

ARTICLE

# The persuasive effects of narrative entertainment: a meta-analysis of recent experiments

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## Abstract

Is narrative entertainment simply a form of recreation, or does it have meaningful effects on public opinion? Building on prior reviews, we present a meta-analysis of 377 findings from 77 experiments evaluating the persuasive effects of narrative radio, television and film, including a growing body of work from low- and middle-income countries. Our sample includes both entertainment-first narratives – popular media created primarily to entertain but which may incidentally shape audiences' attitudes, beliefs and behaviors – and education-first narratives designed by policymakers to inform, persuade or motivate public action. Using a hierarchical-effects model, we assess narrative media's influence across a wide range of settings and issue domains. The results suggest that narrative entertainment is quite influential, with sizable persuasive effects that remain apparent weeks after initial exposure. A smaller literature reports head-to-head tests of the relative effectiveness of narrative vs non-narrative messages; although inconclusive, the evidence suggests that narratives may be only slightly more persuasive than non-narrative messages. If true, this finding would imply that the main advantage of narratives may be their ability to attract and engage large and diverse audiences. We conclude by calling attention to gaps in the literature and proposing avenues for further research.

**Keywords:** edutainment; media; meta-analysis; narrative persuasion

Whether exposure to mass media shapes an audience's beliefs, attitudes and behaviors is a long-standing question in the social sciences. The extant literature has tended to focus on overtly persuasive or didactic forms of communication such as political advertisements and news media, but a growing body of work has considered the

persuasive potential of narrative entertainment.<sup>1</sup> Globally, narrative films, television series, radio serials and podcasts are a major part – often *the* major part – of audiences' media diets (Lee *et al.*, 2025). Sensing that narratives influence what audiences think and do, practitioners in the fields of international development and public health have increasingly incorporated the principles of entertainment-education ('edutainment') into behavior change campaigns. Examples of recent edutainment interventions include feature films to inform people about their rights under anti-poverty programs in India (Ravallion *et al.*, 2015), radio dramas to facilitate ethnic reconciliation in post-conflict Rwanda (Paluck and Green, 2009), TV shows to reduce HIV/AIDS stigma in Nigeria (Banerjee *et al.*, 2019) and videos to promote tolerance toward immigrants in Colombia (Bandiera *et al.*, 2024). Whether and under what conditions these interventions are effective are questions of great importance for policy makers, especially in settings where limited state capacity makes edutainment one of the few scalable and cost-effective options.

Since Cantril and Allport (1935), theoretical work has long suggested that narrative entertainment may have a unique ability to inform and persuade (Paluck, 2012). Overtly persuasive messages often fail to sway audiences, perhaps because audiences tend to avoid exposure to uncongenial media sources (Knobloch-Westerwick, 2014) or because they engage in motivated resistance to information that contradicts their prior beliefs (Kruglanski *et al.*, 1993). Narrative entertainment differs from overt forms of communication in ways that may overcome these barriers to persuasion. First, because persuasive messages are embedded in entertaining content, audiences may actively seek out and consume counter-attitudinal content they would otherwise avoid (Pratkanis and Aronson, 2002; Strange, 2002). In this way, narratives may overcome patterns of selective exposure that typically prevent audiences from receiving – much less updating in response to – uncongenial messages. Second, transportation into a narrative or the point of view of a character might bypass audience members' tendency to counter-argue, in line with the Elaboration Likelihood Model (Petty and Cacioppo, 1986) and its edutainment-specific theoretical descendant, the Extended Elaboration Likelihood Model (E-ELM, Slater and Rouner, 2002). These theories hold that audiences are more likely to rebut or generate counter-examples to an argument when they are aware of and focused on critically evaluating it, but that such awareness tends to fade when they are absorbed in a compelling narrative. Scholars have also suggested a third reason why entertainment may persuade: appealing characters who are shown to thrive in a given drama may serve as models of socially appropriate behavior (Bandura, 2004a, 2004b).

Yet despite the wealth of theoretical work on narrative persuasion, systematic empirical investigation of the effects of entertainment media remains patchy and the principal findings remain unclear. While a growing number of randomized control trials (RCTs) have sought to assess the effects of edutainment campaigns, results run the gamut. Some studies find that edutainment can cause meaningful changes in beliefs, attitudes and behaviors (Green *et al.*, 2020). Other studies find null effects, raising

<sup>1</sup> Following Hinyard and Kreuter (2007), we define a narrative as follows: 'Any cohesive or coherent story with an identifiable beginning, middle, and end, that provides information about scene, characters, and conflict; raises unanswered questions or unresolved conflict; and provides resolution' (p. 778).

questions about the effectiveness of these interventions (Cherrington *et al.*, 2015). Even where edutainment is found to be persuasive, it is unclear if it is any more so than non-narrative communication. Some studies find that narrative messages are less informative and persuasive than didactic messages (Bekalu *et al.*, 2018); others hold that narrative entertainment has unique persuasive properties (Murphy *et al.*, 2013). Given the growing number of studies and their disparate findings, a systematic review and meta-analysis is needed to estimate the expected causal effect of narrative entertainment on an assortment of outcomes.

Building upon meta-analyses by Ratcliff and Sun (2020), Braddock and Dillard (2016) and Shen and Han (2014), we conduct a meta-analysis of randomized experiments evaluating the effects of narrative entertainment on beliefs, attitudes, intentions, behaviors, priorities and norms. In all, our sample comprises 77 experimental comparisons drawn from 57 articles, amounting to a total of 24,380 unique individual respondents – by far the largest and most comprehensive sample assembled to date. The narrative treatments include feature films, short films, television series and radio dramas that span a range of domains, from misinformation-correction to health promotion to prejudice reduction. The dramas themselves differ markedly in terms of elements such as length, style, target audience and manner of administration; some dramas are designed to elicit changes in their audience, while others are primarily intended as entertainment. Finally, studies are drawn from 12 countries and four continents. The large number of randomized evaluations allows us to precisely estimate the persuasive effect of entertainment, and the diversity of treatments allows us to explore heterogeneous effects depending on outcome type, topic, the setting in which entertainment is consumed, the timing of experimental evaluation and whether the drama in question was a purpose-built persuasive intervention or primarily intended as entertainment.

Our primary analysis compares individuals who randomly received narrative message treatments to those who received either no message or an unrelated placebo message. Pooling across such 63 comparisons (presented across 47 papers), we find that treated individuals are more likely to express message-consistent attitudes ( $\beta = 0.276$ ,  $p < 0.001$ ), beliefs ( $\beta = 0.316$ ,  $p < 0.05$ ) and behavioral intentions ( $\beta = 0.299$ ,  $p < 0.01$ ) and to engage in message-consistent behaviors ( $\beta = 0.21$ ,  $p < 0.05$ ) than untreated individuals. For all of these outcomes – the four most common across the studies in our sample – effects are substantively meaningful and statistically significant. When we turn to outcomes like perceived norms and priorities, effects are apparently positive yet fall short of statistical significance; however, meta-analytic estimates are imprecise because few studies measure these outcomes. The take-home message is broadly positive: on average, exposure to narrative entertainment causes audiences to update their attitudes, beliefs and intentions and to change their real-world behaviors.

Results from a heterogeneous effects analysis add nuance to these findings. First, we find that reported treatment effects are similar in size when measured after a delay vs immediately after exposure. These latter results point to the potential persistence of edutainment effects, with respondents sometimes showing evidence of attitude and behavior change months or even years after initial exposure. The findings speak against the notion that the effects of narrative entertainment are short-lived, with messages unlikely to stay in respondents' minds for very long.

Second, we find that estimated treatment effects tend to be larger in laboratory and online experiments compared to field and lab-in-the-field experiments. These results have implications for how scholars go about evaluating the effects of media messages in general and narrative messages in particular. Evidently, studies conducted with convenience samples in supervised laboratory settings or online tend to suggest stronger effects than those employing unobtrusive treatments in real-world settings. This suggestive pattern in the literature is in keeping with studies that find that the same narrative message produces stronger effects in lab-like settings than in field settings (Wilke *et al.*, 2022).

We also explore whether narrative entertainment is especially persuasive in certain substantive domains. Narrative interventions are frequently used by practitioners seeking to reduce prejudice and discrimination against out-groups, including ethnic and sexual minorities, migrant workers and HIV-positive people. The plurality of studies in our sample – 22 of 63 – measure the effects of narrative entertainment on out-group stigma. Edutainment interventions are also particularly prevalent in the field of public health; 28 of the 63 studies in our sample focus on health-related outcomes. The remaining studies focus on other outcomes, such as promoting political participation or encouraging gender equality. Is edutainment equally effective across domains? Interestingly, we find that narrative entertainment is especially effective at reducing out-group stigma compared to other outcomes. These results speak to a growing literature on the potential for narrative messages to encourage perspective-taking and instill empathy for out-groups (Kalla and Broockman, 2023).

Finally, we compare the effects of dramas explicitly designed by researchers, NGOs or governments to shift outcomes to the effects of dramas that are primarily intended as entertainment. Interestingly, we do not find significant differences in effect sizes between education-first and entertainment-first content. These latter results should direct more scholarly and practitioner attention to the potential influence of entertainment programs found ‘in the wild’.

Our secondary analysis focuses on experiments that specifically compare individuals who randomly received narrative message treatments to those who received non-narrative messages with equivalent content. Although narratives seem to have somewhat stronger average effects, no statistically significant difference was detected between narrative and non-narrative treatments for any of the outcome categories. If one were to accept the null hypothesis of no difference in effectiveness, these findings stand in contrast to prominent theories of narrative persuasion that hold that narrative messages have unique persuasive properties, including E-ELM (Slater and Rouner, 2002) and social cognitive theory (Bandura, 2004b). It appears that conditional on audiences sitting down to view or listen, narrative content is not markedly more persuasive than non-narrative content. That said, our meta-analysis is unable to address the question of whether narrative entertainment attracts larger and different audiences than non-narrative messages, which in turn would imply greater net effects. Moreover, our secondary analysis includes far fewer studies than the main analysis (14 experimental comparisons within 12 papers), and we have less power to distinguish the effects of narrative vs non-narrative communication. Comparing the effectiveness of narrative and non-narrative messages is thus a question that future research should continue to explore.

Our meta-analysis expands upon prior work in a few ways. Unlike prior meta-analyses that only compare narrative messages either to control conditions (Braddock and Dillard, 2016) or to information-equivalent non-narrative conditions (Ratcliff and Sun, 2020), our study encompasses both kinds of comparisons. Critically, our work benefits from an increase in the number of RCTs evaluating the effects of narrative entertainment in recent years, driven in part by a wave of field experiments conducted in low- and middle-income countries in the Global South. The profusion of new education RCTs allows us to dramatically increase the size of our sample relative to prior efforts. For instance, Braddock and Dillard (2016) include 34 studies comparing narrative messages and control conditions whose total  $N$  is 7,376; our analysis includes 63 such studies (drawn from 47 papers) and nearly three times as many subjects. Ratcliff and Sun (2020) include 9 studies comparing narrative messages and non-narrative messages; our study includes 14 (drawn from 12 papers). Our updated sample also reflects a greater geographic breadth than previous efforts, which tend to be heavily weighted toward studies conducted in high-income Western countries. Finally, our work differs from meta-analyses that restrict their sample to studies that measure the effects of narrative interventions on outcomes in particular domains, like public health (Shen and Han, 2014; Zebregs *et al.*, 2015), or among specific sub-populations (Ballard *et al.*, 2021). To our knowledge, our updated sample is thus both the largest and most comprehensive assembled to date, and its findings are correspondingly applicable across many subfields.

The rest of our paper proceeds as follows. We first outline our search procedure and statistical approach, before presenting a descriptive overview of the studies in our sample. After checking for publication bias and finding little evidence of it, we present the results of our meta-analysis. We conclude by discussing the implications of our findings and directions for future research.

## Methodology

### Search procedure

We sought to identify all *randomized experimental evaluations* of the effects of audio or visual narrative messages on attitudes, beliefs, behavioral intentions, behaviors, priorities and norms since 2009.<sup>2</sup> To identify studies for our meta-analysis, we conducted a literature search using the following databases: JSTOR, National Center for Biotechnology Information, Taylor and Francis, EBSCOhost, the Cochrane Library and Proquest. In order to avoid potential publication bias, we also searched Proquest's Dissertations and Theses index, which includes Master's and PhD Theses for universities belonging to the Committee for Institutional Cooperation. For each database, we conducted a search using 16 permutations of four substantive keywords ('Entertainment-education', 'edutainment', 'narrative persuasion' and 'Education entertainment') and four methodology-related keywords ('randomized', 'experiment', 'trial' and 'RCT'). Our search parameters included all content on each database from 2009 through 2020. This search procedure yielded an initial universe of 8,920 articles.

<sup>2</sup>The publication of Paluck (2009) in this year heralded a surge of research interest in the topic and a new commitment to rigorous experimental methods of evaluation.

Next, we applied a series of exclusion criteria to refine our sample – also shown in Figure C1 of the Online Appendix. We began by removing duplicates, leaving us with 7,468 articles. We then eliminated articles that were clearly irrelevant based on their title or abstract, including those that addressed an irrelevant topic, were not RCTs, explored non-narrative media messages only or had narrative message treatments other than film, TV, radio or podcasts.<sup>3</sup>

The 391 articles that remained were then given a close reading, during which we validated the previous exclusion criteria and added several more filters. First, we eliminated uncompleted studies, such as pre-analysis plans. Second, we eliminated studies whose outcome measures fell outside our purview – for example, audience members' enjoyment of the treatment, marketing or commercial outcomes, or within-classroom pedagogical outcomes. Third, we eliminated studies in which the narrative message treatment was bundled with a non-narrative treatment such that the effect of the former could not be isolated from that of the latter. We also removed studies that only presented results in the form of a mediation analysis, which made it impossible for a reader to calculate the average treatment effect. Finally, we eliminated studies that did not have one or more of the following comparison groups: a pure control group, a placebo control group or an information-equivalent non-narrative comparison group.<sup>4</sup> For instance, we excluded studies that only compared gain- vs loss-framing without reference to a control group. We did not restrict our sample on the basis of population type or geography.

To independently validate the sample, a co-author who was not involved in the initial search process closely read the remaining 103 articles. The co-author reapplied the aforementioned criteria and also eliminated articles comparing compound treatments (e.g., studies that compared an audiovisual narrative message to a written non-narrative message). After this round of cuts, 73 articles remained. As we proceeded with the coding of findings, we eliminated articles that did not contain enough statistical information to warrant inclusion in the meta-analysis, as well as articles that contained too few randomly assigned clusters to produce reliable estimates of treatment effects. This search process yielded a final sample of 57 articles.

Several of these 57 *articles* included multiple studies. Others had multiple unique interventions – for instance, a positive vs negative valence narrative, each of which is compared to a control condition. In total, we identified 77 unique evaluations of randomized interventions, which we refer to as *studies*. Each outcome and/or time period constitutes a unique *finding* within the same study, for a total of 377 *findings*, i.e., observations.

### Coding procedure

For each paper, we coded the findings from every reported experimental comparison. We categorized each finding into one of six outcome types: attitude, belief, behavioral

<sup>3</sup>Our initial search captured 60 non-English-language articles. We translated the title and abstract of these articles using ChatGPT and applied the same exclusion criteria. All 60 of these articles were excluded from the sample for failing to meet the aforementioned criteria.

<sup>4</sup>We also excluded one of the interventions from Jones and Paris (2018) and all of Hopfer (2012) because the researchers pooled participants in the pure control group and the non-narrative control group into a single combined control group, to which the intervention group is compared.

**Table 1.** Outcome types

| Outcome type         | Definition   | Examples   |
|----------------------|--|--|
| Attitude             | 'A psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor' (Eagly and Chaiken, 1993)   | Stigma toward migrant workers (Yan, n.d.); ethnic minority thermometer rating (Murrar and Brauer, 2018); support for gender equality (Green <i>et al.</i> , 2020)  |
| Belief               | 'Cognitions about the probability that an object or event is associated with a given attribute' (Fishbein and Ajzen, 1975)   | Perceived severity of HIV (Lapinski and Nwulu, 2008); health knowledge (Murphy <i>et al.</i> , 2013); ascription of responsibility for climate change to humans (Bilandzic and Sukalla, 2019)                                      |
| Behavioral intention | 'A measure of the strength of one's intention to perform a specific behavior' (Fishbein and Ajzen, 1975)   | Intention to get a mammography (Kreuter <i>et al.</i> , 2010); vaccine intent (Hopfer, 2012); willingness to volunteer (Perciful and Meyer, 2017)  |
| Behavior             | 'The overt actions of an individual' (Albarracín <i>et al.</i> , 2005)   | Alcohol consumption (Engels <i>et al.</i> , 2009); quitting smoking (Cherrington <i>et al.</i> , 2015); HIV testing (Banerjee <i>et al.</i> , 2019); starting a business (Bjorvatn <i>et al.</i> , 2020)                           |
| Priority             | 'Items that are considered to be the most important and that need to be urgently addressed' (Zahariadis, 2016)   | Perceived value of equality (Zhang, n.d.); importance ascribed to individual freedom (Jones and Paris, 2018); education is an important goal (Wilke <i>et al.</i> , 2022)  |
| Norm                 | 'Perceptions about others' beliefs and behaviors' (Ajzen and Fishbein, 2002), which encompasses both perceptions about what others do or think (descriptive norms) and perceptions about what others approve or disapprove of (injunctive norms) | Perceptions of diversity norms (Murrar and Brauer, 2018); perceived sexual risk-taking norms (Basaran <i>et al.</i> , 2019); perception that community would intervene to stop violence against women (Green <i>et al.</i> , 2020) |

intention, behavior, social norm and priority. Our motivation for considering outcomes based on type stems from prior theoretical work suggesting that the mechanisms driving attitude change are different from those driving knowledge change (Coppock, 2023) and the empirical observation that some outcomes move more readily than others (Paluck *et al.*, 2021). We note that the latter outcome, the priority or importance accorded to a particular social issue, is often neglected in studies exploring narrative effects or lumped together with other outcomes. We believe this outcome warrants its own analysis on the grounds that the importance that audiences accord a given topic can, in principle, change even when attitudes and beliefs remain the same. Indeed, foundational studies of media effects find precisely this pattern – media exposure changed not what people thought but what they thought about (Iyengar *et al.*, 1982). Definitions and examples of each outcome type are included in Table 1.

For each finding, we recorded the estimated effect size and standard error of the estimate. Some effect sizes and standard errors were directly reported in the paper; others had to be inferred based on the reported mean, standard deviation and *N* of each experimental group or converted from another statistical form such as an odds ratio. For comparability, we standardized effect sizes and standard errors using the standard



deviation of each study's control group. Across the 77 experimental comparisons, we identified and coded 377 findings.

We then coded descriptive information to allow for comparisons within and across subgroups of findings. First, we noted whether the authors compared the treatment group to a 'pure' no-message control group, a placebo control group or an information-equivalent non-narrative message group. Our main analysis compares narrative message treatments to pure or placebo control conditions, while our secondary analysis compares narrative messages to non-narrative conditions. For the main analysis, effect sizes were coded in the 'positive' direction if estimates were in the intended (message-consistent) direction. When coding the intended direction of treatment effects, our preference was to draw upon hypotheses presented by the study authors themselves. In cases where hypotheses were not explicitly presented, we made reasonable inferences about intended direction based upon close readings of theoretical sections of the papers; if there was any theoretical ambiguity or if authors were themselves agnostic, we coded predictions as two-sided and recorded the absolute value of the treatment effect. For the secondary analysis, which explores the relative effects of narrative messages compared to overtly persuasive or didactic messages, estimates were recorded as positive if the narrative message had a larger effect than the non-narrative message and negative otherwise.

To verify our coding, we assigned two graduate research assistants to independently replicate the above procedure. Coding was consistent for 342 of the 377 findings, yielding an inter-coder reliability score of 0.907. For the 8.8% of findings that differed, the revised coding was accepted if there was an objective mistake such as an arithmetic error or typo or if the original coder failed to identify a finding or hypothesis. If the inconsistency was due to a subjective disagreement, the original coding was retained.

We also coded a host of other descriptive variables at the study and paper level, including location, setting (laboratory, online or field, inclusive of lab-in-the-field), the number of participants in each study, message topic and domain, and the time between the intervention and the assessment of outcomes for each finding. These variables serve as moderators for our heterogeneous effects analysis.

### ***Statistical approach***

Having obtained a sample of standardized effect sizes and standard errors according to the process outlined in the previous subsection, we conducted our meta-analysis using the 'robumeta' package in R. One potential concern when conducting meta-analyses is that studies with multiple measures of the same outcome may receive disproportionate weight compared to studies with fewer outcome measures. To address this concern, we employed a hierarchical model in 'robumeta' that accounts for potentially correlated outcomes within studies. When pooling all the findings together, each finding is assigned a weight proportional to the inverse of the squared standard error of its estimate, with more precise estimates receiving greater weight.

Our main meta-analysis includes 319 findings drawn from 63 studies (experimental comparisons) collected in 47 papers, and our secondary meta-analysis includes 58 findings drawn from 14 studies within 12 papers.





**Figure 1.** Location of included RCTs.

### ***Transparency and openness***

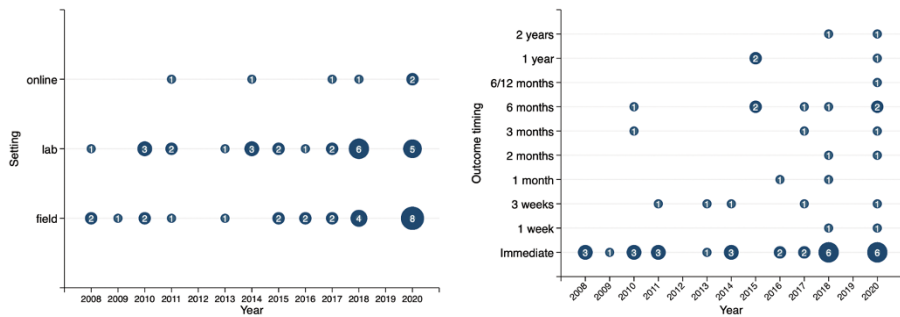
We adhere to the MARS guidelines for meta-analytic reporting (Appelbaum *et al.*, 2018). All meta-analytic data, analysis code and research materials (including our coding scheme) are publicly available at OSF.<sup>5</sup> Data are analyzed using both Stata 17 and R version 4.2.1 and the R package ‘robumeta’, version 2.1. This meta-analysis project was not pre-registered.

### **Sample characteristics**

Of the 57 papers in our sample, 42 (73%) were conducted in the United States. As Figure 1 shows, the geographic reach of our sample is nevertheless broad: eight papers took place in Africa (13%; for a total of 10 studies), three in Asia (5%; for a total of 6 studies), three in Western Europe (5%) and one in Turkey and one in Mexico (2% each). The geographical diversity of our sample is driven in part by a recent wave of RCTs evaluating the effectiveness of edutainment interventions in the Global South. This trend has largely occurred in the years since the publication of the most recent meta-analysis comparing narrative and control conditions (Braddock and Dillard, 2016); indeed, of the 13 papers in our sample conducted in Africa, Asia, Turkey and Mexico, 11 were conducted after 2016. Our sample thus allows us to draw upon a rich body of recent experimental work exploring narrative effects beyond the traditional Western university context.

The studies in our sample also span a number of experimental settings. Approximately half of the findings in our analysis were gathered in laboratory settings (49%, reported in 26 papers across 36 studies for a total of 185 unique findings); 44% of the findings came from field experiments (in 28 studies published in 25 papers)

<sup>5</sup> All data and materials have been posted to OSF: [https://osf.io/tucps/?view\\_only=dbe23cf6435540ffaa40c23166477afa](https://osf.io/tucps/?view_only=dbe23cf6435540ffaa40c23166477afa).



**Figure 2.** Distribution of study designs across settings and over time.

and the remaining 7% were gathered online (by 6 papers with 13 studies). All online experiments measured outcomes immediately after exposure to the treatment. More variation is observed among lab and field experiments: these studies measured outcomes anywhere from immediately after exposure to two years later. Thirty percent of the studies measured outcomes at least one month after exposure. As [Figure 2](#) shows, the edutainment literature has been trending away from short-term assessments of interventions conducted in online and lab settings and toward longer-term assessments in field settings.

Reflecting widespread interest in the use of edutainment strategies to instill empathy for out-group members, the plurality of papers explore whether narratives can reduce prejudice and stigma on the basis of ethnicity, geographic origin, employment status, sexual identity, mental health or physical health (35%). About 32% of studies are in the field of public health and target outcomes other than stigma reduction, including encouraging cancer and STI screening, increasing vaccine uptake, promoting exercise and healthy eating, and reducing high-risk sexual behaviors. The remaining interventions span a number of social and political domains, including promoting climate change adaptation and mitigation, addressing gender-based violence, reducing prejudice against social out-groups, shifting policy-related attitudes and encouraging local political participation.

The narrative messages themselves include radio dramas, podcasts, short video vignettes, TV shows and full-length feature films. Unlike prior meta-analyses that include only narrative interventions specifically designed to inform, persuade or spur action, our study also considers the incidental effects of mass media entertainment. For instance, Jones and Paris (2018) explore how popular dystopian films like *The Hunger Games* shape political attitudes and support for radical forms of political action; Perciful and Meyer (2017) examine the effect of fictional film portrayals of schizophrenic characters on viewers' stigma toward mentally ill people; Nera *et al.* (2018) investigate whether conspiracy-themed fiction leads to endorsement of conspiracy theories and several studies consider how portrayals of alcohol on television affect real-world alcohol consumption behavior (Kim *et al.*, 2014). At the same time, our study attends to practitioners' growing interest in purposive edutainment interventions to achieve policy outcomes. Examples include a television sitcom designed

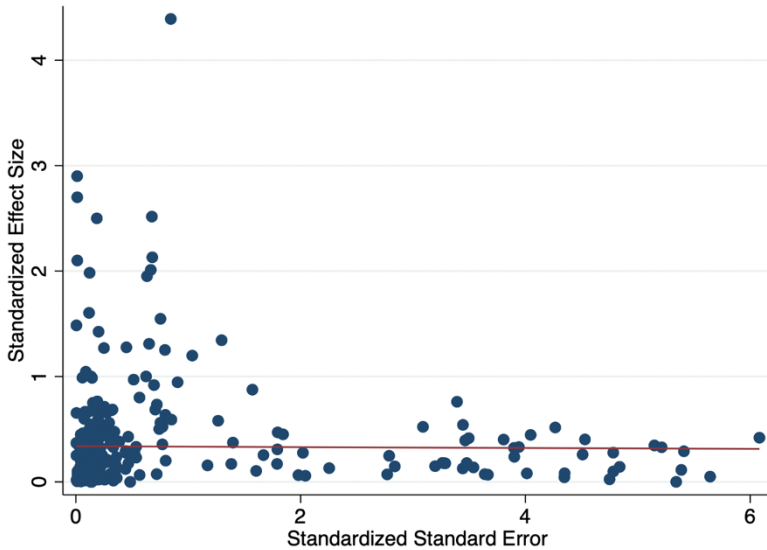


Figure 3. Diagnostic test for publication bias.

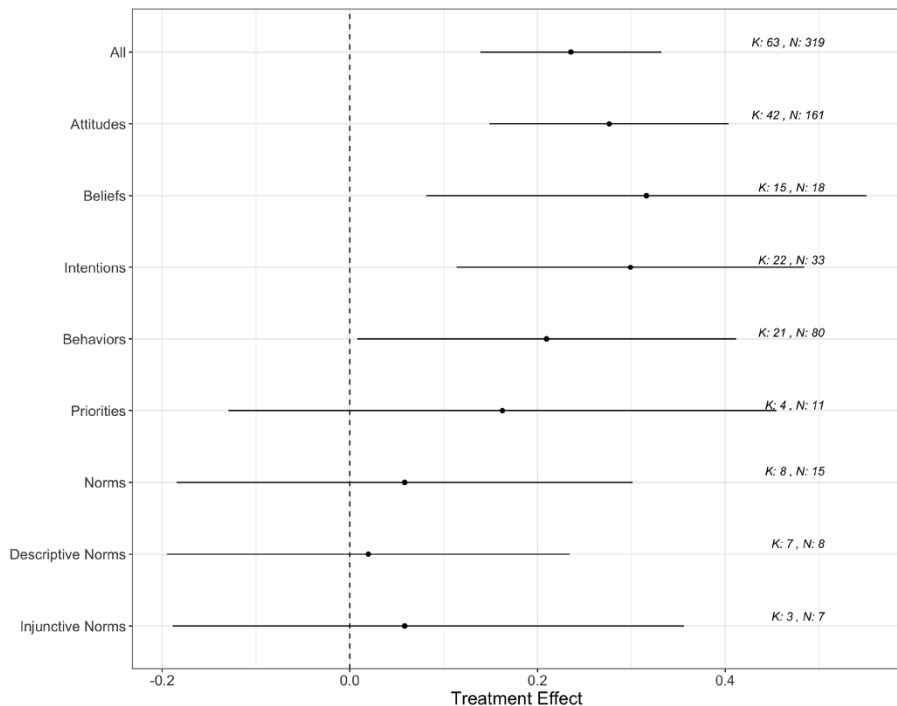
to reduce prejudice toward Arabs and Muslims (Murrar and Brauer, 2018), a radio program to reduce violence against women (Arias, 2019) and narrative videos to promote varicella vaccination (Hu *et al.*, 2018) and HPV vaccination (Hopfer, 2012) in vulnerable communities.

### Testing for publication bias

One potential threat to the interpretation of meta-analytic estimates is the possibility of publication bias. If studies with significant findings are more likely to be published than studies with non-significant findings, meta-analyses are more likely to locate and include studies with large effect sizes. One common diagnostic test for publication bias is to visually inspect the relationship between effect size and study size, operationalized by the standard error of the estimated treatment effect. A well-known symptom of publication bias is a tendency for smaller studies to produce larger effects (Kühberger *et al.*, 2014), as would be the case if studies were published only if they showed statistically significant results.<sup>6</sup>

Figure 3 reports this diagnostic test for the 377 findings in our sample. The regression line has a slope close to zero ( $b = -0.004$ ,  $SE = 0.019$ ,  $p = 0.830$ ), indicating essentially no correlation between study size and effect size. Thus, publication bias does not appear to be a concern in this collection of studies.

<sup>6</sup>For more on errors that change the apparent magnitude of the effect, or Type M error, see Gelman and Carlin (2014).



**Figure 4.** Summary of main results: narrative message vs no message/placebo message.

*Note.* *N* reports the total number of observations used in the analysis, where each observation is a *finding* within each of the *K* studies or experimental comparisons.

## Results

### *Narrative messages vs pure and placebo control: main effects*

Our first analysis examines the persuasive effects of narrative entertainment relative to pure control or placebo control conditions. We illustrate our main results in Figure 4, which presents a coefficient plot summarizing the meta-analytic estimates for each outcome type, as well as the overall estimate pooled over all outcome types. These estimates are obtained by averaging treatment effects across all findings (*N*) using a hierarchical model, which accounts for the correlation of findings within the same experimental comparisons (*K*). In Appendix A, we show the coefficient retrieved for each finding using hierarchical forest plots such that readers can examine the variation of the estimates across findings and across studies more precisely.

Looking across all outcome types, the overall estimate of the effect of narrative entertainment is positive and statistically robust ( $\beta = 0.236$ ,  $SE = 0.046$ , confidence interval (CI) [0.139, 0.332],  $p < 0.001$ ). Next, we partition the studies into the six outcome categories: attitudes, beliefs, behavioral intentions, behaviors, priorities and norms. We observe positive estimated effects for all six of the outcome types, with only two of these estimates (priorities and norms) falling below conventional levels of significance.

We begin with an estimate of the effect of narrative messages on attitudes, the most common outcome. The overall estimate is 0.276 ( $SE = 0.062$ ) with a 95% CI of [0.149,

0.404]. Substantively, the result indicates that, on average, narrative messages have a meaningful positive effect on audiences' attitudes. Likewise, the overall estimate values for beliefs and intentions are 0.316 (SE = 0.107; CI [0.082, 0.550]) and 0.299 (SE = 0.088; CI [0.114, 0.484]), respectively, indicating noteworthy positive effects.

Clearly, narrative entertainment changes many of the most central psychological outcomes: attitudes, beliefs and intentions. Do narrative messages also shift audiences' behaviors? Prior work has questioned whether the effects of narratives on behavioral intentions translate into real-world behaviors. Our results indicate that they do: the estimated effect of narratives on behavioral measures is positive and statistically significant ( $\beta = 0.21$ , SE = 0.083; CI [0.008, 0.411]). In contrast to literatures that find attitude change without concomitant behavioral change, the literature on narrative media effects suggests that attitudes, intentions and actions all move, on average.<sup>7</sup>

The meta-analytic results are more ambiguous when it comes to two categories of outcomes: priorities – the subjective importance that audience members assign to a given topic or issue – and perceived social norms. With only four studies that measure priorities and eight studies that measure perceived social norms, we cannot draw precise conclusions. Although the apparent effect for priorities is positive ( $\beta = 0.163$ ), the 95% CI overlaps with zero [−0.129, 0.455], as the standardized coefficients reported across studies range from 0.035 (SE = 0.175) to 0.686 (SE = 0.326).<sup>8</sup> By comparison, the estimate for norms is positive but relatively modest in size and not statistically significant. The pooled estimate for norms is 0.058 (SE = 0.054), with a CI of [−0.185, 0.301]. In short, we do not find convincing evidence that edutainment affects priorities or norms, although we are unable to determine whether these null effects arise from a dearth of studies or whether they reflect the 'true' effect of edutainment on these outcomes.

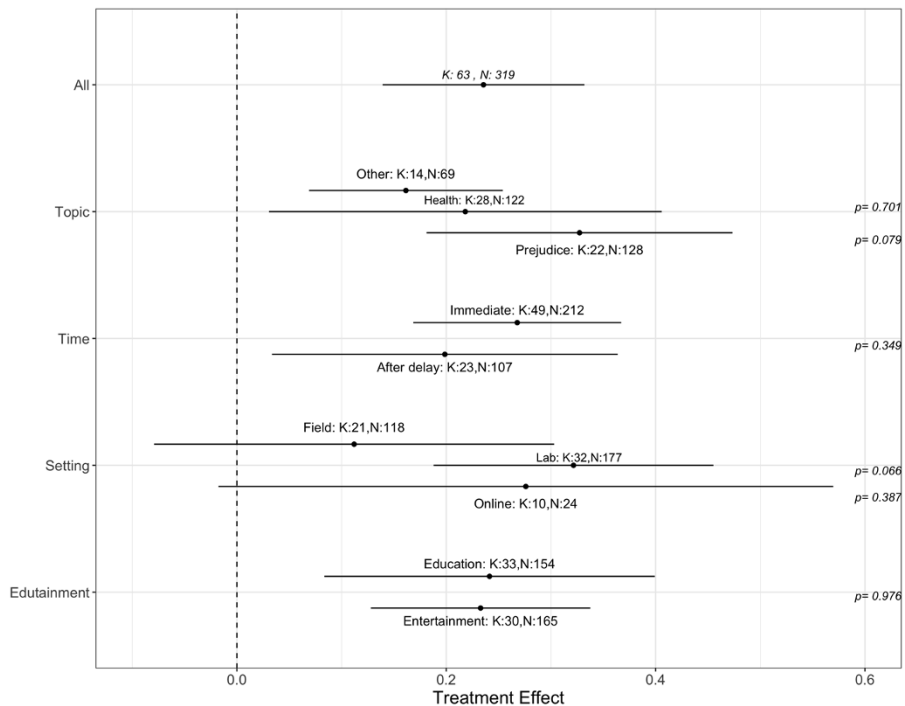
What happens when we further divide the norms outcomes into two subsets: those measuring descriptive norms, or perceptions about what others tend to do, and those measuring injunctive norms, or perceptions about what others believe ought to be done? The overall estimate for descriptive norms is 0.0196 (SE = 0.083; CI [−0.195, 0.234]), while the estimate for injunctive norms is 0.0835 (SE = 0.031; CI [−0.189, 0.356]). On the whole, these estimates suggest small positive effects that are perhaps larger for injunctive norms, but the CIs are wide and overlap zero. Whether narrative messages indeed shift audiences' perceptions of social norms remains an open question.

### ***Narrative messages vs pure or placebo control: heterogeneous effects***

Next, we partition our main sample into subgroups to explore potential patterns of treatment effect heterogeneity. Once again, we use the sample of  $N = 319$  findings across  $K = 63$  studies drawn from 47 papers, and we examine the effectiveness of a narrative message compared to either a pure control or a placebo message.

<sup>7</sup>We hasten to add that the experimental literature offers few examples of narratives that produce broad changes in audiences' value orientations. The attitude change that occurs instead tends to be specific to the issues that are discussed or modeled in the narrative.

<sup>8</sup>The one-tailed minimum detectable effect is equal to  $(0.149) * 2.49 = 0.37$ , which implies that the priorities studies are currently insufficient in number to estimate even a sizable ATE with precision.



**Figure 5.** Summary of heterogeneous effects: narrative message vs no message/placebo message, all outcome types combined.

*Note.* *N* reports the total number of observations used in the analysis, where each observation is a *finding* within each of the *K* studies or *experimental comparisons*. The *p*-value reported refers to the estimate provided by the hierarchical model of the difference between the meta-estimates of the subgroup considered compared to the baseline group (the 'Field' group in the Settings analysis, the 'Other' group in the Topics analysis and the single other available group in all other cases).

One question of interest is whether narrative messages have larger effects in certain substantive domains than others. Because narrative formats are thought to promote identification with the characters depicted in the story, edutainment interventions often target outcomes related to out-group stigma and prejudice. Edutainment interventions are also quite common in the field of public health. Does the prevalence of edutainment interventions in these domains imply that edutainment is especially effective at shifting outcomes related to prejudice and health, or poorly suited to shifting outcomes in other domains? Partitioning our findings into those with prejudice-related outcomes,<sup>9</sup> health-related outcomes<sup>10</sup> and all others, we find some evidence of treatment effect heterogeneity (see Figure 5). The overall effect of narrative messages on outcomes related to prejudice reduction is indeed greater than the effect on other

<sup>9</sup>Targeted out-groups include ethnic minorities, sexual minorities, migrant workers, individuals suffering from mental health issues and HIV positive individuals.

<sup>10</sup>Outcomes include encouraging cancer and STI screening, increasing vaccine uptake, reducing HIV/AIDS and mental health stigma, promoting exercise and nutrition, and reducing high-risk behaviors.

outcomes ( $p < 0.10$ ). The results would seem to imply that narrative messages are particularly well suited to reducing stigma, a finding that speaks to recent work pointing to the ability of narratives to promote perspective-taking and empathy for out-group members (Kalla and Broockman, 2023). However, we do not observe a significant difference between the effects of edutainment on health-related outcomes and other outcomes. Moreover, the overall estimates for prejudice-related, health-related and other outcomes are all positive and statistically indistinguishable from one another, suggesting that the influence of edutainment extends across a range of substantive domains.

Another long-standing question is whether and to what extent the effects of narrative messages persist over time. To explore this question, we partition results based on the time between the end of the intervention and the assessment of study outcomes. Specifically, we grouped findings depending on whether outcomes were measured immediately following the intervention or after a delay of over one day.<sup>11</sup> Perhaps surprisingly, the overall estimate for outcomes measured immediately after exposure ( $\beta = 0.268$ ,  $SE = 0.048$ ,  $CI [0.168; 0.368]$ ) is not significantly different from the estimate for outcomes measured after a delay ( $\beta = 0.199$ ,  $SE = 0.069$ ,  $CI [0.033; 0.364]$ ). The positive and statistically significant effect for the delayed-measurement subsample suggests that edutainment effects are not ephemeral and can persist months or even years after initial exposure. On the face of it, the findings also appear to imply a surprising lack of decay in treatment effects over time. That said, our between-studies design is less than ideal for this kind of investigation, since studies that measure outcomes immediately after exposure might differ systematically from those that do so after a delay.<sup>12</sup> Clearer evidence of the persistence of treatment effects comes from individual studies that track outcomes over time (Semakula *et al.*, 2020). Although such studies sometimes demonstrate sustained effects more than one year after the media intervention, a pattern of declining effects over time emerges in almost all studies that measure both short- and long-term effects, including recently published studies that appeared after we gathered the literature for our meta-analysis (Green *et al.*, 2023).

We also explore whether estimates of persuasive effects vary depending on researchers' choices about study design. We divide studies into three groups based on the setting in which treatments were administered and outcomes were recorded: laboratory experiments, online experiments and field experiments, including laboratory-in-the-field experiments. We find that average treatment effects tend to be larger in lab experiments ( $\beta = 0.322$ ,  $SE = 0.064$ ,  $CI [0.188, 0.455]$ ) and online experiments ( $\beta = 0.276$ ,  $SE = 0.119$ ,  $CI [-0.018, 0.570]$ ) than field experiments ( $\beta = 0.112$ ,  $SE = 0.058$ ,  $CI [-0.080, 0.303]$ ). This comparison has implications for how scholars go about evaluating the effects of media messages in general and narrative messages in particular. It appears that studies conducted with convenience samples in forced

<sup>11</sup> Assessment times in this latter group range from one week to two years. Because 66% of the findings used in this analysis present short-term outcomes, we group medium- and long-term measures into a single subgroup.

<sup>12</sup> For instance, online experiments almost never employ long-term measures; as a result, the immediate-measurement subsample is much more likely to encompass online experiments and the delayed-measurement sample to contain lab and field experiments.



exposure settings produce larger estimated effects than those employing relatively unobtrusive treatments in naturalistic settings. These results, if confirmed by controlled experimental comparisons, have implications for methodological debates about the generalizability of laboratory and online experiments to real-world settings.

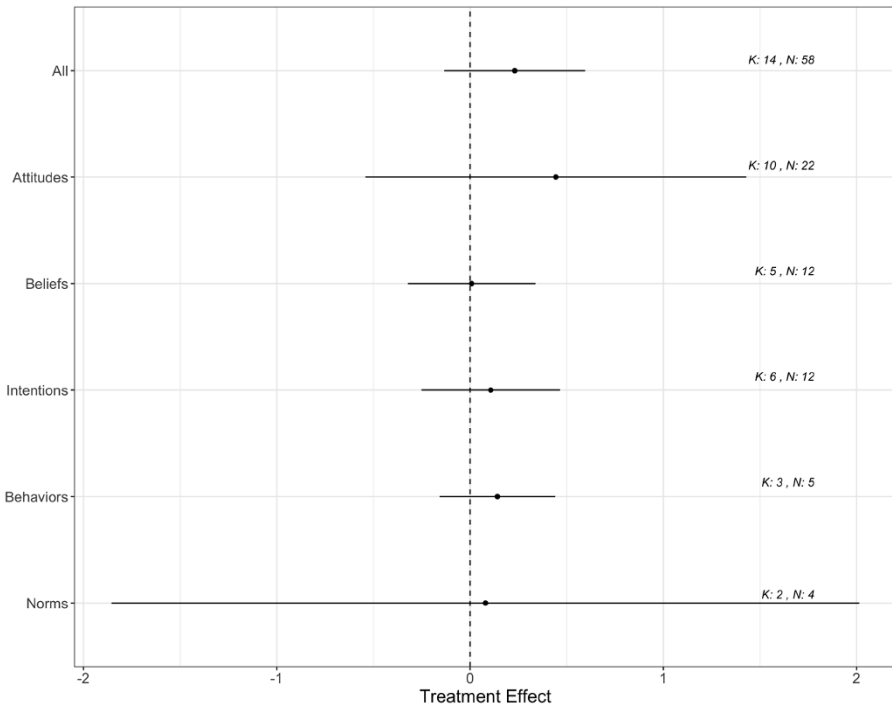
Lastly, we note that research on narrative persuasion may be classified according to the source of the narrative content. On the one hand are studies that measure the effects of edutainment interventions explicitly designed by researchers or practitioners to address social, economic or political issues – what we call ‘education-first’ treatments. On the other hand are studies that consider the potential effects of existing fictional films, TV shows and radio programs, which, although they may carry socially relevant messages, are primarily intended as entertainment (‘entertainment-first’ treatments). Which messages are more effective at changing minds and behaviors: education-first or entertainment-first narratives?

To explore this question, we coded findings based on whether or not the treatment is a purpose-built edutainment intervention that has been designed, developed, produced or commissioned with the explicit goal of shifting a set of outcomes. The alternative entertainment-first category comprises narratives that were not commissioned with a pedagogic purpose. The sample of findings is split evenly between education-first and entertainment-first messages (46% and 53%, respectively). We find that the average effect of education-first treatments ( $B = 0.233$ ,  $SE = 0.0501$ ,  $CI [0.128, 0.338]$ ) is extremely similar in magnitude to that of entertainment-first treatments ( $\beta = 0.241$ ,  $SE = 0.070$ ,  $CI [0.084, 0.399]$ ). Our analysis finds no significant difference in effect sizes between the two types of messages ( $p = 0.976$ ). Thus, we find little evidence to suggest that researchers and practitioners are better (or worse) at shifting attitudinal and behavioral outcomes than those working in the entertainment space. The results suggest that researchers would be remiss in not considering the potential persuasive effects of existing films, radio programs and TV shows.

Again, we hasten to note that there are systematic differences between education-first and entertainment-first studies that may confound this comparison. Education-first treatments are much more likely to be tested in the field and entertainment-first treatments in the lab. Moreover, there is little overlap in the topics they cover; for instance, almost all health-related studies involve explicit edutainment interventions, while almost all prejudice reduction studies draw on existing entertainment programs. From a theoretical standpoint, the former set of studies defines a target outcome and then develops an intervention to affect that outcome, whereas the latter do the opposite, selecting outcomes based on an existing treatment found in the real world. It is unclear *a priori* which of these constitutes the easier test. Comparing the effects of explicit edutainment and mass entertainment thus requires a more rigorous head-to-head comparison. Future research might, for example, randomize respondents to view or listen to purpose-built edutainment or an existing entertainment program on the same topic.

### ***Narrative vs non-narrative messages***

Our main analysis found that, on average, exposure to narrative messages shifts attitudes, beliefs, intentions and behaviors. We now turn our attention to the relative



**Figure 6.** Summary of relative results: narrative message vs non-narrative message.

*Note.* *N* reports the total number of observations used in the analysis, where each observation is a *finding* within each of the *K* studies or experimental comparisons.

efficacy of narrative messaging strategies compared to overtly persuasive or didactic forms of communication. Are narrative messages more persuasive than non-narrative messages, as theories of narrative persuasion maintain?

For this analysis, we restrict our attention to experimental comparisons between narrative treatments and information-equivalent non-narrative treatments. The sample of studies is smaller here than in the main analysis: we identified only 58 direct comparisons among 14 studies, collected over 12 papers. The sample becomes smaller once one partitions the findings based on outcome type – in several cases, too small to produce reliable conclusions. Thus, in addition to presenting results by outcome type below, we present results that aggregate all outcome types into a single meta-analytic estimate; this aggregated approach lacks nuance but has sufficient degrees of freedom to produce a meaningful estimate. Figure 6 presents the results, and Online Appendix B depicts the estimates graphically for each study and finding.

We begin by presenting the results for attitudes, the subgroup with the largest number of inputs. The overall estimate for attitudes is 0.444 with a 95% CI of  $[-0.541, 1.429]$ . While the coefficient is large and positively signed (implying that narrative entertainment moves attitudes further in the expected direction), it is imprecisely estimated and cannot be distinguished from zero. Although our best guess is that narratives are more effective at shifting attitudes than non-narrative messages, the evidence is far

from decisive, and both types of messages may actually be equally effective. When it comes to beliefs, intentions, behaviors and norms, a dearth of studies renders statistically ambiguous results, but the point estimates no longer look as promising for narrative entertainment. Estimates tend to be relatively close to zero: 0.008 [−0.322, 0.339] for beliefs, 0.107 [−0.251, 0.466] for intentions, 0.142 [−0.158, 0.442] for behaviors and 0.080 [−1.855, 2.014] for norms. We found no studies that compared the effects of narrative vs non-narrative messages on priorities.

Even for the pooled model that provides the meta-analytic estimate of the effects of narrative entertainment on all six outcomes, we do not observe a statistically significant positive effect: the overall estimate is 0.231 (SE = 0.1423) with a CI that overlaps with zero [−0.133, 0.595]. What should we make of these results? One interpretation is that 0.231 remains our best guess of the relative effectiveness of narratives compared to similar non-narrative messages. A more cautious interpretation is that the relative advantage of narrative messages is as yet unproven by the collection of studies conducted to date. Although the literature offers some suggestive evidence about the superiority of narratives, further research is needed to determine more conclusively whether narratives are indeed more persuasive than non-narrative messages.

## Conclusion

Narrative entertainment is one of the most prevalent forms of mass communication globally. Fictional television series, radio soap operas, podcast serials, short films and feature films reach vast swathes of the world's population. Recognizing the potential influence of these creative channels, policymakers and NGOs have increasingly embraced narrative messages as a vehicle for achieving policy objectives. To what extent, and under what conditions, does narrative entertainment change beliefs, attitudes, priorities and behaviors? The present study attempts to take stock of recent experimental discoveries, conducting the largest and most comprehensive meta-analysis to date of RCTs measuring the effects of narrative messages.

Our principal finding is that narrative entertainment has broad-ranging and substantively meaningful effects on audiences' attitudes, beliefs, intentions and behaviors. The results provide compelling evidence that narrative entertainment can convey real-world information, shift attitudes and change behaviors. Consistent with recent work suggesting that narratives in interpersonal communication can promote empathy and perspective-taking (Kalla and Broockman, 2023), we find that edutainment effectively reduces stigma and prejudice toward a range of out-groups. We also find that the emphasis of public health practitioners on edutainment interventions is well placed, as these interventions exert significant effects on indicators of mental and physical health and well-being on average. Yet our overarching conclusion is that edutainment is effective across issue domains, including those that have not traditionally been the focus of research on narrative persuasion: encouraging political participation, shaping political culture, shifting policy views, encouraging gender-equal attitudes and behaviors, promoting environmentalism and combating misinformation, among others. The generality of edutainment effects says something important about the generality of human responsiveness to narratives and the messages that they convey. The

findings underscore the broad applicability of narrative interventions as a mechanism for shaping attitudes and behaviors across diverse domains.

The apparent magnitude and breadth of edutainment effects are potentially important both to policy practitioners and to scholars of political communication and behavioral economics – fields that have traditionally paid closer attention to overt forms of communication like hard news, political advertisements and public service announcements. Taken together, the results suggest a role for narrative entertainment in theories of how individuals come to their beliefs, attitudes and habits.

By contrast, we find equivocal evidence that narrative messages shift priorities and perceived norms. In part, our ambiguous results reflect the dearth of studies that explore these important outcomes. The research agenda would thus benefit from continued exploration of the potential agenda-setting effect of narrative entertainment. Moreover, further research is needed to substantiate the claim that edutainment shifts attitudes primarily via its effect on perceived social norms (Arias, 2019); on the contrary, we find that attitudes, beliefs, intentions and behaviors shift substantially on average in the wake of narrative interventions, while norms remain largely unchanged.

Regarding the question of whether narrative messages have unique persuasive effects, our evidence is equivocal. Our point estimates, especially for attitude change, are positive in sign, suggesting that narrative messaging may be more effective, on average. However, the evidence is thin, and we do not detect significant differences between narratives and non-narratives when it comes to shifting beliefs, intentions, behaviors or norms. A skeptic embracing the null hypothesis of no difference between the two forms of messaging might conclude that these results challenge the extended elaboration likelihood model (Slater and Rouner, 2002) and social cognitive theory (Bandura, 2004a), which posit a unique capability of edutainment to persuade. However, given the small number of studies that compare narrative and non-narrative messages, such conclusions must remain tentative for now. As researchers continue to investigate the relative persuasive effects of narrative vs non-narrative messages, future meta-analyses might be better equipped to explore whether narrative entertainment represents a uniquely persuasive technology. With that said, the absence of negatively signed estimates in our secondary analysis is potentially informative, suggesting that narrative messages are, at the very least, no less persuasive than non-narrative messages. Such results stand in contrast to skeptical claims that narrative messages are too distracting or too subtle to convey information to audiences (Kruvand and Bryant, 2015).

Our heterogeneous effects analysis sheds some light on questions about the persistence of media effects. We observe similar effects of narrative entertainment when outcomes are measured a few weeks or even months after exposure compared to when they are measured immediately after exposure. These findings suggest that edutainment can exert long-lasting effects on audiences' attitudes, beliefs and behaviors, contrary to the notion that effects are short-lived. That said, studies that employ repeated outcome measurement are better positioned to assess the speed with which treatment effects decay over time. The importance of charting decaying effects underscores an important deficiency in the literature: the fact that more than half of all studies examine outcomes at just one point in time – immediately after the treatment is administered. Future research should explore the persistence of media effects more systematically by tracking study outcomes over longer periods.

Another potentially informative finding is the apparently similar effects of mass media entertainment and purpose-built edutainment interventions. We see this analysis as a first step in bridging the gap between two often disparate research agendas, one of which tends to focus on the incidental effects of fictional films, radio programs and TV shows on audiences' attitudes and behaviors, and the other of which seeks to evaluate the effects of targeted narrative messages that are designed to change the way audiences think and act in specific domains. Whether explicit edutainment interventions are more persuasive than narrative messages that audiences would encounter in daily life, or whether the pedagogic approach serves to alienate audience members, is a question that warrants further exploration. Future research might break new ground by conducting head-to-head tests of entertainment-first and education-first treatments.

Perhaps the most fruitful direction for future research is addressing the potential for entertainment to overcome selective exposure. Indeed, while the studies in our sample explore the persuasive effects of narrative messages *given that* audiences sit down to view or listen to them, they do not explore the first-order question of whether narrative messages draw in audience members who might otherwise have avoided a message. Given the results from our secondary analysis comparing narrative and non-narrative treatments, an intriguing possibility is that the main advantage of narrative entertainment lies not in its unique capacity to persuade but rather its ability to draw large and diverse audiences. On this point, we draw attention to a consistent finding across several studies in our sample: experimental participants tend to enjoy narrative messages more than equivalent non-narrative ones. For example, Moran *et al.* (2013) find that participants judged a narrative film about cervical cancer detection to be more interesting and enjoyable than a didactic film on the same topic. Similarly, Kreuter *et al.* (2010) report that participants who watched a narrative video recounting the experiences of breast cancer survivors rated it more favorably than those who viewed a purely informational version. These findings echo results from studies outside our sample that examine audience enjoyment of narrative vs non-narrative text-based interventions (Kruvand and Bryant, 2015; Leung *et al.*, 2017).

But does this apparent preference for narrative content imply that people are especially likely to consume such messages if presented with them, or even seek them out of their own accord? Here, we run up against the limits of existing experimental research. None of the studies in our meta-analysis sample simultaneously compare narrative and non-narrative conditions *and* employ non-forced exposure designs in which subjects can opt in or out of receiving treatment.<sup>13</sup> Such designs would allow researchers to compare compliance rates across conditions, offering insight into whether narratives have an advantage in attracting audiences – including those with uncongenial priors. Future studies might also employ Preference-Incorporating Choice and Assignment designs (Benedictis-Kessner *et al.*, 2019; Egami *et al.*, 2026), which enable researchers to assess both selective exposure and the persuasive effects of messages conditional on exposure. Pending such work, whether narrative entertainment is more likely to

<sup>13</sup>For a recent example of this type of edutainment research design, see Moore and Green (2021). This study offers subjects a choice between narrative and list format presentations of the same material; an alternative design would be to offer a third option that features competing content, such as weather or sports.

attract and sustain audience attention than other forms of communication remains an important open question.

**Supplementary material.** To view supplementary material for this article, please visit <https://doi.org/10.1017/bpp.2025.10010>.

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