# Informing the public

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# 24 Informing the Public: Preventing Work Disability and Fostering Behavior Change at the Societal Level

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In the past decade, multi media campaigns have been held in several countries to change the general public's maladaptive beliefs and behaviors about back pain and work disability. In this chapter, we will describe: (1) Previous campaigns and their results; (2) key lessons learned from these campaigns; (3) the key questions remaining; (4) future research and strategies that should be attempted.

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## 24.1 Public Reeducation for Back Pain

Back pain and its associated disability continue to be one of the most common and costly problems facing industrialized countries (Lane et al. 2002; Woolf and Pfleger 2003). It is one of the leading reasons for work loss in most industrialized nations. This includes both lost time from work and reduced work capacity in those remaining at work. Related to healthcare expenditures, authors of a recent US-based study reported that in 2005 back and neck pain alone were responsible for $85.9 billion (US dollars) in healthcare expenditures, or 9% of the estimated total US national expenditure for health care (Martin et al. 2008). The authors also report that health expenditures have increased substantially since 1997, without corresponding improvement in self-rated health status in those responding to the survey. Since back pain is so common, it has been the target of public health interventions aimed at informing the public about evidence-based management of the condition. This chapter will describe previous campaigns and lessons learned from their evaluation, describe key questions remaining unanswered, and highlight some future research and evaluation strategies that should be attempted.

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Clinical practice guidelines advocate that back pain is most often a benign, self-limiting condition and suggest that early management should include minimal medical intervention, reassurance, and advice to stay active and remain at suitable work (Arnau et al. 2006; Snook 2004; van Tulder et al. 2004, 2006). This is a reversal of decades of medical advice and yet many healthcare providers and the general public still appear to hold contrary opinions (Harber et al. 1988; Linton et al. 2002; Werner et al. 2005). Results of surveys in a variety of countries indicate that public beliefs are not in line with the current evidence (Gross et al. 2006; Ihlebaek and Eriksen 2003; Klaber Moffett et al. 2000). Many still believe that back pain is a result of serious injury or pathology that requires rest. Individuals holding such views are more likely to take time off from work during back pain episodes.

Given the mismatch between public beliefs and current evidence-based recommendations, many back pain disability prevention strategies have aimed at changing beliefs (Burton et al. 1999; Symonds et al. 1995). Mass media campaigns designed to alter societal views about back pain have been undertaken and evaluated in Australia, Scotland, Norway, and Canada (Buchbinder et al. 2001b; Gross et al. 2010; Waddell et al. 2007; Werner et al. 2008b). Table 24.1 compares and contrasts the major characteristics of each campaign and has been adapted from a paper discussing these campaigns in greater detail (Buchbinder et al. 2008). Each of the campaigns will be discussed below and their results highlighted.

The first mass media campaign was performed in the state of Victoria in Australia between 1997 and 1999 and was funded by the Victorian WorkCover Authority, the manager of the Victorian workers' compensation system (Buchbinder et al. 2001a, b). The campaign came about in response to a tripling in workers' claims for compensation related to back pain in the preceding decade and was designed to (1) alter population beliefs about back pain, (2) influence medical management of the condition, and (3) ultimately reduce disability and workers' compensation-related costs (Buchbinder et al. 2001b). The main messages of the campaign were derived from The Back Book, an educational booklet for patients based on the biopsychosocial model (Bigos et al. 2002; Burton et al. 1999), and all relevant professional bodies endorsed the campaign and its messages.

In Scotland, the Health Education Board for Scotland (HEBS) and the Health and Safety Executive (HSE) launched a major public education campaign about back pain in October 2000. Twenty organizations representing health professionals, employers, and unions were involved. The main messages were to stay active, try simple pain relief, and if you need it, get advice. Specific recommendations regarding work were not presented.

The Canadian campaign was performed in the province of Alberta and was sponsored by the Alberta Government (Alberta Human Resources and Employment, Workplace Health and Safety), the Workers' Compensation Board-Alberta, and local safety associations (Alberta Hotel Safety Association, Manufacturers' Health and Safety Association, Alberta Construction Safety Association). It aired between May 2005 and April 2008 and the themes were similar to those in Australia. Like the Australian and Scottish campaigns, it was created in response to the high prevalence and cost of back pain in that setting, and it has also received widespread endorsement from local health associations.

In contrast to the campaigns carried out in other countries, the Norwegian campaign in two counties (Vestfold and Aust-Agder) was initiated by the Norwegian Back Pain Network, a network of researchers, rather than a government body. It was launched in 2002 to coincide with the launch of the multidisciplinary Norwegian guidelines for acute low back pain. As well as a media campaign directed to the general public, it included an information campaign directed towards physicians, physiotherapists, and chiropractors in primary health care; an information campaign directed towards social security officers; and a practical intervention in six cooperating workplaces.

These campaigns have addressed widely held misconceptions about back pain that view it as a serious, disabling condition requiring rest. Key

**Table 24.1** Characteristics of the Australian, Scottish, Norwegian, and Canadian mass media campaigns

| | "Back pain, don't take it lying down" | "Working Backs Scotland" | "Back@It" | "Active Back" |
|---|---|---|---|---|
| Setting and population | State of Victoria, Australia | Scotland | Province of Alberta, Canada | Vestfold and Aust-Agder counties, Norway |
| Health care provision for the general population | Dual system of universal health care (Medicare) and private health insurance | Publically funded health system | Dual system of universal health care and private health insurance | Medicare covers all inhabitants but each visit to a health practitioner also incurs a small fee |
| Health care provision for injured workers | State-based work cover insurance paid for by employers, managed by the Victorian WorkCover Authority for the state government, provided by several insurance companies. Administration is paid for through employer premiums | Both private insurance and public pensions available | Province-based Workers' Compensation Board legally mandated to provide care for injured workers. Administration is paid for through employer premiums | Employers cover full salary the first 16 days of sickness, Medicare thereafter, for the employees |
| Period of campaign | Sept 1997 – Dec 1999 | Oct. 2000 – Feb. 2003 | May 6, 2005–2008 | April 2002 – June 2005 |
| Who performed the campaign? | Victorian WorkCover Authority | United Kingdom Health and Safety Executive, National Health System Health Scotland | Multiple funding partners including: Alberta Government, WCB-Alberta, local industrial safety associations. | The Hospital of Rehabilitation, Stavern and The Norwegian Back Pain Network, The Communication Unit |
| Rationale for campaign | Rising cost of back pain claims; recognition that educational interventions directed at general practice likely to be ineffective without concomitant education of the public and employers; and recognition of importance of attitudes and beliefs in the development of disability from back pain | Rising costs associated with back pain and reversal in the management strategy of back pain. Perceived need for public education about the condition. | Rising costs associated with back pain. Perceived need for public education about the condition. | Rising cost of disability and use of health care due to low back pain; great confusion and divergence of beliefs about management amongst the public and amongst different health professionals; multidisiplinary guidelines for acute back pain launched in April 2002 |
| Who had input into the content? | Consulted widely with international and local experts, multidisciplinary committee composed of representatives from national or state professional organisations with an interest in back pain, medical defence organisation, employer and employee groups | National partnership including all health professionals who treat back pain in primary care and occupational health, employers, unions, and patients' organizations | Organizing commmittee composed of representatives from the funding organizations. Consulted widely with local and international experts | Steering committee composed of the owners of the campaign, and reflecting all health professional groups |

(continued)

**Table 24.1** (continued)

| | "Back pain, don't take it lying down" | "Working Backs Scotland" | "Back@It" | "Active Back" |
|---|---|---|---|---|
| Basis of campaign | Simple evidence-based messages derived from *The Back Book* | U.K. Clinical Guidelines and Occupational Health Guidelines | Simple evidence-based messages derived from *The Back Book* | 5 specific statements based on the Norwegian Guidelines |
| Intended Audience | General population, health care providers (particularly general practitioners), employers | General population and health care providers | General population, general practitioners, employers | General population, health care providers in primary care, employers and employees |
| Main messages | Back pain is not a serious problem; positive attitudes are important and it is up to you; continue usual activities, don't rest for prolonged periods, continue exercising and remain at work if possible; Xrays are not useful; surgery may not be the answer; keep employees at work | 1) Stay active; 2) Try simple pain relief; 3) If you need it, get advice | Back Pain: Don't Take it Lying Down<br>The key to feeling better sooner is to stay active | Back pain is not dangerous, X-ray is not useful, activity makes improvement, surgery is rarely necessary |
| Messengers | International back pain experts, sports personalities who had successfully managed back pain, actors, comedians, health care professionals, Minister for Health | Well-known Scottish sports personality | Local health care professionals and organizations, Olympic Gold Medalist | Animation figure (humorous) |
| Endorsements | Widespread endorsement from relevant national or state professional medical bodies (incl. general practice, orthopaedic surgery, rheumatology, rehabilitation, physiotherapy, chiropractic, osteopathy, sports and occupational medicine) | NHS Health Scotland and U.K. Health and Safety Executive | Widespread endorsement from local health associations (physicians, surgeons, physiotherapy, and chiropractic) | The National Medical Association, The Norwegian Physiotherapist Association, The Norwegian Chiropractic Association, The Directorate for Health and Social Affairs |

| | | | | |
|---|---|---|---|---|
| Primary Media | Television commercials aired during prime time | Radio ads | Radio ads and website | 4 issues of a 16 page information paper to all households, local TV, radio and cinema commercials, specific web page for the campaign |
| Other media | Radio, billboard and print advertisements, posters, seminars, visits by well-known personalities to workplaces, publicity articles and publications | Website, practice guidelines distributed to health professionals treating patients with back pain, pamphlets and posters aimed at the general population | Website (www.wcb.ab.ca/back@it) | Website (www.aktivrygg.no) |
| | | | Posters, pamphlets, bus and billboard advertisements and informational articles in the public and industry news publications. Some television public service announcements | Posters with the messages of the campaign at health care clinics |
| Additional interventions | *The Back Book* made widely available and translated into 16 languages. Copies sent to doctors, physiotherapists, chiropractors, osteopaths, massage therapists and workers' compensation case managers for provision to patients/those making a new back pain claim. All Victorian doctors sent evidence-based guidelines for the management of employees with compensable back pain | Focus on re-educating health professionals including orthopedic surgeons. | Specific focus on employers and health care providers to distribute posters and pamphlets. | All primary care doctors, physiotherapists and chiropractors sent copy of Guidelines, and invited to specific courses |
| | | | | In addition, a specific intervention in 6 cooperating workplaces |
| Overall cost | $A10.1 million over 3 years | Unknown | ~$CDN 1 million over 3 years | NOK 2 mill (USD 315,000) in direct costs |
| Intensity and frequency | Intense campaign for 12 months, followed by less intense period for 12 months and then final intense campaign for 3 months. 'Top-up' low intensity yearly ads were planned but never implemented | Continuous website. Radio ads during peak listening months only | Continuous website. Radio ads during peak listening months only | Live website throughout the period, four 1-month campaigns during the period |
| Marketing Evaluation | Focus groups to measure community awareness, public opinion | Monthly awareness surveys | Awareness measured on an annual basis | Consulted at halfway to determine general awareness |
| Results | Belief and Behavior change of the general public | Belief change but no behavior change | Belief change but no behavior change | Belief change but no behavior change |

messaging in the campaigns has included advice to stay active, and all campaigns focus on a similar theme of staying active when the back hurts. Messages delivered to the public via the mass media need to be brief and focused on simple key messages. For this reason the theme of "stay active" was chosen, with some information provided in the Australian and Norwegian campaigns about the importance of staying at work or early return to work. Unfortunately, specific messages and recommendations for individuals are not possible via mass media, and therefore the Scottish and Canadian campaigns avoided messages about work partially to avoid recommendations about staying at unsuitable workplaces. The assumption was that the "stay active" message would be interpreted as "stay at work" where possible. The implications this subtle messaging difference had for the campaigns will be discussed later in the chapter.

Important differences exist across campaigns in terms of their scope, amount of funding, as well as media used. The campaign from Victoria, Australia, was the most successful one in demonstrating a sustained change in beliefs related to back pain as well as behaviors such as work disability and healthcare utilization (Buchbinder and Jolley 2005; Buchbinder et al. 2001a). This campaign was very well funded; predominantly aired on television; featured recognizable spokespeople, comedians, and a wide variety of clinical experts; and contained practical information about how to stay active and stay at work (i.e., exercise, modify work demands). As well, the messages were endorsed by all relevant clinical organizations that had a stake in treating back pain, and this was prominently noted in the television commercials. The campaign had the approval of employer and employee organizations (i.e., unions and industry safety associations) ensuring that stakeholders were "on side" (Frank et al. 1998). In conjunction with the campaign, Victorian doctors were mailed evidence-based guidelines for the management of compensable back pain. Evaluation indicated the population exposed to the intervention showed sustained improvements in back pain beliefs (i.e., were less likely to think back pain needed to be rested) (Buchbinder and Jolley 2005) as well as dramatic reductions in work-related disability (15% reduction in compensation claims) and healthcare visits (20% reduction in medical costs per claim) for the condition (Buchbinder et al. 2001a, b).

Subsequent campaigns in Scotland, Norway, and Canada also seem to have resulted in belief changes, but did not measurably impact healthcare use or disability behaviors such as work loss (Gross et al. 2010; Waddell et al. 2007; Werner et al. 2008b). An explanation for this is likely to be multifactorial. For example, these campaigns were undertaken on a much more limited budget, relied on other media besides television, and did not have the capacity to present the breadth of specific advice about how to stay active in a convincing manner. As mentioned, some did not provide explicit advice about staying at work. These important differences may partially explain why subsequent campaigns have not proven as successful as the original Australian campaign. However, factors unrelated to the campaigns, such as legislation and health policy, also likely played an important role.

## 24.2 Key Lessons Learned from Previous Campaign Evaluations

These studies have resulted in some key lessons including:

1. Beliefs about back pain and associated work disability are quite consistent across cultures, with a large proportion of people still believing that back pain requires rest and time off work.
2. Beliefs about back pain are amenable to change, with improvements in beliefs consistently seen following public education campaigns.
3. Improvements in beliefs appear to be long lasting, with changes observed at times years following the intervention.
4. Behavior changes (i.e., reduced work disability) were not clearly linked to changes in beliefs about back pain. Despite more evidence-based beliefs in the population, most evaluations did not observe changes in key

behavior outcomes such as work disability, indicating that factors other than beliefs guide behaviors as well.
5. The Australian campaign appears to have been the most successful, which may have been due to greater resources achieving greater message penetration and/or other factors that will be discussed.

## 24.3 Unanswered Questions

Despite this important knowledge, there are still many unanswered questions related to informing the public. For example:
1. Why did the Australian campaign lead to improvements in beliefs and behaviors, while the others did not? Put another way, other than greater penetration of the key messages, were there other contextual factors of the Australian campaign that were not active in other countries?
2. What is the best method of changing health behavior at the societal level?
3. Are expensive mass media campaigns needed, or can less costly messaging be as effective?
4. Are mass media campaigns sufficient on their own to produce behavior change, or are other interventions also needed?
5. What is the specific role of healthcare providers and institutions (i.e., government and insurance companies) in educating the general public?
6. What is the optimal strategy or strategies for obtaining positive behavior change (i.e., reduced work loss) at the societal level?
7. Do findings from back pain campaign evaluations apply to other conditions leading to work disability?

## 24.4 Where Do We Go from Here?

These questions can only be answered through ongoing research and evaluation. The remainder of this chapter will discuss population-based strategies for preventing work disability and achieving behavior change at the societal level that should be evaluated for back pain. We will discuss the importance of considering the role and interplay of public education, law and legislation, health public policy, and social marketing in achieving a sustained reduction in the societal burden of back pain. We will also discuss the potential of theory to efficiently integrate these factors in future evaluations.

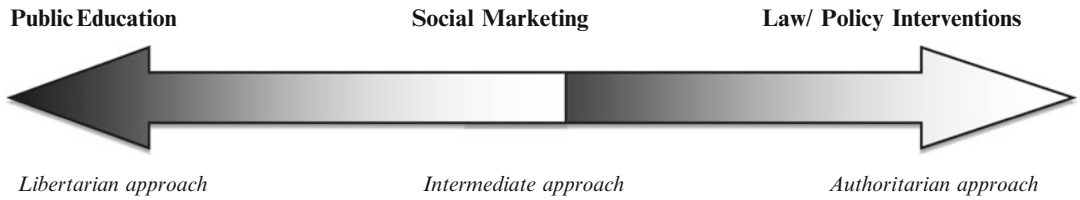
### 24.4.1 Strategies for Achieving Social Change

When considering health at the population level, the distinction between health beliefs and associated behaviors is critical and complex (Glanz et al. 2002). Although people might believe a certain activity or product is healthy, whether they actually modify their behavior to undertake the activity or use the product is a separate issue. This may depend upon many other factors, such as their ability, environmental factors, addiction, habit, and choice (Glanz et al. 2002). The transition from a healthy belief to a corresponding change of behavior depends partially on a perception that the positive health outcomes outweigh the burdens of changing behavior, but also on a supportive social, environmental, and political context (Bandura 2000).

Given the complexities inherent to health-related behavior change, Rothschild has proposed a framework for the management of public health and related social behavior (Rothschild 1999). In this framework, behavior change strategies are viewed on a continuum from public education at one end to law and health policy at the other (see Fig. 24.1). Social marketing resides somewhere between education and law on the continuum, incorporating both education and contextual modifications to facilitate change. Each of these strategies will be discussed in the context of work disability due to back pain.

#### 24.4.1.1 Public Education

One of the most basic assumptions about human behavior is that what people believe guides what they do (Rosenstock et al. 1988). This assumption implies that detrimental health behavior is caused by a lack of awareness or knowledge on




(Incorporates components of education and contextual changes)

| Provision of information | Use of commercial marketing techniques to change health behaviors | Legislation changes to limit or facilitate access to a behavior |
|---|---|---|
| Assumes the public will act on health information provided to appropriately change behavior | Assumes behavior is explained by a lack of opportunity and strives to provide both motivation and opportunity | Assumes the public is unwilling to change health behavior and requires forced compliance |

Based on: Rothschild ML. Carrots, sticks and promises: A conceptual framework for the management of public health and social issue behaviors. *Journal of Marketing*. 1999;63:24-37.

**Fig. 24.1** Rothchild's model of social behavior change. Based on Rothschild (1999)

the part of the individual. From a back pain perspective, if an individual holds the belief that back pain is due to serious structural pathology that requires rest to heal, they will be more likely to rest and take time off work when experiencing an episode of pain (Gross et al. 2006; Werner et al. 2005). Changing this belief should change the resulting behavior, and this has been the focus of previous back pain mass media campaigns. Other examples of public education strategies in addition to mass media campaigns include classes or "schools" where multiple people with the health condition receive education about their condition, distribution of booklets or educational pamphlets to patients, or direct education by healthcare providers. Each of these has been tested in populations of patients with back pain, with modest positive results (Brox et al. 2008; Burton et al. 1999; Coudeyre et al. 2007; Heymans et al. 2005; Sorensen et al. 2010).

Social determinants of health have been found to influence knowledge and beliefs about back pain. Male gender, lower household income, lower educational attainment, suboptimal health literacy, and blue-collar occupation have all been associated with maladaptive back pain beliefs (Bowey-Morris et al. 2011; Briggs et al. 2010; Gross et al. 2010; Halligan and Aylward 2006). As has been seen from evaluations of back pain mass media campaigns, education is typically effective in changing beliefs irrespective of social determinants but may have less ability to alter behavior. This is due to a variety of reasons, including the fact that other factors besides beliefs influence health behaviors (Armitage and Conner 2001; Hornik and Yanovitzky 2003). Attitudes about the health condition play an important role, as does the broader context in which the individual resides. For example, if a worker experiencing back pain believes staying active is important but is unable to continue work at a heavy level, that worker is unlikely to stay active within the context of work if modified work duties are not provided by the employer. There are also situations when the person's environment plays a critical role in influencing whether the person remains active or not, such as the presence of a solicitous spouse or family member who takes over required home and personal care activities. The message-only approach is unlikely to work in these situations. Additionally, people are often exposed to conflicting educational messages in media (Freedhoff 2010). For example, people may be less likely to self-manage back pain through activity when they hear media advertisements from health professionals offering "curative" treatments as the only way to recover (Stretching the truth 2010).

Clearly education has a role in changing behavior; however, its effects may vary depending upon the broader context and audience members exposed to it. Recent research is showing that initial experiences with back pain occur early in the lifespan, at times within the teenage years (Dunn et al. 2011; Roth-Isigkeit et al. 2005). Perhaps, educational initiatives need to target individuals earlier in the lifespan, during key formative years when maladaptive beliefs and attitudes about the condition are being shaped. Such a change in audience would require dramatic changes in the messaging and media used in future public educational campaigns. Strategies such as comics, children's books, or using cartoon celebrity spokespeople could be useful techniques for disseminating advice. From a research and evaluation point of view, the behavior outcome of such a strategy would take many years to be measurable.

In the case of previous back pain mass media campaigns, it is important to consider the key differences between campaigns in terms of scope, timing, and key messaging. It may be the case that a larger campaign with more expansive messaging, as was done in Australia, is needed to obtain behavior change. Not only was higher penetration of the campaign observed (86% awareness in Australia vs. 60% in Scotland, 39% in Norway, and 49% in Canada), back pain beliefs became more evidence-based across the population to the same extent irrespective of demographic, clinical, socioeconomic, and occupational factors. However, it is important to recognize that there were other favorable features of the Australian campaign that augmented the overall educational messages and may have contributed to behavior change. These will be discussed within the context of Rothschild's framework (see above Fig. 24.1).

#### 24.4.1.2 Law and Public Policy

Another important avenue for changing health-related behavior is through supportive legislation and policy related to the condition of interest (Rothschild 1999). As noted above, smoking cessation educational activities have been augmented with legal or public policy interventions such as increased taxation on tobacco products (Ross et al. 2010) and bylaws against smoking in public places like restaurants, bars, or airplanes (Wakefield et al. 2010). Restricting access to the activity combined with ongoing messaging related to adverse health effects has proven successful for reducing smoking rates at the population level.

Such strategies assume that behavior is explained not entirely by knowledge or beliefs but also by motivation. Incorporating societal rules to prohibit undesirable behaviors may create the necessary incentive for people to act upon what they already know to be healthy. In this section, law and health public policy will be considered together although it is recognized that health public policy can often be developed and implemented without formal legislation.

In the case of back pain and other painful musculoskeletal conditions, public policy has been observed to dramatically influence behaviors such as work disability and healthcare utilization (see Chaps. 12–14). Legal or health policy interventions also have the potential to play a major role in reducing work disability from back pain (see Chaps. 19 and 24). Such interventions could include restrictions on the amount of advertising allowed by providers or companies offering unproven curative interventions, or system changes to alter access to health services, wage replacement benefits, or reimbursements for unproven treatments. For example, during the Canadian campaign, one policy of the workers' compensation board mandated that injured workers visit a physician or health provider every 2 weeks for follow-up. If claimants off work due to back pain did not visit their physician at 2-week intervals, they were at risk of having their case closed as noncompliant with care. It is unlikely that an educational campaign focused on self-management via activity would impact the number of visits to physicians while such a policy is in place. Other examples of how changes in laws or health policy have led to altered disability or health utilization behaviors for people with musculoskeletal conditions have been discussed elsewhere (Cassidy et al. 2000; Quintner 1995; Stephens and Gross 2007).

During the Australian campaign, some information was presented about policies or laws that supported the campaign's key messaging. In addition to educational messages explicitly encouraging people with back pain to remain at or return to work, several advertisements featured an employer discussing the possibility of being fined if the company did not help a worker with back pain return to work (see Case Study 24.1) (Buchbinder et al. 2003). Other advertisements provided advice to employers about the importance of having modified work policies to enable workers to return to work early and despite back pain, along with the potential reductions in claim costs this provides (Case Study 24.1). It is important to note that these policies and financial incentives were already in place in the jurisdiction and the campaign messaging only highlighted them. However, highlighting the supportive policies may have been a major reason for the changes observed in associated behaviors. Not only did subsequent non-Australian campaigns fail to explicitly provide advice regarding work, they did not feature messaging of this type. As well, the Australian mass media campaign had the support and participation of all major stakeholders, including not only the various healthcare professionals with a stake in treating back pain but also employer groups and workers' unions. Stakeholder endorsement and participation has been deemed critical for successful back pain interventions (Frank et al. 1998).

Of note, the only subgroup that the Australian mass media campaign failed to influence were general practitioners with a special interest in back pain (Buchbinder et al. 2009). Prior to the campaign, these doctors also had significantly poorer (i.e., non-evidence-based) beliefs about back pain compared with their colleagues without a special interest in back pain. These findings reveal that having a special interest in a health problem does not necessarily guarantee beliefs will be in line with evidence-based knowledge and that special interests may in fact be an important barrier to carrying out evidence-based care.

In Norway, the additional information provided to healthcare providers as part of the campaign (i.e., multidisciplinary guidelines) did not modify their beliefs about back pain to be more in line

**Case Study 24.1 Scripts of Two Australian Television Advertisements**

*Policy-Focused* (*Upstream*) *Ad*

Employer: "Do you know that I can be fined $25,000 if I don't take Joe back to work? How the hell am I supposed to get him back? He's done his back in."
Secretary: "Are you asking me?"
Employer: "Ah…yes, go on."
Secretary: "You could change the job a bit. Get some bench-height trolleys. That way Joe wouldn't have to lift the parts on and off after he's machined them."
Employer: "He wouldn't have to twist or bend."
Secretary: "You'd get Joe back and you'd save yourself $25,000 in fines."
Employer: "Why didn't I think of that?"
Secretary: "Because you're the boss…and I'm just a secretary."

*Behavior-Focused* (*Downstream*) *Ad*

Employer: "You know, I want Joe back but it is just too hard."
Secretary: "Joe's been with us a long time. You owe it to him."
Employer: "Oh I know, I know. He did his back in here. But what can I get him to do?"
Secretary: "Is this a serious inquiry?"
Employer: "Yes, it is."
Secretary: "Well maybe think about changing the way Joe does his job. Talk to the occupational rehab person. They deal with this thing all the time."
Employer: "Good idea. I should have thought of that earlier."
Secretary: "Yes, you should have. Maybe Joe wouldn't have hurt his back in the first place."

with current evidence. During the campaign, healthcare providers were informed about the campaign via letter and were provided written material about evidence-informed management of back pain as well as handouts for their patients. They were also invited to various continuing education activities including meetings and lectures about back pain. Beliefs regarding management of the condition and participation in work activities (based on Deyo's seven myths (Deyo 1998)) were collected before, during, and after the campaign (Werner et al. 2008a). In keeping with the Australian findings, misconceptions increased among chiropractors that reported the greatest interest in back pain and saw the greatest number of patients per week with the condition, compared to physicians and physiotherapists. In addition to the provider's beliefs, data on health consumption as surgery and referrals for imaging was collected as an indirect outcome on health professionals' practice, with no effect of the campaign observed (Werner and Gross 2009). Changing beliefs and practice among healthcare professionals is particularly challenging, but of great importance due to their impact on the individual patient, and additional specific policy initiatives directed at healthcare providers may also be necessary, as well as evidence-based education early in their professional training.

In locations where supportive law or policy already exists, future mass media campaigns are likely to be more successful if they build on this and highlight the policy and laws as part of the messaging strategy. Campaigns thus augment legislative and health policy interventions and potentially enhance their effectiveness. Where supportive laws and health policy are not in place, this could be an effective avenue for fostering behavior change. Alternatively, detrimental laws or health policies related to compensation for back pain could be changed. However, policy makers meet conflicting interests. While, in most European countries, government benefits are available to all ill or injured citizens irrespective of the contribution of work, in North America and Australia, compensation for work loss due to illness or injury is a gained right for workers, with back pain considered a compensable condition. If back pain were to be withdrawn from this right, it would implicate a view of back pain as a natural condition. This may be true, but still difficult to implement, as it would likely be considered as a loss of a gained right among workers. However, as early as 1995, an International Association for the Study of Pain task force proposed the radical alteration of limiting wage replacement funding for back pain to 6 weeks unless credible diagnostic evidence (i.e., diagnosis other than nonspecific back pain) indicated permanent or long-term disability (Fordyce and International Association for the Study of Pain. Task Force on Pain in the Workplace 1995). Implementing such a restrictive policy in societies where being off work is perceived as a right might not be perceived as a public gain and could have clear implications for leaders proposing the legislation. Additionally, individuals holding such views are unlikely to agree wholeheartedly with messages regarding the importance of staying active and staying at work. Such restrictions of eligibility for sick listing and wage replacement benefits have recently been put in place in Sweden with mixed response (Gomes et al. 2009), but this initiative has not yet been formally evaluated. While law and health policy changes may be needed in some jurisdictions more than others (Anema et al. 2009), deciding what policies should be put in place to benefit the health of the population is controversial and currently a matter of debate with several conflicting interests.

In Australia, it has been suggested that back pain become one of several national health priority areas (NHPA) (Briggs and Buchbinder 2009). The NHPA initiative seeks to focus public attention and health policy on areas of health that impose a significant national burden, but also where improved health outcomes are attainable to reduce that burden (Australian Institute of Health and Welfare and Commonwealth Department of Health and Family Services 1997). This could provide a more cohesive focus for policy, legislation, and public awareness of back pain and opportunities for appropriate public health and workplace initiatives. This type of policy window of opportunity is critical to placing issues like back pain prevention and management on the agenda (Beland 2010; Ritter and Bammer 2010).

#### 24.4.1.3 Social Marketing

While education attempts to change the individual and law and policy attempts to change the broader social context, social marketing typically strives to do both. Social marketing "is about (a) influencing behaviors, (b) utilizing a systematic planning process that applies marketing principles and techniques, (c) focusing on priority target audience segments, and (d) delivering a positive benefit for society" (Kotler and Lee 2008). It is based on the assumption that behavior is explained by a lack of opportunity as opposed to a lack of motivation (Rothschild 1999). In addition to providing education about the health condition, social marketers attempt to change the social context to provide a legitimate and attractive alternative to the status quo. For example, social marketing aimed at reducing drunk driving has combined education about the risks of the behavior along with advice about and provision of feasible alternatives to the activity (i.e., inexpensive rides home from pubs or bars) (Deshpande et al. 2004). As such, social marketing goes beyond education about health conditions and includes attempts to "nudge" and "hug" individuals towards positive health behaviors without imposing penalties or serious consequences (French 2011; Thaler and Sunstein 2009). In this manner, individual autonomy and responsibility for health is maintained.

Social marketing may consist of efforts to influence the behaviors of individuals within a society (i.e., downstream marketing) or the behavior of governments or health policy makers (i.e., upstream marketing). Marketing efforts aimed at governments or policy makers attempt to influence the creation of laws and supportive policy when these are not already in place. The choice of the target audience (upstream or downstream) governs what messages and marketing approaches are used. Detailed benchmarking criteria have been outlined to assist in planning social marketing interventions (see Case Study 24.2) (Mah et al. 2008; Social Marketing National Benchmark Criteria 2010). This includes detailed planning, segmentation analysis of the target audience, consideration of the four P's of traditional marketing (promotion, product, price, place), strategic planning for how to engage all relevant stakeholders, as well as formal evaluation.

**Case Study 24.2 Social Marketing Benchmark Criteria**

*Customer orientation* (*know the audience*). The intervention uses formative research based on primary or secondary data sources to identify audience characteristics and needs, or the intervention elements are pretested with a sample of the target audience.

*Behavior*. The intervention seeks to influence the behavior of individuals or groups and has specific measurable goals.

*Theory-based design*. The development of the intervention and/or understanding of the audience explicitly relies on behavior or social theories or models.

*Insight*. What moves and motivates

*Exchange of value*. The intervention motivates people to adopt or sustain behavior by offering benefits (tangible or intangible) and/or reducing costs (barriers) related to the behavior. The exchange concept is actualized through the design and implementation of the marketing mix.

*Competition*. Considers competing behaviors or messages that may influence the target audience to not perform the desired behavior. What competes for the time and attention of the audience?

*Segmentation and targeting*. The intervention's audience is divided into subgroups called "segments" that share something in common (e.g., job type, demographic characteristics, desires, or readiness to change) that make them more likely to respond similarly to the intervention. The intervention strategy targets or is customized for the selected segment(s). Propose segmenting the market if it is appropriate for the health context/behavior.

(continued)

**Case Study 24.2** (continued)

*Methods mix*. Four primary domains:

1. Informing/encouraging
2. Servicing/supporting
3. Designing/adjusting the environment
4. Controlling/regulating

The intervention attempts to use all four "P's" of traditional marketing:

Promotion—Communication with the audience to make a product or service familiar, acceptable, and desirable.

Product—A product (or service) is a bundle of benefits that satisfies a need for the audience. The product augments the desired health behavior.

Price—Identification and reduction of the monetary and nonmonetary costs of performing a behavior.

Place—Reduction of the location cost of a product or service as well as carrying out the behavior achieved through enhancing convenience and accessibility.

Strategic Planning

*Partnership and stakeholder engagement*. The intervention builds, enhances, and retains good relationships with the target audience, for example, by ensuring service quality or audience satisfaction or by audience participation in the design of the intervention.

*Review and evaluation*. Research aimed at evaluating the effectiveness of the intervention.

*Based on criteria from the National Social Marketing Centre and core concepts from Mah et al. 2008*

In terms of promotion, social marketing considers a variety of techniques to spread information including advertising, public relations, sales promotion, and direct marketing (see Case Study 24.3). While many of these are done separately, recent recommendations include striving to integrate these techniques due to the high volume of marketing messages and "noise" the public is exposed to daily (Alden et al. 2011). Due to exposure to thousands of messages, marketers have to create messages that cut through the clutter. Ensuring consistency in messaging is one way to do this and improve message recognition. As a result, integrating various communication elements becomes critical and could occur on several fronts. First, the promotion strategy should be consistent with the marketing strategy (i.e., with the behavior being promoted, brand positioning). Second, the audience should be exposed to consistent messaging across the ad campaign, publicity from journalists, incentivizing attempts of sales promotion, and so on. These strategies result in less confusion of the audience members and higher intervention effectiveness. Such integrated messaging should be considered for the case of back pain to outline the most appropriate means of disseminating information to the target audience.

Given the huge expense associated with traditional means of advertising in the mass media and shifting preferences for web-based communication, it may be that future campaigns spread messaging predominantly via less expensive methods such as the Internet including social

**Case Study 24.3 Integrated Social Marketing Communication. Based on Alden et al. (2011)**

1. Advertising—paid, sponsor-identified, nonpersonal media communications
2. Marketing public relations—publicity, events, advocacy (structural changes, pass laws), fundraising, sponsorship
3. Sales promotion—special incentive to encourage immediate "sale," uptake, or use (i.e., samples, coupons, gifts, contests)
4. Direct marketing—direct contact with target via personal "selling," direct mail, direct response ads

media. For example, if well-known celebrities or sporting figures are enrolled as spokespeople, websites such as YouTube and social networking sites such as Facebook or Twitter could be used to widely and inexpensively disseminate advice to followers. How best to incorporate "direct to consumer" marketing should also be considered. Traditionally, healthcare providers have provided one-on-one education for individuals with back pain. This has proven successful in smoking cessation but depends highly on the knowledge, beliefs, and interests of the healthcare providers. In the case of back pain, as knowledge, beliefs, and interests vary across providers, this may not be the ideal venue for providing advice to stay active (Linton et al. 2002; Werner et al. 2008a). Back pain sufferers typically seek care when pain is severe, and recent qualitative research has indicated that advice to stay active is not well received during acute bouts of severe pain (Young et al. 2011). Education could take the form of mailed pamphlets or email messages from public health agencies, employers, or insurance companies. Messaging provided at the location of the desired behavior (i.e., workplaces) may also be more effective than via the mass media, or as a supplement to this, as was done in the Norwegian campaign (Werner et al. 2008b). For example, employers could be targeted to provide rewards or incentives to workers who demonstrate desirable behaviors such as participation in worksite exercise sessions or modified work programs. Messaging by "Low Back Pain peers" who are able to remain working while experiencing LBP may be considered (Werner et al. 2007).

Peers could highlight strategies for and the benefits of staying at work. Financial incentives are currently offered to companies via reduced compensation or insurance premiums due to participation in modified work programs; however, these incentives are rarely passed on to frontline workers participating in the programs if they are socially acceptable. Sales promotions (i.e., providing monetary/nonmonetary incentives) are another strategy that has not been used in back pain messaging yet are worthy of exploration. Given the emphasis on behavior change in social marketing, sales promotion strategies are warranted.

In the case of back pain, the issue of sustainability of behavior change is important since it is a recurring phenomenon. Ideally, individuals would have their beliefs changed regarding the importance of activity via education, and this would be combined with long-term changes in their context to allow integration of the desired behaviors. Provision of education alone may be less likely to lead to long-term, sustained changes without modifications to the social context. For this reason, augmenting education and law and policy changes with social marketing may be more effective for changing back pain-related behavior. Indeed, the Australian campaign appears to have moved beyond education to include components of social marketing both in how it was conceived and what the messages were. Besides just talking about back pain and how to manage it through exercise and activity, the campaign provided explicit advice about implementing changes and modified work programs at worksites (see Table 24.2). The combination of education and advice about the condition, combined with attempts to foster more supportive work contexts, moves this campaign more into the realm of social marketing.

Lastly, considering the expense of public education or social marketing campaigns and the frequent exposure to advertising messaging in modern society, it may be worthwhile merging back pain campaigns with other public health campaigns addressing different conditions but similar target behaviors. Staying or becoming active and participating in exercise is not only beneficial for back pain but is a key message of other health condition campaigns such as obesity, diabetes, heart disease, and arthritis, among others. All of these campaigns include advice to stay active as a key message, and perhaps there is opportunity to build on each other. For example, the successful "10,000 steps" campaigns focusing on increasing physical activity via pedometer use share many similar goals as the "Stay Active"

**Table 24.2** The methodological and practical implications of using critical realism to guide mass media campaign evaluation

| Critical realist tenet | Methodological implication | Direction for future research |
|---|---|---|
| Reconciling subjective and objective realities | Perceptions and observed patterns contribute to knowledge or "truth" | Systematic review of the literature regarding beliefs, highlighting potential differences across factors such as country, culture, and socioeconomic status |
| | This truth is fallible and open to revision | Use findings to explore (1) *why* people hold their beliefs and (2) how these beliefs specifically impact behaviors |
| Mechanisms and context interact to manifest change | Causal mechanisms can be numerous and are often hidden | Create hypotheses of potential mechanisms that change beliefs to behaviors in different populations |
| | Mechanisms are activated by circumstances within contexts | Evaluate the impact of circumstances such as policy (e.g., workers' compensation policy dictating healthcare utilization) and geography (urban vs. rural) on changing back pain behaviors |
| Stratified nature of reality | The *actual*, *real*, and *empirical* strata must all be included in the evaluation | Explore the potential bidirectional interactions between strata (e.g., evaluate how or if changing the beliefs or behaviors of healthcare providers impacts policy development) |
| | Questions about "why" correlations exist are asked | |
| | Interactions between strata are potential points of inquiry | |
| Social world as an open system | Contextual variables are understood, not controlled | Design interventions that target multiple relevant parts of the system (context) |
| | Variables are in constant flux with the potential to interact with one another | |
| Methodological eclecticism | Methodology and methods must match the question being asked | Use qualitative methods (e.g., focus groups, one-on-one interviews), to explore why people hold particular beliefs |
| | | Use quantitative methods (e.g., intervention studies) to test hypotheses and to develop and test theories (e.g., structural equation models) |

back pain campaigns (De Cocker et al. 2007; Harvey et al. 2009). Perhaps synergies and efficiencies could be obtained if campaign organizers worked together to target this common behavior goal.

### 24.4.2 Importance of Theory in Media Campaign Evaluation

#### 24.4.2.1 When to Choose Education, Law, or Policy or Social Marketing?

Theory is an essential element of evaluation research (Pawson 2003). Choosing an appropriate theory is pivotal for developing and implementing an evaluation that will provide meaningful findings and plausible explanations for those findings (Pawson and Tilley 1997). An appropriate theory is chosen through careful consideration of the complexity of the phenomenon, the research objectives, and the foundational assumptions of the theory. Evidence in the field of back pain research supports that education, law, policy, and social marketing may each be effective for changing behaviors, but what should be the prime focus of future public health initiatives? This will depend largely on the nature of the target audience as well as the social context in which they reside. Appropriate theories and frameworks can clearly outline the principles and structures that directly inform what will be evaluated within the audience and context as well as how the evaluation will be completed (Bhaskar 1989; McEvoy and Richards 2003; McKenna 1997).

Rothschild's conceptual framework is an example of a framework that can be used to guide determination of social change strategy. He has proposed a categorization system whereby audiences can be analyzed for the purpose of selecting the most appropriate strategy (Rothschild 1999). This system indicates that the most effective strategy for obtaining behavior change depends on characteristics of the target audience including motivation and readiness to change, opportunity to change, as well as ability to change. If a population is deemed motivated to change, has appropriate opportunity to change, and is prone to behave, education alone is likely to be effective. If they are motivated but do not have the opportunity or ability to change, social marketing may be effective. If an audience is not motivated to change yet has the opportunity and ability, legal or policy interventions are required. Other combinations of the factors will require a combination of education, social marketing, and law.

This categorization system is conceptual but some validity evidence has been presented from studies of work injury prevention initiatives (Lavack et al. 2008). Developers of future back pain public health initiatives should carefully consider the nature of their audience and the context before deciding what behavior intervention strategies to use. However, recognizing that most populations are not entirely homogeneous in the areas of motivation, opportunity, and ability to change, it is likely that a combination of the three will be required for most impact. As mentioned, this appears to have been the approach taken by the organizers of the Australian campaign. Given that all subsequent campaigns have been substantially different, replicating the initial Australian campaign as closely as possible with careful and rigorous evaluation of effectiveness is required.

### 24.4.3 Using Metatheory to Expand the Potential of Rothschild's Conceptual Framework

Just as Rothschild's framework is based on specific assumptions about what is necessary for social behavior change, assumptions about knowledge and reality can also have a significant influence on designing and evaluating public health initiatives. Critical realism is a metatheory with the potential to enhance the design and evaluation of initiatives for changing health beliefs and behaviors. A metatheory transcends a specific discipline, population, or phenomenon. Critical realism was initially developed by philosopher Roy Bhaskar (Bhaskar 1989; Clark et al. 2007), in response to the need for a middle ground between realist and relativist social perspectives (Clark et al. 2008; McEvoy and Richards 2003). The theory has been used and refined (Clark et al. 2008) in areas including evaluation (Pawson and Tilley 1997) as well as economics (Lawson 1997), and crime prevention (Pawson and Tilley 1994). Critical realism can enhance the power of an evaluation by providing explanations for the success or failure of an initiative through its assumptions about what constitutes knowledge and reality (see Table 24.2) (Clark et al. 2008; Lawson 1997). These assumptions underpin the particular questions that are asked, data collection and analysis, and interpretation of findings. Essentially, critical realist tenets outline the structure that explains why and how an initiative did or did not work (Clark et al. 2008; Pawson and Tilley 1997).

#### 24.4.3.1 What Would Change If Critical Realism Guided Evaluations of Public Health Initiatives?

What would be different if back pain campaigns used critical realist principles to guide evaluation? We propose that the principles would impact the evaluation in three ways:

1. Point of focus for the study—The focal point of the evaluation would be on the interaction between the context and the potential mechanisms instead of the intervention, as the primary change catalyst. A review of possible structures (e.g., norms, values, politics, economics) and mechanisms would initiate the evaluation. For example, a review of the Alberta, Canada, context would reveal that legislation is a structural variable that mandates injured workers to see their physicians every 2 weeks for status reports. This structural influence could negatively impact an individual's

capacity to make behavior choices consistent with the campaign message of self-management because the system requires them to adhere to behaviors that focus on medical support and validation. In fact, an individual may have a mechanism that is consistent with the campaign's message (e.g., personality adhering to self-reliance) but is receiving contrary messages from the system.

2. Use of methodology—As noted in Table 24.2, methodological eclecticism is a tenet of critical realism (Clark et al. 2008; McEvoy and Richards 2003). Although the use of qualitative and quantitative methodologies in realist evaluations has been debated (Clark et al. 2007; Connelly 2007; McEvoy and Richards 2003; Pawson and Tilley 1997), most realists agree that the appropriate use of various methods positively impacts evaluation quality (McEvoy and Richards 2003). Using a combination of qualitative and quantitative methods in mixed and multiple method designs would enhance the explanatory power of an evaluation by matching the methodology to the question (Pawson and Tilley 1997).
3. Use of conceptual frameworks—Conceptual frameworks can be integrated into a critical realist-driven evaluation. Critical realism's principles are overarching and dictate the assumptions about knowledge and reality while conceptual frameworks refine and direct investigations pertaining to a specific change hypotheses that can exist in the real and actual domains (Clark et al. 2008; Lawson 1997). For example, combining Rothschild's framework with critical realism expands explanatory power by addressing one level of reality (i.e., the actual) in relation to causal pathways (Clark et al. 2007; Lawson 1997). More specifically, the framework hypothesizes potential causative variables (e.g., social marketing strategy). A question combining Rothschild's framework with critical realist principles could be "what are the mechanisms activated by health policy that result in health behavior change?"

In summary, the meta-principles of critical realism provide specific ontological and epistemological values that could expand an evaluation's explanatory depth (i.e., how and why a program works or doesn't work with particular people in a particular place and time). Under these broad tenets, conceptual frameworks provide the structure to guide a specific element or hypothesis of change. Integrating a conceptual framework with critical realism expands the framework's explanatory power as it relates to its primary thesis.

## 24.5 Summary and Conclusion

Evaluations of previous back pain mass media campaigns highlight that education alone is unlikely to be sufficient to foster positive and persisting societal behavior change such as reduced work disability. Four mass media campaigns have been undertaken and evaluated in separate countries (Australia, Scotland, Norway, and Canada), and only the Australian campaign resulted in changes to both work disability and beliefs. The Australian campaign was larger in magnitude, but was also accompanied by supportive laws and policies in the jurisdiction. The other three campaigns were much smaller in scope, had more limited messaging, and were not always as supported by institutional policies and legislation. Educational endeavors should likely be augmented with supportive laws, health public policy, and social marketing endeavors to foster sustained change in outcomes such as work disability and health utilization (see Chap. 5). Future campaigns and their evaluations should take this into account. Critical realism may provide a suitable theoretical perspective to evaluate future campaigns, and provide detailed information on why campaigns did or did not work.

## References

Alden, D., Basil, M., & Deshpande, S. (2011). Communications in social marketing. In G. Hastings, C. Bryant, & K. Angus (Eds.), *The Sage handbook on social marketing* (pp. 167–177). Thousand Oaks, CA: Sage.

Anema, J. R., Schellart, A. J., Cassidy, J. D., Loisel, P., Veerman, T. J., & van der Beek, A. J. (2009). Can cross

country differences in return-to-work after chronic occupational back pain be explained? An exploratory analysis on disability policies in a six country cohort study. *Journal of Occupational Rehabilitation, 19*(4), 419–426. doi:10.1007/s10926-009-9202-3.

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behavior: A meta-analytic review. *British Journal of Social Psychology, 40*, 471–499.

Arnau, J. M., Vallano, A., Lopez, A., Pellise, F., Delgado, M. J., & Prat, N. (2006). A critical review of guidelines for low back pain treatment. *European Spine Journal, 15*(5), 543–553.

Australian Institute of Health and Welfare and Commonwealth Department of Health and Family Services. (1997). First report on national health priority areas 1996. AIHW Cat. No. PHE 1. Canberra: AIHW and DHFS. Retrieved May 2011, from http://www.aihw.gov.au/publications/index.cfm/title/121

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological science, 9*(3), 75–109.

Beland, D. (2010). Policy change and health care research. *Journal of Health Politics, Policy and Law, 35*(4), 615–641. doi:35/4/615[pii]10.1215/03616878-2010-019.

Bhaskar, R. (1989). *Reclaiming reality: A critical introduction to contemporary philosophy*. London: Verso.

Bigos, S. J., Roland, M., Waddell, G., Klaber Moffett, J. A., Burton, A. K., & Main, C. J. (2002). *The back book: The best way to deal with back problems* (2nd ed.). TSO: Norwich.

Bowey-Morris, J., Davis, S., Purcell-Jones, G., & Watson, P. J. (2011). Beliefs about back pain: Results of a population survey of working age adults. *The Clinical Journal of Pain, 27*(3), 214–224. doi:10.1097/AJP.0b013e3181ffc00b.

Briggs, A. M., & Buchbinder, R. (2009). Back pain: A national health priority area in Australia? *The Medical Journal of Australia, 190*(9), 499–502. doi:bri11124_fm[pii].

Briggs, A. M., Jordan, J. E., Buchbinder, R., Burnett, A. F., O'Sullivan, P. B., Chua, J. Y., et al. (2010). Health literacy and beliefs among a community cohort with and without chronic low back pain. *Pain, 150*(2), 275–283. doi:S0304-3959(10)00269-1[pii]10.1016/j.pain.2010.04.031.

Brox, J. I., Storheim, K., Grotle, M., Tveito, T. H., Indahl, A., & Eriksen, H. R. (2008). Systematic review of back schools, brief education, and fear-avoidance training for chronic low back pain. *The Spine Journal, 8*(6), 948–958. doi:S1529-9430(07)00700-0[pii]10.1016/j.spinee.2007.07.389.

Buchbinder, R., Gross, D. P., Werner, E. L., & Hayden, J. A. (2008). Understanding the characteristics of effective mass media campaigns for back pain and methodological challenges in evaluating their effects. *Spine (Phila Pa 1976), 33*(1), 74–80. doi:10.1097/BRS.0b013e31815e39c8.

Buchbinder, R., & Jolley, D. (2005). Effects of a media campaign on back beliefs is sustained 3 years after its cessation. *Spine, 30*(11), 1323–1330.

Buchbinder, R., Jolley, D., & Wyatt, M. (2001a). 2001 Volvo award winner in clinical studies: Effects of a media campaign on back pain beliefs and its potential influence on management of low back pain in general practice. *Spine, 26*(23), 2535–2542.

Buchbinder, R., Jolley, D., & Wyatt, M. (2001b). Population based intervention to change back pain beliefs and disability: Three part evaluation. *British Medical Journal, 322*(7301), 1516–1520.

Buchbinder, R., Jolley, D., & Wyatt, M. (2003). Role of the media in disability management. In T. Sullivan & J. Frank (Eds.), *Preventing and managing disability at work*. Boca Raton: CRC Press/Taylor & Francis.

Buchbinder, R., Staples, M., & Jolley, D. (2009). Doctors with a special interest in back pain have poorer knowledge about how to treat back pain. *Spine* (*Phila Pa 1976*), *34*(11), 1218–1226; discussion 1227. doi:10.1097/BRS.0b013e318195d688

Burton, A. K., Waddell, G., Tillotson, K. M., & Summerton, N. (1999). Information and advice to patients with back pain can have a positive effect. A randomized controlled trial of a novel educational booklet in primary care. *Spine, 24*(23), 2484–2491.

Cassidy, J. D., Carroll, L. J., Cote, P., Lemstra, M., Berglund, A., & Nygren, A. (2000). Effect of eliminating compensation for pain and suffering on the outcome of insurance claims for whiplash injury. *The New England Journal of Medicine, 342*(16), 1179–1186.

Clark, A. M., Lissel, S. L., & Davis, C. (2008). Complex critical realism: Tenets and application in nursing research. *Advances in Nursing Science, 31*(4), E67–E79.

Clark, A. M., MacIntyre, P. D., & Cruickshank, J. (2007). A critical realist approach to understanding and evaluating heart health programmes. *Health, 11*(4), 513–539.

Connelly, J. B. (2007). Evaluating complex public health interventions: Theory, methods and scope of realist enquiry. *Journal of Evaluation in Clinical Practice, 13*(6), 935–941.

Coudeyre, E., Tubach, F., Rannou, F., Baron, G., Coriat, F., Brin, S., et al. (2007). Effect of a simple information booklet on pain persistence after an acute episode of low back pain: A non-randomized trial in a primary care setting. *PLoS One, 2*(1), e706. doi:10.1371/journal.pone.0000706.

De Cocker, K. A., De Bourdeaudhuij, I. M., Brown, W. J., & Cardon, G. M. (2007). Effects of "10,000 steps Ghent": A whole-community intervention. *American Journal of Preventive Medicine, 33*(6), 455–463. doi:S0749-3797(07)00529-6[pii]10.1016/j.amepre.2007.07.037.

Deshpande, S., Rothschild, M. L., & Brooks, R. S. (2004). New product development in social marketing. *Social Marketing Quarterly, X*(3–4), 39–49.

Deyo, R. A. (1998). Low-back pain. *Scientific American, 279*(2), 48–53.

Dunn, K. M., Jordan, K. P., Mancl, L., Drangsholt, M. T., & Le Resche, L. (2011). Trajectories of pain in adolescents: A prospective cohort study. *Pain, 152*(1), 66–73. doi:S0304-3959(10)00550-6[pii]10.1016/j.pain.2010.09.006.

Fordyce, W. E., & International Association for the Study of Pain. Task Force on Pain in the Workplace. (1995). *Back pain in the workplace: Management of disability in nonspecific conditions: A report of the Task Force on Pain in the Workplace of the International Association for the Study of Pain*. Seattle: IASP Press.

Frank, J., Sinclair, S., Hogg-Johnson, S., Shannon, H., Bombardier, C., Beaton, D., & Cole, D. (1998). Preventing disability from work-related low-back pain. New evidence gives new hope–if we can just get all the players onside. *Canadian Medical Associtation Journal, 158*(12), 1625–1631.

Freedhoff, Y. (2010). Controversy surrounds new treatment for discogenic back pain. *Canadian Medical Associtation Journal, 182*(9), E409–E410. doi:cmaj.109-3249[pii]10.1503/cmaj.109-3249.

French, J. (2011). Why nudging is not enough. *Journal of Social Marketing, 1*(2), 154–162.

Glanz, K., Rimer, B., & Lewis, F. (2002). *Health behaviour and health education: Theory, research and practice* (3rd ed.). San Francisco, CA: Jossey-Bass.

Gomes, A., Llena-Nozal, A., & Prinz, C. (2009). *Sickness, disability and work: Sweden: Will the recent reforms make it?* Paris: Organisation for Economic Co-operation and Development.

Gross, D. P., Ferrari, R., Russell, A. S., Battie, M. C., Schopflocher, D., Hu, R. W., et al. (2006). A population-based survey of back pain beliefs in Canada. *Spine, 31*(18), 2142–2145.

Gross, D. P., Russell, A. S., Ferrari, R., Battie, M. C., Schopflocher, D., Hu, R., et al. (2010). Evaluation of a Canadian back pain mass media campaign. *Spine, 35*(8), 906–913. doi:10.1097/BRS.0b013e3181c91140.

Halligan, P. W., & Aylward, M. (2006). *The power of belief: Psychosocial influence on illness, diasbility and medicine*. Oxford: Oxford University Press.

Harber, P., Billet, E., Vojtecky, M., Rosenthal, E., Shimozaki, S., & Horan, M. (1988). Nurses' beliefs about cause and prevention of occupational back pain. *Journal of Occupational Medicine, 30*(10), 797–800.

Harvey, J. T., Eime, R. M., & Payne, W. R. (2009). Effectiveness of the 2006 Commonwealth Games 10,000 steps walking challenge. *Medicine and Science in Sports and Exercise, 41*(8), 1673–1680. doi:10.1249/MSS.0b013e31819d591d.

Heymans, M. W., van Tulder, M. W., Esmail, R., Bombardier, C., & Koes, B. W. (2005). Back schools for nonspecific low back pain: A systematic review within the framework of the Cochrane Collaboration Back Review Group. *Spine (Phila Pa 1976), 30*(19), 2153–2163. doi:00007632-200510010-00006[pii].

Hornik, R., & Yanovitzky, I. (2003). Using theory to design evaluations of communication campaigns: The case of the National Youth Anti-Drug Media Campaign. *Communication Theory, 13*(2), 204–224.

Ihlebaek, C., & Eriksen, H. R. (2003). Are the "myths" of low back pain alive in the general Norwegian population? *Scandinavian Journal of Public Health, 31*(5), 395–398.

Klaber Moffett, J. A., Newbronner, E., Waddell, G., Croucher, K., & Spear, S. (2000). Public perceptions about low back pain and its management: A gap between expectations and reality? *Health Expectations, 3*(3), 161–168.

Kotler, P., & Lee, N. (2008). *Social marketing: Influencing behaviors for good* (3rd ed.). Los Angeles: Sage.

Lane, R., Desjardins, S., & Population and Public Health Branch, Strategic Policy Directorate, Policy Research Division. (2002). *Economic burden of illness in Canada, 1998*. Ottawa: Health Canada.

Lavack, A. M., Magnuson, S. L., Deshpande, S., Basil, D. Z., Basil, M. D., & Mintz, J. H. (2008). Enhancing occupational health and safety in young workers: The role of social marketing. *International Journal of Nonprofit and Voluntary Sector Marketing, 13*, 193–204.

Lawson, T. (1997). *Economics and reality [electronic resource]*. London: Routledge.

Linton, S. J., Vlaeyen, J., & Ostelo, R. (2002). The back pain beliefs of health care providers: Are we fear-avoidant? *Journal of Occupational Rehabilitation, 12*(4), 223–232.

Mah, M. W., Tam, Y. C., & Deshpande, S. (2008). Social marketing analysis of 20 years of hand hygiene promotion. *Infection Control and Hospital Epidemiology, 29*(3), 262–270.

Martin, B. I., Deyo, R. A., Mirza, S. K., Turner, J. A., Comstock, B. A., Hollingworth, W., & Sullivan, S. D. (2008). Expenditures and health status among adults with back and neck problems. *Journal of the American Medical Association, 299*(6), 656–664.

McEvoy, P., & Richards, D. (2003). Critical realism: A way forward for evaluation research in nursing? *Journal of Advanced Nursing, 43*(4), 411–420.

McKenna, H. P. (1997). Theory and research: A linkage to benefit practice. *International Journal of Nursing Studies, 34*(6), 431–437.

Pawson, R. (2003). Nothing as practical as a good theory. *Evaluation, 9*(4), 471–490.

Pawson, R., & Tilley, N. (1994). What works in evaluation research? *British Journal of Criminology, 34*(3), 291–306.

Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. London: Sage.

Quintner, J. L. (1995). The Australian RSI debate: Stereotyping and medicine. *Disability and Rehabilitation, 17*(5), 256–262.

Ritter, A., & Bammer, G. (2010). Models of policy-making and their relevance for drug research. *Drug and Alcohol Review, 29*(4), 352–357. doi:DAR155[pii]10.1111/j.1465-3362.2009.00155.x.

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the Health Belief Model. *Health Education Quarterly, 15*(2), 175–183.

Ross, H., Blecher, E., Yan, L., & Hyland, A. (2010). Do cigarette prices motivate smokers to quit? New evidence from the ITC survey. *Addiction*. doi:10.1111/j.1360-0443.2010.03192.x.

Roth-Isigkeit, A., Thyen, U., Stoven, H., Schwarzenberger, J., & Schmucker, P. (2005). Pain among children and

adolescents: Restrictions in daily living and triggering factors. *Pediatrics, 115*(2), e152–e162. doi:115/2/e152[pii]10.1542/peds.2004-0682.

Rothschild, M. L. (1999). Carrots, sticks and promises: A conceptual framework for the management of public health and social issue behaviors. *Journal of Marketing, 63*(October), 24–37.

Snook, S. H. (2004). Self-care guidelines for the management of nonspecific low back pain. *Journal of Occupational Rehabilitation, 14*(4), 243–253.

Social Marketing National Benchmark Criteria. (2010). Retrieved November 16, 2010, from http://www.nsm-centre.org.uk/component/remository/Tools-and-Guides/Social-Marketing-Benchmark-Criteria-tool

Sorensen, P. H., Bendix, T., Manniche, C., Korsholm, L., Lemvigh, D., & Indahl, A. (2010). An educational approach based on a non-injury model compared with individual symptom-based physical training in chronic LBP. A pragmatic, randomised trial with a one-year follow-up. *BMC Musculoskeletal Disorders, 11*, 212. doi:1471-2474-11-212[pii]10.1186/1471-2474-11-212.

Stephens, B., & Gross, D. P. (2007). The influence of a continuum of care model on the rehabilitation of compensation claimants with soft tissue disorders. *Spine, 32*(25), 2898–2904. doi:0.1097/BRS.0b013e31815b64b600007632-200712010-00019[pii].

Stretching the truth. (2010). Retrieved November 30, 2010, from http://www.cbc.ca/marketplace/2010/stretching_the_truth/main.html

Symonds, T. L., Burton, A. K., Tillotson, K. M., & Main, C. J. (1995). Absence resulting from low back trouble can be reduced by psychosocial intervention at the work place. *Spine, 20*(24), 2738–2745.

Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: improving decisions about health, wealth, and happiness*. New York, NY: Penguin.

van Tulder, M., Becker, A., Bekkering, T., Breen, A., del Real, M. T., Hutchinson, A., et al. (2006). Chapter 3. European guidelines for the management of acute nonspecific low back pain in primary care. *European Spine Journal, 15*(Suppl 2), S169–S191.

van Tulder, M. W., Tuut, M., Pennick, V., Bombardier, C., & Assendelft, W. J. (2004). Quality of primary care guidelines for acute low back pain. *Spine, 29*(17), E357–E362.

Waddell, G., O'Connor, M., Boorman, S., & Torsney, B. (2007). Working backs Scotland: A public and professional health education campaign for back pain. *Spine, 32*(19), 2139–2143.

Wakefield, M. A., Loken, B., & Hornik, R. C. (2010). Use of mass media campaigns to change health behaviour. *Lancet, 376*(9748), 1261–1271. doi:S0140-6736(10)60809-4[pii]10.1016/S0140-6736(10)60809-4.

Werner, E. L., & Gross, D. P. (2009). The effects of a media campaign on beliefs and utilization of imaging examinations in Norwegian patients with low back pain. *Norsk Epidemiologi, 19*(1), 73–78.

Werner, E. L., Gross, D. P., Lie, S. A., & Ihlebaek, C. (2008a). Healthcare provider back pain beliefs unaffected by a media campaign. *Scandinavian Journal of Primary Health Care, 26*(1), 50–56.

Werner, E. L., Ihlebaek, C., Laerum, E., Wormgoor, M. E., & Indahl, A. (2008b). Low back pain media campaign: No effect on sickness behaviour. *Patient Education and Counseling, 71*(2), 198–203.

Werner, E. L., Ihlebaek, C., Skouen, J. S., & Laerum, E. (2005). Beliefs about low back pain in the Norwegian general population: Are they related to pain experiences and health professionals? *Spine, 30*(15), 1770–1776.

Werner, E. L., Laerum, E., Wormgoor, M. E., Lindh, E., & Indahl, A. (2007). Peer support in an occupational setting preventing LBP-related sick leave. *Occupational Medicine (Lond), 57*(8), 590–595. doi:kqm094[pii]10.1093/occmed/kqm094.

Woolf, A. D., & Pfleger, B. (2003). Burden of major musculoskeletal conditions. *Bulletin of the World Health Organization, 81*(9), 646–656.

Young, A. E., Wasiak, R., Phillips, L., & Gross, D. P. (2011). Workers' perspectives on low back pain recurrence: "It comes and goes and comes and goes, but it's always there". *Pain, 152*(1), 204–211. doi:S0304-3959(10)00660-3[pii]10.1016/j.pain.2010.10.033.