*	611	528
% 18–44 years	74.1	67.8
% 45 years and over	25.9	32.2
Sex		
Total N**	627	552
% Female	74.0	55.6
% Male	26.0	44.4
Ethnicity		
Total N**	615	544
% White	88.6	67.4
% Black	5.9	19.5
% Hispanic	4.4	10.7
% Other	1.1	2.4

*Chi-square $p < 0.05$ **Chi-square $p < 0.001$

NOTE: Column totals do not equal total sample sizes because of missing values which were not included in computations.

distribution were representative of the Harris County population.

Demographic variables examined in this study were self-reported age, sex, ethnicity, and occupation. To determine respondent motivating factors, questions were asked regarding medical history of family or friends and past experiences with CPR, including previous CPR training.

Cross-tabulations of the demographic and motivational variables of interest were tested using a chi-square statistic.

The level of significance was set at alpha equal to 0.05 in all calculations. Missing values were omitted from all calculations. All p-levels reported in this paper are based upon the chi-square test for contingency tables.¹³

Results

Age, sex, and ethnicity of respondents and non-respondents are presented in Table 1. A higher proportion of

TABLE 2—Percentage Distribution of Occupation by Response and Enrollment Status*

Occupational Group**	Respondents			Non-Respondents (n = 495)
	Enrolled in CPR (n = 451)	Did Not Enroll (n = 163)	Total Respondents (n = 614)	
Professional				
Technical and Kindred (includes Health Occupations‡)	35.3	23.9	32.3	22.0
Manager	8.4	6.1	7.8	9.9
Sales	5.5	6.7	5.9	7.7
Clerical	11.8	16.6	13.0	18.6
Craftsman	1.8	1.2	1.6	8.3
Operative	0.9	1.8	1.2	6.1
Laborer	0.2	1.2	0.5	3.8
Service	2.2	3.1	2.4	11.5
Student	4.2	4.9	4.4	0.4
Housewife	25.3	31.3	26.9	5.3
Unemployed	0.7	2.5	1.2	6.3
Retired	3.8	0.6	2.9	0.2
TOTAL	100.0	100.0	100.0	100.0

*Column totals do not equal total sample sizes because of missing values, which were not included in computations.

**Occupational coding was done according to the occupational classification system used by the US Bureau of the Census, 1970.

‡Health workers in the "professional, technical, and kindred" occupational category consisted of 58 respondents and 12 non-respondents.

TABLE 3—Medical History among Family and Friends by Response*

Medical History of Family or Friends**	Respondents (N = 610)	Non-Respondents (N = 528)
Yes (%)	46.7‡	29.0‡
No (%)	53.3	71.0

*Column totals do not equal total sample sizes because of missing values, which were not included in computations.

**All subjects were asked, "Does anyone in your family or do any of your friends have a medical history that especially makes this training a desired skill for you to have?"

‡Chi-square $p \leq 0.001$.

respondents than non-respondents was under 45 years of age and female. Blacks and Hispanics, who accounted for more than 30 per cent of the target area population, provided less than 11 per cent of the respondents.

Occupational data are summarized in Table 2. Because respondents included a large number of housewives ($n = 165$, 26.9 per cent of all respondents), the hypothesis that respondents would be of a higher status occupational group could not be thoroughly examined. However, occupational differences between respondents and non-respondents were significant ($p \leq 0.001$), with respondents including disproportionate numbers of professional or technical workers as well as housewives. When health workers, who accounted for 29.3 per cent of the respondents in the professional, technical, and kindred occupational category, were removed from the analysis of professional, technical, and kindred workers versus all other workers, the difference was no longer significant. Further analysis of those who called showed that health workers were no more likely than other workers actually to enroll in CPR classes. However, with health workers excluded from analysis, professional, technical, and kindred workers who called were more likely than respondents in other occupations to enroll in CPR classes ($p \leq 0.05$).

Related health problems of friends or family were reported more often by respondents than non-respondents (Table 3). Significantly more respondents than non-respondents reported that they or their friends or relatives had experienced an incident where CPR, an emergency lifesaving technique, would have been helpful for someone to know (Table 4). Previous CPR training was reported by 21.0 per cent of the respondents and 16.0 per cent of the non-respondents, but the two groups did not differ in past use or observation of CPR.

Discussion

Our findings, while in concurrence with studies regarding knowledge of health and usage of health information services, suggest inequities in CPR education. CPR training involves a degree of physical effort which might make older people less inclined to respond, yet the age group 45 years

TABLE 4—Past Experience with CPR by Response

Questions Asked	Respondents	Non-Respondents
Experienced an incident in which CPR would have been helpful to know?*		
Total N*	610	528
% Yes	46.7	28.0
% No	53.3	72.0
Seen or Used CPR?		
Total N**	615	546
% Yes	16.4	14.1
% No	83.6	85.9
Previous CPR training?		
Total N***	620	554
% Yes	21.0	16.0
% No	79.0	84.0

*All subjects were asked, "Have you or any of your friends, family, or relatives experienced an incident where CPR, an emergency lifesaving technique, would have been helpful for someone to know?"

Chi-square $p \leq 0.001$

**All subjects were asked, "Have you used or seen CPR used in a real life situation?"

Chi-square N.S.

***Respondents were asked, "Have you ever had CPR training before?" Non-respondents were asked, "Have you ever been trained in CPR before?"

Chi-square $p \leq 0.05$

and over accounts for 98.3 per cent of the deaths from ischemic heart disease in the United States.¹⁴

Previous research in health interest and information has indicated that women, more than men, have a greater interest in health matters,¹⁵ a greater knowledge of heart disease,¹⁶ and are more likely to utilize a call-in health information service.¹⁷ Our study extended such findings to CPR recruitment efforts.

A 1975 study of the Harris County population suggested that ethnic minority groups lack knowledge of cardiovascular disease.¹⁸ We also found that members of Black and Hispanic minority groups seem relatively unlikely to respond to present CPR recruitment efforts.

Since the mass media campaign failed to attract a general population of respondents, it obviously is not a cost-effective method of disseminating CPR information to all people. Targeting CPR recruitment campaigns toward specific groups and having convenient locations for CPR classes within selected communities seem indicated. CPR educators must decide, however, if they wish to concentrate their recruitment efforts on such "easy targets," or elect to expand health education efforts to increase the awareness of the lay public, including the "tough targets," on importance and availability of CPR training.

Our analysis also indicates that callers and enrollees are more likely than non-callers to have experienced an incident in which knowledge of CPR might someday be helpful. These findings suggest that people who share these characteristics may desire to take CPR classes. They also suggest that CPR instructors should continue to stress the importance of retraining, perhaps even arranging for mailing of periodic reminder letters to former students.

Further research is needed to document the effectiveness of the development of innovative media campaigns directed toward specific population groups and CPR programs designed specifically to meet the needs of these groups. Investigators may find that appropriate application of targeting techniques, in recruitment as well as in CPR program design, may equalize response-per-effort among the various population groups.

REFERENCES

1. Copley DP, Mantel JA, Rogers WJ, *et al*: Improved outcome for prehospital cardiopulmonary collapse with resuscitation by bystanders. *Circulation* 1977; 56:901-905.
2. Lund I, Skulberg A: Cardiopulmonary resuscitation by lay people. *Lancet* 1976; 2:702-704.
3. Thompson RG, Hallstrom AP, Cobb LA: Bystander-initiated cardiopulmonary resuscitation in the management of ventricular fibrillation. *Annals Int Med* 1979; 90:737-740.
4. Eisenberg M, Bergner L, Hallstrom A: Paramedic programs and out-of-hospital cardiac arrest: factors associated with successful resuscitation. *Am J Public Health* 1979; 69:30-38.
5. American Heart Association, Texas Affiliate, Inc: Multidisciplinary Five-Year Goals to Decrease Morbidity and Mortality from Cardiovascular Disease 1978-1983. AHA, April 15, 1978.
6. Cooke TM: Mass media and health education. *Public Health Reports* 1976; 91:485.
7. Epstein JB, Magrowski WD, McPhail CWB: The role of radio and TV spot announcements in public health education. *Can J Public Health* 1975; 66:396-398.
8. Herrick KL, Weaver FJ, Ramirez AG: A successful health education campaign done with PSAs. *Education and Instructional Television* June 1978; 62.
9. Mendelsohn H: Some reasons why information campaigns can succeed. *Public Opinion Q* 1973; 37:50-61.
10. Mendelsohn H: What to say to whom in social amelioration programming. *Educational Broadcasting Review* December 1969; 19-26.
11. Mendelsohn H, Espie T, Rogers GT: Operation Gap-Stop. *Television Quarterly* Summer 1968; 39-52.
12. Weaver FJ, Herrick KL, Ramirez AG: A methodology for the development of effective consumer health education programs. *Health Values: Achieving High Level Wellness* 1978; 2:319-323.
13. Remington RD, Schork MA: *Statistics with Applications to the Biological and Health Sciences*. Englewood Cliffs, NJ: Prentice-Hall, 1970.
14. Rosenberg HM, Klemma AJ: Trends in cardiovascular mortality with a focus on ischemic heart disease: United States, 1950-1976. *In*: Havlik RJ, Feinleib M (eds): *Proceedings of the Conference on the Decline in Coronary Heart Disease Mortality*. Bethesda, MD: U.S. Dept of Health, Education, and Welfare, National Heart, Lung, and Blood Institute, May 1979. (NIH Pub. No. 79-1610.)
15. Feldman JJ: *The Dissemination of Health Information*. Chicago: Aldine Publishing Company, 1966.
16. Mackie M: Lay perception of heart disease in an Alberta community. *Can J Public Health* 1973; 64:445-454.
17. Mirand EA: Can-Dial: Cancer public information through the telephone. *In*: *Cancer: Cullen JW, Fox BH, Isom RN (eds): The Behavior Dimensions*. New York, Raven Press, 1976.
18. Weaver FJ, Herrick KL, Ramirez AG, *et al*: Establishing a community data base for cardiovascular health education programs. *Health Values: Achieving High Level Wellness* 1978; 2:249-256.

ACKNOWLEDGMENTS

This material was developed in part by the Communications and Design and Analysis Cores of the National Heart, Lung, and Blood Vessel Research and Demonstration Center, Baylor College of Medicine, and Blood Institute, National Institutes of Health, Grant Number 17269.

Occupational Health & Safety Management Course Offered

The Johns Hopkins University, School of Hygiene and Public Health will present a course entitled, "Management of Occupational Health and Safety Programs," October 18-20, 1982 at the Engineering Society of Baltimore. This course, directed by Morton Corn, will address the needs of industrial hygienists and safety science personnel charged with managing occupational health programs.

The course blends traditional management principles, translation of these principles to the safety and health field, and two case studies presented by safety and health managers.

For further information, contact:

Dr. Jacqueline Corn

Department of Environmental Health Sciences

School of Hygiene and Public Health

Johns Hopkins University

615 North Wolfe Street

Baltimore, MD 21205

(301) 955-3343