

**A SYSTEMATIC REVIEW OF THE EFFECTIVENESS OF
BENCHMARKS IN SOCIAL MARKETING INITIATIVES FOCUSED ON
REDUCTION OF DISABILITY DUE TO BACK PAIN**

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Master of Science (MSc) in Management, University of Lethbridge, 2018

Thesis Submission to the School of Graduate Studies of the
University of Lethbridge in
Partial Fulfilment of Requirements for the Degree

MASTER OF SCIENCE, MANAGEMENT

Dhillion School of Business
University of Lethbridge
LETHBRIDGE, ALBERTA, CANADA

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Abstract

Back pain is a leading cause of disability and stress on the health care system. Back pain injury is costly to employers, leads to absenteeism in the workplace, and disrupts the lives of those suffering from back pain symptoms. Education to stay active despite symptoms is recommended as a key management strategy. Social marketing can be used to promote behavior change by encouraging interventions such as increased physical activity. This could reduce recovery time and prevent further injury. A systematic review of published articles relating to back pain disability reduction interventions was conducted to analyze the effectiveness of these interventions to assess presence of benchmarks using a social marketing framework. Findings revealed that augmented product is necessary, but not a sufficiently effective benchmark to create behavior change. The findings of this study build knowledge of social marketing and allow us to understand how to effectively promote back pain prevention behaviors.

Acknowledgements

I would first like to thank my thesis supervisor, Dr. Sameer Deshpande of the Dhillon School of Business at the University of Lethbridge. Professor Deshpande has consistently provided support and encouragement throughout this process. Allowing me to set ambitious goals, steering me in the right direction, and always being available when I needed clarity. Your sense of humour and patience kept me going; I am very grateful.

I would also like to thank the team of experts who were willing to sit as committee members for this research: Dr. Doug Gross at the University of Alberta, Dr. Olu Awosoga at the University of Lethbridge, and Dr. Mahmooda Pasha at the University of South Florida. Each bring great passion and dedication to their fields. Thank you for your support and insight throughout this process. Without your expertise, this research would not have been possible.

I would also like to acknowledge the team of experts who began the initial stages of this research, specifically Susan Armijo Olivo for her continued support.

And to the entire faculty at the Dhillon School of Business, who have always been willing to discuss ideas, share insight, and encourage growth. Thank you to Dr. Debra Basil for advocating for me and believing in my potential. And Dr. Mahfooz Ansari for your positivity and encouragement. And Ms. Tammy Rogness for keeping us all on track.

And lastly, I would like to thank my family and friends for their unwavering support. My two children, Addison and Jude, and my husband, Richard, for allowing me to take this journey. And to my parents, Helen and Ted, for their encouragement and support in everything I do.

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Introduction

Suffering from back pain imposes significant challenges on individuals and society. With strain on the health care system, absenteeism at work, and decline in health, back pain has the potential to disrupt lives. With an increase in functional disability due to chronic back pain worldwide, and back pain being the leading cause of disability in Canadians under the age of 60, the need for interventions in reducing back pain is on the rise (Deyo et al., 2014). Research suggests that remaining active is the most effective way to prevent and treat back pain (Hilde et al., 2002).

Social marketing is an effective tool to promote behavior change. It can be used to change how health care practitioners approach back pain treatment, as well as promote remaining active as the desired behavior for individuals suffering from back pain. By appropriately employing social marketing initiatives, we can assist in decreasing disability due to back pain symptoms.

Benchmarks are indicators of quality of a social marketing initiative. There has been growth and change to the benchmarks identified and measured in social marketing literature over the years (Andreasen, 2002; French & Blair-Stevens, 2006; Xia et al., 2016). Extending the previous literature, the current study identified 48 benchmarks and measured effectiveness of their presence in back pain interventions. A systematic review provides evidence of the effectiveness of these benchmarks, and the usefulness of social marketing to promote behavior change. This study serves to measure how effective behavior change initiatives are when implementing the social marketing framework.

Literature Review

Social marketing and the strategies social marketers use are prevalent in our everyday lives. Health care, government, and education sectors have adopted many social marketing interventions to improve quality of life. However, there is much confusion within this field, with many campaigns misinterpreting what social marketing truly is, and how it differs from education or communication-only efforts. According to Rothchild, “education refers to messages of any type that attempt to inform and/or persuade a target to behave voluntarily in a particular manner but do not provide, on their own, direct and/or immediate reward or punishment” (Rothchild, 1999, p. 25). Social marketing goes beyond educating the individual and implements additional benchmarks in its strategy to facilitate behavior change for the betterment of the individual and society. It is important when discussing social marketing, that we understand exchange needs to be present in order to differentiate a social marketing initiative from education (Kotler & Zaltman, 1971, p.4). Public health often attempts to promote healthy lifestyle choices, implementing both social marketing and education techniques. However, we need to understand how social marketing differs from education in terms of behavior change effectiveness. The current study builds on a study conducted by Xia et al (2016) to improve our understanding of social marketing benchmarks and their effectiveness. This systematic review focuses on articles promoting back pain reduction behaviors and provides insight into the effectiveness of social marketing benchmarks on behavior change.

Several studies have conducted systematic reviews of the presence of social marketing benchmarks. In 2015, Fujihira et al conducted a systematic review of 34 articles focusing on physical activity interventions among adults 60 years and older, using Andreasen's six social marketing benchmarks (Andreasen, 2002). Kubacki et al also systematically reviewed 94 articles focused on increasing physical activity among adults, measuring six social marketing benchmarks introduced by Andreasen. Both studies measured the presence of the number of social marketing benchmarks used and concluded that the studies reviewed did not utilize all social marketing benchmarks, but most implemented behavioral objectives and formative research. Kubacki et al also concluded that the marketing mix was consistently used throughout the studies.

Xia et al (2016) approached their systematic review with 92 interventions focused on promotion of physical activity among adults. This study employed 14 benchmarks, derived from Andreasen (2002) and the National Social Marketing Centre (French & Blair-Stevens, 2006). However, this study recognized the limitations in focusing on these six to eight benchmarks and implemented Lee and Kotler's 10 step social marketing planning process (Lee & Kotler, 2016), bringing the total benchmarks measured to fourteen. The Xia study concluded that social marketing is an effective approach to promoting physical activity when seven or more benchmarks are present. Xia et al. (2016) study also identified the following benchmarks to have influenced physical activity behaviors: Primary formative research, partnership, actual product, augmented product, promotion, behavioural competition, segmentation, and place.

In a subsequent study, Deshpande et al (2018) expanded the benchmarks specific to

ISMC and social media. This study found that social marketing benchmarks influence intervention success, but the social media benchmarks do not.

The current study employs Deshpande et al. (2018) benchmarks to assess effectiveness of back pain prevention behaviors and makes a contextual contribution.

Defining Social Marketing

Lee & Kotler argue that “marketing techniques have been used within non-profits to increase donations and memberships, or to promote more visitors to museums and symphony concerts” (Lee & Kotler, 1971, p.5). Commercial marketing techniques have been adopted to encourage behavior change and social marketing has evolved from commercial marketing practices. However, when discussing social marketing it is important to understand what it is not, and how it is distinct from commercial marketing. Social marketing also differs from other strategies such as education or regulation. Rothschild states that social marketing “attempts to manage behavior by offering reinforcement incentives and/or consequences in an environment that invites voluntary exchange” (Rothschild, 1999, p. 25). Essentially, education and law informs or coerces behavior change, but social marketing attempts to create voluntary behavior change using incentives, promotion, and favourable benefits to the consumer audience.

Social marketing has predominantly been utilized in public health, however it is important to understand social marketing from a broader perspective to develop theory and build foundational knowledge of this field of study. Our ability to measure and test data facilitates growth in understanding of how social marketing can be used effectively. As a relatively new field, there is need to develop measurement tools to determine criteria

for effective social marketing. Benchmarks have become widely recognized in developing method and designing studies that implement social marketing. Through a systematic review, we assess social marketing benchmarks and their effectiveness. Measuring the influence of each benchmark allows us to grow our understanding of social marketing theory and provides evidence of effectiveness of social marketing initiatives.

Limited research has looked at social marketing interventions and measured the effectiveness of benchmarks. In a study published in 2016, researchers identified benchmarks used in social marketing framework and analyzed effectiveness in physical activity promotion (Xia et al. 2016). This study concluded that the more benchmarks present in a social marketing intervention, the higher the likelihood of success in adopting the desired behavior. This is important to understand and measure; as we build more empirical data to support these benchmarks, we can construct more effective initiatives, leading to increase in social benefits and cost reduction for those supporting behavior change. Without evidence of effectiveness, it is difficult to defend social marketing programs and initiatives. Outcome measurement is necessary in providing justification for the resources used to implement these social marketing programs. This level of analysis is vital in establishing social marketing as important for facilitating behavior change and influencing social behavior.

As we continue to support the need for benchmarks in social marketing, and demonstrate their effectiveness, we can facilitate more sophisticated means of measuring outcomes in social marketing. In past literature, benchmarks are being approached as balanced or having positive impact on the outcomes. However, as we learn more about the

effectiveness of benchmarks in social marketing, it is possible we will be successful in finding more refined ways to measure their impact. This will allow us to determine if certain benchmarks are more effective than others, or if they are indeed all positively contributing to the outcomes, as research in current literature has suggested. It is important to understand the limitations of our understanding of benchmarks in social marketing, and effectiveness of each benchmark individually on the behavior outcomes of social marketing initiatives.

Benchmarks

Social marketing benchmarks are used to identify which studies implement social marketing techniques to promote behavior change. By measuring these benchmarks, it can be determined which studies were social marketing interventions. Basing our identification of articles on this criteria also ensures consistency in how we measure and evaluate these studies.

As discussed, past systematic reviews have predominantly employed six benchmarks proposed by Andreasen (Andreasen, 2002) and the eight benchmarks employed by the National Social Marketing Centre (French & Blair-Stevens, 2006).

Andreasen's 6 Benchmarks are as follows (2002):

1. Behavior-change
2. Audience research to formative, pretest and monitoring
3. Segmentation
4. Attractive and motivational exchanges
5. Four Ps
6. Competition faced by the desired behavior

National Social Marketing Centre 8 Benchmarks are as follows (French & Blair-Stevens, 2006):

1. Behavior
2. Customer Orientation
3. Theory
4. Insight
5. Exchange
6. Competition
7. Segmentation
8. Method Mix

In the Xia et al. study of physical activity among adults, they proposed 14 benchmarks. Those include: primary formative research, secondary formative research, pretest research, monitoring research, evaluation research, segmentation, partnership, core product, actual product, augmented product, price reduction, place, promotion, and behavioral competition (Xia et al., 2016). These benchmarks were built on Lee and Kotler's 10-step social marketing plan (Lee & Kotler, 2016) to address the limitations of past research: "1) they do not capture the social marketing planning process in its entirety and 2) they lack conceptual clarity and operationalizability" (Xia et al., 2016, p 1264). Deshpande et al (2018) further expanded this list to include 48 independent benchmarks to include Integrated Social Marketing Communications benchmarks (ISMC) and social media benchmarks. Alden et al. (2011) define ISMC as an approach that utilizes these three components in its strategy: "1) Brand promise is promoted consistently across communications mix (Advertising, PR, Sales promotion, and Social media), 2) Promotion 'P' is integrated with the other 3Ps (Product, Price, Place), and 3) Focus is not on providing information but on pro-social behavior change and actions" (p. 167).

In our study, we conducted the systematic review with all 48 benchmarks. They are as follows (See Appendix 1 for their definitions):

Research Benchmarks

1. Primary Formative Research
2. Secondary Formative Research
3. Pretest research
4. Monitoring research
5. Evaluation research

Foundational Decisions

6. Intervention theory driven
7. Target audience(s) identified
8. Sub-segments identified
9. Efforts to identify current behavior(s) and influencers
10. Efforts by others to promote similar behaviors
11. External partners other than the funding agencies
12. Outcome objectives and goals

Marketing-Related Strategic Decisions

13. Tailoring of strategy
14. Core product
15. Actual product
16. Augmented product
17. Price reduction
18. Place
19. Integrated Social Marketing Communications (ISMC)

Integrated Social Marketing Communications Benchmarks

20. Consequence of current behavior
21. Solution to adopt the desired behavior
22. Consistency with product, price, and place
23. Consistency between communication tools (ad, PR, sales promo, direct marketing) and between and within social-media, other-digital-media, and non-digital-media.
24. Promotion of desired behavior
25. Support claim
26. Big idea
27. Endorsement
28. Edutainment

ISMC- Related Tactical Decisions

29. Communication offered in a timely manner
30. Audience commitments and pledges
31. Prompts to promote sustainability

ISMC Tools Used

32. Advertising
33. Public relations
34. Sales promotion
35. Direct marketing

ISMC Media Used

36. Television
37. Videotape
38. Radio
39. Print
40. Outdoor and out of home
41. Product packaging
42. Social and Digital media

Media Used to Promote Augmented Product

43. Television
44. Radio
45. Print
46. Outdoor and out of home
47. Product packaging
48. Social and digital media

We included 48 benchmarks which addressed limitations of past studies which were not as comprehensive. We wanted to include the planning process as proposed by Lee and Kotler (2002). The 10- step social marketing plan allows for operationalizability. We also wanted to be comprehensive in our understanding of each component of the social marketing planning process to provide insight into the effectiveness of each benchmark. We employed these benchmarks to code attempts to promote back pain prevention behaviors on which we focus next.

Back Pain Prevalence

Back pain is a prevalent problem globally, contributing to many hospital visits for acute, sub-acute and chronic pain symptoms (National Centre for Health Statistics, 2012).

Back pain is a leading factor in short and long-term disability leave and absenteeism at the workplace, with absenteeism contributing to an average of 9.3 days missed per full-time employee in Canada in 2011 and an estimated \$16.6 billion loss to the Canadian economy in 2012 (Stewart, 2013). Not only does back pain cause complications for those suffering with symptoms, but it also costs companies and health care systems substantial resources (National Centre for Health Statistics, 2012). According to a Statistics Canada study conducted in 1995, it is estimated that 70 to 85% of Canadians will experience back pain symptoms at some point in their lifetime.

Back pain is increasingly treated with narcotic use to mask symptoms, as well as costly surgical procedures (Wallis, 2013). Back pain is listed as a top ten primary reason for emergency department visits in the United States (National Hospital Ambulatory Medical Care Survey, 2012). Four hundred and forty million back pain related visits to emergency rooms were estimated over a 12-year study in the United States alone. (Mafi et al., 2013).

To reduce disability from back pain symptoms, we need to understand how back pain can be treated and prevented. Although it is common practice for practitioners to prescribe bed rest when patients display back pain symptoms, research suggests remaining active can improve healing rates and manage back pain more effectively (Koes, 2010). Past campaigns and interventions have recommended patients remain active and encouraged physical activity to promote healthy healing after injury or symptoms (Suman et al., 2017). Our study aims to understand the effectiveness of these initiatives from the perspective of presence of social marketing benchmarks.

Hypothesis

Assessing the social marketing interventions based on their benchmarks allows us to gain understanding of the effectiveness of social marketing benchmarks, rather than measuring the overall success of an intervention. By breaking down the process into 48 benchmarks, we can identify how extensively the benchmarks were used, test the comprehensiveness of social marketing intervention, and specifically which benchmarks are influencing this success. This study provides systematic evidence of the effectiveness of benchmarks in social marketing initiatives in regard to back pain reduction. It is also, to the best of our knowledge, the first systematic review of social marketing benchmarks focused on back pain interventions. This study provides opportunity to apply what we know in a new context to determine generalizability of social marketing benchmarks. We tested the following hypothesis (Xia et al., 2016):

H1: The number of benchmarks present in an intervention will be positively associated with the success of the intervention. The higher the number of benchmarks implemented, the higher the likelihood of success in the intervention.

H2: Each benchmark present will be positively associated with the success of the intervention.

Method

A team of public health and social marketing professionals from Edmonton and Lethbridge, Alberta came together over the past two years to collaborate on research focused on the social marketing effectiveness in back pain reduction initiatives across the globe. These researchers completed the initial work to search 151 academic articles. The articles were derived with the following inclusion criteria:

1. Does the study use some form of quantitative experimental design?
Any type of experimental design will be included. Examples could be:
 - a. Randomized controlled trials (RCTs)
 - b. Controlled trials,
 - c. Interrupted time series,
 - d. Before and after studies,
 - e. Quasi-experimental designs
2. Is the study targeting the whole population?
3. Is the study targeting subsets of population? Including:
 - a. People >13 years old with or without non-specific back and neck pain (cervical, thoracic and/or lumbar pain)
 - b. Health professionals (as part of the whole population)
4. Is promotion/educational/communication element present and evaluated in the intervention?

This includes both mass media or group or personal communication.

Mass media-only interventions (taken from one Cochrane SR): Mass media are defined here as channels of communication such as television, radio, newspapers, billboards, posters, leaflets or booklets intended to reach large numbers of people, and which are not dependent on person-to-person contact.

Studies including multimodal interventions including mass media interventions could be included, provided that the comparison was structured in such a way that the independent contribution and efficacy of the mass media/educational/marketing component could be assessed.

Specific educational programs involving short/simple interventions including the use of videos, pamphlets, or brochures (such as those given in the emergency room) will also be considered

Interventions involving implementation of guidelines to healthcare workers will also be considered.

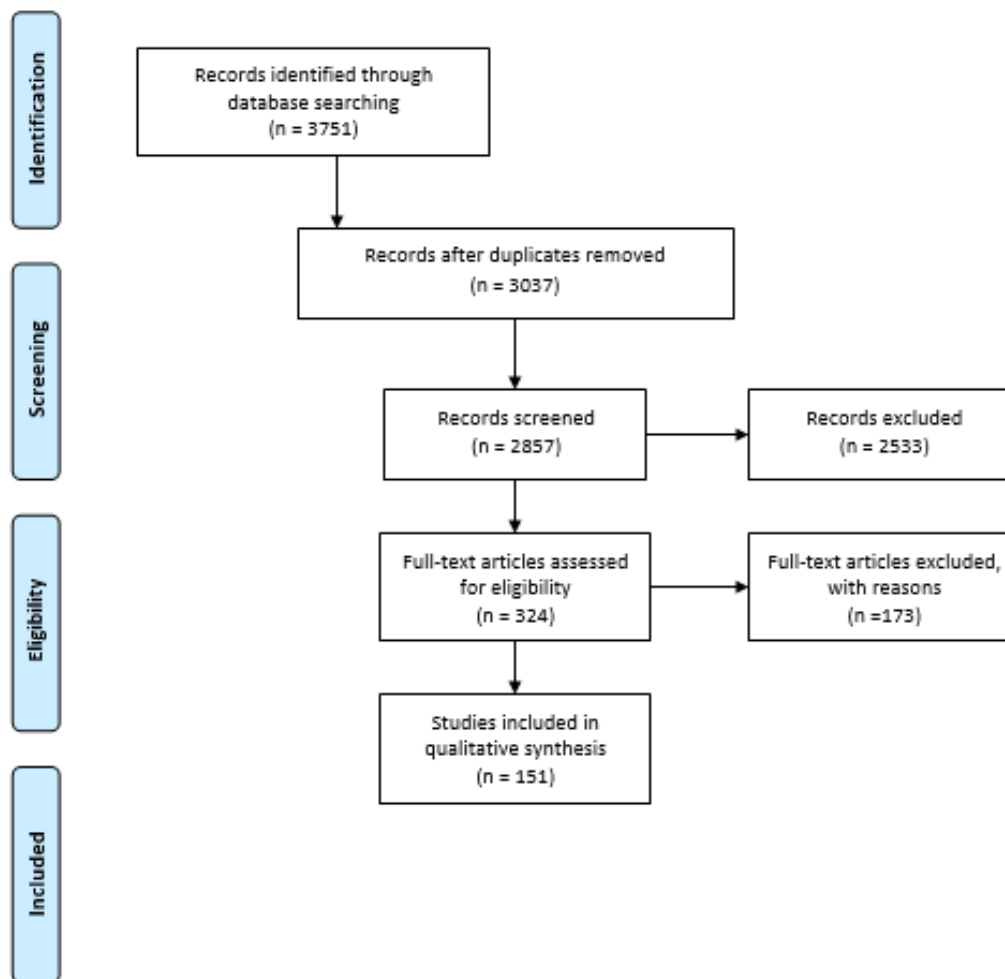
Interventions involving self-management techniques will also be considered.

5. Is the study looking at behavioural/health utilization/functional outcomes?
These are examples of outcomes
- a. **Behavioural outcomes:** such as:
 - i. **Work participation outcomes:**
 1. return-to-work,
 2. absenteeism
 3. work loss
 4. Disability claims
 - b. **Health utilization outcomes**
 - i. visits to a health provider (GP visits, health utilization),
 - ii. undergoing diagnostic imaging, surgery, etc
 - c. **Others**
 - . change in physical activity (e.g. exercise) reported by an objective or subjective tool
 - d. **Functional or symptoms-related outcomes**
 - . self-reported pain
 - i. disability
 - ii. function

Specific exclusion criteria:

1. Systematic Reviews and Meta-Analyses
2. Commentaries
3. Presence of only product, price, and place without the presence of promotion/communication P.
4. Surveys
5. Focus on surgical patients
6. Clinical practice guidelines alone

Criteria were created, and key words were identified by the research team (See Appendix 2 for Key Word Search Criteria). An article search was conducted by a research librarian and screening of these articles was implemented in phases to determine appropriate articles to analyze for this systematic review.



Article Data Extraction

The first and second coder then analyzed each of the 151 articles and determined that 35 of the selected articles were either missing, incomplete, or written in Spanish or German. These 35 articles were then removed from the study, and the analysis was comprised of the remaining 116 articles. These 116 articles were coded in this study by condition. We determined that from the 116 articles, there were 233 conditions to be coded. The data codebook and extraction spreadsheet were created to capture the data

from the articles. Each article was analyzed and presence of benchmarks was determined.

Other information was also captured for each article as follows:

- Marketing strategy intervention
- Location
- Individual characteristics
- Study design
- Data analysis methods
- Measures (other than outcome)
- Cost of intervention
- Condition success
- Number of conditions
- Sample
- Sample size
- Setting

Data Analysis

A total of 233 conditions were analyzed. The benchmarks were identified as such that 1 was marked for presence of benchmark and 0 indicated the absence of the benchmark. Each condition was also identified as successful or not successful. The condition was successful if there was statistically significant improvement in outcome

behavior (ie: individual is regularly exercising, using proper lifting techniques), impact behavior (ie: individual can continue to work, reduced hospital visits), or physical condition (ie: reduced pain, improvement in motion).

A second coder was hired to analyze and code at least 33% of the conditions, which equated to 42 articles coded in total. This coder was a student currently enrolled in the Dhillon School of Business, who had recently completed the social marketing course. Forty two articles were coded independently by two coders and were compared for accuracy. Any discrepancy in data was discussed until a consensus was reached by both coders. If the coders did not agree, the thesis supervisor would be asked to assess the article and make the final decision. However, due to early discussions and our ability to clearly define each benchmark, disputes were never unable to be resolved. Therefore, the supervisor was never required to make these decisions. This process follows best practices according to Lipsey and Wilson (2001). The process resulted in 100% agreement between the coders. The results of each condition and its benchmarks were then analyzed.

We ran two tests using chi-square and Phi & Cramer's V on H1 and H2 using SPSS. First, we tested the significance of the number of benchmarks used as it relates to the success of an initiative, testing the first hypothesis. The presence of the degree of benchmarks was split into three categories: High, Medium, and Low. Medium was determined by identifying the median number of total benchmarks in all conditions, which was 13. Any condition that implemented 13 benchmarks was considered medium. Conditions with 13 benchmarks or more were categorized as high, and 12 or fewer as

low. High, medium, and low were identified categories in the SPSS analysis and compared to success or no success, which was shown by 1 or 0.

Second, we assessed the statistical significance of each benchmark to determine whether the intervention was successful or not successful when each benchmark was present. This was done using Phi & Cramer's V by identifying benchmarks with Cramer's V value of .2 or higher and significance of .05 or more. Phi & Cramer's V was used to measure association between variables. These results were then analyzed to determine if they demonstrated positive association on intervention success within the crosstabs results. The results of these tests will be addressed in the results section.

Results

This study assessed 116 articles that resulted in 233 conditions to determine the effectiveness of social marketing in behavior change initiatives to reduce disability due to back pain symptoms. H1 hypothesized that the number of social marketing benchmarks present would be positively associated with the success of an intervention. A Pearson Chi-square and Phi & Cramer's V test showed a significant association between the presence of total social marketing benchmarks and campaign success, chi-square = 65.647, $p < .001$, and Phi & Cramer's V = .531, $p < .001$. The Crosstabulation table was assessed to determine positive association between the number of benchmarks and the success of intervention. The results of this study supported the hypothesis that the higher the presence of social marketing benchmarks, the more likely a campaign would be successful in creating behavior change. In the crosstabulation, it shows that 82 conditions with high benchmarks were successful. And 87 conditions with low benchmarks were not successful. This demonstrates that high benchmarks present leads to success, and low

benchmarks present leads to failure in promoting behavior change. With these results, we can be confident in these findings demonstrating the importance of high benchmarks present within a social marketing initiative.

Table 1. Summary of Total Benchmarks

	High	Low	Medium
Not Successful	34	87	4
Successful	82	18	8

H2, each benchmark present will be positively associated with the success of the intervention was also tested. Using the Pearson Chi-square test, and with condition success as the dependent variable, and benchmarks being the independent variable, we ran an analysis for each social marketing benchmark to determine its individual contribution to the success of the intervention.

Table 2. Summary of significance

Method	Criteria	Results
Pearson Chi-Square	$P < .05$	<p>Positive Influence: Core product, price reduction, place, solution to adopt desired behavior, consistency between product, price, place, promotion of desired behavior, support claim, augmented outdoor or out-of-home.</p> <p>Negative or No Influence: Intervention theory driven, outcome objectives & goals, tailoring, actual product,</p>

		augmented product, ISMC promotion, consistency between communication tools, endorsement, communication in a timely manner, prompt to promote sustainability, advertising, direct marketing, augmented video, augmented print, augmented social media & digital media, ISMC TV and ISMC print.
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Table 3. Summary of Benchmarks Present

Benchmark	When benchmark present, number of conditions with condition success		Cramer's V Value & Significance	How often benchmark is present in conditions (Total conditions: 233)
	Unsuccessful (0)	Successful (1)		
Primary Formative Research	125	108	Constant	100%
Evaluation Research	123	102	Cramer's V: .108 p-value: .098	96.6%
Secondary Research	120	103	Cramer's V: .015 p-value: .813	95.7%
Target Audience	114	98	Cramer's V: .008 p-value: .903	91%
Communication in timely manner	86	99	Cramer's V: .282 p-value: <.001	79.4%
Augmented Product	71	97	Cramer's V: .367 p-value: <.001	72.1%
Consistency between communication tools	72	93	Cramer's V: .313 p-value: <.001	70.8%
Consistency between product, price, place	55	95	Cramer's V: .458 p-value: <.001	64.4%
Place	44	88	Cramer's V: .466 p-value: <.001	56.7%

Promotion of desired behavior	39	90	Cramer's V: .523 p-value: <.001	55.4%
Augmented Outdoor or Out-of-Home	39	85	Cramer's V: .475 p-value: <.001	53.2%
Support claim	40	71	Cramer's V: .337 p-value: <.001	47.6%
Solution to adopt desired behavior	30	78	Cramer's V: .482 p-value: <.001	46.4%
Price Reduction	30	69	Cramer's V: .402 p-value: <.001	42.5%
Augmented Print	42	52	Cramer's V: .148 p-value: .024	40.3%
Core Product	19	62	Cramer's V: .447 p-value: <.001	34.8%
Consequence of current behavior	29	51	Cramer's V: .252 p-value: <.001	34.3%
Intervention Theory Driven	16	40	Cramer's V: .283 p-value: <.001	24%
Prompts to promote sustainability	13	39	Cramer's V: .308 p-value: <.001	22.3%
Outcome objectives and goals	12	25	Cramer's V: .185 p-value: .005	15.9%
Tailoring	10	21	Cramer's V: .168 p-value: .010	13%
Endorsement	6	23	Cramer's V: .249 p-value: <.001	12.4%
Actual Product	5	23	Cramer's V: .265 p-value: <.001	12%
Pretest Research	13	13	Cramer's V: .026 p-value: .692	11.2%
Augmented Video	7	19	Cramer's V: .190 p-value: .004	11.2%

Identify current Behavior	11	12	Cramer's V: .039 p-value: .555	10%
Monitoring Research	10	11	Cramer's V: .038 p-value: .561	9%
Sub-segments Identified	13	8	Cramer's V: .52 p-value: .426	9%
Direct Marketing	3	11	Cramer's V: .163 p-value: .013	6%
Augmented Social Media & Digital Media	2	12	Cramer's V: .200 p-value: .002	6%
ISMC Promotion	1	12	Cramer's V: .224 p-value: .001	5.6%
ISMC Print	3	10	Cramer's V: .149 p-value: .023	5.6%
Advertising	3	9	Cramer's V: .134 p-value: .041	5.2%
Augmented TV	3	8	Cramer's V: .118 p-value: .072	4.7%
Audience commitment & pledges	2	6	Cramer's V: .108 p-value: .098	3.4%
ISMC TV	0	7	Cramer's V: .189 p-value: .004	3%
ISMC Radio	2	4	Cramer's V: .066 p-value: .312	2.6%
ISMC Outdoor & Out-of-Home	1	5	Cramer's V: .121 p-value: .066	2.6%
Augmented Radio	2	2	Cramer's V: .010 p-value: .883	1.7%
ISMC Social Media & Digital Media	0	3	Cramer's V: .123 p-value: .061	1.3%
Efforts to promote similar behaviours	1	1	Cramer's V: .007 p-value: .912	1%

Edutainment	0	2	Cramer's V: .100 p-value: .127	1%
Public Relations	0	2	Cramer's V: .100 p-value: .127	1%
Augmented Product Packaging	0	1	Cramer's V: .071 p-value: .281	0.4%
External partners other than funding agent	0	0	Constant	0%
Big idea	0	0	Constant	0%
Sales Promotion	0	0	Constant	0%
ISMC Product Packaging	0	0	Constant	0%

In total, we found that 19 of the benchmarks are statistically significant and had a Cramer's V value of .2 or higher in this study. However, they are not all demonstrating a positive influence on the success of a condition. We will discuss the eight benchmarks that demonstrate a positive influence on the success of the condition. Following this discussion, we will also identify the 11 statistically significant benchmarks that could be having a negative or neutral effect on the success of the condition. These results are showing that if these benchmarks are absent, it is highly unlikely the condition will succeed. However, if the benchmarks are present, the rate of success is less definitive. We will discuss these results further.

Statistically Significant Positively Associated Benchmarks

Of the 48 benchmarks measured, this study determined that eight benchmarks significantly contribute to the success of a social marketing campaign focused on back

pain. These eight benchmarks are as follows: Core Product, Price Reduction, Place, Solution to Adopt Desired Behavior, Consistency with Product, Price and Place, Promotion of Desired Behavior, and Support Claim, and Augmented Media Outdoor or Out-of-Home.

The results of this study demonstrated that core product presence leads to success of an intervention. Price reduction was also significant, demonstrating that affordability and reducing barriers to participate is important in ensuring success. Similarly, place was significant, demonstrating that convenience and ease of access also plays a role in ensuring success. Reducing barriers to access augmented product allows the target audience to more easily adopt the desired behavior. Promotion of desired behavior and solution to adopt behavior is significant, this aligns well with social marketing practice and the importance of providing a solution for our target audience (Kotler & Lee, 2008). Additionally, augmented media outdoor or out-of-home, consistency with product, and supporting claim all significantly impact the success of an initiative. It is important to note that augmented or actual product must be present in order to implement these six benchmarks.

Augmented product was present in 72% of the articles analyzed. Augmented products, such as workshops, printed pamphlets, or exercise DVDs, are goods or services that help the targeted audience adopt the desired behavior. The results of this study suggest that the absence of augmented product may result in failure. However, there is no evidence to demonstrate that augmented product presence will guarantee success. This is an important finding, as it raises questions about the quality of the products being used.

This study did not measure the quality of the augmented products, and this could explain these findings. Xia et al results found augmented product to be significant in success rate.

Table 4. Summary of Augmented Product Findings

	Augmented Product Not Present	Augmented Product Present
Not Successful	54	71
Successful	11	97

Statistically Significant Negative & Inconclusive Benchmarks

In addition to these results, this study concluded that 11 benchmarks were statistically significant, but negatively or neutrally contributed to the intervention. These benchmarks are identified as follows: Communication offered in a timely manner, Augmented product, Consistency between tools, Augmented print, Consequence of current behavior, Intervention is theory driven, Prompts to promote sustainability, Endorsement, Actual product, ISMC promotion, and Augmented social media. These are widely used strategies in social marketing initiatives, and these results may be surprising. Social and digital media were included in this study as additional benchmarks to measure and assess. This study suggests that social and digital media do not add significant value to the success of social marketing interventions. This is consistent with the Deshpande et al (2018) results.

Print product was predominantly used when augmented product was present. Augmented printed materials were present in 40% of the conditions. Although our

findings indicate that augmented product not being present contributes to the failure of an initiative, print and video augmented product are not consistently adding value to these initiatives. Further investigation would be useful in measuring the quality of the content used in these products and determining what leads to effective augmented products for this type of initiative.

These results do not support H2 hypothesis that all benchmarks will positively contribute to the intervention success. This was consistent with the results of the Xia et al study. However, the significant and insignificant benchmarks identified were not consistent among studies. This could be due to contextual differences among studies.

Limitations

This study was limited to information made available within the articles. When a benchmark wasn't explicitly stated in the article content, we made the assumption it was not present. However, it is possible details of the social marketing campaign were missed within these articles due to their academic nature. This limited our ability to measure benchmarks with perfect accuracy. It is possible that this limitation effected the outcomes when measuring augmented product. Further investigation should be made in measuring the content and effectiveness of these types of products to better understand their ability to influence success.

There are also a number of benchmarks that were rarely or never present in the studies we analyzed. This results in poor measurement of their effectiveness, and should be studied in further research, specifically using studies who implemented those benchmarks in their

initiatives to get a better reflection of how they influence success in a social marketing campaign. Particularly, efforts to promote similar behavior, external partners, big idea, edutainment, public relations, sales promotion, and augmented and ISMC product packaging were rarely or never found in the studies analyzed.

Conclusion and Implications

Kotler & Lee (2008) describe three types of interventions to promote behavior change. This includes education, regulation, and social marketing. This study uses benchmarks to define and measure social marketing techniques and determine its effectiveness of promoting behavior change when back pain symptoms are present. The benchmarks identified in this study determine how each of these campaigns apply social marketing techniques. The result of this study suggests that social marketing techniques are more successful in promoting behavior change than using traditional approaches such as education.

This study was a follow up to the Xia et al study (2016) and the results are consistent with their findings. Both studies were consistent in finding positive correlation with the number of social marketing benchmarks present and a higher success rate. It also found that similarly to Xia et al, the nature of the condition did not impact the success; only the number of benchmarks present. However, Xia et al did not include the social media benchmarks as criteria measured within this study. The results of this study concluded that social media is not a significant factor in the success of a social marketing initiative. A significant amount of the studies analyzed did not implement social media as

a benchmark used, so we would suggest that further review be given in future studies into the use of social media benchmarks.

Due to these findings, this study suggests that each individual benchmark impacts the success rate at different levels of severity. Some benchmarks are highly impactful in predicting success, whereas others do not seem to effect the outcome.

Remaining active is the most effective way to treat back pain symptoms (Hilde et al. 2002). Social marketing has the ability to promote behavior change to ensure back pain sufferers adopt active behaviors. This allows patients to return to work, decrease strain on health services, and potentially reduce physical symptoms of back pain. This study provides better understanding of social marketing effectiveness in back pain context, demonstrating that high use of social marketing benchmarks present in a campaign leads to the success of our audience adopting these behaviors.

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Appendix 1 Codebook

Systematic Review of Social Marketing in Back Pain *(Sameer Deshpande et al. 2018)*

1. Primary formative research
2. Secondary formative research
3. Pretest research
4. Monitoring research
5. Evaluation research

Foundational decisions

6. Intervention theory driven
7. Target audience(s) identified
8. Sub-segments identified
9. Efforts to identify current behavior(s) and influencers
10. Efforts by others to promote similar behaviors
11. External partners other than the funding agencies
12. Outcome objectives and goals

Marketing-related strategic decisions

13. Tailoring of strategy
14. Core product
15. Actual product
16. Augmented product
17. Price reduction
18. Place
19. ISMC

31. Prompts to promote sustainability

ISMC tools used

32. Advertising
33. Public relations
34. Sales promotion
35. Direct marketing

ISMC Media used

36. TV
37. Videotape
38. Radio
39. Print
40. Outdoor and out-of-home
41. Product packaging
42. Social and Digital media

Promotional Media used

43. TV
44. Radio
45. Print
46. Outdoor and out-of-home
47. Product packaging
48. Social and Digital media

ISMC Benchmarks

ISMC-related strategic decisions

20. Consequences of current behavior
21. Solution to adopt the desired behavior
22. Consistency with product, price, and place
23. Consistency between communication tools (ad, PR, sales promo, direct marketing) and between and within social-media, other-digital-media, and non-digital-media
24. Promotion of desired behavior
25. Support claim
26. Big idea
27. Endorsement
28. Edutainment

ISMC-related tactical decisions

29. Communication offered in a timely manner
30. Audience commitments and pledges

Social Marketing in Back Pain Codebook

1. **Paper ID#:** (follow the numbering system of UofA listing)
2. **Paper:** Citation
3. **Reviewer's Name:** Sameer (1), Janelle (2)
4. **Marketing strategy intervention name:** How was the intervention labeled or branded?
5. **Marketing strategy intervention(s) description:** describe intervention, e.g. short or intensive motivational interviewing with or without financial incentive (30 vouchers entitling free access to leisure facilities) (Harland, Jane, et al. "The Newcastle exercise project: a randomized controlled trial of methods to promote physical activity in primary care." *Bmj* 319.7213 (1999): 828-832).
6. **Aims/Objectives:** Overall aims and objectives of the paper (see if the paper abstract has the info), e.g. update and clarify the 1995 recommendation on the types and amounts of physical activity needed by healthy adults to improve and maintain health.
7. **Intended impact:** What is the purpose of the intervention? What will be the benefit to the society? This differs from outcomes that interventions would achieve. Outcomes are direct influence of the intervention, while impact is indirect. For example, condom usage is behavioral outcome while HIV/AIDS prevention is impact. HIV/AIDS can be prevented by several means. The intervention is just one likely factor. The impact result can also be ascertained much later after the intervention has ended, while outcomes should be noticed during and immediately after the end of the intervention.
8. **Did the author(s) attempt to change a desired behavior? Describe the behavior.** Did the intervention achieve a change in a desired behavior, and what was the behavior, e.g. to urge audience to achieve the recommended level and correct kind of back pain prevention activities. No: 1; Yes: 1.
 - 8.1. Behavioral outcomes: What type of behavioral outcome is the intervention attempting to change?
 - a. Work participation outcome, e.g.:
 - i. return-to-work,
 - ii. absenteeism
 - iii. work loss
 - iv. Disability claims
 - b. Health utilization outcome, e.g.:
 - i. visits to a health provider (GP visits, health utilization),
 - ii. undergoing diagnostic imaging, surgery, etc.
 - c. Other (e.g., change in physical activity such as exercise).
 - 8.2. Behavioral outcome variables: e.g. 30% target audience maintained recommended levels and nature of a desired behavior for a period of six months after intervention.

9. Other outcomes of the intervention

- 9.1. Awareness/Knowledge: A change in knowledge in benefits from recommended levels and nature of a desired behavior or consequences of conducting the current behavior or not conducting the recommended levels and nature of a desired behavior. No: 1; Yes: 1.
- 9.2. Attitude/Belief: A change in beliefs or perceptions towards the current behavior or desired behavior or related behaviors promoted by the intervention, e.g. self-efficacy towards achieving recommended level and nature of back pain prevention activities. No: 1; Yes: 1.
- 9.3. Behavior Intention: Future intention to stop doing the current behavior or adopt the desired behavior, e.g. intention to achieve recommended level and nature of back pain prevention activities. No: 1; Yes: 1.
- 9.4. Functional or symptoms-related outcomes: This would include outcomes such as self-reported pain and disability function. No: 1; Yes: 1.
- 9.5. Other: Anything that did not fit above, e.g. media exposure levels. No: 1; Yes: 1.

10. Success rate on other outcomes: Change in levels of other outcome variables, e.g. the levels of knowledge of the recommended level of physical activity intensity increased from 30% to 40%, and improvement was significant. The change could be statistically significant or not or even negative.

11. Duration: when did the intervention start and end? What was the total duration of the intervention in number of weeks?

12. Primary organization: Organization that is primarily responsible to carry out the campaign (could be individual or group of similar organizations): a) nonprofit/charity organizations, b) state/provincial/federal government, c) commercial organization

13. Sample: Was the sample selective/non-representative (1) or representative (2)? Zero if Don't know. Provide details on the sampling design: e.g. convenience sampling, judgment sampling, snowball sampling, simple random, systematic random, cluster, etc.

14. Sample size: N=

15. City, State/Province, Region, Country: In which city (cities) and country (countries) was (were) the intervention conducted?

16. Individual characteristics: target audience profile and inclusion and exclusion criteria (e.g. healthy adults who have not been smoking for at least one year)

17. Setting: Where was the intervention conducted? (e.g. individual, family, or community)

18. Study design: Examples include:

- a. Randomized controlled trials (RCTs)
- b. Controlled trials,

- c. Interrupted time series,
 - d. Before and after studies,
 - e. Quasi-experimental designs
- 19. Data analysis methods:** Which statistical method (e.g. t-test, ANCOVA, regression, factor analysis, SEM, etc.) was used?
- 20. Measures:** variables that were measured other than outcomes in the study (e.g. demographic factors, etc.)
- 21. Cost of intervention and Return on Investment:** Note both, if available. ROI is calculated as cost of intervention divided by money saved from achieving the impact.
- 22. Was the intervention successful?** We consider it as ‘yes’ if the behavioral outcome change is positive statistically significantly, e.g. compliance increased from 20% to 30% and the difference was significant. We consider it as ‘no’ if the behavioral outcome change is not significant statistically or if the change is in the negative direction.
- 23. Was the condition successful?** We consider it as a ‘yes’ if there is a significant change in outcome behavior, impact behavior or physical condition. 1, 3, or 4

Not successful if there is no change in 1, 3, or 4

SM Outcomes	Impact
1) Behaviour: Exercise, Proper Lifting Activities	3) Behaviour: Showing up to work, less doctor visits
2) Non-behaviour: Knowledge, attitude, behavior intention	4) Physical Condition: LBP

23.A. Number of conditions: Number the condition for which the benchmarks are assessed. If a study has three conditions, of which two are treatment or test conditions and one is a control condition. Mention 3 in the field.

Note: Repeat the rest of the sections for each condition in the study

23.B. Condition#

23.C. Nature of condition: Control: 1; Treatment: 2. If neither, 99.

23.D. Social marketing benchmarks: Add the number of checked benchmarks in the range of 23.1-23.19. Count only those with *.

23.E. ISMC benchmarks: Add the number of checked benchmarks in the range of 23.20-23.41. Count only those with *.

23.F. Total benchmarks applied: Add 23.D. and 23.E. Count only those with *.

For all benchmarks 23.1 to 23.41, Present: 1; Absent/DK: 0.

Social Marketing Concepts

- 23.1. Primary formative research: Collection of data to understand the target audience for their opinions regarding the current and desired behaviors (e.g., identify the target group's attitudes, beliefs, barriers, and enablers regarding physical activity).
- 23.2. Secondary formative research: Analysis of past literature to understand the target audience for their opinions regarding the current and desired behaviors (e.g., identify health issues with existing local community health care records so that the intervention team can set a primary goal to promote physical activity).
- 23.3. Pretest research: Assessment of audience response to draft formats of marketing mix strategies (e.g., test the effectiveness of communication strategies in a focus group)
- 23.4. Monitoring research: Assessment of whether the intervention activities were implemented as planned (e.g., assess competition and participant interest)
- 23.5. Evaluation research: Assessment of whether the intervention achieved its desired objectives and goals (e.g., evaluate what health benefits the target group received from the intervention).
- 23.6. Theory driven: Is a theory utilized to design entire or parts of intervention strategy? Theories could be communication-specific or from other disciplines such as public health, behavioral economics, and social psychology. E.g. Stages of Change, such as pre-contemplation, contemplation, preparation, action, and maintenance.
 - 23.6.1. Does the chosen theory consider behavior or behavior intention as its final outcome? This is not considered as a benchmark.
- 23.7. Was target audience identified? (e.g., seniors, healthy adults, etc.).
 - 23.7.1. If yes, please specify _____ This is not considered as a benchmark.
 - 23.7.2. Also, provide description.

- 23.8. Sub-segments identified: Intentional attempt to identify sub-segments (e.g., segments by geography). Also, provide description.
- 23.9. Efforts to identify current behavior(s) and influencers: Acknowledgment of current behaviors (e.g., watching TV at home) and organizations and individuals that promote the competing behaviors (e.g., certain commercial companies or the media). Also provide description.
- 23.10. Efforts by others to promote similar behaviors: Acknowledgment of other interventions that attempt to promote similar desired behaviors among similar audience members. Also provide description.
- 23.11. Partnership: Involvement of partners other than the funding agencies in designing and/or implementing the intervention (e.g., get support from the management of the target group to increase participation). This includes peers and members of target audience.
 - 23.11.1. Funding Source: Was the intervention self-funded? This is not considered as a benchmark.
 - 23.11.2. If not, who were the funding agencies? This is not considered as a benchmark.
- 23.12. Did the intervention set objectives and goals to achieve through the intervention? Objective can be behavioral, attitude, and knowledge. Goals have SMART features. Each objective has a manifest goal. E.g., the behavioral objective of a physical activity promotion intervention was to promote among target audience a moderate physical activity for at least 30 minutes per day for five days a week. The goal would be that at least 5% of this audience should carry out this behavior regularly by the end of the six-month period from the start of the intervention.
 - 23.12.1. Specify all objectives and goals. This is not considered as a benchmark.
- 23.13. Tailoring: Was attempt made to tailor the strategy either at the target audience level or group level or individual level? This include cultural tailoring of the intervention. Presence of google adwords implies tailoring strategy. Tailoring occurs if any one-on-one programming occurs, or if there is communication/feedback from the audience.
- 23.14. Core product: Core benefit of the product (e.g., highlight that using condoms provides pleasurable sex). Also, provide description. Core product is relevant only when actual or augmented product is offered.
- 23.15. Actual product: Tangible good or intangible service whose use ensures compliance with desired behavior and receipt of benefits of the behavior (e.g., offer a gym facility). Also, provide description.
- 23.16. Augmented product: Additional goods and services that help the target audience to consume the actual product and adopt the desired behavior (e.g., offer consulting sessions). Also, provide description.
- 23.17. Price reduction: Strategies to reduce barriers perceived by the target audience to use the product (e.g., offer “free” use of the gym facility). Not applicable if actual or augmented product are not present.
- 23.18. Exchange: Present if either core or actual product are present as well as price strategy.
- 23.19. Place: Strategies to increase convenient access to the actual or augmented product (e.g., offer physical activity services at the workplace). Also, provide description. Not applicable if actual or augmented product are not present.

23.20. ISMC (Integrated Social Marketing Communication): Creative strategies to inform, remind, and persuade the target audience about the value of the behavior change and other components of the marketing mix as well as media strategies to disseminate messages to the target group (e.g., “Get Firefighters Moving”). Also, provide description.

ISMC-specific benchmarks

- 23.21. Consequences of the current behavior: Does the communication message highlight the negative consequences of current behavior? (e.g., smoking causes cancer)
- 23.22. Solution to enhance benefits/reduce barriers of the desired behavior: Does the communication message promote solutions that enhance benefits (product management) and/or reduce barriers (price management) of the desired behavior (e.g., quitting smoking is easy if the smoker uses Nicorette-replacement therapy such as patch or gum)?
- 23.23. Consistency between communication tools (ad, PR, sales promo, direct marketing) and between and within media: Is the message and media strategy consistent between the four communication tools? For example, if the sales promotion discounts the monetary value of the product and advertising highlights benefits based on monetary aspects, that is evidence of consistency. Additionally, is the message content between the social, other-digital, and the non-digital media forms consistent in messaging (text, visual, and audio elements)?
- 23.24. Consistency with product, price, and place: Does the communication message reflect consistency with the benefits offered, barriers reduced, and convenience offered to adopt the desired behavior and the actual product? Not applicable if actual or augmented product are not present.
- 23.25. Promotion of desired behavior: Does the communication message explicitly promote the desired behavior? Presence of branding of desired behavior, promotion of the actual product and/or its brand, and presence of other creative elements such as tagline, logo, and visual cues are seen as a proxy to promote the desired behavior.
- 23.26. Support claim: Does the message support the claim of benefit enhanced or barriers reduced to adopting the desired behavior? Support can be provided through visuals, text, or audio in the form of scientific evidence, emotions, or peer experience. Example, showing healthy children that are immunized.
- 23.27. Big idea: Does the message reflect a big idea across all messages? A big idea is one central idea that is consistently observed throughout the intervention across all target groups, regions, time periods, and behaviors. The idea should go beyond the intervention being discussed. Example, the Truth anti-tobacco initiative utilizes the big idea on revealing the truth behind the tobacco promotion efforts.
- 23.28. Endorsement: Is the message endorsed by a person or a character? Endorsers can be experts, peers, celebrities, politicians, animation characters, and so on. For example, Elton John has been supporting HIV/AIDS prevention efforts.
- 23.29. Edutainment: Does the intervention involve entertainment programs? Examples include spreading the message through sitcoms or telenovelas.
- 23.30. Communication offered in a timely manner: Does the message appear in media options at a time and place when the audience is considering adoption of the current behavior, desired behavior, or purchase of actual or augmented product? The objective could be to send primary messages or reminder messages. Three examples are presented:

- a) to promote the desired behavior of placing the infant on its back when putting to sleep, Health Canada teamed up with P&G's Pampers diapers and placed the reminder message of "Back to Sleep" on the flap of every diaper. This was timely because the usual behavior preceding the act of putting the baby to sleep is to change the baby's diaper;
- b) in the Road Crew initiative, alternative rides were offered to young men right when they were about to hit the first bar from their home or office (around 4pm), rather than offer the ride only when they are about to return home at night (bar time, around 1am) and when the vehicle is already in the parking lot of the bar; and,
- c) to place a reminder message on condom use next to the light switch, assuming that the last thing a person does prior to sexual interaction is to switch off the lights.
- 23.31. Audience commitments and pledges: Does the message evoke commitments and pledges to carry out the desired behavior from the audience members, either privately or publicly?
- 23.32. Prompts to promote sustainability: Does intervention send prompts or reminders to individuals to carry out the desired behavior on a regular basis? The issue of sustainable or ongoing behavior change may not be relevant in certain behavioral situations such as H1N1 immunization, which is a one-time behavior.
- 23.33. Advertising: Is advertising strategy being utilized? Advertising is defined as a communication tool that reaches many individuals simultaneously, where the sponsor is usually identified, and where the marketer pays for the space or time. The focus is on promotion of the desired behavior and the actual and augmented product. Brand placement in popular TV programs and films are usually considered a form of advertising.
- 23.34. PR: Is public relations strategy being utilized? PR has multiple components. One of them is publicity which reaches many individuals simultaneously, where the sponsor is not identified, where the marketer/brand information is available in press reports and written by a journalist, and where the marketer does not pay for the space and time. Non-publicity PR strategies include event sponsorship and corporate partnership activity promotion if nonprofit or government (acknowledgment of receipt of funds) OR CSR activity promotion if a corporate (i.e. philanthropy, cause-related marketing, sustainability attributes, etc.) is the primary organization designing the intervention.
- 23.35. Sales promotion: Is sales promotion strategy being utilized? Sales promotion activity involves promotion of time-sensitive incentives and rewards to carry out the desired behavior. These include discounts, rebates, frequency flyer programs, bonus quantity, etc. Other features are similar to advertising.
- 23.36. Direct marketing: Is direct marketing strategy being utilized? DM is similar to advertising except for the emphasis on personalization of contact. In ideal scenario, all aspects of marketing strategy should be personalized (product, price, place, messaging, media), although most likely only message is personalized. Includes personal selling. Also includes community outreach activities.
- ISMC Digital and Media Tools Used within program implementation
- 23.37 TV: Was TV utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? This includes traditional TV channels, not digital. This relates directly to the delivery of ISMC program, and not campaign promotion.

- 23.38 Videotape: Was video utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? This includes VHS, DVD, downloadable video. This relates directly to the delivery of ISMC program, and not campaign promotion.
- 23.39. Radio: Was radio utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? This includes traditional radio channels, not digital. This relates directly to the delivery of ISMC program, and not campaign promotion.
- 23.40. Print: Was newspaper or magazine utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? This includes traditional hardcopy print newspapers or magazines, not digital. The medium could be used for publishing or to distribute leaflets, postcards, or samples. This relates directly to the delivery of ISMC program, and not campaign promotion.
- 23.41. Outdoor and out-of-home: Was outdoor utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? ‘Outdoor’ is an umbrella term that includes billboards, posters, postcards (if distributed without print media), kiosks, in-transit, in-bus or train, at-bus shelters or airports or train stations or emergency rooms, use of humans or animals such as camels or elephants, and so on. The messaging could be printed or used to distribute leaflets, booklets, pamphlets, brochures, or samples. The medium could use any technology including traditional printing of content, neon signs, or digital but it does not include digital media options. This relates to the delivery of ISMC program, and not campaign promotion. If a class is delivered in-person, by phone, or online, then it is considered out of home.
- 23.42 Product packaging: If the actual or augmented product is a tangible good, was product package utilized as a medium of communication?
- 23.43 Social and other digital media tools used within ISMC programming: website, mobile, social media examples such as Facebook, LinkedIn, etc. Add new occurrence of social/digital media options other than what is mentioned in Excel. If a class is web-based or mobile-based, then social/digital media would be yes.

Promotional Media

- 23.44. TV: Was TV utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? This includes traditional TV channels, not digital.
- 23.45. Radio: Was radio utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? This includes traditional radio channels, not digital.
- 23.46. Print: Was newspaper or magazine utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? This includes traditional hardcopy print newspapers or magazines, not digital. The medium could be used for publishing or to distribute leaflets, postcards, or samples.

- 23.47. Outdoor and out-of-home: Was outdoor utilized as a medium of communication for either of the four communication tools (ad, PR, sales promo, direct marketing)? ‘Outdoor’ is an umbrella term that includes billboards, posters, postcards (if distributed without print media), kiosks, in-transit, in-bus or train, at-bus shelters or airports or train stations or emergency rooms, use of humans or animals such as camels or elephants, and so on. The messaging could be printed or used to distribute leaflets, booklets, pamphlets, brochures, or samples. The medium could use any technology including traditional printing of content, neon signs, or digital but it does not include digital media options.
- 23.48 Product packaging: If the actual or augmented product is a tangible good, was product package utilized as a medium of communication?
- 23.49 Social and other digital media tools used: website, mobile, social media examples such as Facebook, LinkedIn, etc. Add new occurrence of social/digital media options other than what is mentioned in Excel.

24. Overall comments:

Appendix 2 Search Words: Spinal Mass Media Campaign Search

OVID account: LBPmedia / LBPmedia

EBSCO account: Idennett (ask Liz)

RefWorks account: SpinalMassMedia / SpinalMassMedia

Research Questions:

What spinal media campaigns have been done

Are spinal campaigns in the media effective/useful?

What are the components of a successful spinal campaigns -

Possible Success indicators = reduced ER use, reduced Physician, improved return to work time, reduced disability

Apply a framework?

Included reviews because some evaluations of campaigns listed as reviews.

Search strategy:

Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present

Date searched: July 7, 2015

Results: 336

1. exp back injuries/ or exp back pain/
2. exp neck injuries/ or neck pain/
3. exp spinal injuries/
4. Sciatica/ or intervertebral disc degeneration/ or intervertebral disc displacement/
5. (((Pain* or tear or tears or injur* or sprain* or strain* or dislocation*) adj4 (disc or discs or sacral or lumbo* or back or spine or spinal or neck or cervical or lumbar or pelvic)) not spinal cord injur*).mp.
6. (whiplash or sciatica or lumbago or (hernia* adj3 (disc or discs))).tw.
7. or/1-6
8. campaign*.tw.
9. health promotion/ or healthy people programs/ or Health Knowledge, Attitudes, Practice/
10. exp Marketing/
11. information dissemination/
12. persuasive communication/
13. patient education as topic/
14. public opinion/
15. public relations/
16. self care/
17. (advert* or (marketing not (marketing approval or marketing clearance)) or public relation* or publicity or health messag* or (public adj2 (educat* or inform*)) or (health* adj promot*) or (communication adj (program* or strateg*))).tw.

18. (rais* awareness or ((chang* or impact) adj4 (behaviour* or behavior* or beliefs or opinion*))).tw.
19. (population based or state wide or city wide or province wide).tw.
20. (self management or self care).tw.
21. or/9-20
22. exp Mass Media/
23. Newspapers/
24. Pamphlets/
25. exhibits as topic/
26. exp cell phones/
27. communications media/
28. multimedia/ or (multimedia or multi media).tw.
29. social networking/
30. electronic mail/
31. internet/
32. (social media or social marketing or twitter or facebook or pinterest or instagram or tumblr or vine or youtube or linkedin or vimeo or "went viral" or "go* viral").mp.
33. mass media.tw.
34. ((radio not (radio opaque or radio frequency)) or movie* or talk show* or broadcast*).mp.
35. ((television or tv) not ((television or tv) adj3 (screen or watch* or daily* or hours or hrs))).tw.
36. ((video* not video camera) or dvd or dvds or cd or cds or compact disc*).mp.
37. (newsletter* or newspaper* or press release or magazine* or comic or comics or graphic novel).tw.
38. (poster or posters or billboard* or ribbon* or button* or badge* or (promotion* adj (item* or material*)) or swag).mp.
39. (pamphlet* or booklet* or leaflet* or flyer* or brochure* or print* media or print* material*).mp.
40. (internet or web or website* or online or blog or weblog* or podcast* or webcast*).mp.
41. (((mobile or cell* or wireless) adj (phone* or telephone* or device*)) or smart phone or texted or text messag* or (text adj4 (sms or mms)) or short message service or app).tw.
42. ((electronic mail* or email* or e-mail* or mailing list* or discussion list* or listserv*) not ((electronic mail* or email* or e-mail* or mailing list* or discussion list* or listserv*) adj10 survey*))).tw.
43. or/22-42
44. 7 and (8 or (21 and 43))
45. ((child* or adolesc* or pediat* or paediat*) not adult*).ti.
46. 44 not 45

CENTRAL Search

Date searched: July 7, 2015

Results: 93

Search strategy identical to above Medline search

Embase 1974 to 2015 July 06 (OVID Interface)

Date searched: July 7, 2015

Results: 520

1. exp backache/
2. neck pain/ or spinal pain/
3. exp spine injury/
4. exp neck injury/
5. sciatica/
6. intervertebral disk hernia/ or lumbar disk hernia/
7. (((Pain* or tear or tears or injur* or sprain* or strain* or dislocation*) adj4 (disc or discs or sacral or lumbo* or back or spine or spinal or neck or cervical or lumbar or pelvic)) not spinal cord injur*).tw.
8. (whiplash or sciatica or lumbago or (hernia* adj3 (disc or discs))).tw.
9. or/1-8
10. campaign*.mp.
11. health promotion/ or patient education/ or attitude to health/ or health belief/
12. advertizing/ or marketing/ or social marketing/
13. information dissemination/
14. persuasive communication/
15. public opinion/
16. public relations/
17. (advert* or (marketing not (marketing approval or marketing clearance)) or public relation* or publicity or health messag* or (public adj2 (educat* or inform*)) or (health* adj promot*) or (communication adj (program* or strateg*))).tw.
18. (rais* awareness or ((chang* or impact) adj4 (behaviour* or behavior* or beliefs or opinion*))).tw.
19. (population based or state wide or city wide or province wide).tw.
20. (self management or self care).tw.
21. self care/ or self care agency/
22. or/11-21
23. mass communication/ or e-mail/ or internet/ or mass medium/ or mobile phone/ or postal mail/ or social media/ or telephone/ or television/ or text messaging/ or webcast/ or wireless communication/
24. telecommunication/
25. multimedia/ or video disk/ or videotape/ or visual display unit/
26. (social media or social marketing or twitter or facebook or pinterest or instagram or tumblr or vine or youtube or linkedin or vimeo or "went viral" or "go* viral").mp.
27. mass media.mp.
28. ((radio not (radio opaque or radio frequency)) or movie* or talk show* or broadcast*).mp.

29. ((television or tv) not ((television or tv) adj3 (screen or watch* or daily* or hours or hrs))).tw.
30. ((video* not video camera) or dvd or dvds or cd or cds or compact disc*).mp.
31. (newsletter* or newspaper* or press release or magazine* or comic or comics or graphic novel).tw.
32. (poster or posters or billboard* or ribbon* or button* or badge* or (promotion* adj (item* or material*)) or swag).mp.
33. (pamphlet* or booklet* or leaflet* or flyer* or brochure* or print* media or print* material*).mp.
34. (internet or web or website* or online or blog or weblog* or podcast* or webcast*).mp.
35. (((mobile or cell* or wireless) adj (phone* or telephone* or device*)) or smart phone or texted or text messag* or (text adj4 (sms or mms)) or short message service or app).tw.
36. ((electronic mail* or email* or e-mail* or mailing list* or discussion list* or listserv*) not ((electronic mail* or email* or e-mail* or mailing list* or discussion list* or listserv*) adj10 survey*)).tw.
37. or/23-36
38. (9 and 10) or (9 and 22 and 37)
39. ((child* or adolesc* or pediat* or paediat*) not adult*).ti.
40. 38 not 39

CINAHL Plus with Full Text (EBSCO interface)

Date searched: July 7, 2015

Results: 319

- S1: (MH "Back Injuries+") OR (MH "Neck Injuries+") OR (MH "Neck Pain") OR (MH "Back Pain+") OR (MH "Intervertebral Disk Displacement")
- S2: (((Pain* or tear or tears or injur* or sprain* or strain* or dislocation*) n4 (disc or discs or sacral or lumbo* or back or spine or spinal or neck or cervical or lumbar or pelvic))) NOT "spinal cord injur*"
- S3: whiplash or sciatica or lumbago or (hernia* n3 (disc or discs))
- S4: S1 OR S2 OR S3
- S5: campaign*
- S6: (advert* or marketing or "public relation*" or publicity or "health messag*" or (public n2 (educat* or inform*)) or (health* n1 promot*) or (communication n1 (program* or strateg*))) OR (("rais* awareness" or ((chang* or impact) n4 (behaviour* or behavior* or beliefs or opinion*))) OR ("population based" or "state wide" or "city wide" or "province wide" or "self management" or "self care")
- S7: (MH "Health Promotion") or (MH "Health Knowledge") OR (MH "Public Opinion") OR (MH "Persuasive Communication") OR (MH "Marketing+") OR (MH "Public Relations") or (MH "Patient Education") OR (MH "Health Education")
- S8: S6 OR S7
- S9: (MH "Communications Media") OR (MH "Electronic Bulletin Boards") OR (MH "Electronic Mail") OR (MH "Instant Messaging") OR (MH "Internet") OR (MH "Radio")

OR (MH "Cellular Phone") OR (MH "Telephone") OR (MH "Text Messaging") OR (MH "Wireless Communications") OR (MH "Smartphone") OR (MH "Social Media") OR (MH "Social Networking") OR (MH "Television") OR (MH "Exhibits") OR (MH "Audiorecording") OR (MH "Motion Pictures") OR (MH "Posters") OR (MH "Videorecording+")

S10: ("mass media" or radio or movie* or "talk show*" or broadcast* or "social media" or "social marketing" or twitter or facebook or pinterest or instagram or tumblr or vine or youtube or linkedin or vimeo or "went viral" or "go* viral") OR (video* or dvd* or cd or cds or "compact disc*") OR (pamphlet* or booklet* or leaflet* or flyer* or brochure* or "print* media" or "print* material*" or poster or posters or billboard* or ribbon* or button* or badge* or newsletter* or newspaper* or press release or magazine* or comic or comics or "graphic novel") OR (blog or weblog* or podcast* or webcast* or "short message service" or (text* n4 (sms or mms)) or "text messag*" or mobile phone or mobile device or smart phone or app)

S11: ((television or tv) not ((television or tv) n3 (screen or watch* or daily* or hours or hrs)))

S12: (internet or web or website* or online or "electronic mail*" or email* or e-mail* or "mailing list*" or "discussion list*" or listserv*) NOT (survey* n10 (internet or web or website* or online or "electronic mail*" or email* or e-mail* or "mailing list*" or "discussion list*" or listserv*))

S13: S9 OR S10 OR S11 OR S12

S14: (S4 AND S5) OR (S4 AND S8 AND S13)

S15: TI child* or adolesc* or pediat* or paediat*) not adult*

S16: S14 NOT S15

Scopus

Date searched: July 7, 2015

Results: 331

#1: (((Pain* or tear or tears or injur* or sprain* or strain* or dislocation*) w/4 (disc or discs or sacral or lumbo* or back or spine or spinal or neck or cervical or lumbar or pelvic)) or whiplash or sciatica or lumbago or (hernia* w/3 (disc or discs))) AND NOT (spinal cord injur*)

#2: campaign*

#3: "health promotion" or marketing or advert* or "public opinion" or "public relation" or "health messag*" or "communication strateg*" or "rais* awareness" or "patient education" or "population based" or "state wide" or "city wide" or "province wide"

#4: "self care" or "self management" or ((chang* or impact) w/4 (behaviour* or behavior* or beliefs or opinion*))

#5: #2 OR #3 OR #4

#6: ("mass media" or radio or television or tv or "talk show*" or broadcast* or video* or dvd or dvds or "compact disc*" or newspaper* or magazine* or comic* or "print* media" or "press release*" OR pamphlet* or booklet* or leaflet* or flyer* or

brochure* or billboard* or posters or badges or webcast* or podcast* or blog* or weblog*

#7: (internet or web or website* or online or "electronic mail*" or email* or e-mail* or "mailing list*" or "discussion list*" or listserv* or "text message*" or "cell* phone" or "mobile phone" or "mobile device") AND NOT (survey w/10 (internet or web or website* or online or "electronic mail*" or email* or e-mail* or "mailing list*" or "discussion list*" or listserv* or "text message*" or "cell* phone" or "mobile phone" or "mobile device"))

#8: ("social media" or "social marketing" or twitter or facebook or pinterest or instagram or tumblr or vine or youtube or linkedin or vimeo or "went viral" or "go* viral")

#9: #6 OR #7 OR #8

#10: #1 AND #5 AND #9

#11: Title((child* or adolesc* or pediat* or paediat*) AND NOT adult)

#12: #10 AND NOT #11

Scopus advanced search version (same as above just in scopus formatting):

((((TITLE-ABS-KEY ((((pain* OR tear OR tears OR injur* OR sprain* OR strain* OR dislocation*) W/4 (disc OR discs OR sacral OR lumbo* OR back OR spine OR spinal OR neck OR cervical OR lumbar OR pelvic)) OR whiplash OR sciatica OR lumbago OR (hernia* W/3 (disc OR discs)))) AND NOT TITLE-ABS-KEY ("spinal cord injur*"))) AND ((TITLE-ABS-KEY (campaign*)) OR (TITLE-ABS-KEY ("health promotion" OR marketing OR advert* OR "public opinion" OR "public relation" OR "health messag*" OR "communication strateg*" OR "rais* awareness" OR "patient education" OR "population based" OR "state wide" OR "city wide" OR "province wide")) OR (TITLE-ABS-KEY ("self care" OR "self management" OR (chang* OR impact) W/4 (behaviour* OR behavior* OR beliefs OR opinion*))))) AND (((TITLE-ABS-KEY ("mass media" OR radio OR television OR tv OR "talk show*" OR broadcast* OR video* OR dvd OR dvds OR "compact disc*" OR newspaper* OR magazine* OR comic* OR "print* media" OR "press release*") OR TITLE-ABS-KEY (pamphlet* OR booklet* OR leaflet* OR flyer* OR brochure* OR billboard* OR posters OR badges OR webcast* OR podcast* OR blog* OR weblog*))) OR ((TITLE-ABS-KEY (internet OR web OR website* OR online OR "electronic mail*" OR email* OR e-mail* OR "mailing list*" OR "discussion list*" OR listserv* OR "text message*" OR "cell* phone" OR "mobile phone" OR "mobile device") AND NOT TITLE-ABS-KEY (survey W/10 (internet OR web OR website* OR online OR "electronic mail*" OR email* OR e-mail* OR "mailing list*" OR "discussion list*" OR listserv* OR "text message*" OR "cell* phone" OR "mobile phone" OR "mobile device"))))) OR (TITLE-ABS-KEY ("social media" OR "social marketing" OR twitter OR facebook OR pinterest OR instagram OR tumblr OR vine OR youtube OR linkedin OR vimeo OR "went viral" OR "go* viral"))))) AND NOT (TITLE ((child* OR adolesc* OR pediat* OR paediat*) AND NOT adult)))