

Health promotion research and the diffusion and institutionalization of interventions

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Abstract

To examine the extent to which health promotion research is providing an empirical basis for the diffusion and institutionalization of effective interventions, we conducted a systematic audit of all articles in 12 public health and health promotion journals for the 1994 calendar year. We identified empirical/non-empirical and health promotion/non-health promotion articles. For each study, the health behaviours or outcomes studied, the target group, gender and setting were categorized. Each study was also categorized as belonging to one of four stages: basic research and development, innovation development, diffusion research, and research into institutionalization or policy implementation. Of all articles coded ($n = 1210$), 33.9% were identified as non-research, 39.5% were health promotion research and 26.6% were non-health promotion research. The vast majority of studies fell within the basic research and development stage (89.6%), with less than 1% categorized as diffusion research and only 5% as institutionalization or policy implementation research. The published studies reviewed provide a limited empirical basis for diffusion and institutionalization of health promotion programs. These findings suggest a need to more systematically monitor research input (funding) and research

output (publications), and to develop a more explicit focus on the relevance of the stages of research innovation and development, the issues and/or behaviours addressed, the target population, and the research setting.

Introduction

The benefit of any public health intervention strategy is determined not only by its efficacy and effectiveness, but by the extent to which it is appropriately adopted and implemented, so that there is an impact on the health of individuals, groups of individuals in the community and, ultimately, the population-at-large. In a recent issue of the *Canadian Journal of Public Health* devoted to an analysis of issues related to dissemination research, Johnson *et al.* make the observation that despite the mushrooming of knowledge, “the gap between knowledge generation and knowledge use or application remains problematic” (Johnson *et al.*, 1996, p. S5). While there has been significant research attention directed at establishing the efficacy and effectiveness of many and varied health promotion intervention strategies over the past 20 years, much less attention has been given to the development of, and research into, effective methods for the broader dissemination, uptake and diffusion of these interventions (Johnson *et al.*, 1996, p. S5). Indeed, in the same issue of the *Canadian Journal of Public Health*, Farquhar (1996) makes the observation that of the 0.32% of the health care budget devoted to prevention research, dissemination research was only a small fraction of this amount.

While it is clear that the transfer of knowledge

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into practice is essential in order to improve health promotion practice (Oldenburg *et al.*, 1996), the availability of relevant research findings does not in itself guarantee good practice. Such knowledge transfer involves the development of formal research policies, formalized organizational and structural support, appropriate and targeted funding, formal monitoring of research activity and its dissemination, and ongoing training for both researchers and practitioners (Nutbeam, 1996). An important intermediate step, however, is for research findings to be appropriately disseminated, in particular, by their publication in peer-reviewed journals.

Models of health promotion program development, such as those proposed by Greenwald and Cullen (1984), and Flay (1992), identify stages in the development, research and evaluation of interventions for a defined problem. Such models have been useful for conceptualizing the steps involved in developing and researching interventions, and for establishing their efficacy and effectiveness. However, they do not specifically identify links with the subsequent steps involved in planning more widespread program adoption, implementation and sustainability as discussed by a number of researchers (e.g. Parcel *et al.*, 1990; Kok, 1993).

We examined health promotion research published during 1994 in 12 peer-reviewed public health and health promotion journals, focussing on their stage from basic research and development, through to diffusion and institutionalization.

Methods

Selection of journals

Health promotion research is widely dispersed in the peer-reviewed literature of public health, preventive medicine, behavioural sciences, health education and other areas. To identify a small number of key journals for review, 10 prominent international health promotion researchers and practitioners, with varying areas of interest, were each asked to nominate 10 influential journals in the areas of preventive medicine, health education/promotion and public health. From a list of 48 journals identified, all papers

published during the year 1994 for those journals which were nominated by at least three respondents, were included in the current audit. The 12 journals identified, the number of nominations received and their journal impact factors, if available, are listed in Table I.

For the purposes of this research, we used the more focused definition of health promotion proposed by Green and Kreuter (1979, p. 161), i.e. "health promotion is any combination of health education and related organizational, political and economic interventions designed to facilitate behavioural and environmental changes conducive to health". This definition was operationalized to include:

- Intervention and non-intervention research which involved measurement of health-related behaviours or outcomes identified as national health promotion priorities for Australia (Nutbeam *et al.*, 1993) and the US (USDHHS, 1991). Health promotion research was not restricted to intervention studies, and both correlational and experimental studies were included if they dealt with a health-related behaviour.
- Studies of social and cultural factors, environmental factors, and policies believed to influence health behaviours and health more generally.
- Empirical research only. Literature reviews or non-data based articles (e.g. Robertson and Minkler, 1994; Waller, 1994) and meta-analyses (e.g. Pollitt *et al.*, 1994) were not considered health promotion research for the purposes of this study.
- Studies where the main focus was on primary and secondary prevention research conducted in either the entire population or a sub-population (e.g. Davidson *et al.*, 1994; Donaldson *et al.*, 1994; Flynn *et al.*, 1994). Studies of patient groups such as the case management of patients with breast cancer (e.g. Howe *et al.*, 1994) or the coping styles of patients with AIDS (e.g. Fleishman and Fogel, 1994) were coded as non-health promotion research because primary or secondary preventive approaches were not the focus of the research.

Table I. Information on selected journals

Journal	No. of researcher votes	Journal Impact Factor ^a	No. of articles	Proportion of all articles (%)
<i>American Journal of Public Health</i>	9	2.776	360	29.8
<i>Health Psychology</i>	8	2.220	61	5.0
<i>Health Education Quarterly</i>	8	1.097	43	3.6
<i>Preventive Medicine</i>	8	1.288	139	11.5
<i>American Journal of Preventive Medicine</i>	7	0.617	90	7.4
<i>American Journal of Health Promotion</i>	7	NA ^b	110	9.1
<i>Health Education Research</i>	6	0.716	57	4.7
<i>Journal of School Health</i>	4	0.705	51	4.2
<i>Public Health Reports</i>	4	0.786	127	10.5
<i>Journal of Behavioural Medicine</i>	3	1.013	36	3.0
<i>Health Promotion International</i>	3	NA ^b	47	3.9
<i>Australian Journal of Public Health</i>	3	0.459	89	7.4

^aJournal Impact Factors listed in the Social Sciences Edition of the *Journal Citation Reports*.

^bImpact factors were not available for these journals for the year 1994

Coding of articles

All journal issues for year 1994 were reviewed. A standardized coding system was developed for the study and codes were entered directly onto a database. All studies were coded on as many dimensions as possible, so that the characteristics of health promotion and non-health promotion studies could be compared and quantified. The codes used are summarized in Table II. Categorizing of study design and stage was based on a staged model of innovation development and diffusion of health promotion programs discussed in detail elsewhere (Oldenburg *et al.*, 1996, 1997). Briefly, these included the stages of *Research and Development* (i.e. descriptive and intervention research and methods development), *Innovation Development* (i.e. research identifying target audiences and strategies for program diffusion), *Diffusion Research* (i.e. research evaluating methods for dissemination, adoption, implementation and maintenance of programs) and *Institutionalization Research* (i.e. policy implementation or ongoing evaluation).

Inter-coder reliability

One author (M. F.) acted as primary coder for all articles (1210 articles). Fifteen percent of these articles (181) were coded for reliability purposes by another author (J. S.). Inter-coder reliability was

determined by percent agreement (mean: 87.56%; range 70.64–100%; median 87.03%) and κ coefficients (mean: 0.77; range 0.45–0.97; median 0.74). See Table II.

Results

Type of articles

Table I shows the number and percentage of the 1210 papers coded from each of the targeted journals. Of all articles coded, 33.9% ($n = 410$) were non-research (i.e. editorials, commentaries and literature reviews). Health promotion (or behaviour-based) research accounted for 39.5% ($n = 478$) of all articles and non-health promotion research (which primarily included samples of diagnosed patients or tertiary prevention research) accounted for 26.6% ($n = 322$) of all articles. Figure 1 illustrates the types of articles for each journal.

Stage of research

Table III illustrates the proportion of health promotion and non-health promotion research articles coded according to the four main stages of research. The difference between health promotion and non-health promotion research for the numbers of

Table II. Code definition and inter-coder reliability

Code	Definition	Observed agreement (%)	κ^a
Article definition	Journal volume, issue, first page of article and first name of author.	NA	NA
Country of origin	Country of the first author.	100.00	0.97
Type of article	Review or meta-analysis articles, editorial, commentary and research article.	95.26	0.91
Health behaviour research	Intervention and non-intervention research that included measurement of health-related behaviours or outcomes (Yes/No).	84.54	0.62
Behaviour	Behaviours identified in <i>Healthy People 2000</i> (USDHHS, 1991) in the US or the <i>Health Goals and Targets</i> (Commonwealth Department of Human Services and Health, 1994) in Australia as a priority area for health promotion. Fifteen classes of behaviour were included in these analyses and studies that addressed more than one were coded as 'multiple'.	94.66	0.94
Target	Included: individuals, families, small group, setting or system, change agent (such as a doctor, teachers or other health care provider) and setting plus individual combination.	70.64	0.45
Number	The number of target units included in the study. If both settings (e.g. worksite, total community) and individuals were targeted and measured, numbers of both units were coded. Numbers could not be coded for some studies, because, for example, they presented death rates by cause for an entire nation or used statistical models to estimate the prevalence of specific health conditions.	NA	NA
Sample	When individuals or groups were included as targets, the following codes were applied: general population (or combinations of specific groups), specific ethnic or racial group, children, adolescents, the elderly, university students or clinic samples of persons with specific disease. When multiple subgroups were targeted, only one code was assigned, based on a hierarchy beginning with diseased groups, then ethnic and racial minority, and finally age of targeted group.	87.03	0.74
Gender	It was noted whether the study targeted males, females or both.	98.13	0.9
Setting	The setting was categorized by the following codes: non-specific community, workplace, school, health care setting, university and other specific community site.	79.62	0.72
Study design and stage ^a		78.18	0.66
Research and development	Five codes were used: cross-sectional observational; prospective observational; randomized controlled intervention trial; controlled but not randomized intervention trial; and uncontrolled intervention trial.		
Methods development	Studies of measures, recruitment and methodological issues.		
Innovation development	Studies relevant to planning for the diffusion of the innovation.		
Diffusion of innovation	Studies of any phase of the diffusion process.		
Institutionalization	Studies that addressed <i>institutionalization</i> of the innovation (such as smoking policy implementation in a workplace, formally promoted programs and guidelines for practitioners or other system-wide strategies for ensuring widespread and consistent adoption).		
Mean		87.56	0.77
Median		87.03	0.74

^aA value of 1 indicates perfect agreement. A value of 0 indicates that agreement is no better than chance.

^bOnly research articles were coded using these categories (refer to Figure 1 for a more complete description of these codes).

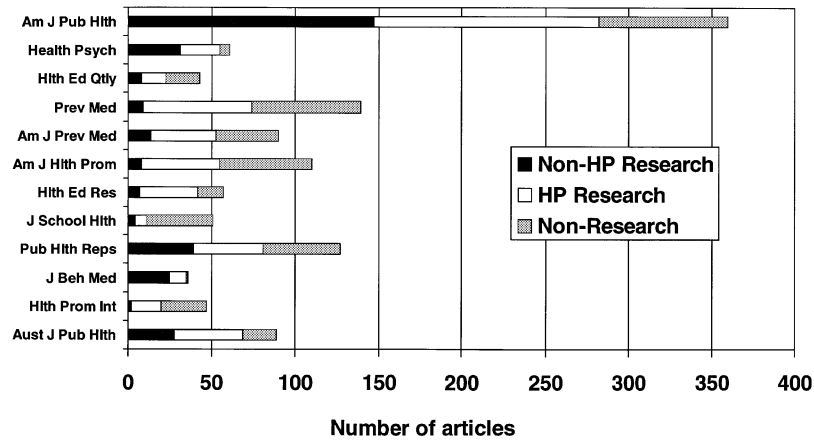


Fig. 1. Number of health promotion and non-health promotion articles for each journal.

Table III. Stage and type of research: proportion of studies

Stage	Health promotion research (%)	Non-health promotion research (%)
Research and development	86.0	93.2
Innovation development	5.0	2.2
Diffusion research	1.3	0.3
Institutionalization research	6.3	4.0

Table IV. Proportion of studies in the research and development stage

Type of research	Health promotion research (%)	Non-health promotion research (%)
Observation	55.9	73.0
Intervention	18.8	8.4
Methods development	11.3	11.8

articles within these stages was not significant ($P = 0.18$).

The vast majority of published studies for both health promotion and non-health promotion research fell within the *Research and Development* stage (89.15%). Within this stage approximately 63% of the studies were of a Descriptive type, 16% were Intervention-Based and 11% were categorized as Methods Development. Table IV illus-

trates the proportion of these for the health promotion and non-health promotion research categories.

In the subsequent stages, 5% of the studies were categorized as *Innovation Development*. Examples include monitoring difficulties and breast feeding rates (Lund-Adams and Heywood, 1994), early detection and screening costs for breast cancer (Salkeld and Gerard, 1994), and evaluations of influenza and childhood immunization campaigns (McIntyre *et al.*, 1994; Pearson and Thompson, 1994). Less than 1% of the research was categorized as studies of *Diffusion*. Examples include assessments of the barriers to, and medical community involvement in, breast and cervical cancer screening programs (Ansell *et al.*, 1994; Taylor *et al.*, 1994), and an evaluation of the influence of an urban church on cancer control (Davis *et al.*, 1994). Only 5% of the research fell into the *Institutionalization* stage. Examples include research into alcohol sales to minors (Schofield *et al.*, 1994), immunization certificate school entry (Thompson *et al.*, 1994) and the impact on smoking behaviour of smoking regulations in the workplace (Brenner and Fleischle, 1994).

Health behaviours

For the health promotion research category (see Figure 2), most research audited was conducted with behaviours associated with risk for cardiovas-

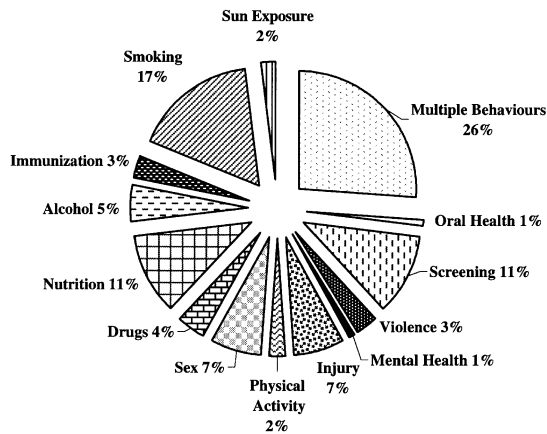


Fig. 2. Targeted health behaviours (health promotion articles only).

cular disease and cancer (76%), with relatively little intervention research addressing health areas such as injury prevention (7%) or mental health (1%). It is also interesting to track the stage and quality of research for each behaviour. Smoking research, for example, would appear to be relatively advanced with proportionately high study representation in intervention research (33% of all smoking studies coded) particularly in the form of randomized controlled trials (16% of all smoking studies coded), as well as the more advanced stages of innovation development, diffusion and institutionalization (22% of all smoking studies coded). Research into alcohol issues and screening has also progressed well into these higher stages (28% of all coded screening studies and 24% of all coded alcohol studies were identified as within the stages of diffusion and institutionalization). On the other hand, research into physical activity, sun exposure, mental health and violence, for example, had not moved beyond intervention research to the more advanced stages of diffusion or institutionalization at all in the studies reviewed for the year 1994.

Characteristics of the health promotion and non-health promotion studies reviewed

Table V identifies characteristics of the studies reviewed for both health promotion research and

non-health promotion research. These include the target group, gender, setting, country of first author and sample targeted for the research. The vast majority of both health promotion and non-health promotion research targeted individuals, rather than settings or systems. Both males and females were included in most studies, and about 75% of all studies were by authors from the US. Health promotion studies were conducted in a variety of settings, but non-health promotion research was more likely to be conducted in health care settings.

Discussion

Three major findings have arisen from this audit which provides a detailed examination of all articles published in 12 international public health and health promotion journals for the year 1994. Firstly, the majority of published health promotion research still falls within the earlier stages of health promotion research and development, with less than 11% of studies overall being classified as diffusion or institutionalization research. Secondly, in the journals surveyed, most research was conducted with behaviours associated with cardiovascular disease and cancer, with relatively little emphasis being placed on other important health outcomes or behaviours, such as those related to injury or mental health. Thirdly, most published research reports on efforts directed at behaviour change in individuals or small groups rather than research into social, environmental, ecological or policy approaches.

These findings would appear to support the often cited comment made by practitioners that much health promotion research is difficult to apply in real-life settings, is not relevant to many of the health issues that confront them or does not adequately inform the strategies which they are often required to use in such situations (Glanz and Oldenburg, 1997). There are obviously many other reasons for the gulf which exists between health promotion researcher and practitioner, in addition to the perception of practitioners that the research base does not adequately meet their needs as

Table V. Characteristics of the research

	Health promotion research		Non-health promotion research	
	<i>n</i>	%	<i>n</i>	%
Target group				
individuals	352	73.6	217	67.4
family	4	0.8	3	0.9
small group	1	0.2	0	0
setting/system	31	6.5	63	19.6
change agent	28	5.9	12	3.7
setting + individual	56	11.7	25	7.8
missing ^a	6	1.3	2	0.6
Gender				
male	17	3.6	18	5.6
female	94	19.7	41	12.7
male + female	364	76.2	261	81.1
missing ^a	3	0.6	2	0.6
Setting				
non-specific	208	43.5	89	27.6
workplace	32	6.7	4	1.2
school	76	15.9	19	5.9
health care	90	18.8	164	50.9
specific community	54	11.3	22	6.8
university	11	2.3	21	6.5
missing ^a	7	1.5	3	0.9
Country of origin of first author				
USA	348	72.8	254	78.9
Australia	52	10.9	32	9.9
Great Britain	13	2.7	0	0
The Netherlands	8	1.7	7	2.2
Canada	11	2.3	6	1.9
other ^b	46	9.6	23	7.1
missing ^a	0	0	0	0
Sample				
general	282	59.0	142	44.1
ethnic/minority group	51	10.7	11	3.4
children	31	6.5	16	5.0
adolescents	54	11.3	3	0.9
elderly	21	4.4	26	8.1
clinic sample	0	0	106	32.9
university students	7	1.5	12	3.7
youth (children + adolescents)	26	5.4	2	0.6
missing ^a	6	1.3	4	1.2

^aNot all research was classifiable into these categories.

^bOther includes: Norway, New Zealand, Finland, Taiwan, Japan, Germany, Yugoslavia, Bangkok, New Mexico, Scotland, Austria, Italy, Denmark, Hong Kong, Sudan, Korea, France, Sweden, Israel, Brazil, Belgium, Thailand, Czech Republic, Mexico, Kenya, San Juan, Switzerland, Tanzania, China, Spain, Singapore, Nigeria.

practitioners. These have been described by Kottke *et al.* (1990) and others (e.g. Catford, 1995).

Several contemporary health promotion models emphasize the need for interventions at multiple

levels, including psychological, socio-environmental and policy components (e.g. Green and Kreuter, 1991; Stokols, 1992; Kok, 1993; Winnett, 1995). Working with multiple sectors of the com-

munity, altering environments and influencing health-related policies are regarded as hallmarks of desirable health promotion practice, but the scientific basis for these is still far from clear. There is limited research evidence available in these areas because investigators have not studied many of the relevant variables nor researched many of these complex strategies and approaches. In the published research audited in this study, most studies focused solely on individuals. Only 1% of the health promotion articles studied families and/or small groups, 6.5% studied systems or settings and 5.9% studied change agents (see Table V). It seems that contemporary health promotion research appears not to be focussing sufficiently on the social or environmental contexts of health behaviours, nor the appropriate methods for implementing social or environmentally focused health promotion strategies (Kottke *et al.*, 1990).

Limitations of our study include the review of only a small number of journals in a large and diverse field. Journals specializing in specific health behaviours (such as those related to tobacco and cancer control, HIV/AIDS, and drugs and alcohol) were not selected by our criteria and their inclusion could have led to different results. However, reviewing speciality journals for all health behaviours was not feasible. It is also possible, but not likely, that articles published in 1994 are not representative of the spectrum of health promotion research published in recent years.

Strengths of the study include the coding of all articles from those journals which were identified by international health behaviour and health promotion researchers as being the most significant. The acceptable level of inter-coder reliability, and the application of a model of the phases of health promotion program research, diffusion and sustainability, are considered additional strengths. These codes can be used to assess journals in future years, and track changes in the emphasis and scope of the research.

The results of this audit strongly suggest that there is an inadequate research base for the diffusion and institutionalization of health promotion programs. However, most health promotion pro-

grams have not been sufficiently tested and hence their diffusion is not warranted. The authors hope these results stimulate greater interest not only in the conduct of program diffusion research, but also in the greater problem of how to improve and expand the practice of health promotion so that more people can benefit from effective interventions. Unlike other health interventions, especially surgery and pharmacology, there are no well established pathways to diffusion. It is the joint responsibility of health promotion researchers and practitioners to develop appropriate pathways for effective health promotion interventions.

It would seem that to improve the translation of public health intervention and health promotion research into practice and relevant policy, it will be important to encourage: intervention research directed at those targeted behaviours that have not been studied adequately to date; appropriately staged research to ensure that efficacy and effectiveness are proven prior to policy and community-wide implementation; and, most importantly, research which directly addresses methods of diffusing effective programs and implementing social and environmental strategies to promote better health. However, different types of research designs and methods to those which most public health researchers have been trained in are required for researching the diffusion and institutionalization of public health strategies and programs. Moreover, funding priorities need to be set which target those health issues which are in need of research and those stages of program development which are least developed. As argued recently by Haines and Jones (1994, p. 1491) in relation to medical and health innovations more generally, "the challenge is to promote the uptake of innovations that have been shown to be effective, to delay the spread of those that have not yet been shown to be effective, and to prevent the uptake of ineffective programs".

Acknowledgements

The authors wish to thank the following health promotion researchers and practitioners for their contribution to this study: Laura Solomon (USA),

Karen Glanz (USA), Elaine Stone (USA), David Abrams (USA), Guy Parcel (USA), Melbourne Hovell (USA), Nola Pender (USA), Michael Murray (Canada), Gerjo Kok (The Netherlands) and Michael Booth (Australia).

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Received on May 30, 1997; accepted on October 14, 1998