TBM

SYSTEMATIC REVIEWS

# Systematic review of health branding: growth of a promising practice

W Douglas Evans, PhD,[1] Jonathan Blitstein, PhD,[2] Donna Vallone, PhD,[3] Samantha Post, MPH,[4] Wendy Nielsen, PhD

[1]Milken Institute School of Public Health, The George Washington University, 950 New Hampshire Avenue, NW, Washington, DC 20052, USA

[2]RTI International, 3040 East Cornwallis Road, Post Office Box 12194, Research Triangle Park, NC 27709-2194, USA

[3]Legacy for Legacy for Health, Washington, DC, USA

[4]Independent Consultant, Washington, DC, USA

[5]National Institutes of Health, Office of Behavioral and Social Science Research, Washington, DC, USA

Correspondence to: W Evans
wdevans@gwu.edu

Cite this as: *TBM* 2015;5:24–36
doi: 10.1007/s13142-014-0272-1

## ABSTRACT

Brands are marketing tools that create mental representations in the minds of consumers about products, services, and organizations. Brands create schema that help consumers decide whether to initiate or continue use of a product or service. Health branding determines behavioral choice by building consumer relationships and identification with health behaviors and their benefits. Health branding can be measured by the associations individuals form with health behaviors. In 2008, Evans and colleagues systematically reviewed the literature on health brands, reported on branded health messages and campaigns worldwide, and examined specific branding strategies in multiple subject areas. This paper extends that review. We replicated the comprehensive online literature search strategy from 2008. We screened a total of 311 articles and included 130 for full-text review. This included both articles from the 2008 review and new articles. After excluding those new articles that did not meet full-text inclusion criteria, we reviewed 69 in total. Of these, 32 were new articles since the 2008 review. Branded health campaigns cover most major domains of public health and appear worldwide. Since 2008, we observed improvement in evaluation, application of theory, and description of campaign strategies in published work. We recommend enhanced education of public health practitioners and researchers on the use and evaluation of branding.

### Keywords

Branding, Social Marketing, Public Health

**Implications**

**Practice**: Branding is a powerful tool to increase uptake and engagement with health interventions.

**Policy**: Resources are needed both to increase research on health branding in multiple domains and to improve practitioner and researcher education in the use of this promising practice.

**Research**: Future research should examine branding as a mediator of behavior change and establish effect sizes for branded programs in multiple domains compared to unbranded alternatives.

## INTRODUCTION

Branding is the strategic building of relationships between consumers and products, services, and organizations. In the commercial sector, brands create identities with which consumers associate–such as the fit, striving athlete (think Nike) or the young, fun-loving urban professional (Volkswagen). Public health campaigns have also created identities–characters that look and act in a healthy manner and serve the public good–at least as far back as the influenza and urban hygiene campaigns of the early twentieth century [1]. More recently, branded characters ranging from McGruff the Crime Dog to California's recycling of the Marlboro Man to show that smoking causes illness such as lung cancer illustrate how branded characters can personify pro-social and health-promoting behaviors.

However, the *strategic* development of programs with a brand identity aimed at changing health beliefs and behaviors based on psychological and behavioral theory is relatively new [2]. In the 1990s, condom use promotion programs in Africa and Asia [2], and tobacco control in the USA, such as Florida's development of the first *truth* campaign, followed by the American Legacy Foundation's national *truth* campaign, represent the first major health branding efforts [2]. Social and health branding emerged from and represents an evolution in behavioral theory. It integrates Social Cognitive Theory (SCT) [3] and the Theory of Planned Behavior (TPB) [4] and provides a way of conceptualizing and applying SCT's concept of modeling and a mechanism to explain the adoption of beliefs about the object being branded, drawing on TPB [5, 6].

*Health branding* applies marketing principles to promote and produce behavior change as a public good by specifying how brand associations and beliefs can in turn influence behavior [7, 8]. It is a tool–an intervention strategy–that is increasingly being used in health communication and social marketing programs [8].

Health branding is similar to other branding efforts in that it requires formative research to ensure that branded messages are clearly understood and provide

value to the consumer (i.e., they are worth an exchange of the individual's time and effort in return for the branded behavior, such as being physically active or quitting smoking). Health branding differs from other branding efforts in that the brand object is the voluntary, health-promoting behavior the consumer is asked to take up or maintain [9]. Brands have also been defined based on the notion of branding as a *label*, *sign*, or *symbol* [10]. The symbolic representation differentiates the product, service (or behavior) from competitors. The brand symbol is a tool to communicate the value of a brand to its audiences, develop and reinforce the relationship, and encourage exchange [11].

Brands and branding effectiveness have been measured in terms of the associations that consumers hold for products and services [12]. Commercial marketers seek to build strong relationships between customers and individual products and services using brands by encouraging the consumer to identify various social situations and activities with the target product (e.g., wearing Nike shoes when running, shirt with the swoosh logo when relaxing). For commercial brands, success is measured using market share (i.e., product sales relative to competitors), by building positive consumer relationships and becoming the consumer's first choice.

Just like commercial brands, health brands succeed when they offer superior value, greater benefits at lower cost, for the target behavior [13]. Health brands must also *compete* effectively with other brands or messages in the marketplace. Health branding faces the added challenge of creating demand by establishing a value proposition that may not be well aligned with the consumers' self-interest. Consider, for example, that adopting a healthy diet and physically active lifestyle requires the consumer to reject other behaviors, such as eating junk food or watching television [14]. By promoting adoption of healthful behaviors, health brands can serve to influence attitudes, beliefs, and behaviors to reduce the prevalence of unhealthy behaviors [15]. For instance, the *truth* campaign employs branding to compete directly with tobacco products by exposing the lies and deception of the tobacco industry. Thus, *truth* competes with the tobacco industry brands for the adolescent's choice to smoke or remain tobacco free [16].

In this paper, we extend and expand upon the Evans and colleagues (2008) systematic review of the literature on health brands, replicate a methodology for identifying and categorizing brands, and examine specific health branding strategies [2]. We also update and review the growth and current state of research on health brands, evidence of their effectiveness in promoting health behavior change, and discuss the potential for an education and research agenda to build the branding evidence base.

The primary purpose of this review is to describe the growth of health branding, new published campaigns and research and evaluation methods, and describe the current state of the evidence base. Our three primary aims in this study are to:

- Summarize the existing literature on health branding, how it has been adapted from commercial marketing, and strategies used to brand health behaviors,
- Review newly published literature on health brands and integrate those results with the previously published 2008 results, and
- Synthesize results of the two systematic reviews and describe implications for future education of the public health workforce on the use of branding and brand research.

We conclude the paper by discussing the potential to expand public health education and research on branding as a behavior change intervention strategy.

## METHODS

### Search protocol

We conducted a systematic search of the literature using all relevant, major online research literature databases (specified below) and following widely accepted methods for systematic review [17]. For the search, health branding was operationalized as any manuscripts in the published health, social science, and business literature on branding or specific brands in health promotion marketing. The search aimed to identify all articles that reported on the development, delivery, or evaluation of branded messages through communication campaigns focused on health behavior and behavior change, as opposed to branding of products, services, or other non-health outcomes. We searched 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 health promotion, countermarketing, counter advertising, social marketing, health communication, and health marketing in combination with the following terms: brand, brands, branding, campaign, diffusion of innovation, promotion, and advertising. A search of references to several other named health brands, such as the *Above the Influence* brand, was added due to widespread writing and research on these efforts. Finally, the bibliographies of several recent meta-analyses on social marketing and mass media intervention were reviewed and potential citations screened following the methods described [18–20].

As a result of this literature search, we identified 311 unique references, including those previously identified in the Evans and colleagues (2008) review [2]. The lead author of this paper then independently reviewed the abstracts for each of these papers, and eliminated all articles that represented product market research or

were not otherwise focused on health behavior or public health outcomes. This screening process yielded 130 total articles for full-text review (93 new articles and the 37 included in the 2008 review).

### Inclusion/exclusion criteria

We followed a set of formalized decision rules in the subsequent assessment of articles for inclusion in the review, the same as those used in the 2008 review and published elsewhere [2]. This procedure helped us to eliminate irrelevant articles with a commercial marketing purpose and include just those studies where the sole object of the branding effort was a health behavior or outcome.

In the full-text review process, we followed the coding form described below. Of the 130 reviewed, we eliminated 61 papers because they did not report on results of original research of any kind, or did not report on a brand aimed at health behavior change. The papers that were dropped included review articles, editorials, and commentaries on other original research, and programs not designed to bring about behavior change. This yielded 69 total papers for final inclusion (32 new papers plus the 37 included in the 2008 review)

### Coding form

The review team used the same coding form used in the previous health branding review. Coded variables of interest were specified based on the authors' previous design of branding studies, and development of a multi-dimensional brand equity scale used to evaluate tobacco counter-marketing efforts [21]. For many variables, an open-ended "other, please specify" response was included to ensure that novel but important options were not ignored. The major domains included article subject area, brand development, marketing execution, evaluation/reporting of study design, and reporting of evaluation outcomes. We also developed a scale to assess the overall quality of each study. The coding categories were as follows:

*Topic area*–Public health subject the brand effort sought to address.

*Brand development*–Variables in this domain captured reported information on the research and activities that led to the development of the brand, with the following sub-categories:

- *Use of Scientific Theory*: Whether scientific theory was explicitly used in the construction of the brand and if so whether it was communication theory, marketing theory, psychological theory, or other.
- *Formative Research*: Whether the brand development was supported by formative research and what type of research was conducted.
- *Persuasive Elements*: Whether the authors reported information on: (a) aspirational imagery (i.e., identification of a social or personal benefit that would accrue from engaging in the branded behavior), (b) a logo or graphical identifier, (c) co-branding, (d) social role models, or (e) other elements.

*Marketing execution*–What mechanisms were employed to promote or disseminate the branding effort to the target population, with the following sub-categories:

- *Marketing Channels*: Whether the authors describe the channels used to promote the brand, including paid mass media, unpaid mass media, earned (news) media, community outreach, and community mobilization.
- *Marketing Techniques*: Whether strategies to increase the impact and uptake of the brand, such as audience segmentation, were used.

*Evaluation reporting and outcomes reported*–Whether (1) study sample, sample characteristics (e.g., sociodemographics), and response (or follow-up) rate were reported; (2) research design; and (3) type of statistics reported, with the following sub-categories:

- *Explicit Measures of Branding*: Whether any of the commonly used measures of branding were reported in the evaluation including: (a) aided awareness, (b) unaided awareness, (c) loyalty, (d) equity, (e) leadership, and (f) brand personality.
- *Objectives/Hypotheses Clearly Stated*: Whether or not hypotheses were clearly elaborated and, if so, whether they related to brand awareness, pre-behavioral outcomes (e.g., attitudes, beliefs), or behavioral outcomes.
- *Reported Outcomes of the Branding Effort*: Whether outcomes reported indicated brand awareness, pre-behavioral behavioral effects.
- *Measure of the Precision of the Estimate*: Whether or not the authors include a measure of precision such as the *p* value, standard error, or confidence interval.

### Quality scale

Determination of study quality is somewhat subjective. Nevertheless, there are a number of key factors that should be included in a well-reported study of a branded public health campaign. The quality scale includes elements from each of the four domains described above and resulted in a scale with a range of 0 to 11 points where one point is given for each of the following:

- The theory of change used in the campaign is clearly described
- Role/input of formative research was reported
- Key elements of the brand are discussed
- Channels used in marketing execution are described
- Marketing techniques to increase brand adoption are reported

- Sample size and sample characteristics are described
- A response or completion rate is reported
- Explicit measures of branding are described
- Hypotheses/research questions are clearly stated and match outcome measures
- Reported outcomes include sufficient statistics
- Measure of precision of the estimate is provided

We suggest that a report that includes all or almost all of the above elements has done an exemplary job in describing the thinking, implementation, and evaluation of the branding effort; studies that include the majority of the above elements have done a good job, and studies that include only a few of these elements have done a less than adequate job of describing the effort.

### Coding procedure

Two of the five authors reviewed each new article identified in this new review. The 130 articles to be reviewed in full text were randomly divided into three sets (93 new articles plus the 37 from the 2008 review), and then each set was randomly assigned to two reviewers. In order to avoid any potential bias or conflict of interest, articles were reassigned if a reviewer was the author of one of the articles. Also, the lead author reviewed two sets of articles. The results of all reviews were compiled and discussed in joint reviewer meetings where the review teams reconciled differences in coding based on the group consensus. As a result of this process, 32 new articles (plus the 37 articles from the 2008 review) were deemed relevant for final inclusion. The results below include all 69 articles deemed relevant, the 2008 results plus the new relevant articles. Figure 1 provides a Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) diagram for this review.

## RESULTS

### Summary of reviewed articles

Table 1 summarizes the 69 articles in this review, including the 37 reviewed in the 2008 systematic review and the 32 new articles identified in 2013. In some cases, multiple articles were published on the same branded health campaigns. Since the characteristics of papers are generally a function of the underlying campaign, where relevant below we report statistics on *campaigns* not individual articles. This approach has been recommended by previous systematic reviews in health communication [22].

### Topic area

The first step in the analysis was to examine the basic study characteristics. Table 2 provides an overview of the topic areas represented in this review. The largest cluster of branding studies was found in tobacco control ($n$=20), followed by diet and nutrition ($n$=12), physical activity ($n$=9), and HIV/safe sexual practices ($n$=8).

### Brand development

We coded for the clarity and comprehensive description of the strategies and tactics used in the creation of the public health brand. Table 3 details the findings related to brand development, with totals listed by individual study and by campaign (including multiple studies). We found that 37, or 77.1 % of the campaigns ($n$=48), provided enough detail to identify the main scientific theory or theories used in the construction and execution of the branding effort. Marketing theories were the most commonly cited (43.7 %), followed by psychological (41.7 %) and communication (39.6 %) theories. We also found that the majority of the campaigns (83.3 %) provided information on at least some of the key elements of the brand. Over 60 % of the campaigns reported on the brand's logo or a graphical identifier. Evidence that the brand included a social model (37.5 %) or imagery evoking aspiration to an external ideal (39.6 %) was also frequently reported. Over 54 % of the studies we examined reported the use of formative research in brand development. Focus groups were reported most commonly reported (25 %) formative research method.

### Marketing execution

Marketing execution variables describe the methods used to promote the brand. Nearly all the campaigns (95.8 %) provided information on the channels used to promote the branded health campaign. Paid media (i.e., commercially placed advertising) was the most common channel reported (79.2 %) while earned media (i.e., news media coverage) was reported in only 29.2 % campaigns. Of the marketing tactics used to increase brand uptake, audience segmentation was reported in over 56 % of campaigns, while message tailoring was reported in only 25 %. Other marketing techniques used to promote branded public health efforts included merchandizing, public signage, and in-store promotion. We also coded whether each branding effort was oppositional or non-oppositional. Our results indicate that the only branding efforts that were classified as oppositional were those related to tobacco control (counter-marketing) [92]. All others were non-oppositional.

### Evaluation and outcome reporting

Among the 48 campaigns included in this review, 44 of them (91.7 %) reported information on the outcome or evaluation of the branding effort. The type of outcome and evaluation information from these 44 campaigns is summarized in Table 4. Four of the campaigns were evaluated in randomized experiments, seven based on quasi-experimental designs, and the remainder (68.7 %) based on observational designs. We found that 93.7 % of the campaigns provided information on the study sample, 87.5 % provided information on sample characteristics, but only 45.8 % reported on

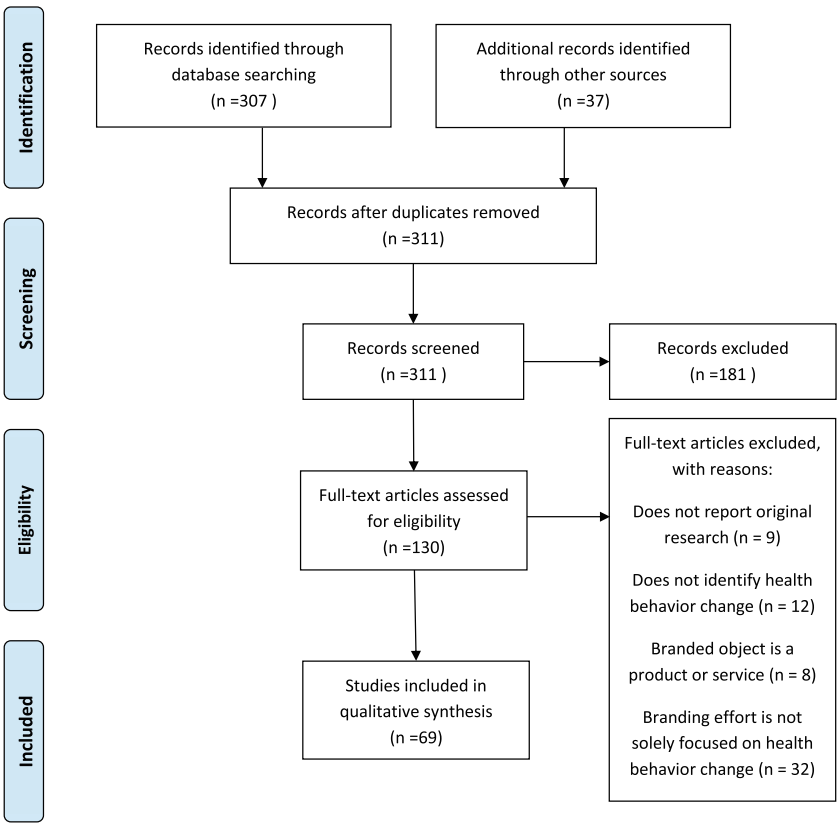


**Fig 1 | PRISMA flow diagram for systematic review of health branding**

response/follow-up rates. Measures of aided (47.9 %) and unaided (41.7 %) awareness were the most commonly reported brand measures.

### Quality scale

We analyzed quality at the campaign level (not individual studies within campaigns). Observed values ranged from 3 to 11, with a mean value of 8.0 and a standard deviation (SD) of 1.92. Ten campaigns scored 10 or 11 points, a score we consider to be exemplary reporting. We observed a wide range of reported study quality. However, most studies we reviewed did have the majority of coded reporting procedures (over 83 % had six or more elements) and would thus qualify as "good" based on our subjective assessment (see Methods section).

## DISCUSSION

This work extends a previous systematic review of published studies examining branded health campaigns [2]. Our data suggests that health branding continues to grow with the number of published studies nearly doubling during the intervening 5-year period. While it should be noted that the growth in published manuscripts mainly reflects the work from a few large campaigns with well-funded evaluations (e.g., the *VERB* campaign had several papers appear in a supplement to the *American Journal of Preventive Medicine* in 2008), overall there is a continuous and accelerating stream of published studies in this field.

We also note some trends in the health branding articles reviewed since 2008. First, many of the major health brands identified in our 2008 review (i.e., *truth*, *VERB*, the anti-drug campaigns, and several HIV/STI prevention and condom promotion efforts in developing countries) have continued to conduct evaluations and publish reports using branding metrics; assessing brand awareness and equity continues to be an important evaluation component for these well-funded campaigns.

Second, we note the creation of some new branding efforts, including those focused on binge drinking and child care [27, 28], and an expansion of work on anti-drug branding [29, 30]. For example, Carpenter and Pechmann (2011) evaluate the Above the Influence brand which highlights the negative influences of drug use and the benefits of being "above" them [30]. They evaluated the recent flights of that branded campaign launched since the Evans and colleagues (2008) review and found evidence that the brand was successful in changing drug use behavior, in contrast to previous studies that showed it was ineffective and in fact had iatrogenic or "boomerang" effects [2, 7]. For 8th-grade adolescent girls, greater exposure to anti-drug ads was associated with lower rates of past-month marijuana use (AOR=0.67; 95 % CI=0.52, 0.87) and lower rates

**Table 1** | Overview of studies in this review ($n$=69 published studies; 48 distinct campaigns)

| Topic area | Citation | Public health campaign ($n$=48) | New article? (Yes=32) | Research design | Location |
|---|---|---|---|---|---|
| AIDS/condom use | Eloundou-Enyegue, P. M., Meekers, D., & Calves, A. E. (2005) [23]. | Salama advertising campaign | No | Observational | Africa |
| AIDS/condom use | Agha, S., & Meekers, D. (2010) [24]. | Touch ad campaign | Yes | Observational | Pakistan |
| AIDS/condom use | Evans, W.D., Taruberekera, N., Longfield, K., Snider, J. (2011) [25]. | P+ad campaign | Yes | Observational | Zimbabwe |
| Antibiotic use | Curry, M., Sung, L., Arroll, B., Goodyear-Smith, F., Kerse, N., & Norris, P. (2006) [26]. | Wise use of antibiotics campaign | Yes | Observational | New Zealand |
| Binge drinking | McClure, A.C., Stoolmiller, M., Tanski, S.E., Engels, R.C., Sargent, J.D. (2012) [27]. | Alcohol branded merchandise | Yes | Experimental | USA |
| Child care | Page, C., Reid, A., Hoagland, E., & Leonard, S. B. (2010) [28]. | WellBabies group | Yes | Observational | USA |
| Drug use | Scheier, L. M., & Grenard, J. L. (2010) [29]. | National Youth Anti-Drug Media Campaign (NYADMC) | Yes | Observational | USA |
| Drug use | Carpenter, C.S., Pechmann, C. (2011) [30]. | National Youth Anti-Drug Media Campaign (NYADMC) | Yes | Observational | USA |
| Diet and nutrition | Park, S-Y., Hitchon, J.B., Yun, G.W. (2004) [31]. | Not reported | No | Experimental | USA |
| Diet and nutrition | O'Loughlin, J., Ledoux, J., Barnett, T., & Paradis, G. (1996) [32]. | La Commande du Coeur (Shop for Your Heart) | No | Observational | Canada |
| Diet and nutrition | Stables, G.J., Subar, A.F., Patterson, B.H., Dodd, K., Heimendinger, J., Van Duyn, M.A. et al. (2002) [33]. | 5-A-Day | No | Observational | USA |
| Diet and nutrition | Foerster, S.B., Kizer, K.W., Disogra, L.K., Bal, D.G., Krieg, B.F., Bunch, K.L. (1995) [34]. | 5-A-Day | No | Observational | USA |
| Diet and nutrition | Heimendinger, J., Van Duyn, M.A., Chapelsky, D., Foerster, S., & Stables, G. (1996) [35]. | 5-A-Day | No | Not Reported | USA |
| Diet and nutrition | Ashfield-Watt, P.A.L. (2006) [36]. | 5-A-Day | No | Observational | New Zealand |
| Diet and nutrition and physical activity | Wardle, J., Rapoport, L., Miles, A., Afuape, T., & Duman, M. (2001) [37]. | Fighting Fat, Fighting Fit (FFFF) | No | Observational | England |
| Diet and nutrition | Economos, C.D., Folta, S.C., Goldberg, J., Hudson, D., Collins, J., Baker, Z., Lawson, E.; Nelson, M. (2009) [38]. | Shape Up Somerville: Eat Smart, Play Hard (SUS) | Yes | Not Reported | USA |
| Diet and nutrition | McDonald, W.P. (2007) [39]. | Classified ads | Yes | Not Reported | Canada |
| Diet and nutrition | Giralt, M., Albaladejo, R., Tarro, L., Moriña, D., Arija, V. & Solà, R. (2011) [40]. | Healthy lifestyle education in schools | Yes | Not Reported | Spain |
| Diet and nutrition | Acharya, R.N., Patterson, P.M., Hill, E.P., Schmitz, T.G., Bohm, E. (2006) [41]. | "TrEAT" Yourself Well Restaurant Nutrition Campaign | Yes | Quasi-experimental design | USA |
| Diet and nutrition | Lea, E.J., Crawford, D.L. & Worsley, A. (2006) [42]. | Better health programme | Yes | Observational | Australia |
| Emergency services | Eppler, E., Eisenberg, M.S., Shaeffer, S., Meischke, H., & Larson, M.P. (1994) [43]. | Call Fast, Call 9-1-1 | No | Observational | USA |
| Hep B vaccination | Lancman, H., Pastore, D.R., Steed, N., Maresca, A. (2000) [44]. | School based hep B immunization programs | Yes | Observational | USA |
| HIV/AIDS prevention | Agha, S. (2003) [45]. | Trust (condom campaign) | No | Observational | Kenya |
| HIV/AIDS prevention | Conner, R. F., Takahashi, L., Ortiz, E., Archuleta, E., Muniz, J., & Rodriguez, J. (2005) [46]. | *S.O.L.A.A.R.* | No | Quasi-experimental | USA |
| HIV/AIDS prevention | Stadler, J. & Hlongwa, L. (2002) [47]. | loveLife | No | Observational | South Africa |
| HIV/AIDS prevention | Vega, M. Y. & Roland, E. L. (2005) [48]. | Mutliple campaigns | No | Not Reported | USA |
| HIV/AIDS prevention | Kegeles, S.M., Hays, R.B., & Coates, T.J. (1996) [49]. | Mpowerment | No | Quasi-experimental | USA |
| Malaria control | Schellenberg, J.R.M.A., Abdulla, S., Minja, H., Nathan, R., Mukasa, O., Marchant, T., et al. (1999) [50]. | Zuia Mbu (prevent mosquitos) | No | Observational | Tanzania |
| Multiple domains | Schmidt, T.L. & Hitchon, J.C. (1999) [51]. | Not reported | No | Quasi-experimental | USA |

| | | | | | |
|---|---|---|---|---|---|
| Physical activity | Huhman, M., Potter, L. D., Wong, F. L., Banspach, S. W., Duke, J. C., & Heitzler, C. D. (2005) [52]. | VERB | No | Quasi-experimental design | USA |
| Physical activity | Huhman, M. E., Potter, L. D., Duke, J. C., Judkins, D. R., Heitzler, C. D., & Wong, F. L. (2007) [53]. | VERB | Yes | Observational | USA |
| Physical activity | Bauman, A. E., Bellew, B., Owen, N., & Vita, P. (2001) [54]. | State-wide physical activity campaign by NSW | Yes | Quasi-experimental design | Australia |
| Physical activity | Hillsdon, M., Cavill, N., Nanchahal, K., Diamond, A., & White, I. R. (2001) [55]. | ACTIVE for LIFE campaign | Yes | Observational | England |
| Physical activity | Reijneveld, S. A., Westhoff, M. H., & Hopman-Rock, M. (2003) [56]. | Education sessions | Yes | Experimental | Netherland |
| Physical activity | Wong, F.L., Greenwell, M., Gates, S., Berkowitz, J.M. (2008) [57]. | VERB | Yes | Not Reported | USA |
| Physical activity | Potter, L.D., Judkins, D.R., Piesse, A., Nolin, M.J., Huhman, M. (2008) [58]. | VERB | Yes | Quasi-experimental design | USA |
| Physical activity | Wong, F., Huhman, M., Heitzler, C., Asbury, L., Bretthauer-Mueller, R., McCarthy, S., Londe, P. (2004) [59]. | VERB | No | Experimental | USA |
| Reproductive health | Chan, A., Pickering, J., Haan, E.A., Netting, M., Burford, A., Johnson, A. et al. (2001) [60]. | Folate before pregnancy | No | Observational | Australia |
| Reproductive health | Shefner-Rogers, C. L. (2004) [61]. | Suami SIAGA (I'm an Alert Husband) | No | Observational | Indonesia |
| School safety | Merom, D., Rissel, C., Mahmic, A., & Bauman, A. (2005) [62]. | New South Wales (NSW) Walk Safely To School Day (WSTSD) | Yes | Observational | Australia |
| Stroke | Hodgson, C., Lindsay, P., & Rubini, F. (2009) [63]. | National Stroke Foundation's Stroke Month and FAST campaigns. | Yes | Observational | Australia |
| Skin cancer prevention | Buller, D.B., Andersen, P.A., Walkosz, B.J., Scott, M.D., Cutter, G.R., Dignan, M.B., et al. (2005) [64]. | Go Sun Smart | No | Experimental | USA |
| Skin cancer prevention | Jorgensen, C.M., Wayman, J., Green, C., & Gelb, C.A. (2000) [65]. | Choose Your Cover | No | Not Reported | USA |
| Skin cancer prevention | Lynch, B.M. & Dunn, J. (2003) [66]. | SunSmart | No | Observational | Australia |
| Tobacco control | Dunn, C.L., Pirie, P.L., & Oakes, J.M. (2004) [67]. | Target Market ™ | No | Quasi-experimental | USA |
| Tobacco control | Hersey, J. C., Niederdeppe, J., Blahut, S., Holden, D., Messeri, P., & Haviland, M. L. (2005) [68]. | Truth (national) | No | Observational | USA |
| Tobacco control | Evans, W.D., Wasserman, J., Bertolotti, E. & Martino, S. (2002) [69]. | Truth (national) | No | Observational | USA |
| Tobacco control | Evans, W.D., Price, S., Blahut, S., Hersey, J., Neiderdeppe, J., & Ray, S. (2004) [70]. | Truth (national) | No | Observational | USA |
| Tobacco control | Niederdeppe, J. (2005) [71]. | Truth (national) | Yes | Observational | USA |
| Tobacco control | Evans, W.D., Price, S., & Blahut, S. (2005) [72]. | Truth (national) | No | Observational | USA |
| Tobacco control | Klein, J.D., Havens, C.G., & Carlson, E.J. (2005) [73]. | GottaQuit.com | No | Observational | USA |
| Tobacco control | Sly, D.F., Trapido, E., & Ray, S. (2002) [74]. | TRUTH (Florida) | No | Observational | USA |
| Tobacco control | Kozlowski, L. T., Yost, B., Stine, M. M., & Celebucki, C. (2000) [75]. | Massachusetts Dept. of Public Health campaign-MASS | Yes | Observational | USA |
| Tobacco control | Munafo, M. R., Roberts, N., Bauld, L., & Leonards, U. (2011) [76]. | Plain packaging on cigarette packs | Yes | Experimental | England |
| Tobacco control | Zucker, D., Hopkins, R.S., Sly, D.F., Urich, J., Kershaw, J.M., Solari, S. (2000) [77]. | TRUTH (Florida) | No | Observational | USA |
| Tobacco control | Cotter, T., Perez, D. A., Dessaix, A. L., & Bishop, J. F. (2008) [78]. | Lights and Milds Campaign and a Primer Campaign | Yes | Observational | Australia |
| Tobacco control | Eisenberg, M., Ringwalt, C., Driscoll, D., Vallee, M., & Gullette, G. (2004) [79]. | Truth (national) | No | Observational | USA |
| Tobacco control | Dietz, N.A., Delva, J., Woolley, M.E., Russello, L. (2008) [80]. | TRUTH (Florida) | Yes | Observational | USA |
| Tobacco control | Hersey, J.C., Niederdeppe, J., Evans, W.D., Nonnemaker, J., Blahut, S., Holden, D., Messeri, P. & Haviland, M.L. (2005) [81]. | TRUTH (Florida) | Yes | Experimental | USA |
| Tobacco control | Kropp, Y.R. & Halpern-Felsher, B.L. (2004) [82]. | Light cigarette perception | Yes | Not Reported | USA |
| Tobacco control | Hyland, A., Wakefield, M., Higbee, C., Szczypka, G., Cummings, K.M. (2006) [83]. | Community intervention trial for Smoking Cessation (COMMIT) survey | Yes | Not Reported | USA |

**Table 1** | (continued)

| Topic area | Citation | Public health campaign ($n$=48) | | Research design | Location |
|---|---|---|---|---|---|
| Tobacco control | McVey, D. & Stapleton, J. (2000) [84]. | TV anti-tobacco campaign | No | Not Reported | England |
| Tobacco control | Fielding, R., Chee, Y.Y., Choi, K.M., Chu, T.K., Kato, K., Lam, S.K., Sin, K.L., Tang, K.T., Wong, H.M., Wong, K.M. (2004) [85]. | Recognition of tobacco brands | Yes | Not Reported | Hong Kong |
| Tobacco control | Bansal, M.A., Cummings, M.K., Hyland, A., Bauer, J.E., Hastrup, J.L., Steger, C. (2004) [86]. | The EDUCATE study | Yes | Observational | USA |
| Transportation safety | Milano, M., McInturff, B., & Nichols, J.L. (2004) [87]. | Operation ABC | No | Observational | USA |
| Transportation safety | Salzberg, P.M. & Moffat, J.M. (2004) [88]. | Click It or Ticket | No | Observational | USA |
| Transportation safety | Wells, J.K., Malenfant, J.E.L., Willams, A.F., & Van Houten R. (2000) [89]. | Click It or Ticket | No | Quasi-experimental | USA |
| Transportation safety | Solomon, M.G., Compton, R.P., & Preusser, D.F. (2004) [90]. | Click It or Ticket | No | Observational | USA |
| Use of multivitamin and mineral supplements | Warnick, E., Dearden, K. A., Slater, S., Butron, B., Lanata, C. F., & Huffman, S. L. (2004) [92]. | VitalDia ad campaign | Yes | Observational | Bolivia |

of lifetime marijuana use (AOR=0.76; 95 % CI=0.62, 0.93), but not alcohol use. They found no effects for boys or for students in grades 10 and 12 [30].

In the current review, we see a wider range of subject areas compared to the previous systematic review. This highlights the gradual spread of this strategy within public health. We also see the utilization of branding in countries not observed in the 2008 review, including Pakistan [24], Zimbabwe [25], and Spain [40].

Thirdly, when comparing the current review to the 2008 data, we see reporting of evaluation efforts remained largely unchanged. Most studies again were observational, generally had adequate or better quality reporting of methods and results, but limited metrics to evaluate the brand equity construct. In summary, over the period of 2008 to 2013, there has been an increase in publication on branded campaigns, but no major changes in implementation of methodologies or increase in use of either experimental or quasi-experimental study designs. .

Publishing findings related to the implementation of health branding continues to originate from most of the major fields of disease prevention and health promotion, including chronic and infectious disease, and has also expanded into some new areas. Not surprisingly, well-funded program areas such as tobacco control, nutrition/physical activity, and HIV/STI prevention continue to represent the majority of publications. However, adoption of health branding appears to be growing and gradually expanding into new areas of public health over time, such as reproductive health, and maternal and child health [28].

Evidence also indicates that national organizations that fund public health research and health campaigns are interested in exploring the utility of this approach. For example, in July 2005, the National Cancer Institute and the Division of Nutrition Research Coordination, both components of the National Institutes of Health (NIH), held a state of the science workshop entitled, "Diet and Communication: What can communication science tell us about promoting optimal dietary behavior?" [18] The potential for health branding as a tool to improve nutrition communication was addressed at this meeting. During a 2011 NIH-sponsored workshop entitled "Health Branding," efforts to improve the integration of branding into HIV/STI, drug abuse, and other prevention programs were discussed, and participants identified a critical lack of training and resources for the scientific community as an important component to advance the role of branding [93]. Meeting participants indicated that health researchers typically have little or no training in branding applications, and lack the knowledge and skills to create branded health interventions and assess the efficacy of those health brands.

A major limitation of the current study, as in 2008, is the absence of well-recognized keywords that can be used to identify literature on public health branding. Indeed, this is a problem for the larger field of social marketing, of which public health branding is a

**Table 2** | Topic area ($n$=69 studies)

| Variables | Frequency | Percent |
|---|---|---|
| Antibiotic use | 1 | 1.45 |
| Binge drinking | 1 | 1.45 |
| Child care | 1 | 1.45 |
| Diet and nutrition | 12 | 17.39 |
| Drug use | 2 | 2.90 |
| Emergency services | 1 | 1.45 |
| Hep B vaccination | 1 | 1.45 |
| HIV/AIDS prevention | 8 | 11.59 |
| Malaria control | 1 | 1.45 |
| Multiple domains | 1 | 1.45 |
| Physical activity | 9 | 13.04 |
| Reproductive health | 2 | 2.90 |
| School safety | 1 | 1.45 |
| Skin cancer prevention | 3 | 4.35 |
| Stroke | 1 | 1.45 |
| Tobacco control | 20 | 28.99 |
| Transportation safety | 4 | 5.80 |
| Use of multivitamin and mineral supplements | 1 | 1.45 |

subset, as reflected in recent research [94]. This is not surprising given that widespread strategic use of public health branding is a fairly recent addition to intervention implementation. It may be that some branded public health campaigns do not describe themselves as such. Our search protocol would have missed these articles, as it was designed to capture studies with branding-related key words. For example, we encourage authors to use specific terms including brand, branding, and brand equity and related terms used in our literature search. As branding strategies become more prevalent, we expect that use of relevant language will become more widespread in the public health literature.

Since few studies use tightly-controlled experimental or quasi-experimental designs, and fewer still use validated measures of brand equity [25, 72], findings should be viewed with some caution as it is difficult to interpret the effects of health branding on individual behavior change. Ultimately, to promote adoption of branding as a

**Table 3** | Brand development and marketing execution ($n$=69 published studies; 48 distinct campaigns)

| Variables | Study frequency | Campaign frequency | Campaign (%) |
|---|---|---|---|
| Scientific theory[a] | | | |
| None reported | 14 | 11 | 22.92 |
| Psychology | 24 | 20 | 41.67 |
| Communication | 22 | 19 | 39.58 |
| Marketing | 24 | 21 | 43.75 |
| Other | 4 | 3 | 6.25 |
| Formative research[a] | | | |
| None reported | 28 | 22 | 45.83 |
| Focus groups | 15 | 12 | 25.00 |
| Interviews | 12 | 10 | 20.83 |
| Other | 12 | 10 | 20.83 |
| Key elements[a] | | | |
| None reported | 9 | 8 | 16.67 |
| Aspirational image | 21 | 19 | 39.58 |
| Logo/graphic | 29 | 29 | 60.42 |
| Co-branding | 9 | 7 | 14.58 |
| Social model | 24 | 18 | 37.50 |
| Other | 1 | 1 | 2.08 |
| Marketing channels[a] | | | |
| None reported | 67 | 46 | 95.83 |
| Paid mass media | 41 | 38 | 79.17 |
| Unpaid mass media | 18 | 14 | 29.17 |
| Earned media | 15 | 14 | 29.17 |
| Community outreach | 34 | 31 | 64.58 |
| Community mobilization | 11 | 10 | 20.83 |
| Audience segmentation | 30 | 27 | 56.25 |
| Message tailoring | 13 | 12 | 25.00 |
| Other marketing techniques | 18 | 13 | 27.08 |

[a] Multiple responses possible

**Table 4** | Study design and outcome reporting ($n$=69 published studies; 48 distinct campaigns)

| Variables | Study frequency | Campaign frequency | Campaign (%) |
|---|---|---|---|
| Research design | 52 | 44 | 91.67 |
| Experiment | 5 | 4 | 8.33 |
| Quasi-experiment | 8 | 7 | 14.58 |
| Observational study | 39 | 33 | 68.75 |
| Sample size reported | 55 | 45 | 93.75 |
| Sample characteristics described | 46 | 42 | 87.50 |
| Response=follow-up rate reported | 29 | 22 | 45.83 |
| Statistics reported[a] | | | |
| None reported | 2 | 2 | 4.17 |
| Descriptive | 32 | 28 | 58.33 |
| Multivariate analysis (ANOVA/regression) | 25 | 20 | 41.67 |
| Path analysis | 5 | 3 | 6.25 |
| Other | 5 | 3 | 6.25 |
| Branding measures[a] | | | |
| None reported | 25 | 22 | 45.83 |
| Aided awareness | 29 | 23 | 47.92 |
| Unaided awareness | 25 | 20 | 41.67 |
| Loyalty | 4 | 2 | 4.17 |
| Equity | 6 | 2 | 4.17 |
| Leadership | 2 | 2 | 4.17 |
| Personality | 3 | 2 | 4.17 |
| Objectives clearly stated[a] | | | 0.00 |
| Brand awareness | 33 | 28 | 58.33 |
| Pre-behavioral outcomes | 31 | 25 | 52.08 |
| Behavioral outcomes | 43 | 35 | 72.92 |
| Effects reported[a] | | | 0.00 |
| Brand awareness | 34 | 30 | 62.50 |
| Pre-behavioral outcomes | 27 | 22 | 45.83 |
| Behavioral outcomes | 39 | 32 | 66.67 |
| Estimate of precision reported | 56 | 42 | 87.50 |

[a] Multiple responses possible

behavior change strategy, studies need to demonstrate the added effects of branded, behavioral interventions. Carefully designed studies using validated health branding measures are needed to address this gap in the evidence.

To help address some of the gaps in the current research, as a next step we recommend developing and testing a theoretical framework for health branding. Such a framework has been suggested in previous published studies [8, 72], but research is needed to further articulate and test it as a strategy to improve public health campaigns. Such a framework would follow previous studies indicating that branding and brand equity is a *mediator* of behavior change [8, 72].

One area for research would be to test branding of health and safety behaviors requiring a one-time or simple behavioral choice, such as switching from whole to 1 % milk or wearing a bicycle helmet, may be more susceptible to the effects of health mass media campaigns than those requiring multiple changes and long-term maintenance [95, 96]. Another area would be to examine co-occurring health behaviors. Engaging in risky sexual behavior combined with substance use would be one such example. As these examples illustrate, the complexity and range of health behaviors that can be targeted by health branding warrants the elaboration of theory that can be operationalized and empirically tested.

Efforts to increase brand-related knowledge and skills are sorely needed for members of the public health workforce [8]. Developing the capacity of both practitioners and researchers for using and testing brand strategies will help build empirical evidence. Specifically, efforts should be tailored to improve the public health workforce understanding of brands to: (1) use branding for health interventions, (2) apply branding by increasing

practitioner capacity to conceptualize health brands and to engage with marketing experts to create recognizable brand identities for programs, and (3) evaluate the effects of branding on program outcomes through use of branding metrics.

A recent project, sponsored by the National Institute on Drug Abuse (NIDA), was focused on designing a user-friendly, step-by-step training guide to help develop and evaluate branded prevention programs [8]. This project, called the *Behavioral Brand Builder* (*B3*), was designed as a starting point for a long-term agenda to educate and train the prevention workforce in the use of branding principles to improve program effectiveness.

Health branding efforts may serve as mechanisms of behavior change and product use. Risky behaviors including drug abuse and unsafe sex are especially difficult to change, and branding has the potential to improve the efficacy of health intervention initiatives [97].

## CONCLUSIONS

Public health interventions have only recently begun to adopt branding due to the difficulty in specifying its effects. Although some evidence indicates the promise of branding as a public health strategy, most of the work reviewed in this paper relies on quasi-experimental designs and has yet to explain the causal processes through which brands manifest their effects.

First, evidence from some studies suggests that brand equity mediates behavior change in multiple subject areas, including drug use, HIV/STI prevention, and nutrition and exercise [2]. Receptivity to health-related brands can lead to greater adoption and maintenance of behaviors such as consistent condom use. Branding is also being used in the substance abuse arena. For example, the *keepin' it REAL* (*kiR*) drug resistance skills program has branded resisting drug use as normative and socially desirable for young adolescents, creating an identity that young people aspire to be like and using tagline, logos, and imagery to build the brand identity. We urge research sponsors such as the NIH and other public and private agencies to support experimental studies to evaluate the added value of branding in promoting positive behavioral outcomes as compared to non-branded strategies.

Second, this review is one in a series of steps that are needed to determine whether and to what extent public health branding is effective in changing behavior. Our study quality scale suggests a clear need for more rigorous designs, including randomized controlled studies with longitudinal data, to determine the effects of branded health messages. Some of the studies reviewed here provide evidence of some attitudinal and behavioral impact, but a long-term research agenda, across multiple public health topics, could demonstrate the effectiveness of brand equity in promoting healthy behaviors. Further evidence can help demonstrate whether branding can optimize the efficacy of behavioral interventions to improve public health.

**Acknowledgments:** The authors acknowledge the valuable input of participants at the 2011 NIH Health Branding workshop for helping to shape the ideas that led to this systematic review.

**Authors' statement:** W. Douglas Evans, Jonathan Blitstein, Wendy Nilsen, Donna Vallone, and Samantha Post declare that they have no conflict of interest. None of the authors received any financial support or compensation in connection with this manuscript. As the study did not involve human subject research, no institutional research board approvals or ethical considerations apply.

1. Cutler D, Miller G. The role of public health improvements in health advances: the twentieth century United States. *Demography*. 2005; 42(1): 1-22.
2. Evans WD, Blitstein JL, Hersey JC, Renaud J, Yaroch AL. Systematic review of public health branding research. *J Health Commun*. 2008; 13(8): 351-360.
3. Bandura A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall; 1986.
4. Ajzen I. The theory of planned behaviour. *Organ Behav Hum Decis Process*. 1991; 50: 179-211.
5. Johnson-Taylor WL, Yaroch AL, Krebs-Smith SM, Rodgers AB. What can communication science tell us about promoting optimal dietary behavior? *J Nutr Educ Behav*. 2007; 39(2S): S1-S4.
6. Hornik R, Kelly B. Communication and diet: an overview of experience and principles. *J Nutr Educ Behav*. 2007; 39: S5-S12.
7. Evans WD, Holtz K, Snider J. Effects of the above the influence brand on adolescent drug use prevention beliefs. *J Health Comm*. 2014 (In press).
8. Evans WD, ed. *Psychology of Branding*. Hauppauge, NY: Nova; 2013.
9. Blitstein JL, Evans WD, Driscoll DL. What is a public health brand? In: Evans WD, Hastings G, eds. *Public Health Branding*. Oxford, UK: Oxford University Press; 2008: 25-41.
10. Haider M. Branding of international public health organizations: applying commercial marketing to global public health. In: Evans WD, Hastings G, eds. *Public Health Branding: Applying Marketing for Social Change*. London, UK: Oxford University Press; 2008.
11. Keller KL. Branding perspectives on social marketing. *Adv Consum Res*. 1998; 25: 299-302.
12. Snyder LB, Hamilton MA, Mitchell EW, Kiwanuka-Tondo J, Fleming-Milici F, Proctor D. A meta-analysis of the effect of mediated health communication campaigns on behavior change in the United States. *J Health Commun*. 2004; 9(S1): 71-96.
13. Aaker DA. *Building Strong Brands*. New York: The Free Press; 1996.
14. Grilli R, Ramsay CR, Minozzi S. Mass media interventions: effects on health services utilisation. *Cochrane Database Syst Rev*. 2002; 1.
15. Evans WD, Necheles J, Longjohn M, Christoffel K. The 5-4-3-2-1 Go! intervention: social marketing strategies for nutrition. *J Nutr Educ Behav*. 2007; 39(2): S55-S59. S1.
16. Evans WD, Price S, Blahut S, Hersey J, Niederdeppe J, Ray S. Social imagery, tobacco independence, and the truth® campaign. *J Health Commun*. 2004; 9(5): 425-441.
17. McLeroy KR, Northridge ME, Balcazar H, Greenberg MR, Landers SJ. Reporting guidelines and the American Journal of Public Health's adoption of preferred reporting items for systematic reviews and meta-analyses. *Am J Public Health*. 2012; 102(5): 780-4.
18. Snyder LB, Hamilton MA. Meta-analysis of U.S. health campaign effects on behavior: emphasize enforcement, exposure, and new information, and beware the secular trend. In: Hornik R, ed. *Public Health Communication: Evidence for Behavior Change*. Hillsdale, NJ: Lawrence Erlbaum Associates; 2002.
19. Grilli, R, Ramsay CR, and Minozzi S. Mass media interventions: effects on health services utilisation. Cochrane Database of Systematic Reviews, 2002. Issue 1(Art. Number: CD000389, DOI:10.1002/14651858.CD000389.
20. Fitzgibbon M, Gans KM, Evans WD, et al. Communicating healthy eating lessons learned and future directions. *J Nutr Educ Behav*. 2007; 39(2): S63-S71. S1.
21. Evans WD, Price S, Blahut S. Evaluating the truth® brand. *J Health Commun*. 2005; 10(2): 181-192.
22. Snyder LB, Hamilton MA, Huedo-Medina T. Does evaluation design impact communication campaign effect size? A meta-analysis. *Commun Methods Measures*. 2009; 3: 84-104.

23. Eloundou-Enyegue PM, Meekers D, Calves AE. From awareness to adoption: the effect of AIDS education and condom social marketing on condom use in Tanzania (1993–1996). *J Bios Sci*. 2004; 37(3): 257-268.
24. Agha S, Meekers D. Impact of an advertising campaign on condom use in urban Pakistan. *Stud Fam Plan*. 2010; 41(4): 277-290.
25. Evans WD, Taruberekera N, Longfield K, Snider J. Brand equity and willingness to pay for condoms in Zimbabwe. *Reprod Health*. 2011; 8: 29.
26. Curry M, Sung L, Arroll B, Goodyear-Smith F, Kerse N, Norris P. Public views and use of antibiotics for the common cold before and after an education campaign in New Zealand. *N Z Med J*. 2006; 119(1233): U1957.
27. McClure AC, Stoolmiller M, Tanski SE, Engels RC, Sargent JD. Alcohol marketing receptivity, marketing-specific cognitions, and underage binge drinking. *Alcohol Clin Exp Res*. 2012; 37(S1): E404-13.
28. Page C, Reid A, Hoagland E, Leonard SB. WellBabies: Mothers' perspectives on an innovative model of group well-child care. *Fam Med*. 2010; 42(3): 202-207.
29. Scheier LM, Grenard JL. Influence of a nationwide social marketing campaign on adolescent drug use. *J Health Commun*. 2010; 15(3): 240-71.
30. Carpenter CS, Pechmann C. Exposure to the above the influence antidrug advertisements and adolescent marijuana use in the United States, 2006–2008. *Am J Public Health*. 2011; 101(5): 948-54.
31. Park S-Y, Hitchon JB, Yun GW. The effects of brand familiarity in alignment advertising. *J Mass Commun Q*. 2004; 81(4): 750-765.
32. O'Loughlin J, Ledoux J, Barnett T, Paradis G. La Commande du Coeur ("Shop for Your Heart"): a point-of-choice nutrition education campaign in a low-income urban neighborhood. *Am J Health Promot*. 1996; 10(3): 175-8.
33. Stables GJ, Subar AF, Patterson BH, et al. Changes in vegetables and fruit consumption and awareness among US adults: results of the 1991 and 1997 5 A Day for Better Health Program surveys. *J Am Diet Assoc*. 2002; 102: 809-817.
34. Foerster SB, Bal DG, Kizer KW, Krieg BF, DiSorga LK. Bunch KL California's "5 a day–for better health!" campaign: an innovative population-based effort to effect large-scale dietary change. *Am J Prev Med*. 1995; 11(2): 124-31.
35. Heimendinger J, Van Duyn MA, Chapelsky D, Foerster S, Stables G. The national 5 A Day for Better Health Program: a large-scale nutrition intervention. *J Public Health Manag Pract*. 1996; 2(2): 27-35.
36. Ashfield-Watt PAL. Fruits and vegetables, 5+ a day: are we getting the message across? *Asia Pac J Clin Nutr*. 2006; 15(2): 245-52.
37. Wardle J, Rapoport L, Miles A, Afuape T, Duman M. Mass education for obesity prevention: the penetration of the BBC's "Fighting Fat, Fighting Fit" campaign. *Fighting Fit' Campaign Health Educ Res*. 2001; 16(3): 343-55.
38. Economos CD, Folta SC, Goldberg J, et al. A community-based restaurant initiative to increase availability of healthy menu options in Somerville, Massachusetts: shape up Somerville. *Prev Chronic Dis*. 2009; 6(3): A102.
39. McDonald PW. A practical, cost-effective method for recruiting people into healthy eating behavior programs. *Prev Chronic Dis*. 2007; 4(2): A26.
40. Giralt M, Albaladejo R, Tarro L, Moriña D, Arija V, Solà R. A primary-school-based study to reduce prevalence of childhood obesity in Catalunya (Spain)–EDAL-Educació en alimentació: study protocol for a randomised controlled trial. *Trials*. 2011; 12: 54.
41. Acharya RN, Patterson PM, Hill EP, Schmitz TG, Bohm E. An evaluation of the "TrEAT Yourself Well" restaurant nutrition campaign. *Health Educ Behav*. 2006; 33(3): 309-24.
42. Lea EJ, Crawford DL, Worsley A. Consumers' readiness to eat a plant-based diet. *Eur J Clin Nutr*. 2006; 60(3): 342-51.
43. Eppler E, Eisenberg MS, Schaeffer S, Meischke H, Larson MP. 911 and emergency department use for chest pain: results of a media campaign. *Ann Emerg Med*. 1994; 24(2): 202-8.
44. Lancman H, Pastore DR, Steed N, Maresca A. Adolescent hepatitis B vaccination: comparison among 2 high school-based health centers and an adolescent clinic. *Arch Pediatr Adolesc Med*. 2000; 154(11): 1085-8.
45. Agha S. The impact of a mass media campaign on personal risk perception, perceived self-efficacy and on other behavioural predictors. *AIDS Care*. 2003; 15(6): 749-62.
46. Conner RF, Takahashi L, Ortiz E, Archuleta E, Muniz J, Rodriguez J. The Solaar HIV prevention program for gay and bisexual Latino men: using social marketing to build capacity for service provision and evaluation. *AIDS Educ Prev*. 2005; 17(4): 361-74.
47. Stadler J, Hlongwa L. Monitoring and evaluation of loveLife's AIDS prevention and advocacy activities in South Africa, 1999–2001. *Eval Program Plan*. 2002; 25: 365-376.
48. Vega MY, Roland EL. Social marketing techniques for public health communication: a review of syphilis awareness campaigns in 8 US cities. *Sex Transm Dis*. 2005; 32(10 Suppl): S30-6.
49. Kegeles SM, Hays RB, Coates TJ. The Mpowerment Project: a community-level HIV prevention intervention for young gay men. *Am J Public Health*. 1996; 86(8 Pt 1): 1129-1136.
50. Schellenberg JRMA, Abdulla S, Minja H, et al. KINET: a social marketing programme of treated nets and net treatment for malaria control in Tanzania, with evaluation of child health and long-term survival. *Trans R Soc Trop Med Hyg*. 1999; 93(3): 225-31.
51. Schmidt TL, Hitchon JC. When advertising and public relations converge: an application of schema theory to the persuasive impact of alignment ads. *J Mass Commun Q*. 1999; 76: 433-455.
52. Huhman M, Potter LD, Wong FL, Banspach SW, Duke JC, Heitzler CD. Effects of a mass media campaign to increase physical activity among children: year-1 results of the VERB campaign. *Pediatrics*. 2005; 116(2): e277-84.
53. Huhman ME, Potter LD, Duke JC, Judkins DR, Heitzler CD, Wong FL. Evaluation of a national physical activity intervention for children: VERB campaign, 2002–2004. *Am J Prev Med*. 2007; 32(1): 38-43.
54. Bauman AE, Bellew B, Owen N, Vita P. Impact of an Australian mass media campaign targeting physical activity in 1998. *Am J Prev Med*. 2001; 21(1): 41-7.
55. Hillsdon M, Cavill N, Nanchahal K, Diamond A, White IR. National level promotion of physical activity: results from England's ACTIVE for LIFE campaign. *J Epidemiol Community Health*. 2001; 55(10): 755-761.
56. Reijneveld SA, Westhoff MH, Hopman-Rock M. Promotion of health and physical activity improves the mental health of elderly immigrants: results of a group randomised controlled trial among Turkish immigrants in the Netherlands aged 45 and over. *J Epidemiol Community Health*. 2003; 57(6): 405-11.
57. Wong FL, Greenwell M, Gates S, Berkowitz JM. It's what you do! Reflections on the VERB campaign. *Am J Prev Med*. 2008; 34(6S): S175-S182.
58. Potter LD, Judkins DR, Piesse A, Nolin MJ, Huhman M. Methodology of the outcome evaluation of the VERB campaign. *Am J Prev Med*. 2008; 34(6 Suppl): S230-40.
59. Wong F, Huhman M, Heitzler C, et al. VERB—a social marketing campaign to increase physical activity among youth. *Prev Chronic Dis*. 2004; 1(3): A10.
60. Chan A, Pickering J, Haan E, et al. "Folate before pregnancy": the impact on women and health professionals of a population-based health promotion campaign in South Australia. *Med J Aust*. 2001; 174(12): 631-6.
61. Shefner-Rogers CL, Sood S. Involving husbands in safe motherhood: effects of the SUAMI SIAGA campaign in Indonesia. *J Health Commun*. 2004; 9(3): 233-58.
62. Merom D, Rissel C, Mahmic A, Bauman A. Process evaluation of the New South Wales Walk Safely to School Day. *Health Promot J Austr*. 2005; 16(2): 100-6.
63. Hodgson C, Lindsay P, Rubini F. Using paid mass media to teach the warning signs of stroke: the long and the short of it. *Health Promot J Austr*. 2009; 20(1): 58-64.
64. Buller DB, Andersen PA, Walkosz BJ, et al. Randomized trial testing a worksite sun protection program in an outdoor recreation industry. *Health Educ Behav*. 2005; 32: 514-535.
65. Jorgensen CM, Wayman J, Green C, Gelb CA. Using health communications for primary prevention of skin cancer: CDC's Choose Your Cover campaign. *J Womens Health Gend Based Med*. 2000; 9(5): 471-5.
66. Lynch BM, Dunn J. Scoreboard advertising at sporting events as a health promotion medium. *Health Educ Res*. 2003; 18(4): 488-492.
67. Dunn CL, Pirie PL, Oakes JM. Outcomes of a statewide anti-tobacco industry youth organizing movement. *Am J Health Promot*. 2004; 19(1): 3-11.
68. Hersey JC, Niederdeppe J, Evans WD, et al. The Theory of "truth": how counterindustry media campaigns affect smoking behavior among teens. *Health Psychol*. 2005; 24(1): 22-31.
69. Evans WD, Wasserman J, Bertolotti E, Martino S. The strategy behind the truth® campaign. *Soc Mark Q*. 2002; 8(3): 17-29.
70. Evans WD, Price S, Blahut S, Hersey J, Neiderdeppe J, Ray S. Social imagery, tobacco independence, and the TruthSM campaign. *J Health Commun*. 2004; 9(5): 425-441.
71. Neiderdeppe J. Syntactic indeterminacy, perceived message sensation value-enhancing features, and message processing in the context of anti-tobacco advertisements. *Comm Monogr*. 2005; 73(3): 324-344.
72. Evans WD, Price S, Blahut S. Evaluating the truth brand. *J Health Comm*. 2005; 10(2): 181-192.
73. Klein JD, Havens CG, Carlson EJ. Evaluation of an adolescent smoking-cessation media campaign: GottaQuit.com. *Pediatrics*. 2005; 116(4): 950-6.
74. Sly DF, Trapido E, Ray S. Evidence of the dose effects of an anti-tobacco counteradvertising campaign. *Prev Med*. 2002; 35: 511-518.
75. Kozlowski LT, Yost B, Stine MM, Celebucki C. Massachusetts' advertising against light cigarettes appears to change beliefs and behavior. *Am J Prev Med*. 2000; 18(4): 339-42.
76. Munafò MR, Roberts N, Bauld L, Leonards U. Plain packaging increases visual attention to health warnings on cigarette packs in

non-smokers and weekly smokers but not daily smokers. *Addiction*. 2011; 106(8): 1505-10.
77. Zucker D, Hopkins RS, Sly DF, Urich J, Kershaw JM, Solari S. Florida's "truth" campaign: a counter-marketing, anti-tobacco media campaign. *J Public Health Manag Pract*. 2000; 6(3): 1-6.
78. Cotter T, Perez DA, Dessaix AL, Bishop JF. Smokers respond to anti-tobacco mass media campaigns in NSW by calling the Quitline. *NSW Public Health Bull*. 2008; 19(3–4): 68-71.
79. Eisenberg M, Ringwalt C, Driscoll D, Vallee M, Gullette G. Learning from truth: youth participation in field marketing techniques to counter tobacco advertising. *J Health Commun*. 2004; 9(3): 223-31.
80. Dietz NA, Delva J, Woolley ME, Russello L. The reach of a youth-oriented anti-tobacco media campaign on adult smokers. *Drug Alcohol Depend*. 2008; 93(1–2): 180-4.
81. Hershey JC, Niederdeppe J, Evans WD, et al. The theory of "truth": how counterindustry campaigns affect smoking behavior among teens. *Health Psychol*. 2005; 24(1): 22-31.
82. Halpern-Felsher BL, Biehl M, Kropp RY, Rubinstein ML. Perceived risks and benefits of smoking: differences among adolescents with different smoking experiences and intentions. *Prev Med*. 2004; 39(3): 559-67.
83. Hyland A, Wakefield M, Higbee C, Szczypka G, Cummings KM. Anti-tobacco television advertising and indicators of smoking cessation in adults: a cohort study. *Health Educ Res*. 2006; 21(3): 348-54.
84. McVey D, Stapleton J. Can anti-smoking television advertising affect smoking behaviour? Controlled trial of the Health Education Authority for England's anti-smoking TV campaign. *Tob Control*. 2000; 9: 273-282.
85. Fielding R, Chee YY, Choi KM, et al. Declines in tobacco brand recognition and ever-smoking rates among young children following restrictions on tobacco advertisements in Hong Kong. *J Public Health (Oxf)*. 2004; 26(1): 24-30.
86. Bansal MA, Cummings KM, Hyland A, Giovino GA. Stop-smoking medications: who uses them, who misuses them, and who is misinformed about them? *Nicotine Tob Res*. 2004; 6(Suppl 3): S303-10.
87. Milano M, McInturff B, Nichols JL. The effect of earned and paid media strategies in high visibility enforcement campaigns. *J Safety Res*. 2004; 35(2): 203-14.
88. Salzberg PM, Moffat JM. Ninety five percent: an evaluation of law, policy, and programs to promote seat belt use in Washington State. *J Safety Res*. 2004; 35(2): 215-22.
89. Wells J, Malenfant JEL, Williams A, Van Houten R. Use of community program to increase seat belt use among shopping center patrons in Charlotte. *N C J Saf Res*. 2000; 31: 93-99.
90. Solomon MG, Compton RP, Preusser DF. Taking the Click It or Ticket model nationwide. *J Saf Res*. 2004; 35(2): 197-201.
91. Warnick E, Dearden KA, Slater S, Butrón B, Lanata CF, Huffman SL. Social marketing improved the use of multivitamin and mineral supplements among resource-poor women in Bolivia. *J Nutr Educ Behav*. 2004; 36(6): 290-7.
92. Farrelly MC, Davis KC, Haviland ML, Messeri P, Healton CG. Evidence of a dose–response relationship between "truth" antismoking ads and youth smoking. *Am J Pub Health*. 2005; 95(3): 425-431.
93. Evans WD. Branding health behavior: evidence and case studies. Presented at the NIH Workshop on Health Branding, Bethesda, MD, September 2011.
94. McDermott L, Stead M, Hastings G. What is and what is not social marketing. *J Mark Manag*. 2005; 21: 545-553.
95. Snyder L. Health communication campaigns and their impact on behavior. *J Nutr Educ Behav*. 2007; 39(S2): S32-S40.
96. Evans WD. How social marketing works in health care. *British Med J*. 2006; 322: 1207-1210.
97. Noar SM. Behavioral interventions to reduce HIV-related sexual risk behavior: review and synthesis of meta-analytic evidence. *AIDS Behav*. 2008; 12(3): 335-53.