

## Mass Media for Public Health Messages: Reviews of the Evidence

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## **Scientific summary**

## **Background**

Mass media such as radio, television, newspapers and digital, social and mobile media, can be used to communicate public health messages at the population level, potentially reaching many more people than other interventions. Communication through mass media involves not just the receipt of information but also a two-way interactive process where change

occurs when people choose to engage with the public health messages they receive. Health © Queen's Printer and Controller of HMSO 2018. This work was produced by Stead *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health and Social Care. This 'first look' scientific summary may be freely reproduced for the purposes of private research and study and extracts may be included in professional journals provided that suitable acknowledgement is made and the reproduction is not associated with any form of advertising. Applications for commercial reproduction should be addressed to: NIHR Journals Library, National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park, Southampton SO16 7NS, UK.

behaviours including smoking, alcohol use, poor diet and lack of physical activity are the primary preventable causes of non-communicable diseases (NCDs) including cancer, coronary heart disease and stroke. Achieving changes in these behaviours and others is an important component of NCD prevention.

Previous research has shown that mass media communications can result in positive changes in health behaviours across a range of populations. However, effectiveness varies depending on the extent, focus, targeting, theoretical basis, content, source and duration of the campaign, and whether and how the campaign interacts with other interventions and policies.

There have been few attempts to synthesise evidence of the effectiveness of mass media campaigns across multiple health behaviours. An approach which examines intervention effectiveness across several health topic areas is able to offer a broad overview of evidence, and to bring attention to areas where no systematic reviews have been conducted. In addition, for those designing or commissioning mass media campaigns, reviews of the evidence can help to guide decision-making regarding in what contexts and for what behaviours mass media campaigns may be most useful.

## Objectives

The aim of the study was to provide the NHS, local authorities, government and other organisations with evidence on the effective use of mass media to communicate public health messages.

The eight objectives were to:

1. Assess the effectiveness of mass media campaigns to communicate public health messages.
2. Examine the components of messages that can be effectively communicated through mass media.

3. Explore how different types and forms of media campaigns can reach and be effective with different target populations (particularly disadvantaged groups).
4. Assess new or emerging evidence about campaigns that employ different forms of media.
5. Examine the relationship between local, regional and national campaigns and evidence of effectiveness where this exists.
6. Assess the extent to which mass media campaigns can interact with other interventions or services to improve health outcomes.
7. Explore the currency, utility and applicability of findings as they emerge with key stakeholders.
8. Identify key research gaps in relation to mass media campaigns to communicate public health messages.

## Methods

The study involved a series of reviews of existing literature on mass media for public health messages across six health topics which represent the main preventable risk factors for morbidity and mortality in developed countries: alcohol use, diet, illicit substance use, physical activity, sexual and reproductive health, and tobacco use. It involved five main elements:

- Development of a logic model
- Review of reviews (Review A)
- Review of primary studies examining alcohol mass media campaigns (Review B)
- Rapid review of cost-effectiveness evidence (Review C)
- Review of recent primary studies of mass media campaigns conducted in the UK (Review D).

We developed a logic model with two major components: actions (comprising the intervention inputs, activities and media outcomes); and changes (made up of proximal, intermediate and distal outcomes). We developed initial logic models for each of the topic areas before synthesising these into a common logic model. This model was then discussed with stakeholders and members of the public who helped us refine and develop it further.

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The resulting logic model informed the reviews by helping us to define inclusion and exclusion criteria, identify moderators and mediating factors, guide the search for evidence, and to reflect on and interpret the evidence.

We searched for systematic reviews of the evidence for the effectiveness of mass media for each of the health topics covered by our study (Review A). We reviewed evidence from English-language systematic reviews published between January 2000 and January 2016 on the effectiveness of mass media campaigns across these six health topics.

No systematic reviews specifically addressing alcohol use or diet met our inclusion criteria. As a result of this, we conducted a systematic review of English-language primary studies, published by July 2016, which assessed the impact of mass media campaigns to reduce alcohol consumption and related harms (Review B). On diet, we conducted a scoping review of primary studies but the volume of literature identified was extensive and beyond study time and resources. Our identification of the absence of a systematic review of mass media campaign on diet contributed to the discussion of future research priorities.

We also conducted a rapid review of mass media cost-effectiveness evidence (Review C). We reviewed systematic and non-systematic reviews, published between January 2000 and January 2017, which assessed economic studies that evaluated both the costs and benefits of mass media campaigns for any of our six health topics.

Finally we conducted a review of English-language primary studies of mass media campaigns targeting the six health topics carried out in the UK and published between January 2011 and September 2016 (Review D). This was conducted to provide additional evidence on campaign characteristics which might be associated with effectiveness which was directly relevant to the current or recent UK context.

## Results

Our results aimed to address the overall aim and objectives of the study and are grouped into five main headings:

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- the effectiveness and cost-effectiveness of mass media campaigns (Objective 1 and some aspects of Objective 6)
- the effectiveness of mass media campaigns with different target populations (Objective 3)
- the characteristics of mass media campaigns (Objectives 2, 4 and 5)
- responses of stakeholders to our findings (Objective 7)
- research gaps and implications for future research (Objective 8).

### **How effective are mass media campaigns?**

Review A identified 36 reviews, assessed together for the first time in our study. Overall we found that the evidence for the effectiveness of mass media for behaviour change is mixed. The amount of evidence varies across health topics, with most evidence relating to tobacco control campaigns followed by sexual health and physical activity campaigns. No reviews examined mass media campaigns addressing alcohol or diet, although evidence on these was found in reviews examining ‘mixed topics’ (more than one of our six topics). The strength of evidence from reviews also varies. We found moderate evidence for the positive effects of mass media campaigns on reducing sedentary behaviour and sexual health-related behaviours such as condom use. The impact of the mass media on tobacco use and physical activity, such as stair use and brisk walking, was mixed, but with some evidence in both cases. In contrast, the available and again low certainty evidence on illicit drugs, suggests no impact of mass media campaigns. There was very limited evidence for effects on diet.

Mass media campaigns may not be able to directly change behaviour in most instances, based on available evidence, but they can affect knowledge and awareness, which our logic model suggests may contribute to longer term outcomes. We found evidence of increased knowledge and awareness in relation to sexual health, physical activity and diet, and increased knowledge and awareness of tobacco risks and services to help quit. There were also positive impacts on intention to increase physical activity, and some evidence of positive impacts on intention to quit smoking. There was mixed evidence on intention to stop the use of illicit drugs, and to use contraception.

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Review A also identified ‘treatment seeking’ as a reported outcome and this is relevant to Objective 6, interaction with other interventions, as it involves a mass media campaign prompting contact with services that could support behaviour change. Here we found evidence that mass media campaigns can prompt calls to smoking quitlines, and may help increase the use of sexual health clinics.

Our findings suggested that the more complex the behaviour, the more difficult it may be for mass media campaigns to have an impact. Of the behaviours that were included in our review, stronger evidence of success in behaviour change was seen for sedentary behaviour and sexual health behaviour (eg. wearing a condom). However, some included reviews suggest that mass media as part of a comprehensive approach to addressing smoking, for example, are likely to be effective and at least one found evidence that tobacco control mass media campaigns may affect attitudes towards smoking and intentions to smoke in young people.

We conducted a new systematic review of alcohol mass media campaigns which included 24 studies (Review B). This found that mass media health campaigns about alcohol are often recalled by individuals and have achieved changes in knowledge, attitudes and beliefs about alcohol, but there was little evidence of reductions in alcohol consumption.

Review C, which assessed cost-effectiveness in 20 reviews, found moderate evidence that tobacco control mass media campaigns can be cost-effective. There was weak evidence in relation to diet – restricted to salt intake – and physical activity, and no evidence in relation to the cost-effectiveness of sexual health campaigns, despite efforts to identify such evidence within the reviews.

### **How effective are mass media campaigns with different target populations?**

The majority of the reviews included in Review A provided evidence on whether the effects of mass media campaigns were similar or different across sub-populations. We found that mass media campaigns may reach and affect groups in the population differently. Although age differences were not always measured, reviews of tobacco and illicit drug campaigns

found mass media appeared to be more effective for young people and particularly younger children than older teenagers. There was modest evidence that mass media outcomes for tobacco, sexual health and physical activity do not differ by gender and no clear consistent evidence was found for ethnicity or socio-economic status. When populations were categorised by baseline health behaviours, there was evidence that physical activity campaigns may be more effective for obese or less active people.

### **What characteristics of mass media campaigns are associated with effectiveness?**

We drew on both Review A and Review D, our review of recent (published 2011-2016) UK primary studies (23 studies), to address this question.

There was limited evidence on the contribution of mass media campaign characteristics to effectiveness, with only a small number of reviews and studies conducting statistical analyses to measure the impact of different characteristics. There was little evidence from either review regarding the role that theory or the media channel may play in campaign effectiveness. However, there was useful evidence on the duration/intensity of campaigns. Longer duration or greater intensity/exposure were found to be related to effectiveness in several reviews, with most of the evidence relating to tobacco and to a lesser extent sexual health campaigns. Although few reviews/studies specified how long or intense campaigns should be to produce effects, one review (USA/Canada) suggested that advertisements should be aired for a minimum of six months to affect awareness and up to 24 months to impact on behaviours, and as continuously as possible.

There was evidence from both reviews, and particularly from recent UK studies, that the content of messages may be important, with evidence that both positive and negative messages and social norms messages can affect smoking behaviour. There was also evidence that targeting can be effective, suggesting that messages need to be tailored to target audiences while avoiding patronising or stereotyping. There was very limited evidence on new media and how it relates to effectiveness.

### **How did stakeholders respond to our findings?**

We consulted with a range of stakeholders and the public during our study. Near the end of the study we convened a large stakeholder event with around 50 delegates from government, local authorities, the NHS, academia and the public. Delegates who were involved in designing or implementing public health mass media campaigns expected greater and more consistent evidence of effectiveness and cost-effectiveness. Their responses were helpful in reviewing our findings. This was particularly the case for tobacco control campaigns. These have a long history and relevant questions were posed regarding the grey literature, particularly on local and regional campaigns (which our study did not assess) and the relationship between wider tobacco control policies (i.e tax increases, smokefree legislation, advertising bans) which the identified literature did not explore in detail. However, participants welcomed our new systematic review of mass media campaigns on alcohol and some of our key findings relating to intensity/duration and target audience.

In addition, we discussed our findings in detail with two groups of young people attending a youth club in Edinburgh. This was particularly useful in terms of reflecting on their own experience of mass media campaigns. The young people engaged effectively with our logic model and discussed their recollection and engagement with recent public health mass media campaigns.

### **Research gaps and implications for future research**

We identified a range of research gaps and implications for research:

- The need for a systematic review of mass media campaigns addressing diet
- More rigorous evaluations of mass media campaigns including detailed information on the campaign and exposure.
- More evidence on cost-effectiveness, particularly on topics other than tobacco. Researchers should aim to include cost data and ideally assess cost-effectiveness in future studies.
- More reviews and primary studies which examine digital media, including comparisons with traditional media channels. The uncontrolled and co-created

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nature of some new media interventions pose particular evaluation challenges which will require the development of new methodologies.

- Better understanding of the specific contribution of mass media campaigns delivered as part of multi-component interventions, including those seeking to influence policy agendas.
- Research to examine how local, regional and national campaigns can work together effectively.

## Conclusions

This study brought together the evidence on mass media for public health messages, focusing on six of the main preventable risk factors for NCD, for the first time. Overall the evidence is mixed but suggests that: campaigns can reduce sedentary behaviour and improve sexual health; contribute to smoking cessation particularly through links to wider tobacco control interventions; campaigns can be cost-effective but the main available evidence is from tobacco control; campaigns that run for longer and are more intensive are likely to be more effective; targeting campaigns to particular population groups can be effective; the messages featured in campaigns can influence outcomes. However, considerable gaps remain in the evidence, particularly on new media, and mass media campaigns to promote healthy diets.

## Study registration

This study is registered as PROSPERO [CRD42015029205](https://doi.org/10.1136/2017.054999) and PROSPERO [CRD42017054999](https://doi.org/10.1136/2017.054999).

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