



Published in final edited form as:

Prev Med. 2003 December ; 37(6 Pt 1): 646–653.

The relative efficacy of pamphlets, CD-ROM, and the Internet for disseminating adolescent drug abuse prevention programs: an exploratory study*

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Abstract

Background—Despite the availability of an increasing array of empirically validated adolescent drug abuse prevention programs, program materials and evaluation findings are poorly disseminated. CD-ROM and the Internet hold promise for disseminating this information to schools and agencies that directly serve youth, and to policy-making bodies that exercise control over funds to support adolescent drug abuse prevention programming. However, data on the relative efficacy of these newer technologies over conventional print means of dissemination are lacking.

Methods—Recruited through schools, community agencies, and policy-making bodies, 188 professionals were randomized to receive prevention program materials via pamphlets (55 participants), CD-ROM (64 participants), and the Internet (69 participants). Participants completed pretest, posttest, and 6-month follow-up measures that assessed their access to prevention program materials; self-efficacy for identifying, obtaining, and recommending these programs; and their likelihood of requesting, implementing, and recommending prevention programs to their constituents.

Results—Participants exposed to dissemination via CD-ROM and the Internet evidenced the greatest short- and long-term gains on accessibility, self-efficacy, and behavioral intention variables.

Conclusions—CD-ROM and the Internet are viable means for disseminating adolescent drug abuse prevention programs to schools, community agencies, and policy-making bodies, and should be increasingly used for dissemination purposes.

Keywords

Drug abuse; Prevention; Adolescents; Technology transfer; CD-ROM; Internet

Introduction

National survey data reveal that substance use is widespread among American youth. Currently, over half (54%) have tried an illicit drug by the time they finish high school; three out of ten (29%) have used some illicit drug other than marijuana by the end of 12th grade,

*This study was supported by contract N44DA-0-5068 from the National Institute on Drug Abuse.

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and two of those three (20%) have done so over the preceding 12-month period [1]. In the United States, the impact of addiction on morbidity and mortality is great. Recent estimates reveal that approximately 105,000 deaths each year are attributable to alcohol abuse, 446,000 to tobacco use, and 39,000 to addictive drugs [2]. The use of addictive substances additionally accounts for approximately 40 million illnesses and injuries each year [2].

The relationship between early age of initiation of substance use and later substance abuse and dependence is well established [3]. Increasing recognition of the need for early intervention has prompted the development of a growing array of preventive interventions to forestall the initiation of alcohol, tobacco, and other drug use [4]. Many of these programs target early adolescents in middle or junior high school because it is at this age that many youth begin to experiment with substances [5]. Although a number of empirically validated preventive interventions for early adolescents currently exist [6–9], prevention program materials and evaluation findings are poorly disseminated [10–14]. Practitioners, policy makers, and schools lack access to applied research data and, more importantly, to conclusions regarding effective means for preventing drug abuse. Timely, salient drug abuse prevention information is needed by schools and service providers that directly serve American youth and by policy-making bodies that influence public attitudes and support for youth-oriented drug abuse prevention programming.

The process of moving information about effective substance abuse prevention programs and best practices from research to practice—referred to interchangeably as technology transfer, diffusion of innovations, and research utilization [6]— comprises three interrelated dimensions: dissemination, which consists of taking information about an effective program and telling practitioners, policy makers, and other constituencies about it; diffusion, which refers to the delivery and adoption of the program; and replication or adaptation, which refers to delivering the program as originally planned or adapting it to meet the specific needs of individuals or communities [15]. Dissemination can be viewed as the first in a series of steps toward the increased use of effective substance abuse prevention programs. Although the benefits of transferring science-based drug abuse prevention programs from research to practice have been acknowledged [12,14,16], research on the process of technology transfer is still in its infancy [15].

Dissemination can be achieved through a variety of formats including print materials (journal articles, brochures, news stories), data stored on disc, and over the Internet [15,17]. The former have dominated federal drug abuse technology transfer initiatives until only recently [17]. Over the past decade, federal substance abuse agencies have increasingly relied on websites and electronic bulletin boards to achieve their technology transfer objectives [17]. The potential for computer-based training, which makes use of print and audiovisual materials stored on disc, has also been recognized [17]. Despite their promise, the Internet and other electronic media have not been used for technology transfer on a widespread basis.

Although a variety of electronic media exist, CD-ROM and the Internet offer several advantages that make them ideal for disseminating prevention program materials. CD-ROM technology, for example, offers an increasingly accessible means to disseminate a great deal of information. With many PCs now equipped with CD-ROM drives, this medium is more widely available than ever before. The storage capacity of CD-ROMs, together with high quality graphics, audio tracks, and branching allow for a great deal of information to be presented in a lively and captivating manner. Information stored on CD-ROM is also highly portable, enabling the timely transfer of dissemination materials to potential adopters.

The Internet, in its short life, has garnered unprecedented attention from scientific, business, and public sectors. Never before in the history of communications has a medium emerged with

the rapid growth, potential, and impact of the Internet. Its ability to allow ready access to a world of information and to permit free interactive communication sets the Internet apart from any means of knowledge dissemination to date. In addition to possessing many of the same advantages CD-ROM technology affords, the Internet can reach large audiences and permit access to prevention program materials and findings on an unrestricted basis.

Despite the benefits of using CD-ROM and the Internet for technology transfer, there is a paucity of data on the relative efficacy of these newer technologies over conventional print means of dissemination. The present investigation was undertaken to bridge this gap. Three adolescent substance abuse prevention programs were identified and illustrative dissemination materials were compiled for each. These materials were disseminated to school personnel, community providers, and policy makers through pamphlet, CD-ROM, and Internet dissemination channels. In a randomized design, we examined the perceived accessibility of prevention program materials disseminated via pamphlet, CD-ROM, and Internet; respondents' self-efficacy for identifying, obtaining, and recommending these programs; and their likelihood of requesting, implementing, and recommending prevention programs to their constituents in the near future.

Methods

Sample

Data for this investigator-initiated study were collected from 188 professionals employed in schools, community agencies, and policy-making bodies. For purposes of this research, schools were defined as public and independent educational facilities at the middle and junior high levels. Community agencies were defined as private nonprofit organizations that provide youth with human services including school dropout, delinquency, and pregnancy prevention; day treatment, juvenile probation and parole; educational tutoring; and recreational, neighborhood, and club activities. Policy-making organizations were government legislative, analytic, funding, and regulatory bodies that were at least in part dedicated to the provision or recommendation of drug abuse prevention services for youth.

Youth services agencies were identified through the auspices of such school organizations as the National Association of Elementary Schools, the National Middle School Association, the National Association of Secondary Schools, local Parent Teacher Associations, and such community organizations as the Boys & Girls Clubs of America, the National Association of Homes and Services for Children, Youth Services International, the Association of Youth Councils, local Youth Services Associations, and local Youth Services Bureaus, and such policy organizations as the Center for State Policy Research, local Legislative Policy Analysts' Offices, local Drug Policy Forums, and the Institute for Public Policy. Sites were stratified for representativeness in national geographic distribution to fairly represent the United States population of schools, youth services organizations, and policy-making bodies, and a random sample of sites was selected.

First by mailed letter invitation, then by telephone follow-up, sites were offered the opportunity to participate in the study. Sites agreeing to participate were asked to identify professionals on staff to complete assessment batteries at planned intervals and to review materials for three youth-oriented substance abuse prevention programs. Professionals for our purposes were teachers, social workers, and other management and executive-level personnel who exercised decision-making power over the selection and application of adolescent drug abuse prevention programs. Grouped by site, informed and consenting professionals were matched on their constituency (school, agency, policy-making body) and geographic locale. Randomly, matched triads of sites were assigned to one of three study arms: pamphlet, CD-ROM, or Internet.

A power analysis determined the sample size needed to obtain a 25% effect size. A 25% effect size between study arms was conservatively based on differences reported in prior dissemination trials [18–20]. For a three-arm design (pamphlet vs CD-ROM vs Internet), 53 subjects per arm were needed to find a 25% effect size ($1 - \beta = .80$; two-tailed $\alpha = .05$) [21, 22]. This effect size reflects a .25 standard deviation between-arm difference in outcome variables at final follow-up, net the effects of pretest measurement data on these same variables.

From prior work with similar collaborating sites and professionals, we estimated that 30% of respondents initially agreeing to participate would be lost to attrition. We therefore recruited 207 informed and consenting professionals or 23 each from eligible schools, community agencies, and policy-making bodies, for a total of 69 professionals per arm. To minimize attrition over the duration of the 2-year study, we maintained regular contact with participating sites and professionals, regularly inquired about their willingness to continue in the research, and addressed problems and concerns that arose. Through aggressive procedures to retain participants, attrition was limited to 9%.

Of the 188 study participants, 55 received prevention program materials via printed pamphlets, 64 via CD-ROM, and 69 accessed these materials via the Internet. Females constituted 68.6% of the sample. The ethnic-racial composition of the sample was 67.6% white, 15% black, 7% Hispanic, and 4.3% other. Nearly one-half of respondents (48%) possessed a graduate degree, 22% were college graduates, and approximately equal proportions completed some college and some graduate school (10.6% and 12.8%, respectively).

Dissemination channel development

Three youth-oriented substance abuse prevention programs were identified, and illustrative dissemination materials were developed for each. We sought a variety of programs suitable for various settings and populations. One of the programs, Life Skills Training [23], is a well-known, school-based program designed for both elementary and middle/junior high school students. It has been evaluated and proven effective with White middle-class students, ethnic minority youth, inner-city urban populations, and suburban and rural populations. Another, All Stars [24], is a less well-known and replicated program that can be implemented in school or community-based settings. It targets an array of high-risk behaviors in middle school-aged adolescents including substance use, violence, and premature sexual activity. The third, Youth Recreation and Prevention Skills, or Youth RAPS [S.P.S., unpublished data, 2000], is not a well-known and replicated program. It targets alcohol, tobacco, and other drug use among ethnic-minority youth. Unlike most other prevention approaches, Youth RAPS is not primarily intended for classroom delivery by teachers. It was designed for use in nonschool settings.

To prepare these programs for dissemination, information was synthesized about each, and a common presentation format for delivering this content via pamphlet, CD-ROM, and Internet was developed. Across channels, an overview of the problem of drug abuse was introduced with a special focus on early adolescents. Discussion was devoted to how drug use is manifested in their communities, how it affects their lives and futures, and the way in which the nature of the problem has changed in recent years. Materials described the rationale, strategies, and costs to prevent drug abuse, and the roles of schools, professionals, and community groups, and relevant private and government bodies in addressing this problem.

The three aforementioned programs were then featured as illustrative approaches to preventing drug abuse among early adolescents. Materials clearly articulated that these programs neither represented the corpus nor necessarily the best of existing approaches. Rather, materials conveyed that many other high-quality and scientifically tested programs exist. Descriptions of each program included a lay summary of research data to support the program, information about the program's delivery requirements, length and, format, and details regarding the

program's past applicability to early adolescents. Across channels, dissemination content addressed the same substantive areas, to ensure equivalence across groups.

To enhance the relevance and appeal of this content for respondents in each of our target constituencies, materials were tailored to be responsive to their differing prevention needs. Thus, we developed one pamphlet each for school personnel, community providers, and policy makers and set up user identification numbers and passwords to deliver constituency-specific content to respondents in the CD-ROM and Internet arms. Our rationale for tailoring dissemination materials reflected theory and practicality. From theory, we know that professionals and other constituency consumers of information prefer sources that address their particular realities, contexts, and needs [25,26]. Practically, dissemination materials for each audience can contain more relevant information if designed with that specific consumer group in mind. Materials aimed at school personnel, for example, acknowledged the many competing demands placed on teachers and other school staff. Drug use and abuse was addressed from educational as well as behavioral perspectives and sufficient detail was devoted to the school as a venue for prevention programming—i.e., teacher requirements, classroom issues, and issues regarding preparation and delivery.

Materials for nonschool community providers gave special attention to the problems of drug use and abuse for youth in noneducational contexts. In our work, we have found that community agencies, albeit interested in children's development in schools, are principally concerned with issues that affect youth during nonschool hours [27,28]. Consequently, pamphlet, CD-ROM, and Internet-based materials for community providers emphasized their roles in combating adolescent drug use. Relative to the three illustrative programs, for example, materials described whether the programs have been tested in community settings, and the feasibility of implementing in those settings programs that have only been tested in schools.

For policy makers, dissemination content emphasized issues of drug abuse as they affect communities, cities, and the larger societal context. Policy makers learned about the costs of drug use and abuse, especially among youth, and were provided with material on the role of program planners, funding agencies, and policy analysts in initiating drug abuse prevention programs. The three illustrative prevention programs were described in terms of their potential cost-benefits for reducing problems of drug abuse among adolescents and young adults. Policy makers received comparisons of the programs on their implementation requirements and on their prior effectiveness with adolescent populations. Materials for this constituency also addressed the realities of integrating drug abuse prevention programs into schools and community agencies, many of which are already strapped for precious staff time and facing shrinking resources.

Procedure

Following random assignment of sites to study arms, professionals provided written informed consent to participate in the study, which was approved by the Internal Review Board of Intersystems Incorporated. Participants received by regular mail, fax, or email—according to their preference—a pretest measurement battery to complete and return. Following receipt of completed pretests, professionals in the respective study arms were sent the pamphlet, CD-ROM, or logon name, password, and instructions for Internet access. Roughly 6 and 12 months after receiving dissemination materials, participants completed posttest and follow-up measurements.

Measures

Respondents completed an outcome measurement battery comprised of demographic items and schedules for measuring drug abuse prevention program access; self-efficacy for

identifying, obtaining, and recommending prevention programs; and intentions to request, implement, and recommend prevention programs to their constituents. These variables were measured via a series of individual-item measures with Likert-scaled response options.

Demographics

Several standard survey items assessed gender, date of birth, ethnicity, educational attainment, and occupation.

Perceived accessibility of prevention program materials

Program access items queried whether respondents knew where to locate drug abuse prevention findings and materials, and, if so, whether programs lent themselves to the particular applications they envisioned (e.g., were relevant to their prevention needs)—with separate items designed for school personnel, community providers, and policy makers. The frequency with which respondents searched for prevention program materials and the perceived accessibility of this information were also measured.

Self-efficacy

In the method of Bandura [29], we measured professionals' self-efficacy for identifying and subsequently obtaining prevention programs to serve the needs of youth in their particular work settings. We additionally measured respondents' confidence in their ability to recommend prevention programs to their constituents.

Behavioral intentions

In a manner parallel to our measurement of professionals' self-efficacy, professionals were asked to report their behavioral intentions to apply prevention program materials. Both our work and that of other researchers have shown a close relationship between behavioral intentions and later successful performance of target behaviors [30,31]. Within their particular work setting and relative to the drug abuse prevention needs of youth, professionals quantified the likelihood of their future applications of materials disseminated in this trial. Items assessed their likelihood of requesting program materials, implementing a prevention program, and recommending programs to their constituents.

Statistical analyses

After each measurement, the investigators coded, entered, cleaned, and analyzed the data with SPSS 11.0 for Windows. Descriptive and inferential statistics were used to ensure baseline equivalence between groups on demographic background, self-efficacy, and behavioral intention variables. Between-arm differences in access, self-efficacy, and behavioral intention variables were examined with a series of univariate ANOVAs. Scheffé post hoc comparisons determined differences between pairs of means. Analyses of covariance were used to examine between-arm differences over the three time intervals (pretest, posttest, 6-month follow-up). For these analyses, pretest and posttest variables were entered as covariates, study arm as the fixed factor, and selected posttest and follow-up variables as outcomes. Bonferroni post hoc comparisons were used to detect differences between means across time intervals.

Results

Descriptive statistics were used to generate a demographic profile of respondents in the three study arms (pamphlet, CD-ROM, Internet). Respondents from target constituencies tended to be female, between the ages of 30 and 49 years, white, and well educated with close to half of respondents (48%) holding graduate degrees (Table 1). Chi-square and univariate analyses of

variance on pretest data showed no differences between study arms on demographic, self-efficacy, and behavioral intention variables studied.

At posttest, significant between-channel effects were observed in respondents' perceived accessibility of prevention program information ($F_{2,168} = 3.84, P < .05$), self-efficacy for obtaining information on adolescent drug abuse prevention programs ($F_{2,168} = 5.05, P < .05$), and intentions to recommend drug prevention programs to other organizational constituencies ($F_{2,168} = 2.98, P < .05$). Across analyses, Scheffé post hoc comparisons revealed differences favoring participants in the Internet condition ($P < .05$). Table 2 presents means and standard deviations for study outcomes at follow-up, by dissemination channel.

Analyses to detect improvements over time revealed significant between-channel effects from posttest to follow-up in access to prevention program materials ($F_{3,168} = 32.36, P < .05$), self-efficacy for obtaining drug abuse prevention materials ($F_{3,168} = 35.06, P < .001$), and likelihood of recommending prevention programs ($F_{3,123} = 32.86, P < .05$). Analyses to detect differences from pretest to follow-up revealed significant between-channel effects in access to prevention program materials ($F_{3,168} = 25.67, P < .05$), self-efficacy for obtaining and recommending prevention programs ($F_{3,168} = 15.78, P < .001$ and $F_{3,168} = 44.38, P < .05$, respectively), and likelihood of recommending prevention programs ($F_{3,123} = 32.86, P < .05$). Across analyses, Bonferroni post hoc comparisons revealed differences in favor of Internet respondents ($P < .05$). Table 3 presents means and standard deviations for study outcomes across the three time intervals (pretest, posttest, 6-month follow-up) by channel.

Discussion

At follow-up, analyses to detect between-arm differences in outcome variables studied revealed that school personnel, community providers, and policy makers evidenced significantly greater access to prevention program materials disseminated via the Internet versus pamphlets. Despite the familiarity, visual appeal, and length of pamphlets, dissemination via this channel resulted in the lowest accessibility scores. Similarly, while respondents exposed to electronic means of dissemination evidenced improvements in access to prevention program information over time, these gains were accompanied by deterioration in the perceived accessibility of prevention program materials disseminated via pamphlets. Together, these findings support both the short- and long-term benefits of using electronic means to disseminate prevention program materials and best practices over more conventional print methods.

At follow-up, the highest self-efficacy and behavioral intention ratings also resulted from dissemination via Internet, then via CD-ROM, and last via pamphlets. Respondents who received prevention materials disseminated via the Internet evidenced significantly greater self-efficacy for obtaining prevention program materials and were significantly more likely to recommend effective prevention programs to their constituents at follow-up than respondents who received prevention materials via CD-ROM or pamphlets. Similarly, respondents exposed to dissemination via the Internet evidenced the greatest improvements, over time, in self-efficacy and behavioral intention variables. Significant improvements were observed from posttest to follow-up and pretest to follow-up in Internet respondents' self-efficacy for obtaining and recommending prevention programs, and in their likelihood of recommending effective prevention programs to their constituents. Most between-channel differences were observed from pretest to follow-up measurement occasions. Thus, web-mediated prevention program dissemination efforts may not manifest themselves fully until a substantial period of time has passed between receipt and application.

Findings from this modest study indicate that youth-oriented drug abuse prevention programs could benefit from dissemination via CD-ROM and the Internet. Agency, school, and policy

personnel exposed to these electronic means of dissemination evidenced the most positive gains, across analyses, when compared to participants who received pamphlets. Although the Internet is a relatively new innovation, our findings show that personnel in schools, community agencies, and policy-making bodies found materials disseminated via the Internet more accessible than participants exposed to dissemination via CD-ROM and pamphlets. Professionals in the Internet arm also achieved the greatest short- and long-term gains in self-efficacy and behavioral intention variables. Compared to their counterparts in pamphlet and CD-ROM arms, Internet respondents felt more confident in their ability to obtain and recommend programs, and were more likely to recommend programs to their constituents in the near future. Our findings augur well for the increased use of CD-ROM and the Internet in subsequent dissemination efforts.

A number of weaknesses limit the generalization of study findings. The small sample, though national in scope, did not permit subgroup analyses and examination of interactions among channel, constituency, and program. The three science-based programs selected for illustrative testing may not fairly represent a growing and mature field. The use of self-report, single-item measures to assess study outcomes is clearly fraught with biases. The relatively brief follow-up periods of measurement do not allow sufficient opportunities for prevention program access, adoption, and eventually implementation.

Notwithstanding these limits, this modest work pushed forward the area of dissemination research. Although modest in scope, the study adds to the limited data currently available on the efficacy of pamphlet, CD-ROM, and Internet dissemination channels. The study engaged three different groups of professionals involved in efforts to prevent adolescent substance abuse; outcomes of the dissemination process were examined in a randomized design; and the design included a 6-month follow-up interval which permitted assessment of both the immediate and long-term effects of dissemination. In its efficiency and outcomes, the research should encourage other investigators interested in dissemination to pursue their agendas, even on small budgets and short timelines. The practical implications of our findings should help prevention program developers better disseminate their products to reach the greatest number of professionals at the lowest cost. In so doing, they will ultimately benefit American youth, the end-users of our work, who deserve the best possible prevention programs in their schools and communities.

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Table 1

Baseline demographic characteristics of respondents by channel

Characteristic	Dissemination channel		Pamphlet		Internet		Total	
	No.	%	No.	%	No.	%	No.	%
Gender								
Male	20	10.6	14	7.4	13	6.9	47	25
Female	42	22.3	34	18	53	28	129	68.6
Missing answers	2	1	7	3.7	3	1.5	12	6.3
Age								
20–29	11	5.8	8	4.2	13	6.9	32	17
30–39	14	7.4	14	7.4	19	10.1	47	25
40–49	16	8.5	9	4.7	19	10.1	44	23
50–59	11	5.8	12	6.4	13	6.9	36	19
60+	3	1.6	2	1	2	1	7	4
Missing answers	9	4.7	10	5.3	3	1.5	22	11.7
Race/ethnicity								
White	43	22.8	32	17	52	28	127	67.5
Black	11	5.8	7	3.7	10	5	28	15
Hispanic	4	2.1	6	3.2	3	2	13	7
Other	2	1	4	2.1	2	1	8	4.2
Missing answers	4	2.1	6	3.1	2	1	12	6.3
Education								
High school	2	1	—	—	—	—	2	1
Some college	4	2	9	4.7	7	3.7	20	10.6
College grad	10	5.3	14	7.4	18	9.5	42	22.3
Some grad school	9	4.7	7	3.7	8	4.2	24	12.7
Grad degree	37	19.6	20	10.6	33	17.5	90	48
Other	—	—	—	—	1	0.5	1	0.5
Missing answers	2	1	5	2.6	2	1	9	4.7

Table 2

Differences in key outcomes at follow-up by dissemination channel

Variable	Dissemination channel					
	CD-ROM		Pamphlet		Internet	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Accessibility						
Frequency of searching for information	1.48	(.92)	1.60	(.86)	1.51	(.93)
Relevance of materials to population	1.43	(1.22)	1.50	(1.08)	1.46	(1.03)
Accessibility of information	.75 _{a,b}	(.73)	1.04 _a	(.79)	.63 _b	(.77)
Perceived self-efficacy						
Self-efficacy for identifying programs	1.08	(.94)	.88	(1.00)	.81	(.80)
Self-efficacy for obtaining programs	.94 _a	(.84)	1.37 _b	(.93)	.87 _a	(.79)
Self-efficacy for recommending programs	1.22	(1.02)	1.17	(.88)	.89	(.93)
Behavioral intentions						
Likelihood of requesting program	1.01	(1.01)	1.11	(.91)	.92	(.94)
Likelihood of implementing program	1.02	(1.10)	1.35	(.98)	.95	(1.07)
Likelihood of recommending program	1.41 _{a,b}	(1.13)	1.55 _a	(1.13)	1.06 _b	(1.05)

Note. Lower scores are indicative of more favorable ratings. Row means with dissimilar subscripts differ by Scheffé post hoc comparisons at $P < .05$.

Table 3

Pretest, posttest, and follow-up data by dissemination channel

Variable	Pretest		Posttest		Follow-up	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Accessibility						
Frequency of searching for information						
CD-ROM	1.53	(.87)	1.58	(.94)	1.48	(.92)
Pamphlet	1.56	(.91)	1.50	(.78)	1.60	(.86)
Internet	1.62	(1.00)	1.51	(.95)	1.51	(.93)
Relevance of materials to population						
CD-ROM	1.17	(.98)	1.47	(1.15)	1.43	(1.22)
Pamphlet	1.41	(1.02)	1.26	(1.15)	1.50	(1.08)
Internet	1.70	(1.21)	1.40	(1.09)	1.46	(1.03)
Accessibility of information						
CD-ROM _{a,b,A,B}	.96	(.89)	.93	(.82)	.75	(.73)
Pamphlet _{a,A}	.94	(.82)	.86	(.67)	1.04	(.79)
Internet _{b,B}	.73	(.81)	.73	(.78)	.63	(.77)
Perceived self-efficacy						
Confidence in ability to identify programs						
CD-ROM	1.12	(.91)	1.11	(.88)	1.08	(.94)
Pamphlet	1.25	(.94)	1.06	(.81)	.88	(1.00)
Internet	1.10	(.90)	1.05	(.96)	.81	(.80)
Confidence in ability to obtain programs						
CD-ROM _{a,A}	1.17	(.96)	1.03	(.78)	.94	(.84)
Pamphlet _{b,B}	1.14	(.82)	1.10	(.78)	1.37	(.93)
Internet _{a,A}	1.02	(.85)	1.01	(.95)	.87	(.79)
Confidence in ability to recommend programs						
CD-ROM _{a,b}	1.20	(.94)	1.31	(.87)	1.22	(1.02)
Pamphlet _a	1.10	(.87)	1.16	(.99)	1.17	(.88)
Internet _b	1.14	(1.01)	1.11	(1.01)	.89	(.93)
Behavioral intentions						

Variable	Pretest		Posttest		Follow-up	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Likelihood of requesting program						
CD-ROM	.92	(.96)	.93	(1.04)	1.01	(1.01)
Pamphlet	1.00	(.92)	1.08	(.96)	1.11	(.91)
Internet	1.00	(1.07)	.94	(1.03)	.92	(.94)
Likelihood of implementing program						
CD-ROM	.81	(.92)	.75	(.98)	1.02	(1.10)
Pamphlet	1.12	(1.07)	1.05	(1.03)	1.35	(.98)
Internet	.93	(1.08)	.86	(1.00)	.95	(1.07)
Likelihood of recommending program						
CD-ROM _{a,A,B}	1.73	1.11	1.66	(1.10)	1.41	(1.13)
Pamphlet _{a,A}	1.46	1.09	1.26	(1.08)	1.55	(1.13)
Internet _{b,B}	1.51	1.26	1.27	(1.13)	1.06	(1.05)

Note. Lower scores are indicative of more favorable ratings. Channels with differing lower-case subscripts differ from posttest to follow-up by Bonferroni post hoc comparisons at $P < .05$. Channels with differing upper-case subscripts differ from pretest to follow-up by Bonferroni post hoc comparisons at $P < .05$.