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REVIEW PAPER

Changing the channel on medical ethics education: systematic review and qualitative analysis of didactic-icebreakers in medical ethics and professionalism teaching

Abbas Rattani[1] · Dalia Kaakour[2] · Raafay H. Syed[3] · Abdul-Hadi Kaakour[4]

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Abstract

As medical ethics and professionalism education continues to equip medical students and residents with long-lasting tools, educators should continue to supplement proven teaching strategies with engaging, relatable, and generationally appropriate didactic supplements. However, popular teaching aids have recently been criticized in the literature and summative information on alternatives is absent. The purpose of this review is to evaluate and assess the functional use and application of short form audiovisual didactic supplements or "icebreakers" in medical ethics and professionalism teaching. A systematic review of both the medical and humanities literature (i.e., PubMed/MEDLINE, Cochrane Library, and JSTOR) was conducted from inception to August 1, 2019. Final articles were subjected to a qualitative appraisal and thematic analysis. Thirteen articles were included for final analysis. Sixty-nine percent (n = 9) of the studies were published after 2000. Two studies were qualitative, one study was quantitative, and the remaining articles were commentaries. Short form audiovisual media was most popular outside of the United States (n = 10). Sixty-nine percent (n = 9) of articles advocated for self-contained media in the form of trigger films or short films/videos, while the remaining articles (n = 4) discussed the use of TV/film clips. Producibility of media was exclusive to short/trigger films. Nine themes were identified in the content analysis: adaptability, conversation catalyst, effective, engaging, nuance, practice, producibility, real, and subject diversity. The three most common themes in descending order of frequency were: conversation catalyst, realness, and adaptability. Trigger films represent an effective and unique pedagogical strategy in supplementing current medical ethics and professionalism teaching at the medical school level.

Keywords Medical education · Medical ethics · Professionalism · Systematic review · Trigger films

✉ Abbas Rattani
abbas.rattani@louisville.edu

Extended author information available on the last page of the article

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1 Introduction

At the medical school level, much of medical ethics and professionalism education and subsequent testing takes the form of a widely used and most recognized pedagogical strategy—the written clinical vignette (Alarcón and Aguirre 2007; Fiester 2007; Arawi 2010; Klemenc-Ketis and Kersnik 2011; Hirt et al. 2013; Hoffman et al. 2018; Jerrentrup et al. 2018; Lumlertgul et al. 2009). Films, television (TV) shows, and their respective clips have also been incorporated as widely-popular and engaging supplements to the written vignette. By extension, the engagement potential of visual media has also led some educators to advocate for the creation of trigger films relevant to ethics course objectives (Ber and Alroy 2001,2002; Kaakour et al. 2015; Rattani and Kaakour 2015; Woodward-Kron et al. 2011). Other trialed strategies to improve moral reasoning, facilitate reflection, and foster professionalism among medical students have included formal lectures, standardized patient simulations, graphic novels (Green 2013), theatrical role playing (Shapiro and Hunt 2003), screenwriting (Rattani and Kaakour 2019), and digital storytelling (Sandars and Murray 2009).

These modalities essentially function as teaching supplements or "didactic icebreakers" to introduce and contextualize larger discussions on medical ethics and professionalism. Didactic icebreakers are a relatable, relevant, and engaging means by which pedagogical material is introduced or discussed. They can help with recall by serving as a bridge or launch point from which to have difficult conversations or introduce lecture material. Due to the technological advancements in film production, creating short or trigger films has become easier with the added advantage of educators involving students in the production process (Johnston and Chan 2012; Kaakour et al. 2015; Rattani and Kaakour 2015). Thus, producing one's own films to meet particular or nuanced learning objectives has the potential of becoming the next popular form of didactic icebreaker. While the didactic icebreaker is an important and popular supplemental strategy in introducing and teaching medical ethics and professionalism topics (Volandes 2007), it remains underutilized in American medical school ethics teaching.

Furthermore, improving moral reasoning and teaching professionalism among medical students remains a challenge. The impact of the hidden curriculum, insufficient role-models, inadequate teamwork experiences or a lack of exposure to diverse medical practices, limited opportunities and experiences for moral development, insufficient long-term reasoning tools, and pressure to conform to the status quo remain some of the challenges to improving moral reasoning and cultivating professionalism (Caldicott and Faber-Langendoen 2005; Stephenson et al. 2001; Murrell 2014). As medical ethics education continues innovating to equip medical students and residents with long-lasting professionalism and ethics tools, educators may benefit from supplementing proven teaching strategies with engaging, relatable, and generationally appropriate didactic icebreakers. In the age of time constraints, information overload, fleeting attention spans, and digital/social media—the *type* of didactic strategy matters.

The increasing popularity of TV and film clips in medical education warrants a closer review. Recent criticism in the medical education literature of the utility of this teaching supplement and the subsequent endorsement of trigger films has served as a call for a more concerted appraisal of supplemental teaching aids in ethics and professionalism teaching (Rattani and Kaakour 2015; Rattani et al. 2020). Through a systematic review of the literature, we seek to appraise the functional use and application of short form audiovisual didactic icebreakers in medical ethics and professionalism teaching. We hypothesize that trigger or short films are an ideal means for introducing students to ethics and professionalism concepts and can serve as lasting pedagogical tools to be used as students advance in their medical training.

2 Methods

We conducted a systematic review of both the medical and humanities literature in adherence with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Titles, abstracts, and keywords were searched in the PubMed/MEDLINE, Cochrane Library, and JSTOR databases from inception to August 1, 2019 for literature on the use of short form audiovisual content as it related to the teaching of medical ethics or professionalism. We recognize that medical ethics and professionalism are different, yet complementary. We defined medical ethics as the study of principles and values that contribute to and facilitate reasoning of what one ought to do. Specifically, since this study pertains to medical education and training—we focus our definition on the four principles of autonomy, beneficence, non-maleficence, and justice. Professionalism is understood herein as the expected conduct and behaviors of a physician—most of which are practices rooted in the aforementioned four principles of medical ethics (Doukas et al. 2012; Kirk 2007).

Table 1 Search strategy by literature database

Database	Search string/terms
PubMed/MEDLINE	((“trigger”[tiab] OR “targeted”[tiab] OR “short”[tiab]) AND (film[tiab] OR films[tiab])) OR ((television[tiab] OR TV[tiab] OR TV series[tiab] OR movie[tiab] OR film[tiab] OR video[tiab]) AND (clips[tiab])) AND (ethics OR ethical OR moral OR morality OR professional OR professionalism)
Cochrane library	((trigger OR targeted OR short) AND (film OR films)) OR ((television OR TV OR movie OR film OR video) AND (clips)) AND (ethics OR ethical OR moral OR morality OR professional OR professionalism)
JSTOR	((trigger OR targeted OR short) AND (film OR films)) OR ((television OR TV OR movie OR film OR video) AND (clips)) AND (ethics OR ethical OR moral OR morality OR professional OR professionalism)[a]

[a]The following Subject categories were selected to further narrow the JSTOR search: Anthropology, biological sciences, health policy, health sciences, history of sciences & technology, public health, sociology

The specific search query strings used for each database are reported in Table 1. Short films were differentiated from trigger films in that the objective of the latter medium is to leave the ethical dilemma open and place the onus of moral conclusion on the viewer's imagination. Clips were defined as short segments extracted from longer films or TV shows.

Articles were included if they were in English and if reference was made specifically to the use of short clips from TV, movies/feature-length films, or trigger/short films in medical ethics or professionalism pedagogy. Articles were excluded if they pertained to the use of films or TV shows/series in their entirety, which we categorized as long-form content. Articles were sorted and selected for inclusion first by title then by abstract followed by full-text review. References of all included articles were also cross-checked for additional articles. Duplicate articles were omitted before final articles were included for further analysis and evaluation. The primary author (AR) reviewed all titles, abstract, and full-text articles for inclusion. A flowchart diagram of our selection strategy is outlined in Fig. 1.

Final articles were subjected to systematic content analysis informed by a Grounded Theory approach to identifying consistent themes. Each article was

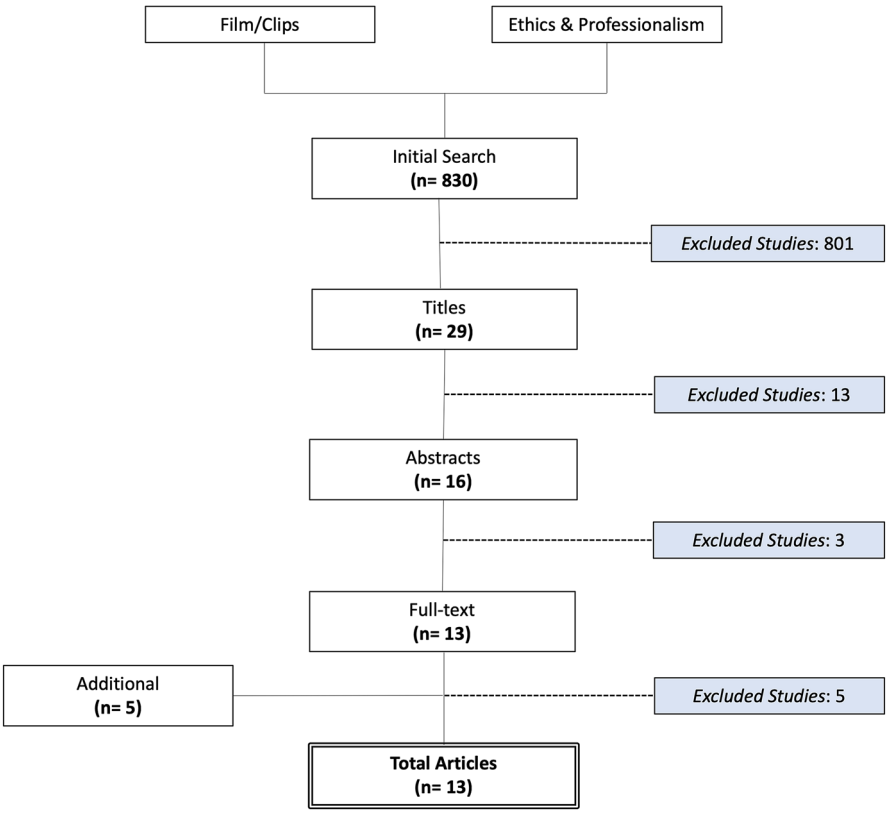

Fig. 1 PRISMA diagram of systematic review process and results

thoroughly reviewed for mentions of pedagogical utility and application in teaching ethics and/or professionalism. These mentions were aggregated to identify general themes of utility. Themes were broadly defined for applicability across all selected articles. Descriptive statistics and qualitative appraisal were used to summarize findings.

Institutional, ethical, or other review board approval was not required for this systematic review.

3 Results

3.1 Summary of systematic review

Between the scientific/medical and humanities literature databases, our search yielded 803 articles. After results were reviewed by title, abstract, and full-text, 8 articles ultimately met criteria for inclusion with 5 additional articles being added following a review of references and external source material—yielding a total of 13 articles for inclusion and analysis (Table 2, Fig. 1) (Alroy and Ber 1982; Ber and Alroy 2001, 2002; Blasco et al. 2006; Hirt et al. 2013; Johnston and Chan 2012; Nichols 1994; Pavlov and Dahlquist 2010; Ruhe 1953; Self et al. 1993; Shamim et al. 2016; Shevell et al. 2015; Woodward-Kron et al. 2011). Studies were published between 1958 and 2016, with 69% (n = 9) of studies being published after 2000.

Two articles were qualitative studies (Shamim et al. 2016; Shevell et al. 2015), one study was quantitative (case–control) (Self et al. 1993), and the remaining 77% (n = 10) of articles were written as commentaries (defined as reviews, perspective pieces, or a summary of author/institutional experience). The majority of articles advocating for the use of short form audiovisual media were written outside of the United States (n = 10). Sixty-nine percent (n = 9) of articles advocated for self-contained audiovisual media in the form of trigger films or short films/videos, the remaining articles (n = 4) discussed the use of clips from TV and films. These latter four articles provided examples of TV shows or films by either providing exact time points or references to particular plot events or character devices (Blasco et al. 2006; Hirt et al. 2013; Pavlov and Dahlquist 2010; Shevell et al. 2015). Six articles also discussed methods for, and experience in, producing films (Alroy and Ber 1982; Ber and Alroy 2002; Johnston and Chan 2012; Nichols 1994; Ruhe 1953; Woodward-Kron et al. 2011).

3.2 Literature appraisal and thematic analysis

The content analysis resulted in the identification of 9 themes. A thematic glossary and respective definitions of each theme are provided in Table 3. The potential for these didactic icebreakers to serve as a conversation catalyst was the most common theme that emerged (n = 11), with realness (n = 10) and adaptability (n = 9) as other frequent measures of utility.

Table 2 Summary of the utility of short form audiovisual content in medical ethics and professionalism teaching

Author	Year	Country	Medium	Study type	Summary	Utility by theme
Ruhe DS	1953	United States	Short films	Commentary	Description of production, distribution, and utilization of short films in medical school	- Adaptability - Nuance - Producibility
Alroy G et al	1982	Israel	Trigger films	Commentary	Development and use of trigger films to teach dynamics of doctor-physician relationship	- Adaptability - Conversation catalyst - Producibility
Self DJ et al	1993	United States	Short films	Case–control	Efficacy of short films in increasing moral reasoning capacity in first-year medical students	- Conversation catalyst - Effective[a] - Practice - Real
Nichols J	1994	United Kingdom	Trigger films	Commentary	Descriptions of utility and effectiveness of trigger films in nursing education, and various teaching strategies	- Adaptability - Conversation catalyst - Effective - Nuance - Practice - Real
Ber R et al	2001	Israel	Trigger films	Commentary	Recommendation of ways to produce trigger films and review of previous teaching experiences and strategies	- Adaptability - Conversation catalyst - Practice - Real - Subject diversity
Ber R et al	2002	Israel	Trigger films	Commentary	Pedagogical strategies and suggestions on the use of trigger films in teaching professionalism	- Adaptability - Conversation catalyst - Effective[b] - Nuance - Real[c]
Blasco PG et al	2006	Brazil	Movie clips	Commentary	Use of movie clips to teach empathy, professionalism, and art of doctoring	- Adaptability - Conversation catalyst - Engaging - Nuance

Table 2 (continued)

Author	Year	Country	Medium	Study type	Summary	Utility by theme
Pavlov et al	2010	United States	TV clips	Commentary	Review of clips from a single TV episode as examples for teaching	- Conversation catalyst - Engaging - Real
Woodward-Kron R et al	2011	Australia	Trigger films	Commentary	Development and use of video clips as triggers to teach communication and ethics content to international medical graduates	- Adaptability - Conversation catalyst - Real
Hirt C et al	2013	Canada	TV clips	Commentary	Summary of medical TV dramas and their respective relevance in teaching--including as clips	- Adaptability - Conversation catalyst - Engaging - Real - Subject diversity
Johnston C et al	2012	United Kingdom	Short films	Commentary	Experience of producing an ethics short film and overall value in teaching	- Nuance - Producibility[d] - Real
Shevell AH et al	2015	Canada	TV clips	Qualitative (questionnaire)	Qualitative study of TV clips from medical drama to teach professionalism to medical students	- Adaptability - Conversation catalyst - Effective (variable) - Engaging - Practice - Real (variable)
Shamim MS et al	2016	Saudi Arabia	Short videos	Qualitative (questionnaire, focus groups)	Use of short films with supplemental exercises as teaching tools for medical ethics and professionalism by students	- Conversation catalyst - Effective - Practice - Real

[a]Effectiveness observed as statistically significant increase in moral reasoning

[b]Potential to evaluate moral reasoning over time

[c]Additional connotation of being "impersonal"

[d]Noted the producing short film was "costly" and "time-consuming," but with improvement in skill, films can be produced by students

Table 3 Glossary of themes following content analysis

Theme	Definition
Adaptability	Taught in the classroom with relative ease, convenience, and flexibility given time constraints and other practical limitations
Conversation catalyst	Capacity to perpetually promote reflection, facilitate rich open-ended discussion, and provide diverse/unique responses
Effective	Observed successful improvement in moral reasoning or professionalism
Engaging	Captivating and entertaining quality with some level of emotional appeal
Nuance	Captures or portrays non-verbal, affective, or emotional elements and contexts to highlight subtlety or particularity in meaning toward analysis of complexity
Practice	Serves to simulate real-world situations as a training exercise
Producibility	Produced or created with little technical or formal production knowledge
Real	Depictions are familiar, relatable, convincing, and/or mimic real-world encounters and situations
Subject diversity	Capacity to portray a variety of topics and subject matter

Producibility was unique to short and trigger films. Johnston and Chan (2012) noted that producing films were initially "time-consuming" and "costly" to create, but ultimately led to a repository of films. Moreover, students were not only eager to participate in, but also benefited from, the filmmaking process with the hope that as skills improve, students will be able to produce these films independently (Johnston and Chan 2012).

Three of the selected studies used qualitative or quantitative methods to evaluate the value of short audiovisual content. These studies varied in sample size, design, and intervention, but similar conclusions about the value of short audiovisual content as supplemental teaching aids were observed. These conclusions were in agreement with the anecdotal observations of trigger film early-adopters Ber and Alroy who suggested using trigger films as an effective tool to evaluate the changes in moral understanding and reasoning between pre-clinical and clinical medical students (Ber and Alroy 2002).

Shevell and colleagues (2015) surveyed 112 first-year medical students enrolled in a professional development course after watching 12 five minute video clips on positive and negative aspects of professionalism from the television program *ER* and reviewing the accompanying written teaching guides. Students were probed about what they observed, their interpretations, what they learned, relevance of the clips to professionalism and medical practice, and effectiveness of the clip in teaching or introducing topics on professionalism. Students found the clips to be useful, effective, and valued using clips to aid in professionalism teaching. However, the authors noted variability in students' appraisal of TV clips, noting that some found them to be exaggerated or dramatized. They also reported that effectiveness varied among students, with some feeling that clips were most effective when used in small group settings as a conversation catalyst, and others noting real patient encounters was a better alternative. The others concluded that a majority of the participants in their study felt that the clips "primed" and "prepared' them for future clinical encounters.

Shamim et al. (2016) used a mixed method approach to study professionalism and ethics learning among 20 fourth-year medical schools by exposing students to mixed media supplementary teaching tools, which included—but were not limited to—short video clips, exercises, and group discussions. Medical students were surveyed about their perceptions of the usefulness of supplemental teaching aids in their learning. The majority of students (95%) preferred the supplementary teaching aids as a means of facilitating learning and keeping students engaged throughout the course with 19 students listing "video/movie clips" as an effective tool in their learning compared with 9 who considered "written case scenarios" as effective.

Self et al. (1993) conducted a case–control study comparing the results of an ethics assessment test (i.e., the Defining Issues Test) between 114 pre-clinical medical students who were exposed to short films and subsequent discussion and a control of 29 medical students who did not have exposure to the short films. Of note, the Defining Issues Test is a self-reporting metric that attempts to quantify and assess moral reasoning by asking the subject to rank and rate a series of schemas based on moral importance—these decisions are intended to reflect the subject's moral thinking (Thomas 2006). Self et al. (1993) found statistical significance in increased moral reasoning scores on the Defining Issues Test among students exposed to the short films course compared to those who were not enrolled. Specifically, scores increased as students were exposed to more short films and discussions. While the authors acknowledge a self-selecting bias on the part of those who self-enrolled, they found promise in the use of short film and discussion as a means of improving moral thinking.

4 Discussion

This work organizes and presents information on short form audiovisual supplemental ethics and professionalism teaching materials. The use of short didactic icebreakers in the form of trigger films or clips has been a popular and highly advocated teaching supplement in many countries outside of the United States.

Many educators consider these short media to be an effective tool in improving moral reasoning and professional attitudes by facilitating rich discussion and self-reflection among students. Shevell and colleagues (2015) found that students engaged with the material, were active in the learning process, and were prepared for actual patient encounters, which—as we argue here—should be the function of didactic supplements. While this study only examined medical students in their preclinical years and did not evaluate the efficacy of teaching professionalism, the study nonetheless highlighted the use of clips as a supplement to current teaching modalities. While the sample size was low and generalizability limited—the study by Shamim and colleagues (2016) also served as a cross-sectional example of medical students' preference toward short audiovisual content as a supplement to their professionalism and medical ethics education.

The written ethics vignette has come to represent the status quo in teaching and testing medical ethics and professionalism concepts in the United States. It frequently mimics the style of the clinical vignette familiar to medical students in the

rest of their medical school curricula. It is possible to produce these ethics vignettes in such a way as to provide an honest encounter that speaks to a more realistic patient experience—capturing the inseparable reality of clinical encounters and ethics. However, such a shift has yet to be seen despite over a decade's worth of criticisms of written vignettes. Fiester (2007) famously argued that the ways in which clinical vignettes are written "fails patients" by being physician-centric, obfuscating moral emotions, and painting inaccurate ethical pictures of the patient experience. Volandes (2007) also argued that the written vignette lacked rich details of patient values and experiences, introduced biases, and led to the neglect of important data for ethical analysis. Nearly a decade later, similar criticisms of the clinical ethics written vignette have continued. McCurrie and colleagues (2018) have argued that the text-based vignettes "lack the rich variety of morally-relevant social and contextual cues available in everyday interactions." Others contend that the written vignette as a didactic strategy is not ideal in equipping a student with resources nor the situational, holistic, and emotional depth to empathize with the ethical issue at hand (Weaver et al. 2014). As a more digitally-engaged generation of learners enter medicine, many educators have begun to adapt and respond to a new learning style by using more relevant and engaging teaching tools (Berk 2009).

At a minimum, a generationally relevant medium that engages students and fosters moral reasoning and preparedness should be expected from modern medical ethics pedagogical strategies. These strategies should provide an opportunity to showcase expectations in real encounters especially since ethics and professionalism situations tend to be more abstract and fuzzy compared to clinical scenarios (Table 4). We acknowledge that improving moral reasoning and teaching professionalism require different, but complementary long-term pedagogical strategies that should occur alongside medical training. As a teaching and training supplement,

Table 4 Summative features of audiovisual content

	Written vignettes	Movies	Television	TV/movie clips	Trigger films
Average length/duration	50–150 words	90–180 minutes	20–45 minutes	0.5–5 minutes	2–12 minutes
Practical/convenient	Yes	No	No	Yes	Yes
Entertaining/engaging	No	Yes	Yes	Yes	Yes
Primarily ethics driven	Yes	No	No	Yes	Yes
Clear context	Variable	Yes	Yes	No	Yes
Preexisting familiarity/reflective of lived experience	No	Variable	Variable	Variable	No
Narrative driven	No	Yes	Yes	No	Yes
Clear conclusion	No	Yes	Yes	No	No
Nonverbal information	No	Yes	Yes	Yes	Yes
Conversation/reflection promoting	No	Yes	Yes	Yes	Yes
Diversity of subject matter	Yes	Limited	Limited	Limited	Yes

providing students with observable examples of professional behaviors has been a welcomed advantage of film and other audiovisual media (Arawi 2010; Czarny et al. 2010; Jerrentrup et al. 2018; Spike 2008; Trachtman 2008; Volandes 2007; Weaver and Wilson 2011; Weaver et al. 2014; White 2008). Similarly, the audiovisual format seems to allow for a better depiction of moral nuance and complexity that can be used to interrogate students' responses in a generationally relevant way. In this manner, both professionalism and moral reasoning can be similarly addressed through film as a teaching supplement.

Since their emergence in ethics pedagogy almost two decades ago, TV and films have remained highly advocated and popular teaching aids in fostering discussion and engaging medical students on relevant ethics topics (Alexander et al. 2005; Arawi 2010; Hirt et al. 2013; Hoffman et al. 2018; Klemenc-Ketis and Kersnik 2011; Law et al. 2015; Pavlov and Dahlquist 2010; Volandes 2007). Continued use and support for these types of media are arguably associated with the observation that medical and nursing students already engage with the ethical and professionalism topics seen on popular TV medical dramas (Czarny et al 2008, 2010; Lee and Taylor 2014; Weaver and Wilson 2011; Weaver et al. 2014).

Films and TV have arguably been considered inclusive and pluralistic approaches to teaching that some have suggested accommodate all learning styles (Alexander et al. 2005; Berk 2009; Volandes 2007). They allow for significant amounts of sensory stimulation, and are more in tune with the current generation of medical students who, as "digital natives," are accustomed to the pervasive influence of audiovisual media in their daily lives (Berk 2009; Lindsey 2005). These media cultivate an environment of open and critical discussion, the development of clinical observation skills, emotional engagement, and an understanding of the element of "narrative" in real-world situations (Alexander et al. 2005; Hirt et al. 2013; Spike 2008).

Despite these admirable characteristics and seeming utility of TV and films in ethics and professionalism teaching, there are several inherent issues with these forms of media that explain their limited incorporation within medical school classrooms. One obvious limitation is the duration of films and TV shows—especially when discussed in the context of a several episode season. It is rare to be able to view a single, let alone several, feature-length film or TV show in a classroom setting and subsequently launch into a discussion about the myriad of testable moral principles or encounterable ethical situations.

Additionally, the role of film and TV in ethics teaching has been called into question for its sensationalist aspects that can distract from the everyday ethical issues and relevance to medical ethics course objectives (de Laat 2012; Rattani et al. 2020; Trachtman 2008). For many, medical TV dramas are watched for their entertainment aspects, and while health information gathering and passive learning can occur—their role as a teaching modality or didactic icebreaker should be carefully considered (Czarny et al. 2008, 2010; Lee and Taylor 2014; Rattani et al. 2020; Weaver and Wilson 2011; Weaver et al. 2014; Trachtman 2008).

Educators have also tried using clips from popular TV shows and films as a means of introducing students to associated lecture material in a time-sensitive and direct way (Blasco et al. 2006; Hirt et al. 2013; Hoffman et al. 2018; Klemenc-Ketis and Kersnik 2011; Lumlertgul et al. 2009; Pavlov and Dahlquist 2010; Shevell et al.

2015). Where films falter with length, clips directly place the viewer at the center of the matter. Feature-length films focus on character development as seen through a series of decisions made over the course of a narrative. The opposite problem exists with clips where there is a clear void of context and depth with many of the critical moments in a dilemma relying upon either prior knowledge of antecedent events involving interactions or decisive moral developments of the characters in the film. Moreover, the familiarity of medical TV dramas in popular culture limit their use as stand-alone clips—as students may already be familiar with the moral arc of the character and thus may readily excuse the actions portrayed in a particular clip (Lim and Seet 2008; Shamim et al. 2016; Shevell et al. 2015). Finally, clips have also been criticized for manipulating messaging, representing breaks from reality, and being fraught with inconsistencies (de Laat 2012; Lim and Seet 2008; Shevell et al. 2015; Volandes 2007). Thus, the use of clips should be evaluated on a case-by-case basis for its use in ethics or professionalism teaching.

The use of trigger films offers a practical and adaptable supplement to current ethics and professionalism teaching that can be used to engage a student's empathy, elicit the identification of moral cues and nuances, and serve as important practice—placing the student in a real setting before their clerkship years (Rattani and Kaakour 2020; Rattani et al. 2019). Trigger films (2 to 12 minutes in length), a subcategory of short films intended for generating conversation, typically focus on a directly relevant and completely contained theme and storyline. Similar to feature-length and TV shows, trigger films feature character development that is self-contained and do not presuppose any prior knowledge. But unlike these longer forms of media, the length of trigger films makes them practical and convenient for introducing lecture material.

Trigger films also lack a certain conclusion by design. Thus, viewer engagement becomes more active than passive, transitioning appropriately into discussion as to what the moral action might—or *should*—have been. This allows an educator to show a trigger film to medical students as a didactic icebreaker, and either begin engaging students in a discussion or to introduce a particularly challenging lecture topic. Moreover, if educators decide to produce films of their own, they are afforded a greater degree of control over the actions of the plot and their characters (Alroy and Ber 1982; Ber and Alroy 2001; Ber and Alroy 2002; Kaakour and Rattani 2015; Nichols 1994; Rattani and Kaakour 2015; Ruhe 1953; Woodward-Kron et al. 2011).

The use of trigger films in medical ethics education is not a novel concept. Unfortunately, many educators have noted that these films are not readily accessible or easy to produce well (Johnston and Chan 2012)—not including the type of high-definition production standards offered by clips taken from large-budget Hollywood feature-length films and TV shows. It is commendable that some educators and institutions have not only developed their own films, but advocate doing so (Alroy and Ber 1982; Ber and Alroy 2001, 2002; Johnston and Chan 2012; Woodward-Kron et al. 2011). Trigger films, more so than clips, offer an opportunity for educators to produce their own films on a diversity of subjects relevant to their teaching goals and objectives. Some have even argued that the process of creating films can be a reflective and insightful learning exercise for involved students (Dunn et al. 2018; Johnston and Chan 2012; Kaakour and Rattani 2015; Rattani and Kaakour 2019; Rattani and Kaakour 2015; Arsht Ethics Research Grant Awardees 2015).

Rattani and Kaakour have alternatively highlighted strategies to developing engaging and entertaining ethics trigger films in collaboration with media and film studies departments (Kaakour et al. 2015; Rattani and Kaakour 2015, 2019). They suggest interdisciplinary and intra-institutional collaborations as opportunities for a more cost-effective and time-conscious approach to production with many resources available for free or at little cost on campuses (Kaakour et al. 2015; Rattani and Kaakour 2015; Rattani and Kaakour 2015). They have also provided online a set of five short films they created with related teaching materials.

Finally, literature in other healthcare specialties has also argued in favor of trigger films as important pedagogical tools. Trigger films benefit from being able to (1) represent real-life situations in an engaging way, (2) encourage open discussion about important issues, and (3) allow for information retention in students. Thus, trigger films have been used to teach issues of professionalism, cultural competency, development of interpersonal skills, and enhancement of the physician–patient relationship (Alroy and Ber 1982; Alroy et al. 1984; Ber and Alroy 2001,2002; Jerrentrup et al. 2018; Johnston and Chan 2012; Kaakour et al. 2015; Nichols 1994; Rattani and Kaakour 2015; Self et al. 1993; Woodward-Kron et al. 2011). Their utility as didactic icesbreakers in medical ethics and professionalism classrooms may prove to be a welcomed addition by the digital natives of this generation's medical trainees.

5 Limitations

This study is not without its limitations. Our literature search relied on the following databases: PubMed/MEDLINE, Cochrane, and JSTOR. This selection bias would, by nature, exclude literature published in journals not indexed in these major databases. However, these are the two most frequented databases for both scientific and humanities literature; thus oft-cited and frequented papers would likely have been captured through our methodology. Additionally, Google Scholar and other gray literature were used to identify five additional papers not captured by initial searches. Our specific search criteria may also represent another form of selection bias, which we addressed during the study design by including multiple variations and full-text references to capture all relevant articles. Most references to effectiveness are largely from educator experience, with very little empirical data available on impact of this medium on students. However, this sentiment has been consistent across multiple papers and further research should be pursued to investigate efficacy. Furthermore, use of trigger films or short clips in teaching may already be occurring in practice, but not necessarily reported in the literature. Thus, our study alternatively serves as a surrogate of current practice and sentiment.

6 Conclusion

Short-form audiovisual media represents an effective and unique pedagogical strategy in supplementing current medical ethics and professionalism teaching at the medical school level. They can be used as didactic icebreakers or a means by which

small group discussions can be facilitated, foster self-reflection, and place students within a context for practice before real-world encounters. Trigger films have the added benefit of being adaptable to current time and classroom constraints while also being relevant to the current generation of digitally native medical students. Finally, these films represent a great opportunity for educators to create their own films on issues and subjects most relevant to their student population or course objectives.

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Compliance with ethical standards

Conflict of interest The authors declare they have no competing interests.

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Affiliations

Abbas Rattani[1] · Dalia Kaakour[2] · Raafay H. Syed[3] · Abdul-Hadi Kaakour[4]

Dalia Kaakour
dalia.kaakour@med.miami.edu

Raafay H. Syed
rsyed@partners.org

Abdul-Hadi Kaakour
hadi.kaakour@med.usc.edu

[1] Department of Radiation Oncology, University of Louisville, Louisville, KY 40206, USA

[2] Miller School of Medicine, University of Miami, Miami, FL, USA

[3] Physical Medicine and Rehabilitation, Spaulding Rehabilitation Network, Harvard Medical School, Boston, MA, USA

[4] Roski Eye Institute, Keck School of Medicine, University of Southern California, Los Angeles, CA, USA