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Do National Security Communication Campaigns Work?

Taking a Lesson from the Public Health Sector

Several agencies and departments of the U.S. government seek to use media communications to achieve key national security objectives of the United States.

At the tactical to operational level, the U.S. Army psychological operations (PSYOP) forces are charged with “influencing foreign audiences in support of U.S. objectives,” and media-based communications represent one critical tool at their disposal (Joint Publication 3-13.2, 2014, pp. 2–6). Key mission sets for PSYOP are conducted throughout the *competition continuum*, which is described as a world of “enduring competition conducted through a mixture of coop-

eration, competition below armed conflict, and armed conflict” (Joint Doctrine Note 1-19, 2019, p. v).

PSYOP forces also support U.S. Department of Defense (DoD) information capabilities in peacetime. In Afghanistan, for example, messaging series have been used to (1) build support for the U.S. military presence and for the host Afghan government, (2) promote the sharing of threat intelligence to U.S. military forces, and (3) tarnish popular perceptions of Taliban

KEY FINDINGS

- Public health communication campaigns achieve modest but replicated success, and this suggests that national security–focused information campaigns also have the potential for success.
- Campaign planners should assume that the effects of communication campaigns will be small and should thus plan on employing a full array of policy tools to support executed communication campaigns.
- Not all campaigns are successful, and even the effects of successful campaigns might not be easily observable. Consequently, it will be necessary to conduct rigorous, empirical evaluations to determine the impact of any planned communication campaign.
- Because communication campaigns can have variable effects, planners should follow established best practices for success. This includes conducting formative research on target audiences, reaching a large audience with a mix of different media, and accompanying messages with an enforcement policy where prudent.

insurgents (Munoz, 2012). Similar series were also conducted in Operation Iraqi Freedom (Helmus, Paul, and Glenn, 2007; Segell, 2014). As a concrete example, one major information operation, or communication campaign, sought to use newspaper, radio, and television advertisements to negatively brand the militant group Al-Qa’ida in Iraq (Segell, 2014).

At the more strategic level, the Global Engagement Center (GEC), housed in the U.S. Department of State, has the mission to “direct, lead, synchronize, integrate, and coordinate efforts of the Federal Government” to, in part, “expose, and counter foreign state and foreign non-state propaganda and disinformation efforts” (U.S. Department of State, undated). The GEC, for example, has focused on supporting countering violent extremism (CVE) and counter-disinformation communication campaigns led and executed by local partners. Like its predecessor organization, the Center for Strategic Counterterrorism Communications, the GEC has also launched its own mass media communication campaigns targeting, for instance, ISIS recruitment efforts (Robinson et al., 2018; Miller and Higham, 2015). Militaries and civilian agencies of various allied nations also conduct such campaigns in support of various national security objectives.

Ultimately, a question arises as to the effectiveness of such campaigns. Can government-led communication campaigns addressing national security issues be effective in changing the behavior of target audiences?

Conducting rigorous evaluations that document the impacts of specific communication campaigns is a critical undertaking. Evaluations, especially summative evaluations that assess whether the campaign

produced measurable changes in target audience knowledge, attitudes, and behavior (KAB), can help inform congressional or agency-specific funding decisions and enable planners to continually improve developed campaigns. The evaluations can also guide future operational planning efforts (Helmus and Klein, 2018; Helmus et al., 2017). For example, for military planners, it would be helpful to understand the level of effect that a supporting PSYOP campaign can potentially have on civilian populations as part of a military contingency operation.

To date, few if any such rigorous evaluations have been published.¹ Although conducting such studies is an obvious necessity, it will take time to accumulate a large enough body of evidence that would give policymakers and researchers alike confidence in the impact and utility of such communication campaigns.² How, then, can funders and operational planners gauge the potential impacts of these campaigns?

One approach is to open the aperture and consider the impacts of nonnational security-focused campaigns—for example, those focused on public health. Government and nongovernmental agencies and organizations have been underwriting public health communication campaigns since at least the 1960s (Snyder et al., 2004). These campaigns, for example, have sought to reduce the prevalence of cigarette smoking and illicit-drug use, promote safe-sex behaviors, increase vaccinations, and advance various other healthy behaviors. A major benefit of focusing on public health campaigns is that hundreds of such campaigns have been subject to rigorous empirical evaluation, with research findings published in peer-reviewed journals. Consequently, evaluations of public health campaigns provide a full body of scientific evidence for considering the impacts of communication campaigns.

In this project, we sought to exploit the weight of the health communication campaign literature to better understand the types of effects that communication campaigns can achieve. We aimed to answer three questions:

- First, how effective are communication campaigns?
- Second, how consistently do communication campaigns produce measurable effects?

Abbreviations

CVE	countering violent extremism
DoD	U.S. Department of Defense
GEC	Global Engagement Center
HIV	human immunodeficiency virus
KAB	knowledge, attitudes, and behavior
OR	odds ratio
PSYOP	psychological operations
RCT	randomized controlled trial
RR	relative risk
STD	sexually transmitted disease

- Third, what factors contribute to improved outcomes? This question sought to identify whether certain types of media dissemination practices produced the most-effective findings.

One challenge to conducting this project was the sheer number of published communication campaign evaluations. On initial review of the literature, it became obvious that there were too many studies to effectively review, given the originally limited scope of this project. Many of the individual studies, however, are frequently analyzed as part of published systematic reviews and meta-analyses. Systematic reviews are simply review papers that use systematic methods to collect individual, published studies and analyze and synthesize the findings of those papers. Alternatively, meta-analyses combine the results of multiple studies and use statistical analyses to analyze the combined effect of those studies. By focusing on these systematic review and meta-analysis studies, we were able to more efficiently provide an overall picture of campaign effects.

Health communications are not a perfect model of national security-focused campaigns. PSYOP campaigns are often conducted in hotly disputed theaters of operation. And campaigns to reduce violent extremism or promote the provision of intelligence against an insurgent force must contend with opposing propaganda by extremists and insurgents. How audiences perceive the messenger may greatly differ. It might generally be assumed that audiences of public health campaigns place some trust in the messenger, and this may not be a given in national security campaigns. The character of the message may be different. Public health campaigns promote good health practices, which offer a personal benefit to audiences, while national security campaigns primarily seek to benefit the tactical, operational, or strategic interest of the United States.

Health campaigns do not have to contend with a hardened enemy *per se*, but they are not without their adversaries. A “stop smoking” campaign or a “do not use drugs” campaign must fight the countervailing influences of biochemical addiction at the individual level and tobacco company ads or the neighborhood drug dealer. Other health campaigns must confront entrenched conspiracy theories and deep cultural

mistrust on topics related to vaccinations or safe sex behaviors. Health campaigns must also combat the influence of peer networks, reverse engrained habits, and fight individual addiction to chemical substances or unprotected sex. And many public health campaigns are conducted in developing countries, which impose both logistical and cultural challenges. Thus, although not a perfect analogy, an assessment of health campaign effects would likely yield information helpful to policy and operational planners.

Finally, we conclude this introduction with a note on terminology. Different players in the communications space use different terms. PSYOP forces doctrinally refer to such a messaging operation as a *series*, which includes a set of actions and messages designed to focus on and support a single objective and target audience combination. The comparable term used in advertising is *advertising campaign*, and in public health, common terms include *mass-media campaign*, *communication campaign*, or even just *intervention*. For this report, we will use the term *communication campaign* because much of this discussion is focused on the public health literature. We will, however, use the doctrinal term *series* when directly addressing PSYOP. For an assessment of nonpublic-health communication campaigns and their implications for strategic competition with Russia, see McCulloch and Watts, 2021.

Approach

This section details the approach we took to conduct this systematic review, which examines two types of communication modalities: mass media and social marketing.

Social marketing and mass media campaigns have much in common. Planners for both campaigns seek to disseminate core message themes through various media channels, such as television, radio, print, and social media; focus on changing audience behavior and associated knowledge and attitudinal outcomes; understand the unique characteristics of their target audience; and shape the content of the message to align with that target audience.³

However, the two types of modalities differ in important ways. In mass media campaigns, planners

typically rely on communication efforts to influence their target audiences, while social marketing campaigns use marketing principles related to “leveraging product, place, and pricing strategies” to make it easier for target audiences to change their behavior (Friedman et al., 2016, p. S83).

Social marketing campaigns, for example, might help improve safe sex practices by making condoms more accessible, or they might increase testing for sexually transmitted diseases (STDs) by offering more testing locations, making the locations easier to access, or making the STD tests “less invasive, faster and easier” (Friedman et al., 2016, p. S83). In contrast, health communication or mass communication, with their primary reliance on messaging, are often unable to address systemic issues or barriers to access for behavioral change. Helmus, Paul, and Glenn, 2007, provides an example of how social marketing campaigns can be used in support of PSYOP. In addition, despite the differences between the two campaign styles, the commonalities between the two—particularly the reliance on disseminating core message themes through various media channels—warrant that we consider findings for both mass media and social marketing campaigns.

We conducted a systematic search query of relevant publication databases to collect the sample of systematic review and meta-analytic studies used in this report. Overall, 41 studies that conducted either a systematic review or meta-analysis on mass media or social marketing campaigns were included in the research for this report.⁴

Limitations

It is important to caveat several limitations in the methods employed in this systematic review. Best practice for systematic reviews calls for the review of titles and abstracts to be conducted by two independent raters (Okoli, 2015). Likewise, researchers should employ two separate reviewers in analyzing and coding the research papers that make up the final systematic review database. In instances where codings of the two reviews differ, they are to work together, alongside a third researcher, to adjudicate the differences. Unfortunately, the limited scope

and resources for this research did not permit dual codings. Instead, two analysts each coded separate tranches of papers. The primary author then reviewed the codes for each study that contributed data to Table 1 on effect sizes and to the information presented in the appendix on consistency of effects.

The remainder of this report details our assessment findings and implications. The next section details the results of the analysis and is followed by a summary of implications.

Findings

In reviewing our findings, we first describe the sample of review papers included in this review, and then we seek to answer the three key questions underpinning this project:

- How effective are communication campaigns?
- How consistently do communication campaigns produce measurable effects?
- What factors contribute to improved outcomes?

Collected Data Set

As noted, 41 systematic reviews and meta-analytic studies qualified for final review. Of these 41 studies, 22 focused on mass media, 15 on social marketing, and four on mixed mass media and social marketing. Audiences for the communication campaigns included high- ($n = 27$) and low-income ($n = 3$) audiences in addition to a mixture of the two ($n = 11$). In terms of campaign topics, studies focused on reducing risk of human immunodeficiency virus (HIV) or other sexually transmitted diseases ($n = 8$), reducing drug and alcohol use ($n = 6$) or smoking ($n = 4$), and promoting conservation ($n = 3$). Five studies incorporated a diverse array of health campaigns, while 15 studies were classified as generic public health campaigns. These efforts focused on discrete outcomes, including exercise promotion, cancer screening, condom use in support of family planning, use of folic acid during pregnancy, vaccinations, and health service utilization. The average number of studies included in these reviews was 27.8 (range of three to 125 studies).⁵

TABLE 1

Summary of Meta-Analytic Effect Sizes for Public Health Communication Campaign–Influenced Behavior Change

Source	Communication Type	Audience	Dependent Measure	Number of Studies	Effect Size Type	Effect Size	Level of Effect
Clement et al., 2013	Mass media	Western	Prejudice	19	Cohen's <i>d</i>	–0.38 (95% CI: not provided)	Small
Cugelman, Thelwall, and Dawes, 2011	Social marketing	Western	Health behavior change	30	Cohen's <i>d</i>	0.194 (95% CI: 0.111 to 0.278)	Small
Allara et al., 2015	Mass media	Western	Drug use	8 RCTs	Cohen's <i>d</i>	–0.02 (95% CI: –0.15 to 0.12)	No effect
Anker et al., 2016	Mass media	Mixed	Health behavior change	61	<i>r</i>	0.054 (95% CI: 0.033 to 0.075)	Very small
Snyder et al., 2004	Mass media	Western	Varied health behaviors	48	<i>r</i>	0.09 (95% CI: 0.07 to 0.1)	Small
Werb et al., 2011	Mass media (public service announcements)	Western	Intention to use drugs	6 RCTs	<i>r</i>	0.29 (95% CI: 0.17 to 0.75)	No effect
				4 ^a	<i>r</i>	–0.04 (95% CI: 0.06 to –0.01)	No effect
Babalola, Figueroa, and Krenn, 2017	Mass media	Non-Western	Contraceptive use	47	OR	1.93 (95% CI: 1.75 to 2.14)	Small to medium
Sweat et al., 2012	Social marketing	Non-Western	Condom use	6	OR	2.10 (95% CI: 1.51 to 2.91)	Small

Table 1—Continued

Source	Communication Type	Audience	Dependent Measure	Number of Studies	Effect Size Type	Effect Size	Level of Effect
Yadav and Kobayashi, 2015	Mass media	Western	Drunk driving and alcohol-related crashes	7	RR	1.00 (95% CI: 0.94 to 1.06)	No effect
Lenters, Das, and Bhutta, 2013	Social marketing	Non-Western	Use of oral rehydration solutions to treat child diarrhea	4 RCTs	RR	1.82 (95% CI: 1.17 to 2.85)	Small ^b
Abioye, Hajifathalian, and Danaei, 2013	Mass media	Western	Moderate-intensity walking	3	RR	1.53 (95% CI: 1.25 to 1.87)	Small
			Achievement of recommended physical activity	4	RR	1.02 (95% CI: 0.91 to 1.14)	No effect

NOTE: Examples of Western audiences include those residing in the United States, Canada, Australia, New Zealand, and in such European countries as the Netherlands, United Kingdom, and Norway. Examples of non-Western audiences include those residing in Africa, Asia, and Latin America. CI = confidence interval; RCT = randomized controlled trial; *r* refers to a correlation coefficient, and the statistic requires assessment both prior to (e.g., baseline) and postintervention. For both Cohen's *d* and *r*, the effect is statistically significant if the 95% CI excludes zero and both give a measure of absolute differences between treatment and control groups. The OR and RR are significant if the interval excludes one and they give a measure of the relative difference (e.g., a percentage change).

^a These were observational studies.

^b There was a 1.82-fold increase in oral rehydration use.

How Effective Are Communication Campaigns?

To assess the impacts of communication campaigns, we reviewed results from meta-analyses conducted in the reviewed studies. Meta-analyses provide a statistical procedure for combining the results of multiple studies and yield a statistical description of the overall effect of those studies. Overall, 12 reports provided some indication of pooled effect sizes. Table 1 lists the effect sizes for 11 of these reports that examine observed or self-reported behavioral outcomes. Results for one paper (Wei et al., 2011) were excluded because it pooled results for only two studies. The table is organized by the type of effect size used in different studies, starting with Cohen's d , then r , odds ratio (OR), and relative risk (RR). Cohen's d and r are typically used to assess continuous outcomes, while OR and RR evaluate dichotomous outcomes. Cohen's d is an effect size that is often used to indicate the standardized difference between two means, while r is described as a standardized measure of the strength and direction of a linear relationship, where zero indicates no relationship and 1 or -1 indicates a perfect relationship (McLeod, 2019). According to Cristiano Ialongo, the OR represents the likelihood that an event occurs because of a certain factor (in this case, exposure to a media campaign) against the probability that it arises just by chance (that is, when the factor is absent) (Ialongo, 2016). RR is the ratio of the risk of an event in two groups (Sistrom and Garvan, 2004).

Outcomes for all these measures could be labeled small, medium, or large.⁶ As seen, the outcomes all varied from what might be considered very small to small or medium.⁷

What does it mean to have a small effect size? First, it should be noted that even a small effect size is a real effect. Figure 1 depicts the kind of change in a target audience that is engendered by a small Cohen's d effect size of 0.2, roughly equivalent to other small effect sizes listed in Table 1. With an effect of this size, 58 percent of the exposed audience, as measured by behavioral or attitude change, will be above the mean of those in a control group. Another way of describing this is that there is a 56-percent chance that a person picked at random from the treatment group will have a higher score than a person picked at random from the

control group (Magnusson, undated). This is in contrast to, say, a medium effect size, in which 66 percent of the treatment group will be above the mean of the control group.

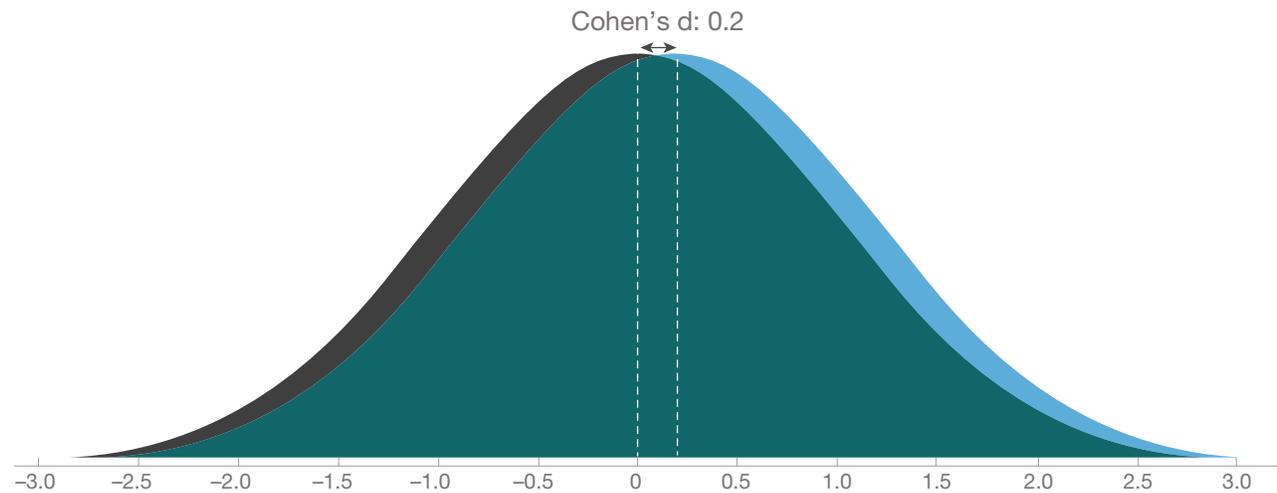
In layman's terms and to draw from Cohen himself, a small effect size is a *real effect* but one that is so small that observing it requires careful observation, while a medium effect size can be seen with the "naked eye" and a large effect size is easily observable (Cohen, 1988).⁸

As an example, consider a hypothetical stop-smoking campaign that reaches a population of 100,000 individuals, half of whom smoke cigarettes. A stop-smoking communication campaign that achieved a small effect size (e.g., RR of 1.22 or an OR of 1.28) would help 9,000 individuals quit smoking cigarettes, an 18-percent reduction in cigarette smoking. This would represent a real and beneficial outcome, although the outcome might not be obvious to a casual observer on the street. This type of effect can be observed in Figure 2.

The circles, in this analogy, represent current smokers and the squares nonsmokers. It is reduced in scale so that each circle or square represents 1,000 people out of a population of 100,000. Box A shows a 50/50 split between smokers and nonsmokers. Box B represents a change that would incur with a small effect size: There are 41 black squares and 59 blue circles. Box C shows the difference with a large effect size (e.g., RR of 1.66 or an OR of 4.82): There are 17 squares and 83 circles, an improvement that is visibly obvious.

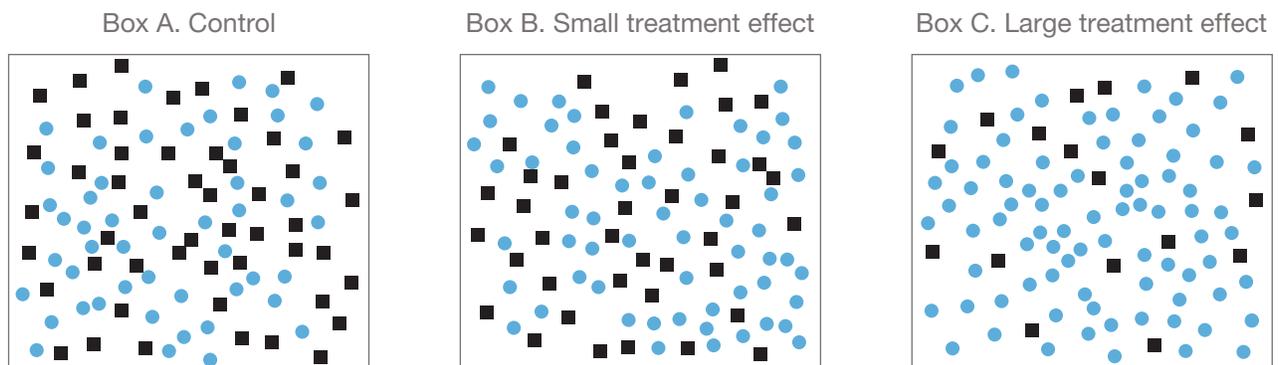
To illustrate the range of effect sizes found in the meta-analytic reviews, it is helpful to examine two particular studies. First, Babalola, Figueroa, and Krenn, 2017, conducted a meta-analysis of demographic and health surveys to assess the impacts of mass media campaigns promoting contraceptive use. In their assessment of 47 surveys, they found that 44 percent of women in sub-Saharan Africa were exposed to some type of family planning-related mass media intervention in the preceding year. They discovered an effect size OR of 1.93, which suggests that "exposure to communication programs on family planning through the mass media is associated with a 93 percent increase in the odds of contraceptive use compared to non-exposure" (p. 891). The authors note that this is

FIGURE 1
Visualization of a Small Effect Size



SOURCE: Magnusson, undated.

FIGURE 2
An Example of Small and Large Effect Sizes Using Dichotomous Treatment Outcomes



NOTE: In Box A, which represents a notional control group, there are 50 black squares and 50 blue circles. In Box B, which represents a small effect size (RR = 1.18 or OR = 1.43), there are 41 black squares and 59 blue circles. In Box C, which represents a large treatment effect (RR = 1.66 or OR = 4.82), there are 17 black squares and 83 blue circles.

comparable to a Cohen’s d of 0.36, which is between a small (0.2) and medium (0.5) effect size. In contrast, Anker et al., 2016, reviewed 63 studies across campaigns that sought to address such outcomes as safer sex practices, health screenings, and physical activity. For behavior change outcomes, they found a relatively small effect size of $r = 0.05$. Effect sizes measured by r cannot be expressed as a percentage increase or decrease (as is the case with ORs); however, it is possible to weight the effects. An r

value of 0.1 is considered a small effect size, on par with a Cohen’s d of 0.2. Still, the authors state that the findings support the conclusions that “health campaigns produce a consistent advantage over the absence of campaign messages” (p. 451).⁹ As noted in the implications section of this report, these small but meaningful effect sizes suggest the potential utility of national security–focused communication campaigns.

How Consistently Do Campaigns Produce Statistically Significant Effects?

Another question is how consistently communication campaigns produce effects. The appendix provides a summary of the ratio in each publication for total effective over total number of studies. These data are based on observations from the individual authors as to what studies were *effective* versus those that were not. Therefore, the definition of *effective* likely varies across studies. In addition, there is a bias in the scientific literature that disproportionately leaves unpublished those studies that fail to find statistically significant effects. This bias likely affects this literature. In addition, it is possible that communication campaigns that underwent scientific evaluation were not representative of the general body of communication campaigns, possibly because they were designed with the evaluation in mind or received greater levels of funding than typical communication campaigns.

We should note that the ability of a particular study to detect a statistically significant effect is influenced by several variables, including the design of the evaluation, the *dose* of the campaign as measured by the number and frequency of messages and the campaign's reach, and key barriers to campaign adoption that may be present for particular issues. In addition, various individual studies are cited as part of multiple review papers, and so there is surely double counting of individual campaign evaluations. However, it is clear from this exercise that some communication campaigns fail to engender detectable, statistically significant differences in audience KAB.

Firestone et al., 2017, provides an example that is more nuanced than most studies in that it categorized 125 global health campaigns according to positive, mixed, or no significant effects (in contrast to just categorizing *effective* versus *ineffective*). Focusing on analysis of behavioral outcomes in 108 studies, they found the following: 31 studies showed positive results; 60 showed mixed findings; and 17 showed no significant results. Overall, 86.7 percent of their studies showed positive or mixed effects.¹⁰

These percentages should be considered in light of the effect size references in Table 1. These effect

sizes combine both individual effective and ineffective studies alike and so provide an estimate of overall pooled effects. However, the findings of this section make clear that there is a degree of heterogeneity in the effectiveness of individual campaigns, with at least a quarter of studies not showing statistically significant effects. As we note in the conclusion, campaign planners will need to assess the impacts of communication campaigns to determine the effectiveness of any particular campaign.

What Makes Some Campaigns More Effective Than Others?

Not all communication campaigns achieve equivalent effects, and so it is prudent to ask what makes some campaigns more effective than others. One way to answer this question is to focus on the different types of campaign objectives. Snyder et al., 2004, analyzed the impacts of 48 communication campaigns, examining the relative impacts of different campaign objectives (e.g., smoking cessation, seat belt use, sexual health). There is substantial variability in terms of the effectiveness of different types of campaigns. For example, 17 anti-smoking studies achieved a very small effect size of $r = 0.05$, while five seat-belt campaigns achieved a pooled effect of $r = 0.15$. However, the authors could not find patterns that helped account for the various differences in outcomes.

Snyder et al., 2004, however, did observe an effect for enforcement messages. For instance, in one cited example, a seat-belt campaign promoted upcoming enforcement activities in the form of roadblocks to check adherence with seat-belt laws. In general, campaigns that included at least one enforcement message resulted in the most-robust campaign effects, an observation that could prove particularly useful to military planners. The authors found a mean change of 17 percent in populations performing the goal behavior among enforcement campaigns and 5 percent among nonenforcement adoption campaigns. This is in comparison with campaigns that did not include enforcement messages, which only produced changes of 3 to 5 percent. Other studies not reviewed in this report have substantiated the importance of

enforcement messages (see Wakefield, Loken, and Hornik, 2010, for a summary).

Other studies have examined the relative contributions of different components of communication campaigns. Many different components go into a single communication campaign. Table 2 lists the different components of social marketing campaigns. For example, campaigns should choose to focus on changing a clear and simple behavior, should develop audience insights using formative research, and should tailor content to unique audience segments or sub-populations. Unfortunately, not all campaigns employ such components, and so it raises the question of whether programs that employ certain components perform better than those that do not.

A few studies suggest that careful analysis of target audiences (i.e., formative research) is associated with successful communication campaign outcomes. Bates, 2010, and Brinn et al., 2010, for example, suggest that campaigns that carefully analyze audiences or target messages at specific audiences, respectively perform better. And Firestone et al., 2017, in a review of social marketing campaigns, concludes that “social marketing programs designed with a deeper understanding of the target audience’s motivations and fears were better equipped to influence the audience” (p. 117). However, Anker et al., 2016, found that campaigns that used formative research were actually less effective than those that did not.

In addition, several studies suggest that greater media mix, intensity, or duration can affect campaign success (Bates, 2010; Clement et al., 2013). In a systematic review of breast cancer screening campaigns, Adedoyin et al., 2016, found that 13 of 17 campaigns that were effective in improving cancer screening rates and knowledge incorporated three types of media channels: print, audio-visual, and channels with multiple media forms. The authors suggest that these findings were consistent with previous work (Champion et al., 2006; Wagner, 1998). A similar relationship has been found for anti-smoking campaigns (for a review, see Sowden, 1998).¹¹ Again, not all studies agree on the importance of media mix and intensity (Anker et al., 2016), although it would make sense that more media channels and more mes-

sages disseminated on those channels would extend the reach and hence effectiveness of the campaign.¹²

Unfortunately, the overall evidence base for the analysis examining the differential impacts of campaign components is weak. Only a handful of review papers examined the relationship between campaign topic or component and outcomes and often did so with only a small sample of individual studies. One of the most-rigorous studies, Anker et al., 2016, coded for the presence of various campaign components in their meta-analytic study of 63 health campaigns. The authors found that studies that used formative research were actually less effective than those that did not analyze target audiences but could not establish the positive impacts of media mix. However, these authors do not recommend that campaigns forgo audience research. Instead, the authors point to why assessing the impacts of individual campaign components is so difficult.

Ultimately, several issues make the analysis of such factors challenging. First, individual studies almost uniformly focus on a single communication campaign, which, in the words of Bertrand et al., 2006, makes “systematic comparisons” across campaigns impossible. And within these single campaign studies, it is not possible to disaggregate the effects of individual campaign components. In addition, meta-analytic studies that compare effect sizes of campaigns with different sets of features (e.g., presence versus absence of formative research) often suffer small sample sizes, a problem partly borne of the fact that many evaluations do not carefully specify the presence or absence of individual campaign components. As a result, recommendations about how to conduct an effective communication campaign often return to best practices summarized in Table 2.

Implications

Using the findings described earlier, we offer several implications that merit consideration by U.S. military planners, representatives of the PSYOP community, and other arms of the U.S. government charged with overseeing and designing communication campaigns.

TABLE 2
Seven Major Components of Social Marketing

Component	Description
Behavior change	Behavior change is used to design and evaluate interventions.
Audience research	Any campaign should involve three steps: (1) Assess the needs of the target group, (2) pretest the program materials and ideas, and (3) monitor the ongoing implementation of the program.
Segmentation	Careful segmentation of target audiences is recommended to ensure maximum efficiency and effectiveness in the use of scarce resources.
Exchange	The central element of any influence strategy is creating attractive and motivational exchanges with target audiences. Specifically, it is a strategy that seeks to attract and motivate the audience by offering <i>value</i> , where perceived benefits of engaging in the targeted behavior exceed the perceived costs. ^a
Marketing mix	Use the 4Ps of the traditional marketing mix. For example, social marketing is not just advertising or communications. That is, social marketing creates attractive benefit packages (product) while minimizing costs whenever possible (price), making the exchange convenient and easy (place), and communicating powerful messages through media relevant to—and preferred by—target audiences (promotion).
Competition	Attention is paid to the competition the desired behavior faces in planning and implementation.
Theory	Behavioral theories serve as valuable frameworks for the design and evaluation of social marketing interventions.

SOURCE: Adapted from Almeshhiri et al., 2017, p. 234.

NOTE: 4Ps = product, price, place, and promotion.

^a This is drawn from Almeshhiri et al., 2017, p. 241.

Communication Campaigns Are Generally Effective

This report summarizes effects of prior reviews and meta-analyses which show that public health communication campaigns are generally effective—although the effect sizes are often small—in changing the behavior or influencing knowledge and attitudes of target audiences. Indeed, the vast majority of the studies argue that there is sufficient evidence to support continued use of communication campaigns to change behavior. It is true that effect sizes remain relatively small. However, even small effects, exerted at scale over large populations, can prove meaningful in achieving an overall health campaign objective. To the extent that one agrees that public health campaigns can serve as a model for say, CVE campaigns or PSYOP series in support of U.S. military contingencies, it would behoove planners to develop and recommend communication campaigns in support of those objectives.

As noted in the introduction, there are, however, substantial differences between national security and public health communication campaigns. These differences include a high conflict setting, reduced

credibility for a U.S. military or government messenger, and the possibility that audiences may not perceive U.S. government campaigns as personally benefitting them. Because of these factors, it is conceivable that some types of U.S. government messaging efforts face inherent hurdles in achieving effects. For example, Grady, Iannantuoni, and Winters, 2021, suggests that campaigns do best when they urge audiences to adopt behaviors that the audiences themselves believe will help them achieve their goals. If true, PSYOP series that seek to motivate audiences to undertake personally advantageous behaviors, such as participating in humanitarian relief operations or following proper guidelines for approaching vehicle checkpoints, might theoretically achieve more success than those that promote behaviors for which there is less personal benefit (e.g., provision of intelligence). In addition, it is known that some campaigns that directly challenge the extreme opinions held by some audiences risk inflaming those opinions even further. This is referred to as the *backfire* or *boomerang effect* and is a problem observed in some CVE-related media campaigns (see Byrne and Hart, 2009, for a review of the backfire effect, or Paluck,

2010, for an example of a backfire effect observed in a CVE program).¹³ Hence, we do not suggest that all types of U.S. government communication campaigns are or can be equally effective. But communication campaigns or PSYOP series can serve as a useful and effective tool if they are administered with care.

The Effects of Communication Campaigns Are Relatively Small

Campaign planners should adopt a realistic expectation for what communications can achieve. It might be tempting for some to anticipate a wildly successful viral campaign or to believe that any particular campaign or PSYOP series will make vast inroads into some campaign objective. The evidence suggests that such major changes will be unlikely. Beyond the simple recommendation of setting expectations, this likely also means that planners should employ the full variety of policy tools available to address a particular problem. To take a tactical example, a PSYOP series can help educate populations about how to safely approach a U.S. military checkpoint. However, it would obviously be necessary to supplement this series with wise design of checkpoints that possibly includes clear and proper signage, consistent use of barriers, and established and consistently implemented rules of engagement. The PSYOP series might help audiences understand the reasons for checkpoints, the inherent risks in approaching a checkpoint, and proper driver behavior, but the effort will be ineffective if other necessary precautions are not taken.¹⁴

Evaluations of Communication Campaigns Are Critical

Planners must establish rigorous evaluations to accurately assess the effectiveness of communications. As noted, the effects of communication campaigns are relatively small. Such small effects will not be obvious. Naysayers, those who argue that a particular campaign is ineffective, and campaign proponents alike will need more than clear eyesight, gut reaction, or anecdote to prove their respective cases. Those touting success will be equally in need of evidence. Consequently, rigorous evaluations will be needed to

justify the conclusion of any assessment. Such evaluations should consider not only whether a campaign or PSYOP series produced statistically significant effects over a baseline or control group but also whether that series produced effects that were meaningful or helpful to campaign planners.¹⁵ Evaluations will also be critical because a percentage of the studies fail to show significant messaging-induced impacts. Planners will need evaluations to know whether a particular communication campaign or PSYOP series is effective or requires retooling, revision, or cancellation.

It will be important that planning for such evaluations start at the outset. As Christopher Paul and colleagues from RAND noted in their excellent guide to assessing DoD communication campaigns, “Assessment personnel need to be involved in planning to be able to point out when an objective or subordinate objective is or is not specified in a way that can be measured and to identify decisions or decision points that could be informed by assessment” (Paul et al., 2015, p. 6). Assessments also require some kind of baseline assessment of the target audience against which to evaluate change (Paul et al., 2015, p. 8). Consequently, planning for both the communication campaign and the evaluation should occur in tandem.

Follow Best Practices for Campaign Success

Because campaigns can have variable effects, it will be necessary for planners to ensure that executed campaigns follow best practices for campaign success (see, for example, GLAAD and Movement Advancement Project, 2008). Research investigating why some communication campaigns are more effective than others has yet to produce definitive answers. Therefore, it behooves media campaign planners to employ as many best-practice communication tools that time and budget allow. However, taking a cue from the available research, several practices might be particularly noteworthy.

First, communication specialists should conduct formative research that seeks to understand the perspective of target audiences. This includes identifying audience needs, wants, and barriers that prevent audiences from engaging in the behavior desired of the

campaign. Such findings should be incorporated into communication campaigns with messages designed to capitalize on audience perspectives and efforts undertaken to make engaging in the desired behavior as easy as possible. For example, a PSYOP series designed to promote the sharing of threat intelligence should ensure systems are in place so that audiences can easily share that information if they choose to do so.

Second, communication specialists should ensure that they employ a mix of communication modalities and reach a large share of the target audience because such efforts tend to enhance the success of communication campaigns. A PSYOP series, for example, designed to foment public antipathy for an insurgent or terrorist group should rely not only on paid social media posts but also on television advertisements, billboards, and word-of-mouth networks promoted by influencers. Ensuring multiple and varied communication channels increases the proportion of the populace that is exposed to a message and ensures that audiences are repeatedly exposed to the message, thereby increasing the potential for increased impact.

Third, campaigns should be accompanied by enforcement policies to the extent such enforcement policies are prudent and relevant. For example, a PSYOP series that seeks to reduce looting of the sort that took place after U.S. forces entered Baghdad in 2004 would obviously benefit from enforcement actions that lead to the arrest of looting suspects or fines. In this case, research suggests that messaging campaigns would benefit from publicizing such planned enforcement actions.

Next Steps

This report was intended as only a beginning in terms of understanding the lessons learned from established research on communication campaigns. Given limited resources, the report focused on reviewing published literature reviews and meta-analytic studies. However, there are inherent limitations in this type of review because the report can only highlight findings already synthesized by previous investigators. A more thorough approach would involve conducting a systematic review of individual research studies. This would

enable a more comprehensive coding of such outcomes as short- versus long-term outcomes, episodic versus ongoing behavioral objectives, and the differential effects of KAB outcomes.¹⁶

Researchers should also examine lessons learned from political campaign literature. Message campaigns designed to increase voter participation or advance the brand and reputation of individual political candidates would provide enormous value and may more closely mimic the types of adversarial challenges confronted in PSYOP or other national security communication campaigns. The study could also take advantage of campaigns, often conducted overseas, designed to reduce corruption, reduce intracommunal violence, or promote media literature, to name but a few.

Finally, the use of public health or even political behavior models for identifying implications for national security campaigns should not replace the need for conducting rigorous empirical investigations of PSYOP campaigns or campaigns conducted by the U.S. Department of State. DoD and State planners should routinely incorporate such assessments for planned campaigns. Of course, evaluations can be inherently challenging in insecure environments, but they are not impossible. Even in Afghanistan, researchers have been able to effectively conduct survey research or impact evaluations (Mercy Corps, 2015; Lyall, Blair, and Imai, 2013). If enough studies are ultimately conducted, it will be possible to incorporate the findings into meta-analytic studies or a systematic review, which will help offer more-broad-based conclusions regarding national security communication campaign effectiveness.

APPENDIX

Ratio of Studies Showing Statistical Significance

Table A.1 summarizes the ratio in each publication for total effective over total number of studies. These data are based on observations from the individual authors of each study about which studies were *effective* versus *ineffective*.

TABLE A.1
Ratio of Studies Showing Statistical Significance

Source	Communication Type	Audience	Dependent Measure	Ratio of All Studies Showing Statistical Significance
Adedoyin et al., 2016	Mixed	Western	Cancer screening and related knowledge	23/27
Almestahiri et al., 2017	Social marketing	Western	Tobacco cessation with mixed behavioral factors	6/14
Almosa, Parkinson, and Rundle-Thiele, 2017	Social marketing	Western	Littering reduction	14/16
Babalola, Figueroa, and Krenn, 2017	Mass media	Non-Western	Contraceptive use	36/47
Bertrand et al., 2006	Mass media	Non-Western	High-risk behaviors	6/8
Brinn et al., 2010	Mass media	Western	Smoking	3/7
Cugelman, Thelwall, and Dawes, 2011	Social marketing	Western	Health behavior change	26/29
Friedman et al., 2016	Mixed	Western	STD testing	3/7
Leavy et al., 2011	Mass media	Western	Physical activity	7/18
Lecouturier et al., 2010	Mass media	Western	Not applicable	Not applicable
MacDonald et al., 2013	Mass media	Western	Vaccination	7/12 ^a
McDaid et al., 2019	Mixed	Mixed	STD testing	14/19
Naugle and Hornik, 2014	Mass media	Mixed	Child survival	26/32
Noar et al., 2009	Mass media	Mixed	Safe sex behavior and intentions	8/10 ^b
Olawepo, Pharr, and Kachen, 2019	Social marketing	Mixed	HIV testing	5/12
Phillipson et al., 2016	Social marketing	Mixed	STD testing	15/18
Sawada et al., 2019	Social marketing	Western	Obesity	1/3
Sowden and Arblaster, 2000	Mass media	Western	Smoking	2/6
Sweat et al., 2012	Social marketing	Non-Western	Condom use	6/6
Vidanapathirana et al., 2005	Mass media	Western	HIV testing	14/14
Wei et al., 2011	Social marketing	Western	HIV testing	2/3
Werb et al., 2011	Mass media	Western	Mostly intention to use drugs	1/7 ^c and 2/4 ^d
Wilson et al., 2012	Mixed	Western	Reduced initiation of smoking	4/5
Yadav and Kobayashi, 2015	Mass media	Western	Drunk driving– and alcohol-related crashes	5/9 ^e

NOTE: Examples of Western audiences include those residing in the United States, Canada, Australia, New Zealand, and in such European countries as the Netherlands, United Kingdom, and Norway. Examples of non-Western audiences include those residing in Africa, Asia, and Latin America.

^a This is among high validity studies only.

^b This is among rigorous studies only.

^c This is for RCT studies only.

^d This is for observational studies only.

^e This is among studies not paired with law enforcement intervention.

Notes

¹ Beaghley et al., 2017, conducted a brief systematic review of CVE campaigns; however, only a small number of studies could be identified, and only a small subset of those involved a mass media component. Helmus and Klein, 2018, also reviewed published online CVE evaluations, but almost none of the analyzed studies actually examined how the campaign affected audience behavior or attitudes.

² A key foundation in scientific study is the need for replication. Any single study is an unreliable arbiter of truth because chance outcomes, poor research methods, or inaccurate data collection or analysis can introduce errors that mask a true outcome. Consequently, clinical practice or policies are best supported when multiple studies buttress and reinforce one another and when the body of scientific evidence weighs in favor of a particular outcome. This is the value of meta-analyses and systematic reviews. In a systematic review, researchers, using a structured approach, collect and analyze a particular body of research. Meta-analyses use a statistical procedure to quantify the overall effect of a body of research. Both methods provide a way of assessing the overall weight and direction of evidence for a scientific field of study.

³ Both public health and national security-focused campaigns seek to change target audience KAB. Campaigns are generally and primarily interested in changing behavior, but studies frequently also measure knowledge and attitudinal outcomes. Researchers analyze knowledge and attitudinal changes for several reasons. First, many campaigns employ a theory of change that expressly draws on knowledge and attitudinal changes. Planners of a stop-smoking campaign may believe that audiences will stop smoking if they (a) are aware of the dangers of smoking (a knowledge outcome) and (b) believe that they are at risk of experiencing such dangers (an attitudinal outcome). In gauging the effectiveness of the campaign, it would be important to assess whether the audience experienced such intended changes in knowledge and attitudes. It should, however, be recognized that attitudes are an imperfect predictor of behavior, and, thus, adopting campaign-intended attitude changes does not necessarily imply behavior change.

⁴ We searched PubMed, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Scopus, and Web of Science. Within these databases, we conducted the following search query focused on title, keyword and abstract content: (“social marketing” OR “mass media”) AND (“systematic review*” OR “meta-analysis” OR “meta-analysis” OR “meta-analyses” OR “meta analyses”). This yielded a total of 1,534 papers (with 574 duplicates removed across the different search engines). Given limitations in time, the research team decided that, among these 1,534 papers, the team would only include studies in which the searched terms could be found in the title of the report. This reduced the size of the sample of abstracts to review and hence the time needed to review the articles for inclusion. This resulted in a database of 530 articles. The team relied on various criteria to determine which studies were included in the analysis. Studies were only included in our analysis if they were a systematic review or meta-analysis of a set of mass media communication or social marketing campaigns. Studies were excluded if they were not peer-reviewed, existed only in abstract form, were not in English, and/or were difficult or costly to access. Lack of resources prevented our team from

reviewing journal articles published in languages other than English. This focus on English language scholarship raises the risk that our findings and conclusions will not adequately reflect the world of available research on communication campaign impact. Other studies that did include social marketing or mass media campaigns were excluded if such campaigns were only a small subset of the overall participating studies. Some studies, for example, focused primarily on other forms of interventions, such as office-based interventions, clinical treatment interventions, school prevention programs, etc. In several cases, articles included several different types of interventions and did not distinguish between intervention type in the results. These were excluded.

⁵ Qualifying studies included the following: Abioye, Hajifathalian, and Danaei, 2013; Adedoyin et al., 2016; Allara et al., 2015; Almestahiri et al., 2017; Almosa, Parkinson, and Rundle-Thiele, 2017; Anker et al., 2016; Babalola, Figueroa, and Krenn, 2017; Bates, 2010; Bertrand et al., 2006; Brinn et al., 2010; Brown et al., 2012; Clement et al., 2013; Cugelman, Thelwall, and Dawes, 2011; Elder et al., 2004; Firestone et al., 2017; Friedman et al., 2016; Green et al., 2019; Grilli, Ramsay, and Minozzi, 2002; Janssen et al., 2013; Kubacki and Szablewska, 2019; Leavy et al., 2011; Lecouturier et al., 2010; Lenters, Das, and Bhutta, 2013; Luca and Suggs, 2010; MacDonald et al., 2013; McDaid et al., 2019; Mosdøl et al., 2017; Naugle and Hornik, 2014; Noar et al., 2009; Olawepo, Pharr, and Kachen, 2019; Phillipson et al., 2016; Sawada et al., 2019; Snyder et al., 2004; Sowden and Arblaster, 2000; Sweat et al., 2012; Vidanapathirana et al., 2005; Wei et al., 2011; Werb et al., 2011; Wilson et al., 2012; Yadav and Kobayashi, 2015; Young et al., 2018.

⁶ For Cohen’s *d*, small, medium, and large effect sizes are considered 0.2, 0.5, and 0.8, respectively. For *r*, small, medium, and large are considered 0.1, 0.3, and 0.5, respectively. For OR, it is 1.68, 3.47, and 6.71, respectively (Chen, Cohen, and Chen, 2010), and for RR it is 1.22, 1.86, and 3.00, respectively (Olivier, May, and Bell, 2017).

⁷ Several factors might account for the differences in effect size seen across studies. Some types of outcomes might be easier to change than others, and a discussion of this is presented later in this report. In addition, the research methods used to study communication campaigns can vary. Some studies employ experimental designs to assess outcome. Many of these experimental designs systematically expose participants to media content and assess impact of that exposure in comparison with a control group. However, the process of systematic exposure means that participants typically get exposed to much more content than might be expected in the real world. Other studies use surveys to assess the impact of messaging in the real world. There are numerous ways such survey studies can be designed. Some studies only use post-messaging campaign surveys, others use pre-post survey tests, and still others use pre-post survey tests and also conduct surveys in a nonexposed control region. The rigor of the design improves with each of these options. The studies we reviewed for this report vary in terms of the requirements for rigorous research that they impose on their review collections, and this might also affect outcome.

⁸ Cohen himself offers an example. According to Cohen, the average difference in height between a 15- and a 16-year-old girl is half an inch and is an example of a small effect size. In

theory, it may not be easy for a casual observer to consistently and accurately discriminate between 15- and 16-year-olds using height information alone. A medium effect size of 0.5 is “large enough to be visible to the naked eye” and equates to the difference in height between 14- and 18-year-old girls, while an effect size of 0.8 is “grossly perceptible and therefore large” and corresponds to a difference in height between 13- and 18-year-old girls (Cohen, 1988).

⁹ Note that the authors also observed that $r = .10$ for knowledge outcomes and $r = 0.2$ for self-efficacy outcomes. Self-efficacy refers to the degree to which a respondent reports confidence in the ability to perform a particular task.

¹⁰ Note that the Firestone et al., 2017, article did not include antinicotine or drug use campaigns, which may have helped improve the overall findings.

¹¹ In their analysis of anti-mental health stigma campaigns, Clement et al., 2013, found that in a subgrouping of studies, multiple component interventions had higher median effect sizes than those with one mass media component (median standardized mean difference -0.049 versus -0.34). Bates, 2010, also suggests that “effective campaigns discussed in this section used a variety of messages and channels to persuade their target audiences” (p. 89).

¹² Snyder and Hamilton, 2002, in an analysis of data subsequently published in Snyder et al., 2004, documented that the reach of campaign messages was strongly correlated with the average effect size.

¹³ One example of a boomerang effect comes from a study by Paluck, 2010. She tested the impact of a talk show in the eastern Democratic Republic of the Congo that encouraged listeners to

“consider tolerant opinions and outgroup perspectives” (p. 1170). She found, however, that the talk show program led audiences to actually be more intolerant, less likely to aid disliked community members, and more mindful of grievances.

¹⁴ A good example of this process comes from an interview with then-BG Martin Dempsey, commander of the 1st Armored Division stationed in Baghdad during winter 2004. General Dempsey observed that Iraqi civilians were becoming angered by U.S. vehicle checkpoints whose poor layouts led to inadvertent civilian shootings. General Dempsey reviewed the problem and ordered that all checkpoints be constructed to specific guidelines (Helmus, Paul, and Glenn, 2007, p. 92).

¹⁵ For example, a campaign that produced significant effects may ultimately not be helpful if the changes induced failed to facilitate key campaign objectives. A PSYOP series could seek to promote the provision of a critical type of intelligence—for example, information on the location of a high-value target, such as a terrorist leader. The series could result in significantly more calls to an intelligence-collection hotline, but if that intelligence failed to promote actionable intelligence, it may have been a failure. Likewise, the series could be successful if it promoted actionable intelligence that led to the arrest of the high-value target but ultimately did not result in more intelligence reporting.

¹⁶ Wakefield, Loken, and Hornik, 2010, argues that campaigns can be more effective if they target one-off or episodic behavior (e.g., screening, vaccination, children’s aspirin use) rather than more-habitual behaviors involving exercise, food choice, or even addiction). However, it was unclear how this conclusion was reached using their review of investigations.

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About This Report

This report documents research and analysis conducted as part of a project entitled *Systematic Review of Public Health Communication Campaigns* sponsored by the U.S. Army. The purpose of the project was to conduct a systematic review of public health communication campaigns with the goal of informing the design and execution of future psychological operations' inform, influence, and persuade communication campaigns conducted in support of U.S. overseas contingency operations.

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