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Review

Social marketing of water and sanitation products: A systematic review of peer-reviewed literature

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ABSTRACT

Like commercial marketing, social marketing uses the 4 "Ps" and seeks exchange of value between the marketer and consumer. Behaviors such as handwashing, and products such as those for oral rehydration treatment (ORT), can be marketed like commercial products in developing countries. Although social marketing in these areas is growing, there has been no systematic review of the current state of practice, research and evaluation.

We searched the literature for published peer-reviewed studies available through major online publication databases. We identified manuscripts in the health, social science, and business literature on social marketing that used at least one of the 4 Ps of marketing and had a behavioral objective targeting the behaviors or products related to improving water and sanitation. We developed formalized decision rules and applied them in identifying articles for review. We initially identified 117 articles and reviewed a final set of 32 that met our criteria.

Social marketing is a widespread strategy. Marketing efforts have created high levels of awareness of health threats and solutions, including behavior change and socially marketed products. There is widespread use of the 4 Ps of marketing, with price interventions being the least common. Evaluations show consistent improvements in behavioral mediators but mixed results in behavior change.

Interventions have successfully used social marketing following widely recommended strategies. Future evaluations need to focus on mediators that explain successful behavior change in order to identify best practices and improve future programs. More rigorous evaluations including quasi-experimental designs and randomized trials are needed. More consistent reporting of evaluation results that permits meta-analysis of effects is needed.

1. Introduction

At its core, marketing is about an exchange of value between the marketer and consumer. If the marketer can promote a product or service to make the consumer perceive sufficient value, the consumer is more likely to purchase it. The marketer's objective is to create value for consumers and thereby financial benefit for the marketer or her clients. Social marketers use the same powerful idea in a different way – not to sell products and services for the benefit of the marketer but to promote socially beneficial causes and behaviors for the benefit of the audience (Hastings, 2007). A growing body of evidence shows that marketing is highly effective in this arena as well (Evans et al., 2008).

Like commercial marketing, social marketing uses the basic principles of the "marketing mix", or 4 "Ps" of place, price, product, and promotion (Borden, 1964; Kotler and Lee, 2008). Just as a brand of toothpaste can be effectively marketed by making it available to consumers in convenient locations, pricing it right relative to competitors, endowing it with attractive perceived benefits, and advertising it in persuasive ways with sufficient frequency, behaviors such as handwashing and treatment products such as those for oral rehydration salts (ORS) can also be marketed. In the case of handwashing, we may need to think differently about factors such as 'price' (time and effort, or convenience) and 'product' (the social or functional benefits gained from the behavior) but the basic approach is the same (Evans and Hastings, 2008).

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Recently, there has been growth in social marketing to promote healthy drinking water and sanitation practices, as well as treatments to prevent water-related illnesses such as diarrheal disease (Devine, 2008; Freeman et al., 2009). However, to date there have been no known efforts to systematically review and assess the extent, nature, and evidence of effectiveness for social marketing in global water and sanitation programs. The purpose of this paper is to systematically review the published literature on this topic and evaluate the state of practice and evidence in the field. Specifically, we sought to identify 1) the presence or absence of specific social marketing activities in each intervention, 2) the presence or absence of each of the 4 Ps of marketing in the interventions, and 3) the outcome of the evaluation conducted in these social marketing interventions. Based on results of this review, we discuss the need for interventions that incorporate more Ps, more outcomes research, and more research on the effectiveness of specific intervention strategies and combinations of the 4 Ps.

2. Methods

We conducted a systematic search of the published, peer-reviewed literature using all relevant major online research literature databases (specified below) and following widely accepted methods for systematic review (Higgins and Green, 2011). We note that social marketing and interventions focused on water and sanitation are also widely represented in unpublished reports and other 'gray' literature. However, we focused on peer-reviewed literature in order to ensure quality of evidence and consistency with accepted systematic review practices.

We identified as relevant any manuscripts in the published health, social science, and business literature that used at least one of the 4 Ps of marketing, had a behavioral objective targeting water and sanitation related behaviors, and had a health objective targeting diarrheal disease. We based the review methodology in part on methodologies from a previous review of branded social marketing campaigns conducted by the lead author (Evans et al., 2008). Specifically, we searched the following health, social science, and business databases:

- PubMed, PsycINFO, Web of Science (includes Science Citation Index Expanded, Social Sciences Citation Index, and Arts & Humanities Citation Index), Communication & Mass Media Complete, Academic Search Premier, Business Source Premier, CINAHL, Health Source: Nursing/Academic Edition, and Health Source: Consumer Edition.

Search terms included the following: *Diarrhea/Diarrhoea, Hygiene, Water, Sanitation, Social Marketing, Health Promotion, Health Communication, Community Intervention, Community Health, Behavior Change.* We selected these terms based on the authors' experiences in the field and conducting previous reviews, and in consultation with a medical research librarian.

For completeness, we also searched literature known to the authors, including publications on water and sanitation intervention studies in the developing world. In particular, the bibliographies of two recent meta-analyses on social marketing and mass media intervention were reviewed and potential citations screened following the methods described (Snyder et al., 2004; Grilli et al., 2002).

We searched all sources listed above in the date range of 1991–June 2013). Based on this process, we created a database of all 352 unduplicated articles on social marketing interventions regarding diarrhea and water or sanitation. We immediately excluded 235 articles regarding 'breastfeeding and diarrhea', 'zinc supplementation and diarrhea', and articles that did not include an intervention of any kind. After this initial phase, we identified 117 articles.

Next, we reviewed the articles based on our specific criteria for inclusion in study. Namely, we screened them for reports on interventions that: 1) were original research (not review papers, meta-analyses, or commentaries); 2) utilized some form of social marketing principles (i.e., reported on use of 1 or more of the four Ps); 3) targeted behavior relating to water or sanitation; and 4) targeted diarrhea prevalence and/or morbidity as a health objective. We also screened to ensure the articles included specific reports of evaluation or implementation of social marketing activities, defined as coordinated efforts to promote, distribute, or use pricing strategies to encourage adoption of various products aimed primarily at diarrheal disease prevention. Based on this in-depth screening process, we excluded 85 articles and identified 32 articles for inclusion in the study. Fig. 1 summarizes the review process.

Note that due to the diverse nature of the literature on social marketing interventions in this area, and the varying methods of reporting outcomes, we chose not to attempt a meta-analysis of effects of reviewed interventions on behavior. Rather the purpose of this paper is to describe the nature of the interventions and literature, hopefully promoting more uniform reporting of outcomes in future.

Once the review sample of articles was identified, the first two authors individually read each of the articles in-depth and coded them for specific content reported in the results section. The results of all reviews were compiled and discussed by the reviewers. Potential sources of differences in assumptions and approach in coding articles were identified and discussed. A consensus was reached about coding, and common procedures adopted where discrepancies had been identified.

3. Results

Table 1 provides a summary of basic information gleaned from each water and sanitation article reviewed. The articles dealt with interventions relating to household water treatment, handwashing, safe disposal of feces and personal hygiene. The studies covered 14 developing countries, mostly in South Asia and Africa.

The interventions used a wide range of health communication and social marketing strategies, including mass media, interpersonal communication (IPC), community outreach and visits to households by health workers. New and social media, while rapidly growing forms of communication, were not identified as strategies in any of the reviewed papers. High levels of awareness of the promoted health messages were reported.

Table 2 provides a summary of the topic areas that were the focus of social marketing interventions. Most interventions focused on behaviors practiced inside the home, such as handwashing, point-of-use water treatment, dishwashing and various hygiene practices. Several interventions incorporated more than one desired behavior, such as appropriate water storage in combination with point-of-use water treatment.

Table 3 provides a summary of the social marketing development described in the water and sanitation articles reviewed. In some cases, studies described specific scientific theories used in the development of the social marketing effort used. Psychology and communication theories were the most commonly used theories, found in 26% and 23% of the studies reviewed, respectively. Some of the articles described intervention efforts based in formative research such as interviews and focus groups. Examination of the studies in terms of the use of the 4 Ps of marketing revealed a majority using each of the four marketing techniques. Almost all articles (96.8%) used "product" and "promotion" marketing techniques. The product P was represented by 1) safe water treatment products and 2) behavioral product approaches in which hand-washing and