Mass media interventions

Key points

- **Studies have found that mass media interventions are effective in reducing partner numbers, but that their effect on condom use is varied. Mass media interventions have not been linked to decreases in pregnancy or HIV incidence.**
- **Mass media does contribute to increased HIV knowledge, especially with longer campaigns, and it can contribute to short-term reductions in HIV-related stigma.**
- **Mass media and social marketing campaigns can lead to short-term increases in HIV testing.**
- **Internet and digital media communications have been associated with delayed initiation of sex among youth, and with more open discussion of HIV status among gay men and other men who have sex with men.**

Since the 1980s, mass media-based campaigns have been an important part of HIV prevention *(108–111)*. At the beginning of the epidemic, some national campaigns were crucial to raising awareness of the issue and defining a dominant HIV and AIDS narrative. Examples of these include the Zero Grazing campaign in Uganda promoting abstinence and partner reduction and the Grim Reaper campaign in Australia, which used a fear-based approach for health promotion and HIV prevention messaging *(112, 113)*.

Mass media-delivered interventions can be defined as “an intervention message delivered in a natural setting through a mass media channel to which individuals may or may not attend (e.g., radio, television, newspaper, magazine, or mass distribution or mailing of printing materials)” *(114)*. Mass media channels can be used on their own or combined with personal sources of information (such as outreach workers and peer educators).

Mass media is seen as useful because it can access a wide community, repeat messages frequently and use different content formats. Mass media interventions usually address behaviour change communication, which often is theorized to affect psychosocial factors such as knowledge, attitudes, perceptions of social acceptability, and self-efficacy. Changes in these factors are believed to influence specific behaviours or practices, including condom use, delayed sexual debut and overlapping sexual partnerships. Some factors that might influence the effectiveness of mass media campaigns are how many channels or coordinated sets of communication activities or messages are used *(115, 116)*, and the duration and extent of exposure to the campaign *(114)*.

A review by Bekalu et al. of the literature from 2000 to 2010 on the use of mass media campaigns to advance both biomedical and behavioural approaches to HIV prevention in sub-Saharan Africa suggests that mass media is used primarily for behavioural interventions *(117)*. Biomedical or structural interventions rarely featured in the mass media approaches included in the review.

There are numerous methodological challenges to evaluating the effectiveness of behaviour change communication involving mass media *(118)*. Whereas randomized controlled trials are normally conducted with clearly delineated groups of people, mass media campaigns aim to maximize spread and saturation within a population, potentially making it impossible to identify control communities that have not been exposed to a particular campaign. While researchers often rely on comparisons of behavioural surveys before and after implementation of a campaign—or they compare people who remember seeing a campaign with people who do not—these methods are subject to bias.

Despite these evaluation challenges, it is worthwhile to evaluate mass media efforts and their effects on HIV-related behaviour, attitudes and beliefs because of their potential cost-effectiveness, ability to reach vast numbers of people and widespread utility in prevention efforts *(119, 120)*. This section will review the effects of mass media on various HIV prevention-related outcomes, including sexual behaviour, knowledge, stigma and HIV testing. It also will explore the effectiveness of new and digital media.

The effect of mass media on sexual behaviour

What does the evidence say about the effect of mass media on sexual behaviour?

- It has varied effects on condom use.
- There has been a reduction in sexual partners in some contexts, but not in others.
- There are no effects on HIV or pregnancy incidence.

Varied effects on condom use

Three systematic reviews of condom use as an outcome of mass media have been published. The first, by Noar et al. in 2009, was based on evaluations of 34 diverse HIV-related mass communication campaigns in 23 countries between 1998 and 2007 (116). The review then compared these findings to a similar review of campaigns conducted earlier (from 1986 to 1998). Most campaigns included radio and printed material, but approaches varied, with some also using community outreach, peer education and television. Of 10 quasi-experimental evaluations included in the review, eight found that the campaign had a statistically significant impact on self-reported behaviour or behavioural intentions—a lower-level outcome. Five of the 10 studies reported increased condom use (121–125). None of the evaluations assessed biological outcomes.

A second systematic review, by Bertrand et al. in 2006, limited its focus to mass media campaigns in developing country settings (the Caribbean and Latin America, central Africa, South and East Africa, and South-East Asia) between 1990 and 2004 (110). The 24 interventions identified focused on changing HIV-related knowledge, attitudes and behaviours, and they yielded varied results. The authors reported that most of the outcomes examined had no statistically significant impact. Among those studies that did produce statistically significant results, the effect sizes were typically small to moderate. Seventeen of the 24 studies evaluated condom use; three of these (121, 123, 124) are also included in the Noar et al. review (116).

Some campaigns used television, radio and small media (including brochures and leaflets). There were varied outcomes to these approaches. Some studies showed no effect; for example, Schopper et al. reported no significant increase in condom use in Uganda after community education and a pamphlet campaign (126). However, Bertrand et al. also report a Columbia-based study that showed “ever use of condoms” and “use of condoms in the past year” both rose after a radio advertising campaign (from 25% to 34% and from 8% to 12%, respectively) (127). No statistically significant effects on HIV or pregnancy were found.

The third systematic review and meta-analysis, conducted in 2014 by LaCroix et al., investigated the effectiveness of mass media campaigns in preventing HIV (114). It included 54 reports (including unpublished ones) evaluating 72 interventions, mainly on condom use and knowledge of transmission and prevention. Studies were based in many regions: the greatest concentration was in Africa (27 countries), with nine studies in Asia, six studies each in Europe and the United States, five studies in South and central America and one in Australia. The most frequently reported outcome variable was condom use (i.e., frequency and proportion of protected sex). When the results were averaged, the authors concluded that

the increased condom use was greater when: (a) longer campaigns were run; (b) message content reportedly matched the target audience; (c) refusal rates were low; and (d) the nation in which the campaign occurred scored lower on the Human Development Index (114).

Overall, LaCroix et al. found that longer campaigns were associated with statistically significant but small increases in condom use [d + 0.25; 95% CI: 0.18–0.21] (114).[1] For example, a study by Vaughan et al.—which was included in all three systematic reviews discussed here (110, 114, 116)—investigated the effects that the long-running entertainment radio soap opera, Twende na Wakati (Let's Go with the Times), had on knowledge, attitudes and adoption of HIV prevention practices in the United Republic of Tanzania from mid-1993 through 1997 (123). The programme's characters were intended to provide positive, negative and transitional role models in terms of their HIV prevention behaviours; their conversations about HIV were intended to stimulate interpersonal communication about the topic. The conversations focused on four key HIV prevention themes: medical treatment of STIs, condom use, HIV transmission knowledge and false rumours about HIV and AIDS. Broadcast of the programme was delayed in one region of the country to allow for evaluation by the researchers. Yearly household surveys suggested that condom use increased, but that it remained relatively low at 16% in the treatment area (against 13% in control sites) (123).

Another study included in LaCroix's systematic review was conducted in Sierra Leone by the American Refugee Committee International (127). It investigated knowledge, attitudes and practice related to HIV, AIDS and STIs in Port Loco, Sierra Leone, following a mass media campaign. The study—based on 956 interviews with military, sex workers, youth and ex-combatants—reported that condom use among all groups increased significantly (from 26% to 53%). For military and sex workers, even greater increases were reported (68% use at last sexual intercourse, with 82% reporting having ever used a condom). This study and the Vaughn et al. study of mass media in the United Republic of Tanzania yielded the largest standardized mean differences in condom use of all the studies included in this meta-analysis (123, 128). For all the other studies, however, the standardized mean differences were more modest or negligible. This suggests that a majority of mass media programmes may have a negligible, limited or moderate effect on condom use.

LaCroix et al. identified three major limitations in the mass media studies included in their review (114). First, many of the studies focused on short-term effects of the interventions, so it might be difficult to gauge what the long-term effects would be. Second, many studies used multiple communication channels, making it difficult to determine the effects of individual interventions and assess which channels were more effective. Finally, the most problematic issue was the evaluation of these interventions: 89% of studies (64 out of 72) did not have a comparison group of any kind.

Reduction in sexual partners

In addition to reporting an increase in condom use among the audience of Twende na Wakati, Vaughan et al. reported on a household survey that asked about sexual partner numbers. The study reported significant reductions: respondents who had adopted any HIV prevention method reported reducing their number of sexual partners *(123)*. The decline from 1993 to 1995 was greater in the treatment arm (0.7 partners) than in the comparison arm (0.3 partners), which was statistically significant.

[1] Cohen's d is a statistical effect size to quantify the magnitude of a phenomenon. Cohen's d of 0.20<d>0.50 indicates small effect size.

The multimedia One Love campaign in southern Africa was designed with the aim of reducing multiple and concurrent sexual partnerships. The campaign included a mix of television, radio, print and interpersonal communications in nine southern African countries. An interim evaluation of the campaign suggested that the campaign was associated with increased knowledge of partner reduction among men and women aged 16 to 55 years, decreased likelihood of increased numbers of partners among single women (compared to the preceding year) and reduced reports of transactional sex between men *(129)*. Effects on other multiple partnership behaviours were not consistent, but the campaign was associated with an increase in condom use overall.

These results suggest that mass media programmes about multiple partnerships may have a dual role in HIV prevention in specific contexts, specifically settings with high HIV prevalence, high levels of multiple partnerships and gaps in personalized risk perception. Such programmes can increase risk perception of multiple partnerships, thereby influencing various HIV-related outcomes (such as use of condoms or HTS). In specific contexts, they can also directly change multiple partnership behaviours *(130, 131)*.

Young women more likely to say “no” to sex, and sexually active young people more likely to stay with one partner

Also included in the LaCroix et al. systematic review was a multichannel campaign for young people in Zimbabwe that was based on the Steps to Behaviour Change framework *(121).* The framework describes five stages through which people pass as they change their behaviour — knowledge, approval, intention, practice and advocacy—and it suggests that communication campaigns should identify the stage that their audience is at and focus activities accordingly.

In the case of young people aged 10 to 24 years in Zimbabwe, this was determined to be knowledge (understanding their own vulnerability to HIV infection and developing sexual negotiation skills) and approval of behaviour change (discussing sexual matters with family and peers). The campaign encouraged abstinence, reductions in partner numbers and condom use. Its slogans were “have self-control,” “value your body” and “respect yourself.” The campaign employed posters, leaflets, peer educators and a telephone hotline, as well as community events, radio programmes and theatre shows that inserted educational content into entertainment media *(121)*.

The campaign’s impact was assessed through behaviours self-reported by young people during household surveys before and after the campaign, both in five communities where the campaign was conducted and two where it was not. There were few changes in knowledge or beliefs about gender roles, but young people in campaign areas were more likely than those living in non-campaign areas to discuss sexual issues with others (OR = 5.6; $P < 0.001$), seek health services (OR = 7.6; $P < 0.001$), say “no” to sex (OR = 2.5; $P < 0.001$) or (among those with sexual experience) report sticking to one sexual partner (OR = 26.1; $P < 0.001$) *(121)*.

The effect of mass media on knowledge related to HIV transmission and HIV prevention

What does the evidence say about the effect of mass media on transmission and prevention knowledge?

- It increases in HIV transmission knowledge, especially in countries in Asia and countries that score lower on the Human Development Index.
- Longer campaigns result in larger increases in prevention knowledge.

There is consensus that disseminating knowledge is only one step in increasing uptake of HIV prevention services or adoption of safer sexual behaviours, and that it is insufficient on its own.

Increase in HIV transmission and prevention knowledge

In the systematic review by LaCroix et al., secondary outcomes were also examined (114). These included accuracy of HIV transmission knowledge (e.g., HIV is not transmitted through a mosquito) and HIV prevention knowledge (e.g., condoms prevent sexual transmission of HIV). Increases in HIV transmission and prevention knowledge were largest in countries in Asia, while a statistically significant but small increase in transmission knowledge (d + = 0.30; 95% CI: 0.18–0.41) was larger in settings that score lower on the Human Development Index and among respondents reporting greater exposure to the campaign. Increases in condom use (d + = 0.25, 95% CI: 0.18–0.21) and prevention knowledge (d + = 0.39; 95% CI: 0.25–0.52) were larger for longer campaigns.

For example, Sood et al. conducted a longitudinal study from 2001 to 2003 in three northern Indian states (Delhi, Rajasthan and Uttar Pradesh) (132). The study measured improved knowledge about (and interpersonal communication on) HIV and AIDS, based on exposure to a mass media entertainment–education campaign, including television shows and radio spots.

By the end of the campaign, respondents exposed to the campaign had higher knowledge about STIs, HIV and AIDS than people who had not been exposed to the campaign. For instance, awareness of HIV and AIDS rose from 78% (in November 2001) to 99% in July 2003 (P < 0.01). Knowledge about the routes of HIV transmission was significantly higher among individuals exposed to the campaign (96%) than those who were not exposed (approximately 68%), a statistically significant difference (P < 0.01). There was limited evidence with regard to the campaign's effect on changes in condom-use behaviours (132).

Another study included in the LaCroix et al. review evaluated a web-based intervention for improving HIV- and AIDS-related knowledge in three counties in rural Yunnan, China (Dayao, Mouding and Nanhua) (132). Villages and schools in Nanhua received computers and logistical support, villages and schools in Mouding received intervention messages without the additional support, and Dayao functioned as a control county. The campaign's website included information on STIs and HIV and AIDS and was designed to meet the needs of the rural participants.
The effects of the campaign on knowledge were mixed. Nanhua showed significantly greater knowledge increases for most areas investigated than did Mouding and Dayao (*P* < 0.0001

and $P < 0.0008$, respectively). Correspondingly, at the one-year follow-up, students in Nanhua also showed the most significant mean increase in knowledge measured by a mean score (21.5%, $P < 0.01$) compared to the other two counties *(133)*.

Overall, available data suggest that mass media campaigns have an effect on HIV prevention-related knowledge, and that they remain relevant strategies for rapidly increasing knowledge in settings where large knowledge gaps about HIV prevention continue to exist.

The effect of mass media on stigma

What does the evidence say about the effect of mass media on stigma?

- It results in short-term reductions in stigma.

Few articles address the effect of mass media on stigma. Bekalu et al. analysed cross-sectional data pooled from the 2006 to 2011 DHS in 11 sub-Saharan African countries covering a study population of n = 204 343 to investigate the moderating effects of exposure to mass media on HIV-related stigma *(134)*. Respondents were asked about their media use, and their attitudes towards people living with HIV were assessed through the following questions:

- If they would care for a relative who has AIDS in their own households.
- If they would want to keep a family member's HIV-positive status secret.
- If they would be willing to buy fresh vegetables from a market vendor who is HIV-positive.
- If they thought a female teacher who is HIV-positive but not sick with AIDS should be allowed to keep teaching.

The results suggest that while there is variation within countries, stigma appeared to be stronger in western and central African countries (Benin, Democratic Republic of the Congo, Mali, Niger, Nigeria and Sierra Leone) and less pronounced in eastern and southern African countries (Eswatini, Ethiopia, Lesotho, Uganda and Zambia). HIV-related stigma tends to be higher among people with low educational attainment ($P < 0.001$), rural residents ($P < 0.001$), people who have low levels of HIV knowledge ($P < 0.001$) and people who do not personally know a person living with HIV ($P < 0.001$). Media use was independently associated with reduced stigma. The results are consistent with other studies where HIV-related outcomes (such as HIV knowledge) are positively associated with the socioeconomic status of people in sub-Saharan Africa.

Kerr et al. tried to report the effectiveness of a behavioural HIV risk reduction strategy (the Focus on Youth programme) or a general health curriculum (the Promoting Health among Teens programme) in addressing stigma *(135)*. While the Focus on Youth programme promoted risk reduction through increased HIV prevention, transmission knowledge and skill development in order to reduce risk behaviours, the Promoting Health among Teens programme focused on cardiovascular and cancer risk reduction through dietary adjustments, physical activity and substance use behaviours. In total, 1613 African-American adolescents from four cities participated in a randomized controlled trial, whereby two of the four cities received culturally-tailored TV- and radio-based media interventions. Study participants were either randomized to the Focus on Youth programme or to the Promoting Health among Teens programme, and depending on their location, they either received the media intervention or did not. The measure for stigma was associated with several stigma beliefs (e.g., people who have HIV should be ashamed or people who have HIV are dirty). The scale had six response options, ranging from 1 (strongly disagree) to 6 (strongly agree).

Focus on Youth media participants had lower stigma than Promoting Health among Teens participants after baseline for all follow-up intervals at three, six and 12 months. Focus on

Youth programme participants in media cities had lower stigma scores at three months ($P < 0.05$) and 12 months ($P < 0.10$). The report seems to show that the mass media intervention had a modest benefit in addressing stigma among adolescents in the short term, but that it was no longer statistically significant after a year. The authors point out that stigma scores were statistically similar at baseline, but that participants in non-media cities demonstrated greater stigma at the three-month evaluation, and that the differences diminished at the six-month evaluation. In other words, the study seems to show that media facilitated short-term effects in stigma reduction, but that it did not maintain these effects for longer periods of time *(135)*.

The effect of mass media on HIV testing

What does the evidence say about the effect of mass media on HIV testing?

- It has short-term effects that result in increases in HIV testing.

Moderate increase in HIV testing

One review examining the use of mass media interventions for promoting HIV testing included two randomized controlled trials, three non-randomized controlled trials and nine interrupted time series *(136)*. The study suggested that short-term effects (estimated mean = 5.487; 95% CI: 2.370–8.605) were possible, but that no long-term effects were seen (95% CI: -0.188–9.082).

Increases in HIV testing among gay men and other men who have sex with men

An exploratory review of HIV prevention mass media campaigns focusing on gay men and other men who have sex with men found 16 reports from 12 studies *(137)*. All studies were from high-income countries, and most examined multimedia interventions.

HIV testing rates or intention to test were reported by six studies *(138–143)*. One study examined Gimme 5 Minutes, a multimedia HIV testing campaign aimed at increasing uptake of HIV testing among specific groups of gay men and other men who have sex with men in London through the use of peer images *(141).* The study compared control clinics to intervention clinics through a 12-week campaign using full-page advertisements in a free tabloid newspaper widely distributed to gay-friendly venues in London.

Overall, it reported a 4.5-fold overall increase ($P < 0.003$) in gay men and other men who have sex with men who tested at the campaign clinics. Increases were proportionately greater in the specific subpopulations that were the focus of the study: testing increased 14 fold among men of south European origin ($P < 0.001$), 6.5 fold among black men ($P = 0.003$) and 9.5 fold among men under the age of 25 ($P < 0.001$). These findings suggest that gay men and other men who have sex with men respond most strongly to images of people chosen to represent their demographic background.

Including detailed information about means to access HTS may contribute to the success of mass media interventions that focus on HIV testing.

The effect of social marketing using mass media communications

What does the evidence say about social marketing?

- It has a short-term effect on increased condom use.
- It leads to a short-term increase in HIV testing among gay men and other men who have sex with men.
- There is no increase in STI testing.

Short-term effect on increased condom use

Advertising and promotional campaigns are key aspects of the social marketing of male condoms, female condoms, HTS and VMMC. Social marketing applies commercial marketing principles to achieve behavioural goals for a social good. By doing so, it aims to increase demand for a product while simultaneously ensuring that it is more affordable and readily available, with the result that the product is used more frequently and has an impact on HIV infection and other health outcomes. Moreover, communication used to raise awareness of a product as part of social marketing may also raise awareness of its health benefits and promote behaviour change.

There is a lack of reliable evidence on the impact of social marketing on HIV-related behaviour. A meta-analysis of condom social marketing in developing countries could not identify any randomized controlled trials; it only included six studies conducted between 1990 and 2010 *(98)*. The six interventions—one in India and five in sub-Saharan Africa—focused on groups that included sex work clients, urban youth, male miners and the general population. Similar in design, all six interventions were sponsored by Population Services International, a leading condom social marketer, which implies that this evidence primarily reflects research from one implementer.

In these social marketing campaigns, mass media was used extensively, often supplemented with community-based outreach efforts such as peer education and promotional events. A meta-analysis showed that individuals exposed to condom social marketing were approximately twice as likely to use a condom as those who were not exposed. The effect on condom use was moderately greater for sex with casual partners *(98)*. Similarly, a meta-analysis of 47 DHS conducted between 2005 and 2015 found an association between mass media communication and contraceptive use in 31 sub-Saharan African countries. The pooled effect indicated that across countries and surveys, exposure to communication programmes on family planning through mass media was associated with a 93% (OR = 1.93; 95% CI: 1.75–2.14) increase in the odds of contraceptive use compared to non-exposure *(99)*.

No quality evidence on social marketing of voluntary medical male circumcision

Social marketing also has been used for VMMC, but no data on effective approaches are yet available. Given the different motivators and barriers to the uptake of circumcision in different demographic groups, demand creation messages and approaches to stimulate demand must

be tailored to each setting *(144)*. Interventions need to appeal to young men (aged 15 to 29 years) who are at greatest risk of infection or who will soon age into the years with greatest risk of infection in countries with high HIV prevalence and low rates of male circumcision. In the absence of empirical data, however, some authors suggest that social marketing of VMMC should include messages that go beyond HIV prevention: for instance, they could address the hygiene benefits of VMMC, emphasize its modernity or highlight the preferences of sexual partners for circumcised men *(144)*.

Short-term effect on increased HIV testing among gay men and other men who have sex with men

A review assessing the impact of social marketing interventions on the uptake of HIV and STI testing among gay men and other men who have sex with men and transgender women found three serial, cross-sectional pretest/post-test study designs *(145)*: one with a control group *(141)* and two without *(146, 147)*. The reviewed interventions used multiple communication channels (e.g., television, radio and print material).

The primary outcome measure was HIV infection; secondary outcome measures were STI infection and quality of life. No studies were from developing countries. All studies employed weak designs, resulting in low quality and high risk of bias. The most rigorous study included a control group and concluded that social marketing had increased the HIV testing uptake among gay men and other men who have sex with men by 4.5 fold ($P < 0.001$) *(141)*. Statistical pooling of the results presented in two studies indicated that multimedia social marketing campaigns had a significant impact on HIV testing uptake when compared to preintervention testing levels (OR = 1.58; 95% CI: 1.40–1.77) *(141, 145, 146)*.

The effect of Internet-based and digital media interventions

What does the evidence say about the effect of Internet-based and digital media interventions?

- They result in delayed initiation of sex for youth.
- They lead to more open discussion of HIV status among gay men and other men who have sex with men.

Interest in the opportunities offered by new information technologies grows yearly. Social and behaviour change communication can take advantage of new delivery strategies, and it may be delivered electronically through a number of means:

- Online videos, quizzes, exercises and games.
- Interventions in chat rooms and on social networking websites (including Facebook and Twitter).
- Text messaging systems.

These delivery strategies may be particularly attractive to younger audiences, who often are the groups most in need of information and persuasion for HIV prevention.

While social media and other web-based technologies have transformed the way that people interact with media, the studies currently available do not yet allow for the systematic assessment of innovative uses of new media for HIV prevention. Websites and phone applications that connect people who share interests into social networks may offer great potential, but there is little evidence of their effectiveness. For example, although websites used by gay men and other men who have sex with men to meet sexual partners often are used by outreach workers to make contact and offer one-on-one advice (including in developing countries), there is little evidence of the use of these media to deliver highly focused behaviour change communication.

Delayed initiation of sex for youth

The increase in adolescents using the Internet, text messaging and social networking sites for communication offers a new way for health education and promotion practitioners to expand their programmes. Guse et al. summarized evidence from 10 articles on the effectiveness of new digital media-based sexual health interventions (e.g., web-based interventions, text messaging and social networking) for adolescents aged 13 to 24 years *(148)*.

One study in the United States showed significant impact on the delayed initiation of sex, with 10 urban Texas high schools randomly assigned to the control or experimental condition *(149)*. The intervention integrated group-based classroom activity with personal journaling and computer- and Internet-based interventions for pregnancy, STIs and HIV prevention. It found that students in the experimental school were less likely to initiate sexual activity between pretest and post-test, and that students in the control school were nearly 1.29 times more likely to initiate sexual activity than were students exposed to the intervention (absolute risk reduction [ARR] = 1.29; 95% CI: 1.02–1.64; $P < 0.05$) *(149)*.

More open discussion of HIV status among gay men and other men who have sex with men

A systematic review described 13 interventions using eHealth interventions for HIV prevention in gay men and other men who have sex with men engaging in high-risk behaviours *(150)*. Interventions included web-based education modules, text messaging, short message services (SMS), chat rooms and social networking.

In one study in the United States, 3092 men who had responded to online advertising were randomized to: (a) watch a nine-minute video drama about sexual risks; (b) watch a five-minute factual video; (c) read a web page on prevention topics; or (d) receive no intervention *(151)*. At a two-month follow-up—which was completed by 53% of the participants—men in the video conditions but not in the web page condition were significantly more likely to have fully disclosed their serostatus to their last sexual partner than were men in the control condition (OR = 1.32; 95% CI: 1.01–1.74). HIV-negative men in the video conditions (OR = 0.70; 95% CI: 0.54–0.91) and the web page condition (OR = 0.43; 95% CI: 0.25–0.72) also reported significantly reduced unprotected anal intercourse at two-month follow-up.

Operational considerations

While the social marketing of condoms and other commodities has sometimes applied audience segmentation, most mass media campaigns conducted in developing countries have focused on members of the general public, or more narrowly on young people, but not on other populations at high risk of HIV infection. Political opposition and cultural sensitivities have frequently hindered the implementation of behaviour change communication that frankly addresses sexuality or is pitched to key populations.

Social and behaviour change communication using mass media can communicate with large audiences at a low cost per person reached. It has proven effective in terms of raising awareness and improving basic knowledge—and, to some degree, in increasing protective behaviours—but it does not seem to achieve more complex outcomes, such as developing interpersonal skills. Most studies represented here yielded mixed results in terms of the effectiveness of mass media campaigns to change HIV-related behaviours. The systematic reviews by Bertrand et al. and Noar et al. reported statistical significance, but effect sizes were small to moderate and study designs were weak *(110, 116)*. However, the review by LaCroix et al., which evaluated 54 reports with 72 evaluations, showed campaigns associated with increases in condom use and knowledge of HIV transmission and prevention *(115)*. These findings suggest that mass media could be more effective with longer campaigns that occur in places that have greater need.

More research—including on evaluation of media and communication campaigns—is needed to detect their full effects on HIV preventive behaviour, especially protective skills. In addition, as the emphasis of HIV efforts shifts to treatment and biomedical prevention, the potential role of mass media may be overlooked. An informed and aware population, however, is essential for the uptake and adherent use of these new approaches. Based on these approaches, mass media may have an important but as yet unappreciated role to play in creating the conditions for successful HIV campaigns.

Conclusion: mass media interventions

Documented effects of mass media interventions to prevent new HIV infections vary. To date, no evidence exists indicating reduced HIV incidence following exposure to mass media interventions. While they play a role in increasing knowledge of HIV prevention, such interventions only have a short-term effect on eliminating HIV-related stigma and increasing HIV testing. The effect on condom use varies, with longer campaigns indicating more promising results. Advertising and promotional campaigns may contribute to increased HIV testing uptake and condom use in the short-term, yet reliable evidence on the impact of social marketing is currently limited. Some reductions in the number of sexual partners are documented, particularly in high-prevalence settings, but it is not clear how long such reductions would be sustained. Use of new media (such as Internet and digital communication channels) suggests a delay of sexual debut among youth and more open discussions of HIV status among gay men and other men who have sex with men. Overall, the effectiveness of mass media interventions on HIV prevention behaviour remains difficult to measure given multiple communication channels used in the interventions, challenges in evaluating their individual effects and other methodological limitations in study designs used to date.

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