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*Corresponding author: Mio Kato,
Department of Health Communication,
School of Public Health, The University
of Tokyo, 7-3-1 Hongo, Bunkyo-ku,
Tokyo, 113-8655, Japan
E-mail: mkato-ctr@umin.ac.jp

Reviewing editor:
Cláudia Alvares, Universidade Lusofona
de Humanidades e Tecnologias,
Portugal

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Mapping research on health topics presented in prime-time TV dramas in “developed” countries: A literature review

Mio Kato^{1*}, Hirono Ishikawa¹, Tsuyoshi Okuhara¹, Masafumi Okada¹ and Takahiro Kiuchi¹

Abstract: Some prime-time TV dramas containing health topics have large audiences both in the countries in which they are broadcast as well as on an international level via Internet television network. We conducted a literature review to map the current research articles on prime-time TV dramas with health themes produced in so-called developed countries from 1986 to 2014. The review discovered 59 articles, of which 29 (49.2%) examined the portrayal of patients, doctors, and illness; two (3.4%) examined audience characteristics and motives for watching medical dramas; 17 (28.8%) used cross-sectional methods to examine viewers’ knowledge, attitudes, or behaviors related to health concerns; and 11 (18.6%) used either pre- and post-exposure or post-exposure and follow-up tests to assess changes in viewers’ knowledge, attitudes or behaviors related to health concerns. Theories employed to understand changes in viewers’ knowledge and behaviors included cultivation theory, narrative transportation theory, and social cognitive theory. We noted that even viewers who are disinterested in health issues can be exposed to such content with minimal resistance; dramas and movies can be continuously and affordably distributed as streaming content; and large financial investments are being made in the entertainment industry around the world. As a means of health information exposure, then, narrative forms of entertainment content (e.g. dramas and films) should continue to be investigated, particularly their positive and negative effects on audiences.

ABOUT THE AUTHORS

The authors in the Department of Health Communication conduct research on the University hospital Medical Information Network (UMIN) Center related activities as well as health communication research at various levels.

Main research topics include: (1) Communication of health information to the general public; (2) Patient-provider relationship and communication; (3) Health literacy; (4) Activities related to the UMIN; (5) Information systems for clinical epidemiologic studies; (6) Security of the information network.

PUBLIC INTEREST STATEMENT

The present article maps past research articles which studied prime-time TV dramas containing health topics in so-called developed countries. We understand the communication as consisting in the following process: a sender produces and emits a message, which is received by a recipient, who responds to it. When we map past studies according to this communication process, 49.2% ($n = 29$) focused on what the TV drama portrayed, about 47.5% ($n = 28$) concentrated on how a recipient responds to prime-time TV dramas, and only 3.4% ($n = 2$) analysed the audience’s motivation to watch the TV drama. None studied senders, namely drama producers. As a means of health information exposure, narrative forms of entertainment content (e.g. dramas and films) should continue to be investigated, particularly their positive and negative effects on audiences.

Subjects: Health Communication; Personal, Social & Health Education; Media Communication; Health Communication; Health Education and Promotion

Keywords: prime-time TV drama; media-effects research; entertainment education; content portrayal

1. Introduction

Prime-time TV dramas, defined as TV dramas broadcast in the time period of 20:00 to 23:00, depending on the countries, are watched by large audiences. For example, the American medical drama ER reached 30.79 million viewers in the 1996–1997 Season (Lowry, 1997). In 2015, in the United States, 2,622 TV drama series and 9,616 feature films were launched (www.imbd.com), with audiences that varied from the young to the elderly.

TV dramas caught the attention of communication scholars, including George Gerbner, one of the founders of cultivation theory (Gerbner & Gross, 1976). He was concerned with the repeated broadcasting of violence depicted in prime-time TV dramas and TV dramas for children. Cultivation theory scholars have pointed out that heavy viewers' perceptions of crime in society differ from the statistics on crime occurrence in society (Gerbner, 1998). Thus, these scholars suggested that social perceptions of reality were being distorted by mass communication content, a consequence that was not intended by the content creators. Other researchers claim that the effects of TV dramas are limited. Such effects have indeed been studied for years in various disciplines such as communication, media studies and psychology, among others (Bryant & Oliver, 2009).

TV dramas can convey both pro-social/health and anti-social/health messages. Research on media effects of TV dramas has historically focused on negative effects to viewers' health (Seale, 2003). On the other hand, "Entertainment education" (EE), a communication strategy that promotes the understanding of various issues by targeting people who show little interest in any particular issue, has been introduced (Singhal & Rogers, 1999). EE has been implemented—mainly in developing countries first—in radio and television soap operas, popular music, comic books, and other entertainment genres to promote various issues. For example, radio and television soap operas have been designed to promote gender equality, adult literacy, smaller family size, and HIV/AIDS prevention in countries such as India, Turkey, Pakistan, Mexico, and Tanzania (Kincaid, Yun, Piotrow, & Yaser, 1993; Lettenmaier, Krenn, Morgan, Kols, & Piotrow, 1993; Nariman, 1993; Piotrow, Kincaid, Rimon, Rinehart, & Samson, 1997; Rogers, Vaughan, Swalehe, Rao, & Sood, 1999; Singhal & Rogers, 1999).

EE has also been implemented in developed countries, with a media-saturated situation, and documented in many empirical studies (Davin, 2003; Hether, Huang, Beck, Murphy, & Valente, 2008; Langlieb, Cooper, & Gielen, 1999; Valente et al., 2007). Its theoretical perspective has been reviewed by Emily Moyer-Gusé (2008), who examined the persuasive effects of EE content by building on existing theories such as narrative involvement, identification, parasocial interaction, and similarity. She concluded that persuasiveness is based on narrative engagement and involvement with characters. Additionally, it has been suggested that resistance to persuasion during the consumption of entertainment narratives should be a key component of studying EE effects (Green & Brock, 2000; Green, Brock, & Kaufman, 2004; Green & Clark, 2013).

In this study, we aim to map how research on prime-time TV dramas, which transmit both positive and negative messages to viewers, has been conducted. We do this by categorizing the literature into the constructs of communication (sender characteristics; content portrayal; audience characteristics; and audience response). In addition, we also describe the theories behind the effects of prime-time TV dramas in the academic literature.

2. Method

2.1. Search procedure

We searched the following databases for eligible studies published in peer-reviewed journals in English from 1987, one year after the term “entertainment education” was introduced, to December 31, 2014: CINAHL Plus with full text, MEDLINE, PsycARTICLES, PsycINFO, SocINDEX with full text, PubMed, and Web of Science. Our search terms were (1) television drama AND health; (2) television drama AND medical issues; (3) television drama AND EE; (4) TV drama AND health; (5) TV drama AND medical issues; and (6) TV drama AND EE. The term “entertainment education” was added to confirm that all the studies on this topic had been included.

2.2. Inclusion criteria

Studies that focused on the influence or effects of watching prime-time TV dramas, and on health issues, were included.

2.3. Exclusion criteria

Studies were excluded if they did not have an abstract, were funded by health campaign organizations, included TV dramas that were not broadcast on prime time, or did not focus on health issues.

2.4. Study categorization

The studies were categorized according to three perspectives, by two reviewers who were trained to capture the relevant data. The first perspective focused on constructs of the communication process: (1) sender (TV drama and film producers) characteristics; (2) content portrayal; (3) audience characteristics; and (4) audience response. Under “sender characteristics”, producers’ motivations and cultural/social factors were considered. “Content portrayal” assesses what a prime-time TV drama shows its audience. “Audience characteristics” examined who watches a particular prime-time TV drama and why. It is important for health communicators to decide which drama producers they want to approach when using actual tactics of persuasive communication. Lastly, “audience response” assesses to what kind of prime-time TV drama content the audience responds, and how they respond.

The second perspective looked for health topics in TV content to assess any focus on particular topics. Health topics included pro-health or pro-social behaviors, unhealthy or anti-social behaviors, bioethics and medical education, and illness and health professionals.

The third perspective concentrated on the theories behind longitudinal media-effects studies of prime-time TV dramas.

3. Results

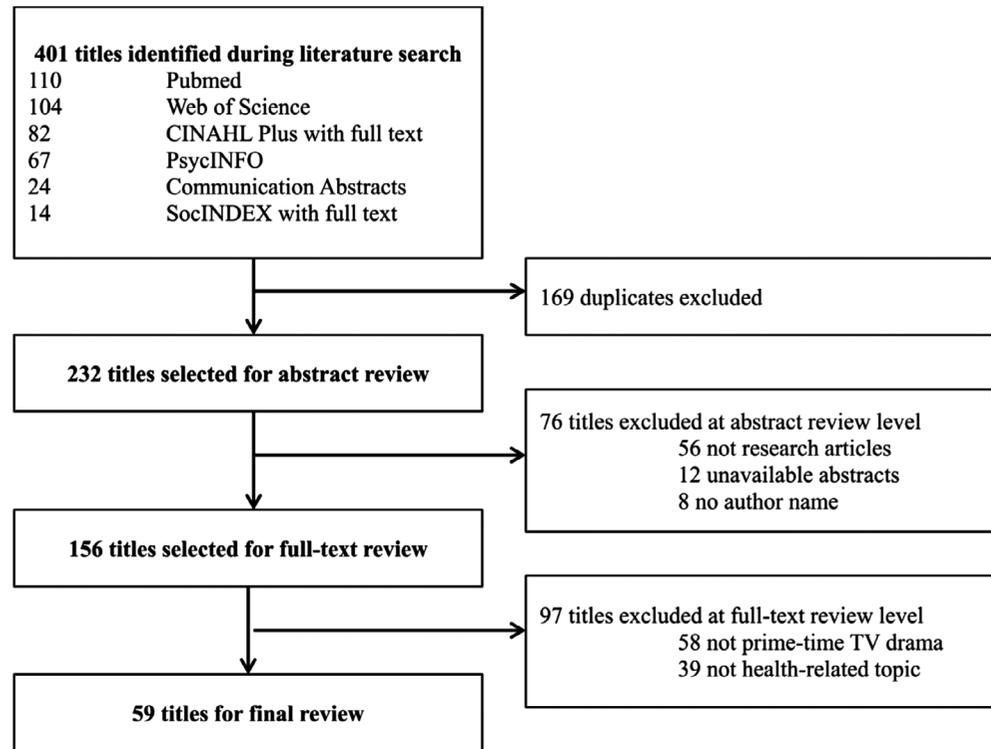
3.1. Literature search

Our initial search identified 401 titles, from which we selected 232 for a review of the abstract; these were narrowed down further to 156 for full-text reviews (Figure 1). We selected a total of 59 studies for the final review.

4. First perspective: Constructs in persuasive communication processes

Of the 59 studies we reviewed, none (0.0%) included sender characteristics, 29 (49.2%) analyzed content portrayal, two (3.4%) assessed audience characteristics, and 28 (47.4%) evaluated viewers’

Figure 1. Literature search and study selection process.



knowledge, attitudes, or behaviors in response to the messages received. Of the 28 studies involving audience response, 17 examined the actual status in knowledge, attitudes, or behaviors, and 11 studies examined the changes in audience knowledge, attitudes, or behaviors before/after or with/without exposure (Figure 2).

Figure 2. Trend in media-effects research (by constructs of communication process).

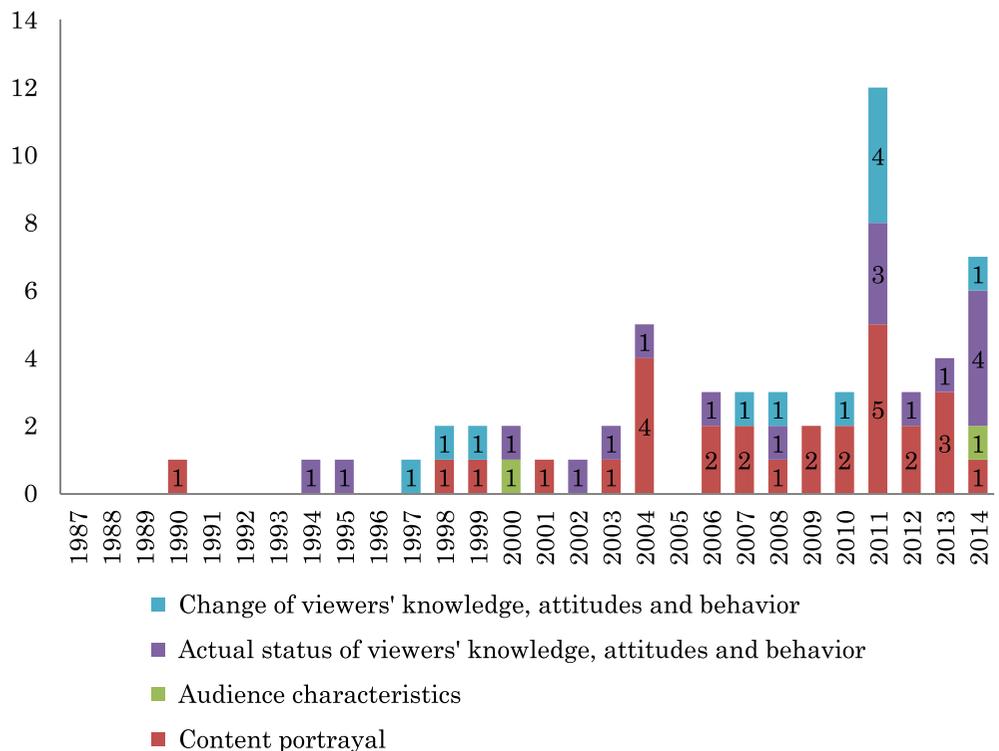


Table 1. Characteristics of content portrayals in 29 studies

Authors (year)	Drama names*	Health topics**	Type of analysis
<i>Bioethics and professionalism</i>			
Czarny et al. (2010)	Grey's Anatomy, House M.D.	Bioethics and professionalism	QA
Hirt et al. (2013)	ER, Grey's Anatomy, House M.D., Scrubs	Medical education	QU
<i>Pro-healthy and pro-social behaviors</i>			
Gordon et al. (1998)	Cardiac Arrest (UK), Casualty (UK), Medics (UK)	CPR	QA
Van den Bulck and Damiaans (2004)	Spoed (Belgium)	CPR	QA
Harris and Willoughby (2009)	Casualty (UK), ER, Grey's Anatomy, Holby City (UK)	CPR	QA
Hinkelbein et al. (2014)	ER	CPR	QA
Moeller et al. (2011)	ER, Grey's Anatomy, House M.D., Private Practice	Seizure first aid	QA
Harbaugh et al. (2011)	ER, Grey's Anatomy, House M.D., Mercy, Miami Medical, Private Practice, Scrubs, Three Rivers, Trauma	Organ donation and transplantation	QA
<i>Unhealthy and anti-social behaviors</i>			
Wallack, Grube, Madden, and Breed (1990)	NA	Alcohol drinking	QA
Kanda et al. (2006)	NA, Dramas aired in Japan	Smoking	QA
<i>Illness</i>			
Arrington and Goodier (2004);	NYPD Blue	Prostate cancer	QU
Van den Bulck and Damiaans (2004)	Spoed(Belgium)	Cardiovascular disease	QA
Gordon et al. (1998)	Cardiac Arrest (UK), Casualty (UK), Medics (UK)	Cardiovascular disease	QA
Hetsroni (2009)	Chicago Hope, ER, Grey's Anatomy	Illness in general	QA
Ye and Ward (2010)	ER, Grey's Anatomy	Illness in general	QA
<i>Medicine and healthcare system</i>			
Harter and Japp (2001)	Chicago Hope, ER	Medical technology	QU
Lepofsky et al. (2006)	ER	Modern health care	QU
Rich et al. (2008)	House M.D.	Modern health care	QU
Foss (2011)	Chicago Hope, ER, Grey's Anatomy, House M.D.	Medical error	QA
<i>People (HCP)</i>			
Henderson and Franklin (2007)	Holby City (UK), Hollyoaks (UK), The Bill (UK)	Social care professional	QA
Rich et al. (2008)	House M.D.	Physician	QU
Khiun (2011)	White Tower (Japan), White Tower (South Korea), White Tower (Taiwan)	Physicians	QU
Strauman and Goodier (2011)	House M.D.	Physicians	QU
Washington (2012)	ER, Grey's Anatomy	HCPs	QU
Jain and Slater (2013)	ER, Grey's Anatomy, House M.D.	HCPs	QA
Sheridan and O'Sullivan (2013)	Bodies (UK)	Healthcare management	QU
<i>People (non-HCP)</i>			
Wilson et al. (1999)	Dangerfield (UK), Halifax f.p. (AU), Heartbeat (UK), Casualty (UK), Peak Practice (UK), Cracker (UK), Blue Heelers (AU), The Bill (UK), Cover Story (NZ)	Patients (Mental illness)	QA
Greenberg et al. (2003)	NA	Obese characters	QA
Batchelor et al. (2004)	Dawson's Creek	Sexuality in young people	QU
Kessler et al. (2004)	NA, Dramas aired in Germany	Elders	QA
Primack et al. (2012)	ER	Patients admitted to Emergency Department	QA
Hetsroni (2009)	ER, Chicago Hope, Grey's Anatomy	Patients in general	QA

(Continued)

Table 1. (Continued)

Authors (year)	Drama names*	Health topics**	Type of analysis
<i>Patient-HCP communication</i>			
Goodier and Arrington (2007);	NYPD Blue	Patient-HCP communication	QU
Jain and Slater (2013)	ER, Grey's Anatomy, House M.D.	Patient-HCP communication	QA

Notes: HCP = Health Care Professional; CPR = cardiopulmonary resuscitation; QA = quantitative; QU = qualitative.

*Country of creation is US unless otherwise indicated.

**Some studies had more than two topics of content portrayal.

5. Second perspective: Health topics

5.1. Content portrayal (Table 1)

Of the 29 studies that analyzed content portrayal of prime-time TV dramas, 18 were quantitative and 11 were qualitative. Two of these studies examined bioethics and professionalism in prime-time TV medical dramas. One study conducted by Czarny, Faden, and Sugarman (2010), quantitatively analyzed the presentation of bioethics- and professionalism-related content in *Grey's Anatomy* and *House M.D.*, finding less of the second than the first. The other study, by Hirt, Wong, Erichsen, and White (2013), qualitatively analyzed *ER*, *Grey's Anatomy*, *House M.D.*, and *Scrubs* and showed the usefulness of each drama in teaching bioethics and professionalism to medical undergraduates in Canada.

The portrayal of behaviors was divided into two categories: (1) positive behaviors toward another person, and (2) unhealthy behaviors of an individual. The former category included cardiopulmonary resuscitation (CPR), first-aid skills administered for seizure episodes, and organ donation. The latter category included binge drinking, smoking, and unprotected sexual behavior. Four studies analyzed the portrayal of CPR in prime-time TV medical dramas originating in Belgium, the UK and the US. Gordon, Williamson, and Lawler (1998) showed how the CPR that was depicted in the UK medical dramas varied more, sometimes incorrectly, from real life, but the overall success rate was close to reality. Thus, the British TV medical dramas could not be blamed thoroughly for their depiction of CPR (Gordon et al., 1998). Harris and Willoughby (2009) found in their content analysis of UK and US medical dramas that CPR was portrayed as equally successful amongst young and old age groups, which is not realistic, despite the similarity with the overall immediate, real-life success rates (Harris & Willoughby, 2009). Hinkelbein et al. (2014) conducted a detailed analysis of the quality of CPR by comparing TV dramas *ER* with the American Heart Association (AHA) guidelines and found that only one CPR reenactment out of 136 cardiac arrest scenes was in agreement with those guidelines.

Similarly, Moeller, Moeller, Rahey, and Sadler (2011) investigated whether *ER*, *Grey's Anatomy*, *House M.D.*, and *Private Practice* portrayed proper seizure first-aid by comparing them with the Epilepsy Foundation of America guidelines. They found both inappropriate (43.1%) and appropriate first-aid (32.3%) portrayed in the scenes, and argued that the professional actors could easily incorporate the guidelines without sacrificing dramatic impact. Harbaugh et al. (2011) investigated the representation of organ transplants in recent medical dramas when the donation rate hit plateau and observed that episodes in US medical dramas containing only negative messages had over twice the household viewership compared with episodes that contained only positive messages (8.4 million vs. 4.1 million, $p = 0.01$); they voiced concern over the contribution of such productions to the US public's misperception of organ donation and transplantation.

Six studies evaluated the portrayal of illness in TV dramas. Arrington and Goodier (2004), for example, qualitatively analyzed how prostate cancer support groups, as well as prostate cancer itself, were portrayed in one episode of the US prime-time police drama, *NYPD Blue*. Hetsroni (2009) quantitatively analyzed all seasons of *Chicago Hope*, *ER*, and *Grey's Anatomy* and found more dramatic diseases were portrayed in these prime-time TV dramas compared with national statistics of diagnoses in US hospitals. Using cultivation theory and media system dependency theory, he explained the possible

impact of repeatedly watching representations of these overestimated diseases. Ye and Ward (2010) showed that *ER* and *Grey's Anatomy* included a wide range of illnesses, with injury, cardiovascular disease, and cancer being the top three most frequently portrayed.

Of the 29 studies that analyzed content portrayal of prime-time TV dramas, 16 (55.2%) analyzed the depiction of health professionals. Six of these 16 studies analyzed the portrayal of healthcare professionals, including physicians (Jain & Slater, 2013; Khiun, 2011; Rich, Simmons, Adams, Thorp, & Mink, 2008; Sheridan & O'Sullivan, 2013; Strauman & Goodier, 2011) and social workers (Henderson & Franklin, 2007). *House M.D.*, a popular US medical drama, has been analyzed extensively; the main character, Dr. Gregory House, is portrayed as a “detective-like” doctor who does not enjoy communicating with patients, but rather prefers to diagnose symptoms. His eccentric attitude would be unacceptable in today's medical settings. However, according to Strauman and Goodier (2011), audiences may desire this new “doctor-hero”. Khiun (2011) assessed differences among Japanese, Taiwanese, and South Korean dramas that were produced from the same book, “The Great White Tower”. The doctors portrayed in these East Asian dramas, which aired in 2003 (Japan), 2006 (Taiwan) and 2007 (South Korea), were politically-oriented (paying attention to the politics of their hospital to survive in their positions) and worked in what was represented as a predominantly male organization, a university hospital.

Nine of the 16 studies analyzed how people, other than healthcare professionals, were portrayed in health-related matters. Four of the nine studies focused on patients with particular illnesses such as cardiovascular diseases (Gordon et al., 1998), seizures (Moeller et al., 2011), mental illness (Wilson, Nairn, Coverdale, & Panapa, 1999), and obesity (Greenberg, Eastin, Hofschire, Lachlan, & Brownell, 2003). In their empirical study of the representation of aging in prime-time TV dramas aired in Germany, Kessler, Rakoczy, and Staudinger (2004) found that the elderly, and especially women, were underrepresented and the gender roles portrayed were traditional. Primack et al. (2012) compared sociodemographic and medical characteristics of patients depicted on the TV medical drama *ER* with actual US emergency room patients and concluded that women and non-white patients were underrepresented in televised medical dramas. These groups were also found to be underrepresented in Hetsroni's (2009) analysis of the TV medical dramas, *Chicago Hope* and *Grey's Anatomy*. Batchelor, Kitzinger, and Burtney (2004) reported that teenagers in the UK were exposed to opportunities for useful discussions based on information in teen dramas about teenage pregnancy, sexual health concerns, including sexually transmitted infections among young people. However, among the negative aspects, the responsibility of young men was underrepresented, there was a lack of positive images of LGBT teenagers, as well as a general failure to represent diversity.

Four studies analyzed the portrayal of medicine or healthcare in televised dramas (Foss, 2011; Harter & Japp, 2001; Lepofsky, Nash, Kaserman, & Gesler, 2006; Rich et al., 2008). Foss (2011) observed that medical errors were typically blamed on the health professional's inexperience, institutional flaws, and temporary personal problems. In their examination of the TV medical drama, *ER*, from the perspective of medical/health geography (health care's contemporary geography), Lepofsky et al. found that the drama provided a realistic portrayal of the role of healthcare today. Using Kenneth Burke's (1969) theory of symbolic action, Harter and Japp (2001) explained that “defining technology as representative anecdote” in medical dramas “captures ... the pervasive power and promise of technology, and how it has shaped our understandings of health, illness, the body,” healthcare professionals and medical institutions, as well as “diagnosis and treatment” of patients (p. 411).

Jain and Slater (2013) found that female physicians and international medical graduates were underrepresented in medical dramas. In addition, patient-oriented behaviors such as patient navigation and patient education were shown less than real-life though many aspects of real-life patient-centered communication, such as active listening, information exchange, cultural respectfulness, are modeled more on US reality TV shows than on TV medical dramas. These underrepresented components might have resulted in skewed perceptions and expectations regarding patient-physician interactions in real life.

5.2. Audience characteristics

Two of the 59 studies we reviewed examined motives for watching medical dramas. Davin (2000) was the first to explore the motivations of UK audiences for watching the US medical drama, *ER*, and found that they accepted *ER* as a trustworthy source of health information. Thus, he suggested that medical dramas can be useful tools in health promotion messaging. The other study explored the motives of *ER*, *Grey's Anatomy*, and *House M.D.* viewers in the US, using a uses and gratifications theory perspective (Lee & Taylor, 2014). The results showed a positive association between viewing motive and use of health information from the drama. Additionally, entertainment-related motives showed indirect and positive associations with the use of health information from the drama via narrative involvement and/or involvement with characters.

5.3. Audience knowledge, attitudes, and behavior (Tables 2 and 3)

The medical dramas reviewed in this category of media-effects research were *Casualty*, *ER*, *Grey's Anatomy*, *House M.D.*, *Private Practice*, *Scrubs*, *Shrinks*, *Spoed*, and *Three Rivers*. Seven (28.0%) of the 25 dramas we identified in our studies were non-medical genres; these included *Desperate Housewives*, *Law & Order: SVU*, *NCIS*, *NSI*, *Sex and the City*, and *The West Wing*.

Table 2. Actual status of audience knowledge, attitudes, and behavior (N = 17)

Authors (year)	Audience	Drama title, if mentioned	Topic	Research design
<i>Bioethics and professionalism</i>				
Czarny et al. (2008)	US med students	ER, Grey's Anatomy, House M.D., Nip/Tuck	Bioethics	QA
Weaver and Wilson (2011)	Australian undergrad med students	House M.D., Scrubs, Grey's Anatomy, ER, Private Practice, All Saints(Australian)	Bioethics and professionalism	QA
Weaver et al. (2014)	Australian undergrad med students	Grey's Anatomy, House M.D.	Professionalism	QA
<i>Illness and health beliefs</i>				
Becker (2004)	Fiji teen girls	NA, Dramas aired in Fiji	Eating disorder, body image change	QU
Zoller and Worrell (2006)	US	The West Wing	Multiple Sclerosis	QU
Kennedy et al. (2011)	US	Law & Order SVU	Environmental exposure to toxic substances	QA
Chung (2014)	US	Medical dramas in general	Perception of health	QA
<i>People portrayal</i>				
Cho et al. (2011)	US undergrads	ER, Grey's Anatomy, House M.D.	Perception of physicians	QA
Stinson and Heischmidt (2012)	US undergrads	House M.D., Grey's Anatomy, Scrubs, Private Practice, ER	Perception of physicians	QA
Sancho-Aldridge and Gunter (1994)	UK	Shrinks(UK)	Psychiatrists, patients	QA
Hetsroni (2014)	US general audience	ER, House M.D., Grey's Anatomy	Genre-specific drama viewing effect, elderly, diseases	QA
<i>Pro-health and pro-social behaviors</i>				
Hust et al. (2013)	US undergrads	Law & Order, NSI, NCIS	Intervene in sexual assault situation	QAs
Khalil and Rintamaki (2014)	US	Three Rivers	Organ donation	QA
Van den Bulck (2002)	Belgium	Spoed(Belgium)	CPR	QA
<i>Unhealthy and anti-social behaviors</i>				
Simkin, Hawton, Whitehead, Fagg, and Eagle, 1995	UK	Casualty(UK)	Substance self-poisoning	QA
Krcmar and Greene (2000)	US high school and college students	NA, Dramas aired in US	Risk-taking behavior among adolescents11-17	QA
Godbold Kean and Fudge Albada (2003)	US undergrads	20 prime time TV shows	Alcohol	QU, QA

Notes: QA = quantitative; QU = qualitative.

Of the 28 studies in this category, 17 (60.7%) examined the actual status of audience knowledge, attitudes, and/or behaviors (Table 2). Three studies examined bioethics or professionalism, or both, in medical and/or nursing students in Australia and the US, and showed that US medical dramas were useful as a teaching tool (Czarny, Faden, Nolan, Bodensiek, & Sugarman, 2008; Weaver & Wilson, 2011; Weaver, Wilson, & Langendyk, 2014). Two studies examined the influence of TV viewing hours on patients’ perceptions of physicians. One of the studies, conducted by Stinson and Heischmidt (2012), found that “television exposure only negatively affected patients’ perceptions of physicians in regards to physical attractiveness and character, but not to physician propriety, power, communication, sociability, extroversion, competence, and composure” (p. 66). They discussed that this could be due to the actors themselves who are more physically attractive in the drama than doctors in real-life. The authors of the other study, Cho, Wilson, and Choi (2011), reached similar conclusions in their

Table 3. Change in audience knowledge, attitudes, and behaviors (N = 11)

Authors (year)	Intervention (drama title if mentioned)	Topic	Research design and participants	Measures
<i>Illness and health</i>				
An et al. (2014)	Switched at Birth	Deafness	Pre-post comparison of 243 US general audience	Knowledge, attitude toward deafness
Bouman et al. (1998)*	Medisch Centrum West (NDL)	Cardiovascular disease	Post-test only design, telephone interview, 3 points, n = 754, 243), NDL	Identification, recognition, credibility, realism, talking with others, appreciation, knowledge
Fernando et al. (2011)*	Warriors (UK)	PTSD trauma in veterans	Pre and post-test survey to about 4000 UK veterans	Health perception fatigue, PTSR, common mental disorders
Hawton et al. (1999)*	Casualty (UK)	Self-poisoning	Two times post surveys (1 wk and 32 wks after broadcasting), UK	Knowledge related to <i>paracetamol</i> poisoning
Hether et al. (2008)**	ER, Grey’s Anatomy	Breast cancer	3 wave surveys, US general audience	Knowledge of BRCA gene and breast cancer (BC) risks, attitudes about BC, behavioral intentions to BC screening, self-reported behaviors
Murphy et al. (2011)*	Desperate Housewives	Lymphoma	Pre and post test to 167 females, US general viewers	Health status, involvement with a character, involvement with the narrative, emotion, knowledge, attitude, behavior
<i>Valente et al. (2007)**</i>				
Valente et al. (2007)**	ER	Teen obesity, hypertension, 5 a day	Surveys at 3 different sources, US general audience	Knowledge of 5 A Day, nutrition attitudes, nutrition practices, self-reported behavior change
Moyer-Gusé et al. (2011)	Sex and the City	Sexual health	3 wave surveys (pre, 24 h later, 2wk later) of 243 undergraduates, US	Past sexual behavior, self-efficacy, behavioral intention, counterarguing, perceived vulnerability, identification,
<i>Education</i>				
Alvarado and Maskiewicz (2011)	House M.D.	Medical education	Mixed-methods study, Nervous system, Immune system test groups (n = approx. 15~32), arms of control, experiment 1, and experiment 2, US California high school students(15–19 yrs)	N.A.
Østbye et al. (1997)	ER	Medical education	Canada	N.A.
<i>Unhealthy and anti-social behaviors</i>				
Moyer-Gusé (2010)	Grey’s Anatomy, CSI, Gossip Girl	Sexual risk	2(genre: dramatic narrative, news)x2(perceived message intent: entertain, persuade) between-subjects, experiment, n = 137, US undergrads	Past sexual behavior, perceived vulnerability of contracting a STI, preference for television

Notes: NDL = the Netherlands; PTSD = post-traumatic stress disorder; STI = sexually transmitted infection; PTSR = posttraumatic stress reaction.

*Dramas were created without consultation with researchers + real-life exposure.

**Dramas were created in consultation with researchers + real-life exposure.

analysis of the same medical dramas: *ER*, *Grey's Anatomy*, and *House M.D.* Furthermore, Krcmar and Greene (2000) demonstrated that exposure to violent drama was negatively related to risk-taking behavior; however, exposure to realistic crime shows and exposure to contact sports was positively related to risk taking behavior. In research conducted by Kennedy et al. (2011), episode viewing and narrative transportation (Green et al., 2004) were positively associated with knowledge of toxic exposure effects, and transported viewers revealed that they were more likely to report an unusually high number of cancer cases to authorities. Hust et al. found viewing an episode with a message for bystanders to intervene in a sexual assault positively supported viewers' perceived social norms, perceived efficacy of intervening and correct knowledge of rape myth acceptance (Hust et al., 2013). Exposure to prosocial message in the TV drama *Three Rivers* was positively associated with positive discussion of organ donation among viewers in the US (Khalil & Rintamaki, 2014). On the other hand, one research source showed that TV drama's influence remained strong even when audiences have practical knowledge of the issue at stake. Young audiences in Flanders, Belgium, showed a tendency towards overestimating survival chance after in hospital resuscitation by healthcare professionals, upon consuming the medical drama, *Spoed* (meaning *Emergency* in English) (Van den Bulck, 2002). They also found that this tendency was moderated but not eliminated by the audience's practical knowledge of CPR.

Eleven (39.3%) of the 28 studies examined changes in the audience's knowledge, attitudes, or behaviors before/after or with/without exposure to certain drama clips, at various points in time following exposure (i.e. immediately to months later) (Table 3). In this category, all the studies used drama clips as an intervention. There were two types of experiments: one was a pre- and post-exposure survey, and the other was three wave survey.

Three of the eleven studies used pre- and post-exposure surveys. In a study by Murphy, Frank, Moran, and Patnoe-Woodley (2011), character involvement was the best predictor of change in relevant knowledge, attitudes, and behaviors. In their study of the impact of a TV drama starring a deaf character, An et al. (2014) observed positive attitude changes in social interaction and deafness-as-handicap dimensions, consistent with the program content, which depicted positive deaf-hearing friendships and capable deaf characters. Fernando et al. (2011) analyzed the impact of a war drama on the psychological health of veterans who experienced military deployment in Bosnia and found the veterans were not observably affected by the drama.

Hether et al. (2008), Valente et al. (2007), and Moyer-Gusé, Chung, and Jain (2011) employed three-wave surveys to assess the short- and long-term influence of TV dramas on viewers' knowledge, attitudes, and behaviors. Hether et al. (2008) examined how multiple exposures to one health message can be effective in a media-saturated modern society. They showed that the combined exposure to two dramas with the same message seemed to be most effective in changing viewers' knowledge, attitudes and behaviors related to breast cancer. Valente et al. (2007) evaluated a storyline in the TV drama, *ER*, about teen obesity, hypertension, and the 5 A Day campaign—the latter carried out in the US, the UK and Germany with the objective of encouraging consumption of at least five portions of fruit and vegetables each day—on knowledge, attitudes and behaviors. They found the storyline affected self-reported behavior change and had modest impacts on knowledge, attitudes, and practices. In contrast to these two studies, which used viewer panels, Moyer-Gusé et al. (2011) set up an experiment in which undergraduates were randomly assigned to view one of two film excerpts: one that depicted characters engaged in sexual discussion and one that did not. They concluded that identification with the characters facilitated sexual discussion among the viewers by enhancing the audience's self-efficacy and reducing counter-arguing.

6. Third perspective: Theories behind studies on change in audience knowledge, attitudes and behavior

Among the 11 studies on changes in viewers' knowledge, attitudes, and behaviors, out of the 28 involving audience response, we identified several underlying theories. Each of these studies used

before/after exposure to certain TV drama clips and varied the time of exposure from immediately to months later.

6.1. Cultivation theory

Developed by Gerbner and Gross (1976), cultivation theory examines the long-term effects of television viewing. It states that the more time people spend watching the television, the more likely they are to believe the social reality portrayed on television (Gerbner, 1998). Hether et al. (2008) showed that a cultivation function, or “additive effect can be found when viewers are exposed to multiple storylines with a similar theme across different TV programs” (p. 820) in a media-saturated culture like the United States—in this case, a storyline about a breast cancer gene mutation (BRCA) test.

6.2. Social cognitive theory

Social cognitive theory posits that an individual can learn by observing and imitating the overt behavior of others in real life or on television (i.e. vicarious learning) (Bandura, 2001). In Valente et al.’s work (2007), observational learning and behavioral modeling required identification with characters, which “is related positively to increased attention, mental rehearsal of arguments, and modeling of behavior” (p. 552) (See also, Sharf, Freimuth, Greenspon, & Potnick, 1993; Sood, 2004). Bouman, Maas, and Kok (1998) explained that the Dutch drama, *Medisch Centrum West*, had already been established and did not follow the EE guidelines used in developing countries. However, “social cognition” as well as “agenda setting” and “uses and gratifications”, which we will explain later in this section, were applied by the Netherland Heart Foundation (NHF) in the design of the script to include actual cardiovascular issues in the drama.

6.3. Narrative transportation theory

Narrative transportation theory, or simply, transportation theory, has been conceptualized as “a distinct mental process, an integrative melding of attention, imagery, and feelings” (Green & Brock, 2000, p. 701). Moyer-Gusé et al. (2011) approached this theory, particularly focused on the core component of identification with characters. In their study, greater identification with characters “facilitated [the] effect by enhancing viewers’ self-efficacy and reducing counterarguing” (p. 387) in sexual health conversation with sexual partners. The result of their study was also consistent with Social Cognitive Theory and with the processes laid out by both the extended elaboration likelihood model (E-ELM) and the entertainment overcoming resistance model (EORM) (p. 402). The EORM posits that identification with a character who is vulnerable to a threat will increase a viewer’s own perceived vulnerability to the threat (p. 403). This is because of “the vicarious cognitive and emotional process that characterizes identification” (p. 392). During the process of identification, a viewer vicariously experiences the thoughts, emotions, behaviors, and consequences of that character (Cohen, 2001). Murphy et al. (2011) found that involvement with narratives and characters were predictors in changing knowledge, attitudes, and behaviors toward lymphoma among women who watched the program, *Desperate Housewives*.

6.4. Agenda setting

Initially conceptualized by McCombs, Shaw, and Weaver (2014), agenda setting has been developed on the basis of the 1968 US presidential campaign: specifically, the ability of the news media to influence the salience of topics on the public agenda. Bouman et al. (1998) found that talking with others about popular TV dramas stimulated people to consider and incorporate the drama’s ideas and messages.

6.5. Uses and gratifications theory

Uses and gratifications theory is an approach to understanding why and how people actively seek out specific media to satisfy specific needs with respect to mass communication (Rubin & Perse, 1987). Bouman et al. (1998) explained that a TV drama must be sufficiently gratifying to the viewers so that they will watch, and therefore be exposed to, the educational message multiple times to maximize its effect.

7. Discussion

In this literature review, we mapped the studies of influence of prime-time TV dramas containing health messages, which were used as a medium of EE in developed countries. While we limited our investigation to English-language publications, the studies we reviewed were conducted in the UK, the Netherlands, and Australia and nearly half of the studies were conducted in the US, a media-saturated society with a well-established entertainment industry.

In developed countries, it is a challenge for health communicators to convey pro-social and pro-health messages to a target audience because the target audience's media consumption behavior varies. Today, it is necessary to employ multiple information sources to maximize public reach. Entertainment is one of the last frontiers for health communication. EE has been developed for its efficacy in health campaigns in developing countries, where traditional text-based literacy is limited. In developed countries, EE has been explored and elaborated upon extensively in empirical research.

Recent rapid change in the entertainment industry, facilitated by Information and Communication Technology (ICT) expansion in developed and developing countries, has increased audiences' ease of access to entertainment narratives such as feature films and border-free TV productions. Entertainment narratives can arguably become a health information source for audiences around the world. These narratives may convey both negative messages (e.g. scenes of smoking, violence, and unsafe sex) and positive messages (e.g. scenes of safe sex, healthy diets, and non-smokers). For many years, health communication researchers have been studying the effects of extant narrative content, and health campaigners in developing countries have historically studied the effects of their created content. More recently, in a systematic review, Shen and Han (2014) evaluated the effectiveness of EE in radio and TV channels in both developed and developing countries. Importantly, they observed that EE had a modest effect on increasing health knowledge, changing attitudes and intentions, and affecting health behaviors.

In the present review, our three main findings were: (1) no research was conducted to study the drama producers; (2) most of the studies evaluated the already broadcast narratives; and (3) few established research designs have been developed to evaluate changes in knowledge, attitudes, and behaviors in real-life situations. We argue that it is important in communication research to study what we call "senders" i.e. TV drama and film producers, particularly due to these being influenced by their sponsors. In commercial industries, product placement has been widely used with success in brand enhancement and sales increase. With respect to our second finding, we suggest that it is essential to monitor current entertainment narratives for the messages they are conveying. Unfortunately, most of the studies covered in our review focused on the influence of already broadcast narratives, which we contend is looking backward; many health communicators are one step behind the immediate issues. To target prospectively, then, we must be able to reach out to senders to adjust pro-social and pro-health messages prior to their production. Finally, we believe that consuming entertainment narratives in real-life brings about different influences on an audience's knowledge, attitudes, and behaviors, compared with those observed during experiments. Very few of the studies we reviewed tried to measure the effects of pro-health messages in TV dramas during live TV programming. However, because ICT development allows consumers today to freely access entertainment narratives, studying the effects of EE in real-life may become more practically challenging for researchers.

Many US medical dramas are exported all over the world. Future research should compare cultural and societal differences in the influence of US versus foreign dramas on audiences in various countries. We identified four studies of this kind: two in Australia, one in Canada, and one in the UK. The studies in Australia and Canada showed the usefulness of the US medical dramas, *ER*, *Grey's Anatomy*, and *House M.D.*, among others, as teaching materials for medical undergraduates in their bioethics or medical professionalism courses (Østbye, Miller, & Keller, 1997; Weaver & Wilson, 2011; Weaver et al., 2014). Davin's (2000) exploratory study of what motivates British residents to watch

the US medical drama, *ER*, showed the potential for the drama to be a health promotion resource. In marketing communication research, product placement has been cross-culturally examined within Western countries, and has been shown to have positive influence on purchasing behaviors (Gould, Gupta, & Grabner-Kräuter, 2000). Therefore, it is likely that, while the influence of prime-time TV dramas and feature films on audience knowledge, attitudes, and behaviors is apt to differ in other cultures and societies, it may deliver the same pro-health messages.

8. Limitations

One limitation of this study is the exclusion of studies on soap opera dramas, which are broadcast on TV networks during the early afternoon; we excluded these because soap opera ratings have fallen significantly in the US and other developed countries since the 2000s. We also excluded dramas created by health promotion campaigners, even if they were intended for TV networks, because those campaigners were direct sponsors and thus had political and financial influence in creating the dramas. These dramas were not aligned with the goals of our study.

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Author details

Mio Kato¹
E-mail: mkato-ctr@umin.ac.jp
Hirono Ishikawa¹
E-mail: hirono-tyk@umin.ac.jp
Tsuyoshi Okuhara¹
E-mail: okuhara-ctr@umin.ac.jp
Masafumi Okada¹
E-mail: sokada-tuk@umin.ac.jp
Takahiro Kiuchi¹
E-mail: tak-kiuchi@umin.ac.jp

¹ Department of Health Communication, School of Public Health, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8655, Japan.

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References

- Alvarado, M., & Maskiewicz, A. C. (2011). Teaching high school physiology using a popular TV medical drama. *The American Biology Teacher*, 73, 322–328. doi:10.1525/abt.2011.73.6.4
- An, S., Paine, L. E., McNiel, J. N., Rask, A., Holder, J. T., & Varan, D. (2014). Prominent messages in television drama switched at birth promote attitude change toward deafness. *Mass Communication & Society*, 17, 195–216. doi:10.1080/15205436.2013.804934
- Arrington, M. I., & Goodier, B. C. (2004). Prostration before the law: Representations of illness, interaction, and intimacy in the NYPD blue prostate cancer narrative. *Popular Communication*, 2, 67–84. doi:10.1207/s15405710pc0202_1
- Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology*, 3, 265–299. doi:10.1207/s1532785XMEP0303_03
- Batchelor, S., Kitzinger, J., & Burtney, E. (2004). Representing young people’s sexuality in the ‘youth’ media. *Health Education Research*, 19, 669–676. doi:10.1093/her/cyg082
- Becker, A. E. (2004). Television, disordered eating, and young women in Fiji: Negotiating body image and identity during rapid social change. *Culture, Medicine and Psychiatry*, 28, 533–559. doi:10.1007/s11013-004-1067-5
- Bouman, M., Maas, L., & Kok, G. (1998). Health education in television entertainment—Medisch Centrum West: a Dutch drama serial. *Health Education Research*, 13, 503–518. doi:10.1093/her/13.4.503
- Bryant, J., & Oliver, M. B. (2009). *Media effects: Advances in theory and research* (3rd ed.). New York, NY: Routledge.
- Cho, H., Wilson, K., & Choi, J. (2011). Perceived realism of television medical dramas and perceptions about physicians. *Journal of Media Psychology-Theories Methods and Applications*, 23, 141–148. doi:10.1027/1864-1105/a000047
- Chung, J. E. (2014). Medical dramas and viewer perception of health: Testing cultivation effects. *Human Communication Research*, 40, 333–349. doi:10.1111/hcre.12026
- Cohen, J. (2001). Defining identification: A theoretical look at the identification of audiences with media characters. *Mass Communication and Society*, 4, 245–264. doi:10.1207/s15327825MCS0403_01
- Czarny, M. J., Faden, R. R., Nolan, M. T., Bodensiek, E., & Sugarman, J. (2008). Medical and nursing students’ television viewing habits: Potential implications for bioethics. *The American Journal of Bioethics*, 8(12), 1–8. doi:10.1080/15265160802559153
- Czarny, M., Faden, R., & Sugarman, J. (2010). Bioethics and professionalism in popular television medical dramas. *Journal of Medical Ethics*, 36, 203–206. doi:10.1136/jme.2009.033621
- Davin, S. (2000). Medical dramas as a health promotion resource—an exploratory study. *International Journal of Health Promotion and Education*, 38, 109–112. <https://doi.org/10.1080/14635240.2000.10806159>
- Davin, S. (2003). Healthy viewing: The reception of medical narratives. *Sociology of Health & Illness*, 25, 662–679. doi:10.1111/1467-9566.00364
- Fernando, A., Hull, L., Greenberg, N., Fear, N. T., Hotopf, M., & Wessely, S. (2011). “Warriors”: Impact of a powerful television drama on the psychological health of U.K. Bosnia peacekeepers. *Annals of Epidemiology*, 21, 660–665. doi:10.1016/j.annepidem.2011.03.011
- Foss, K. A. (2011). “When we make mistakes, people die!”: Constructions of responsibility for medical errors in televised medical dramas, 1994–2007. *Communication Quarterly*, 59, 484–506. doi:10.1080/01463373.2011.597350
- Gerbner, G., & Gross, L. (1976). Living with television: The violence profile. *Journal of Communication (Pre-1986)*, 26, 172.
- Gerbner, G. (1998). Cultivation analysis: An overview. *Mass Communication Society*, 1, 175–194. doi:10.1207/s15327825mcs0103&4_4
- Godbold Kean, L., & Fudge Albada, K. (2003). The relationship between college students’ schema regarding alcohol use, their television viewing patterns, and their previous experience with alcohol. *Health Communication*, 15, 277–298. doi:10.1207/s15327027HC1503_2

- Gould, S. J., Gupta, P. B., & Grabner-Kräuter, S. (2000). Product placement in movies: A cross-cultural analysis of Austrian, French and American consumers' attitudes toward this emerging, international promotional medium. *Journal of Advertising*, 29, 41–58. <https://doi.org/10.1080/00913367.2000.10673623>
- Goodier, B. C., & Arrington, M. I. (2007). Physicians, patients, and medical dialogue in the NYPD blue prostate cancer story. *Journal of Medical Humanities*, 28, 4–58. doi:10.1007/s10912-006-9028-3
- Gordon, P. N., Williamson, S., & Lawler, P. G. (1998). As seen on TV: Observational study of cardiopulmonary resuscitation in British television medical dramas. *British Medical Journal*, 317, 780–783. <https://doi.org/10.1136/bmj.317.7161.780>
- Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, 79, 701–721. doi:10.1037/0022-3514.79.5.701
- Green, M. C., Brock, T. C., & Kaufman, G. F. (2004). Understanding media enjoyment: The role of transportation into narrative worlds. *Communication Theory*, 14, 311–327. doi:10.1093/ct/14.4.311
- Green, M. C., & Clark, J. L. (2013). Transportation into narrative worlds: Implications for entertainment media influences on tobacco use. *Addiction*, 108, 477–484. doi:10.1111/j.1360-0443.2012.04088.x
- Greenberg, B. S., Eastin, M., Hofschire, L., Lachlan, K., & Brownell, K. D. (2003). Portrayals of overweight and obese individuals on commercial television. *American Journal of Public Health*, 93, 1342–1348. doi:10.2105/AJPH.93.8.1342
- Harbaugh, C., Afana, M., Burdick, S., East, J., Kodali, S., Lee, J., ... Mathur, A. K. (2011). Portrayal of organ donation and transplantation on American primetime television. *Clinical Transplantation*, 25, E375–E380. doi:10.1111/j.1399-0012.2011.01427.x
- Harris, D., & Willoughby, H. (2009). Resuscitation on television: Realistic or ridiculous? A quantitative observational analysis of the portrayal of cardiopulmonary resuscitation in television medical drama. *Resuscitation*, 80, 1275–1279. doi:10.1016/j.resuscitation.2009.07.008
- Harter, L. M., & Japp, P. M. (2001). Technology as the representative anecdote in popular discourses of health and medicine. *Health Communication*, 13, 409–425. doi:10.1207/S15327027HC1304_04
- Hawton, K., Simkin, S., Deeks, J. J., O'Connor, S., Keen, A., Altman, D. G., ... Bulstrode, C. (1999). Effects of a drug overdose in a television drama on presentations to hospital for self poisoning: time series and questionnaire study. *British Medical Journal*, 318, 972–977. <https://doi.org/10.1136/bmj.318.7189.972>
- Henderson, L., & Franklin, B. (2007). Sad not bad: Images of social care professionals in popular UK television drama. *Journal of Social Work*, 7, 133–153. doi:10.1177/1468017307080352
- Hether, H., Huang, G. C., Beck, V., Murphy, S. T., & Valente, T. W. (2008). Entertainment-education in a media-saturated environment: Examining the impact of single and multiple exposures to breast cancer storylines on two popular medical dramas. *Journal of Health Communication*, 13, 808–823. doi:10.1080/10810730802487471
- Hetsroni, A. (2014). Ceiling effect in cultivation: General TV viewing, genre-specific viewing, and estimates of health concerns. *Journal of Media Psychology-Theories Methods and Applications*, 26, 10–18. doi:10.1027/1864-1105/a000099
- Hetsroni, A. (2009). If you must be hospitalized, television is not the place: Diagnoses, survival rates and demographic characteristics of patients in TV hospital dramas. *Communication Research Reports*, 26, 311–322. doi:10.1080/08824090903293585
- Hinkelbein, J., Spelten, O., Marks, J., Hellmich, M., Böttiger, B., & Wetsch, W. (2014). An assessment of resuscitation quality in the television drama emergency room: Guideline non-compliance and low-quality cardiopulmonary resuscitation lead to a favorable outcome? *Resuscitation*, 85, 1106–1110. doi:10.1016/j.resuscitation.2014.05.009
- Hirt, C., Wong, K., Erichsen, S., & White, J. (2013). Medical dramas on television: A brief guide for educators. *Medical Teacher*, 35, 237–242. doi:10.3109/0142159X.2012.737960
- Hust, S., Marett, E., Lei, M., Chang, H., Ren, C., McNab, A., & Adams, P. (2013). Health promotion messages in entertainment media: Crime drama viewership and intentions to intervene in a sexual assault situation. *Journal of Health Communication*, 18, 105–123. doi:10.1080/10810730.2012.688241
- Jain, P., & Slater, M. (2013). Provider portrayals and patient-provider communication in drama and reality medical entertainment television shows. *Journal of Health Communication*, 18, 703–722. doi:10.1080/10810730.2012.757388
- Kanda, H., Okamura, T., Turin, T., Hayakawa, T., Kadowaki, T., & Ueshima, H. (2006). Smoking scenes in popular Japanese serial television dramas: Descriptive analysis during the same 3-month period in two consecutive years. *Health Promotion International*, 21, 98–103. doi:10.1093/heapro/dal007
- Kennedy, M. G., Turf, E. E., Wilson-Genderson, M., Wells, K., Huang, G. C., & Beck, V. (2011). Effects of a television drama about environmental exposure to toxic substances. *Public Health Reports* (1974), 126, 150–159.
- Kessler, E., Rakoczy, K., & Staudinger, U. M. (2004). The portrayal of older people in prime time television series: The match with gerontological evidence. *Ageing and Society*, 24, 531–552. doi:10.1017/S0144686X04002338
- Khalil, G., & Rintamaki, L. (2014). A televised entertainment-education drama to promote positive discussion about organ donation. *Health Education Research*, 29, 284–296. doi:10.1093/her/cyt106
- Khiun, L. K. (2011). Post-Confucian East Asian television dramas: Staging medical politics inside the White Tower. *International Journal of Cultural Studies*, 14, 251–264. doi:10.1177/1367877910391865
- Kincaid, D. L., Yun, S. H., Piotrow, P. T., & Yaser, Y. (1993). Turkey's mass media family planning campaign. In Thomas E. Backer, Everett M. Rogers (Eds.), *Organizational aspects of health communication campaigns: What works?* (pp. 68–92), Newbury Park, CA: Sage Publications.
- Krcmar, M., & Greene, K. (2000). Connections between violent television exposure and adolescent risk taking. *Media Psychology*, 2, 195–217. doi:10.1207/S1532785XMEP0203_1
- Langlieb, A., Cooper, C., & Gielen, A. (1999). Linking health promotion with entertainment television. *American Journal of Public Health*, 89, 1116–1117.
- Lee, T., & Taylor, L. (2014). The motives for and consequences of viewing television medical dramas. *Health Communication*, 29, 13–22. doi:10.1080/10410236.2012.714346
- Lepofsky, J., Nash, S., Kaserman, B., & Gesler, W. (2006). I'm not a doctor but I play one on TV: ER and the place of contemporary health care in fixing crisis. *Health & Place*, 12, 180–194. doi:10.1016/j.healthplace.2004.11.003
- Lettenmaier, C., Krenn, S., Morgan, W., Kols, A., & Piotrow, P. (1993). Africa: Using radio soap operas to promote family planning. *Hygie*, 12, 5–10.
- Lowry, B. (1997). A milestone year, for a decidedly dubious reason. *Los Angeles Times*. Retrieved May 23, 1997 from http://articles.latimes.com/1997-05-23/entertainment/ca-61847_1_recent-years/2on2017/3/6
- McCombs, M. E., Shaw, D. L., & Weaver, D. H. (2014). New directions in agenda-setting theory and research. *Mass Communication and Society*, 17, 781–802. doi:10.1080/15205436.2014.964871

- Moeller, A., Moeller, J., Rahey, S., & Sadler, R. (2011). Depiction of seizure first aid management in medical television dramas. *Canadian Journal of Neurological Sciences*, 38, 723–727. <https://doi.org/10.1017/S0317167100054093>
- Moyer-Gusé, E. (2008). Toward a theory of entertainment persuasion: Explaining the persuasive effects of entertainment-education messages. *Communication Theory [H. W. Wilson - SSA]*, 18, 407.
- Moyer-Gusé, E. (2010). Preference for television programs about sexual risk: The role of program genre and perceived message intent. *Media Psychology*, 13, 180–199. doi:10.1080/15213261003800751
- Moyer-Gusé, E., Chung, A. H., & Jain, P. (2011). Identification with characters and discussion of taboo topics after exposure to an entertainment narrative about sexual health. *Journal of Communication*, 61, 387–406. doi:10.1111/j.1460-2466.2011.01551.x
- Murphy, S. T., Frank, L. B., Moran, M. B., & Patnoe-Woodley, P. (2011). Involved, transported, or emotional? Exploring the determinants of change in knowledge, attitudes, and behavior in entertainment-education. *Journal of Communication*, 61, 407–431. doi:10.1111/j.1460-2466.2011.01554.x
- Nariman, H. N. (1993). *Soap operas for social change: Toward a methodology for entertainment-education television*. Westport, Conn: Praeger.
- Østbye, T., Miller, B., & Keller, H. (1997). Throw that epidemiologist out of the emergency room! Using the television series *ER* as a vehicle for teaching methodologists about medical issues. *Journal of Clinical Epidemiology*, 50, 1183–1186. doi:10.1016/S0895-4356(97)00178-9
- Piotrow, P. T., Kincaid, D. L., Rimon, J. G., Rinehart, W., & Samson, K. (1997). *Health communication: Lessons from family planning and reproductive health*.
- Primack, B., Roberts, T., Fine, M., Dillman Carpentier, F., Rice, K., & Barnato, A. (2012). *ER* vs. *ED*: A comparison of televised and real-life emergency medicine. *Journal of Emergency Medicine*, 43, 1160–1166. doi:10.1016/j.jemermed.2011.11.002
- Rich, L. E., Simmons, J., Adams, D., Thorp, S., & Mink, M. (2008). The afterbirth of the clinic: A Foucauldian perspective on “House M.D.” and American medicine in the 21st century. *Perspectives in Biology and Medicine*, 51, 220–237. <https://doi.org/10.1353/pbm.0.0007>
- Rogers, E. M., Vaughan, P. W., Swalehe, R., Rao, N., & Sood, S. (1999). Effects of an entertainment-education radio soap opera on family planning behavior in Tanzania. *Studies in Family Planning*, 30, 193–211. doi:10.1111/j.1728-4465.1999.00193.x
- Rubin, A. M., & Perse, E. M. (1987). Audience activity and soap opera involvement: A uses and effects investigation. *Human Communication Research*, 14, 246–268. doi:10.1111/j.1468-2958.1987.tb00129.x
- Sancho-Aldridge, J., & Gunter, B. (1994). Effects of a TV drama series upon public impressions about psychiatrists. *Psychological Reports*, 74, 163. <https://doi.org/10.2466/pr0.1994.74.1.163>
- Seale, C. (2003). Health and media: An overview. *Sociology of Health & Illness*, 25, 513–531. doi:10.1111/1467-9566.t01-1-00356
- Sharf, B. F., Freimuth, V. S., Greenspon, P., & Plotnick, C. (1996). Confronting cancer on thirtysomething: Audience response to health content on entertainment television. *Journal of Health Communication*, 1, 157–172.
- Shen, F., & Han, J. (2014). Effectiveness of entertainment education in communicating health information: A systematic review. *Asian Journal of Communication*, 24, 605–616. doi:10.1080/01292986.2014.927895
- Sheridan, A., & O’Sullivan, J. (2013). “Fact” and “fiction”: enlivening health care education. *Journal of Health Organization and Management*, 27, 561–576. doi:10.1108/JHOM-01-2012-0002
- Simkin, S., Hawton, K., Whitehead, L., Fagg, J., & Eagle, M. (1995). Media influence on parasuicide: A study of the effects of a television drama portrayal of paracetamol self-poisoning. *The British Journal of Psychiatry*, 167, 754–759. doi:10.1192/bjp.167.6.754
- Singhal, A., & Rogers, E. M. (1999). *Entertainment-education: A communication strategy for social change*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Sood, S. (2004). Audience involvement in entertainment-education. *Communication Theory*, 12, 153–172.
- Stinson, M. E., & Heischmidt, K. (2012). Patients’ perceptions of physicians: A pilot study of the influence of prime-time fictional medical shows. *Health Marketing Quarterly*, 29, 66–81. doi:10.1080/07359683.2012.652579
- Strauman, E. C., & Goodier, B. C. (2011). The doctor(s) in house: An analysis of the evolution of the television doctor-hero. *Journal of Medical Humanities*, 32, 31–46. doi:10.1007/s10912-010-9124-2
- Valente, T., Murphy, S., Huang, G., Gusek, J., Greene, J., & Beck, V. (2007). Evaluating a minor storyline on *ER* about teen obesity, hypertension, and 5 a day. *Journal of Health Communication*, 12, 551–566. doi:10.1080/10810730701508385
- Van den Bulck, J., & Damiaans, K. (2004). Cardiopulmonary resuscitation on Flemish television: Challenges to the television effects hypothesis. *Emergency Medicine Journal*, 21, 565–567. doi:10.1136/emj.2003.010819
- Van den Bulck, J. J. M. (2002). The impact of television fiction on public expectations of survival following in-hospital cardiopulmonary resuscitation by medical professionals. *European Journal of Emergency Medicine*, 9, 325–329. doi:10.1097/00063110-200212000-00006
- Wallack, L., Grube, J., Madden, P., & Breed, W. (1990). Portrayals of alcohol on prime-time television. *Journal of Studies on Alcohol*, 51, 428–437. doi:10.15288/jsa.1990.51.428
- Washington, M. (2012). Interracial intimacy: Hegemonic construction of Asian American and black relationships on TV medical dramas. *Howard Journal of Communications*, 23, 253–271. doi:10.1080/10646175.2012.695637
- Weaver, R., & Wilson, I. (2011). Australian medical students’ perceptions of professionalism and ethics in medical television programs. *BMC Medical Education*, 11, 50. doi:10.1186/1472-6920-11-50
- Weaver, R., Wilson, I., & Langendyk, V. (2014). Medical professionalism on television: Student perceptions and pedagogical implications. *Health*, 18, 597–612. doi:10.1177/1363459314524804
- Wilson, C., Nairn, R., Coverdale, J., & Panapa, A. (1999). Mental illness depictions in prime-time drama: Identifying the discursive resources. *Australian and New Zealand Journal of Psychiatry*, 33, 232–239. doi:10.1046/j.1440-1614.1999.00543.x
- Ye, Y., & Ward, K. E. (2010). The depiction of illness and related matters in two top-ranked primetime network medical dramas in the United States: A content analysis. *Journal of Health Communication*, 15, 555–570. doi:10.1080/10810730.2010.49256
- Zoller, H. M., & Worrell, T. (2006). Television illness depictions, identity, and social experience: Responses to multiple sclerosis on the west wing among people with MS. *Health Communication*, 20, 69–79. doi:10.1207/s15327027hc2001_7



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