Effectiveness of Social Marketing Campaigns to Promote Physical Activity in Adults: A Systematic Review

Yuan Xia and Sameer Deshpande
Faculty of Management, University of Lethbridge, Canada

Tiberius Bonates
Department of Statistics and Applied Mathematics
Federal University of Ceará, Brazil
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Introduction

• Obesity has become a worldwide health issue.
• Physical activity plays a significant role in reversing obesity epidemic and maintaining general health.
• Social marketing is a process that applies marketing principles and techniques to address social causes.
Introduction

• Social marketing has been widely used to influence people’s health behaviours.

• Researchers believe that
  – Social marketing interventions are more effective than traditional health interventions;
  – The more social marketing benchmarks applied the more likely a campaign will be successful promoting social causes.
Social marketing benchmarks

1. Primary formative research: Understanding through data collection of the target audience for their opinions regarding the current and desired behaviors.

2. Secondary formative research: Understanding through analysis of past literature of the target audience for their opinions regarding the current and desired behaviors.

3. Pretest research: Assessment of audience response to draft formats of marketing mix strategies.

4. Monitoring research: Assessment of whether the intervention activities were implemented as planned.

5. Evaluation research: Assessment of whether the intervention achieved its desired objectives and goals. In this review, the presence of evaluation research was not included as a benchmark because it constituted an inclusion criterion during article collection.

6. Segmentation: Intentional attempt to identify a segment and tailor the intervention to fit a segment.

7. Partnership: Involvement of partners in designing and/or implementing the intervention.
Social marketing benchmarks

8. **Core product**: Core benefit of the desired behavior.
9. **Actual product**: Tangible good or intangible service whose use ensures compliance with desired behavior and receipt of benefits of the behavior.
10. **Augmented product**: Additional goods and services that help the target audience to consume the actual product and adopt the desired behavior.
11. **Price reduction**: Strategies to reduce barriers perceived by the target audience to carrying out the desired behavior.
12. **Place**: Strategies to increase convenient access to the actual or augmented product as well as to increase the convenience of carrying out the desired behavior.
13. **Promotion**: 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.
14. Behavioral competition: Acknowledgment of competing behaviors and organizations and individuals that promote the competing behaviors along with determination of strategies to achieve a competitive advantage.
Introduction (Cont.)

• The purpose of the present study:
  – To assess physical activity interventions within a social marketing framework;
  – To review effectiveness of efforts to promote physical activity among adults.
Hypotheses

H1: The number of social marketing benchmarks applied in a campaign will be positively associated with success of the campaign outcome.

H2: Each benchmark of primary formative research, secondary formative research, pretest research, monitoring research, segmentation, partnership, self-funding, actual product, augmented product, price, place, promotion, and behavioral competition will be positively associated with campaign success.
Method

• Systematic literature search

We carried out a systematic literature search of studies reporting effectiveness of social marketing interventions to promote physical activity in adults

– In business, communication, management, applied psychology, public, environmental and occupational health, social psychology, and kinesiology.
Method (Cont.)

• Systematic literature review (Cont.)
  – A journal list for the literature search (top 10 journals, 5-Year Impact Factor, 2012 Social Sciences Edition of Journal Citation Reports (JCR), social marketing, social communication, and kinesiology).
  – The journal list included 81 academic journals.
  – Manually searched potential, relevant articles reviewed in the 20 systematic reviews and meta-analyses yielded from the journal search.
• Key Words

The combinations of the key words included: “physical activity OR physical exercise OR physical fitness” AND “social marketing”, “active living OR active life” AND “social marketing”, “physical activity campaign OR physical activity intervention OR physical activity promotion”, “physical exercise campaign OR physical exercise intervention OR physical exercise promotion”, “physical fitness campaign OR physical fitness intervention OR physical fitness promotion”, “active living campaign OR active living intervention OR active living promotion”, and “active life campaign OR active life intervention OR active life promotion"."
Method (Cont.)

• Inclusion Criteria
  – Campaigns targeting adults (18-60 years old); 
  – Campaigns whose main component or one of the components was aimed to promote PA behavior; 
  – Campaigns that employed at least 1 activity of “marketing mix”; 
  – Campaigns that reported statistical analysis of outcome measure(s) related to PA; and, 
  – Articles published between 1997 and 2013.
Method (Cont.)

• Data Extraction
  – The data extraction form and codebook were adapted from the ones in Mah et al.’s study (2008).
  – The identified articles were analyzed mainly for the presence of social marketing benchmarks.
  – Other information that were extracted from the articles included whether the campaign is self-identified as a social marketing campaign, campaign outcome, marketing strategy, sampling, setting, individual characteristics, study design, measures, and data analysis methodology.
Data Extraction (Cont.)

– The first coder coded all the identified articles, and the second coder coded fifty articles (Lipsey & Wilson, 2001).

– Coding results were discussed between coders through rounds of meetings.

– Coding discrepancies were consulted with the third coder until the first two coders reached an inter-coder reliability of 90%

– Kappa test and Holst's formula (Budd, Thorp, & Donohew, 1967) using SPSS v.20
Method (Cont.)

• Data Analysis
  – The independent variable was presence or absence of social marketing benchmark.
  – The dependent variable was intervention success. The DV was coded as “Yes” (statistically significant improvement of the outcome measure) or “No” (no significant improvement or significantly worsening trend).
  – Measures of the intervention success included behavioral changes (e.g., levels of PA), impact changes (e.g., health status), and stages of change (e.g., progression from preparation to action).
Results

• Content analysis
  – The literature search generated 825 papers that were potentially relevant to the current review. We reviewed and analyzed 101 papers (92 campaigns & 190 condition groups).
  – Reasons for exclusion included papers targeting children, seniors, midstream or upstream populations, lack of marketing mix, lack of sufficient data of campaign results, and published year earlier than 1997.
Results (Cont.)

• Inter-coder Reliability
  – The agreement rate of all the coding questions from the 50 papers in Kappa test was 93.40% (k= .934). The agreement rate in Holsti's formula (Budd, Thorp, & Donohew, 1967) was 99.72%.
  – The results suggest a good inter-coder reliability (Hruschka et al., 2004; Morello, 1988 ).
Results (Cont.)

• Hypothesis Testing
  – H 1: A positive association between the number of social marketing benchmarks applied and intervention success.
  – Pearson Chi-square tests and Logical Analysis of Data were performed to test the association between the number of social marketing benchmarks applied and the likelihood of the campaign success of promoting physical activity in adults (H1).
  – The median of the number of social marketing benchmarks applied was three; hence the variable was re-categorized into three groups: small (1-2 benchmarks), moderate (3 benchmarks), and large (more than 3 benchmarks).
### Influence of number of benchmarks on intervention success

<table>
<thead>
<tr>
<th>Number of Benchmarks</th>
<th>Negative</th>
<th>Positive</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>% down</td>
<td>% across</td>
</tr>
<tr>
<td>Small (1–2)</td>
<td>33</td>
<td>55.93</td>
<td>44.60</td>
</tr>
<tr>
<td>Moderate (3)</td>
<td>14</td>
<td>23.73</td>
<td>30.43</td>
</tr>
<tr>
<td>Large (4–12)</td>
<td>12</td>
<td>20.34</td>
<td>22.60</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>34.10</td>
<td>114</td>
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</table>
Results (Cont.)

- H1 (Cont.)
  - A Pearson Chi-square test showed a significantly positive association between the number of social marketing benchmarks applied and campaign success ($\chi^2 = 6.99$, $p < .05$).
  - The successful conditions tended to apply a moderate or large number of SM benchmarks, and the unsuccessful conditions tended to apply a small number of SM benchmarks).
### Logical Analysis of Data results

<table>
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<tr>
<th>Rule pertaining to number of social marketing benchmarks</th>
<th>Intervention success</th>
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<tbody>
<tr>
<td></td>
<td>Failure</td>
</tr>
<tr>
<td>More than 4.5</td>
<td>6 (19.35%)</td>
</tr>
<tr>
<td>More than 5.5</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>More than 6.5</td>
<td>2 (18.18%)</td>
</tr>
<tr>
<td>More than 7.5</td>
<td>0</td>
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</table>
Logical Analysis of Data results

• When more than 6.5 benchmarks were used, 81.82% of the interventions were successful, while all interventions were successful when more than 7.5 benchmarks were employed.
• H1 was fully supported.
• H2: Each of the 13 social marketing benchmarks will positively influence intervention success.

• Pearson Chi-square tests, Logistic Regression, and Mallow’s Cp, and Logical Analysis of Data were performed to identify significant contributors of intervention success among the social marketing benchmarks.

• *Monitoring research subsequently dropped from the analysis.*
Table 2. Summary of significant benchmarks

<table>
<thead>
<tr>
<th>Method</th>
<th>Criteria</th>
<th>Results (significant benchmarks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>p &lt; .05</td>
<td>Primary formative research, actual product, augmented product, promotion, and competition (5 benchmarks)</td>
</tr>
<tr>
<td>Mallow’s Cp</td>
<td>Cp is the smallest</td>
<td>Primary formative research, augmented product, and promotion (3 benchmarks)</td>
</tr>
<tr>
<td>Mallow’s Cp</td>
<td>Absolute value of the discrepancy between Cp and p is the smallest</td>
<td>Primary formative research, augmented product, promotion, and core product (4 benchmarks)</td>
</tr>
<tr>
<td>LAD</td>
<td>Frequency of appearance in the set of rules</td>
<td>Primary formative research, core product, actual product, augmented product, and competition (5 benchmarks)</td>
</tr>
</tbody>
</table>
Discussion

• Social Marketing interventions compared to traditional health interventions
  – Traditional interventions: informational approach, behavioral and social approach, and environmental and policy approach (Kahn et al. 2002).
  – Traditional interventions are different from the social marketing ones in terms of intervention aims and strategies.
<table>
<thead>
<tr>
<th>Approach</th>
<th>Aim</th>
<th>Strategy</th>
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<tbody>
<tr>
<td>Informational approach</td>
<td>To change individuals’ knowledge and attitude about physical activity</td>
<td>Disseminating information (interpreted as promotion in the social marketing framework)</td>
</tr>
<tr>
<td>Behavioral and social approach</td>
<td>To assist individuals’ adoption and maintenance of behavioral change</td>
<td>Teaching behavioral management skill or social support (interpreted as augmented product in the social marketing framework)</td>
</tr>
<tr>
<td>Environmental and policy approach</td>
<td>To create facilities and environment of physical activity in a policy and organizational level</td>
<td>Are not discussed in the current study because it targets upstream and midstream</td>
</tr>
<tr>
<td>Social marketing approach</td>
<td>To change individuals’ behavior directly</td>
<td>Offering products and benefits and reducing barriers in exchange for adopting the desired behavior</td>
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Kahn et al., 2002; Andreasen, 2002; Lee & Kotler, 2011
• Comparisons (Cont.)
  – The results of the current study suggest that social marketing interventions have a bigger chance to be effective than traditional health interventions in promoting physical activity among adults.
Discussions (Cont.)

• The results of the current review gives insights into what benchmarks should be emphasized in social marketing practice;

• Strong predictors:
  – Primary formative research
  – Augmented product
  – Promotion
  – Actual product
  – Competition
The current study explains why people respond to physical activity promotion in a social marketing practice context.

<table>
<thead>
<tr>
<th>Consumer behavior theory</th>
<th>Social marketing practice</th>
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<tbody>
<tr>
<td>Positive intention to behave</td>
<td>Various aims of interventions</td>
</tr>
<tr>
<td>Few environmental constraints</td>
<td>Place strategy</td>
</tr>
<tr>
<td>Necessary skills to behave</td>
<td>Augmented product</td>
</tr>
<tr>
<td>Advantages outweigh disadvantages</td>
<td>Core product, actual product, &amp; price</td>
</tr>
</tbody>
</table>

(Lee & Kotler, 2011)
Limitations and Future Research

- The current review is restricted to the promotion of physical activity and does not cover interventions in other public health domains.
- Assumes individuals think and act rationally.
- Ignores the influence of method.
- Fails to measure return on investment of physical activity social marketing interventions.