




Teaching bioethical issues of COVID-19 pandemic through cinemeducation: A pilot study

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ABSTRACT

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In the last two years, the COVID-19 pandemic has presented new bioethical challenges for humanity. Cinemeducation uses movies and television series to enhance understanding of complex concepts. The present study assessed the effectiveness of cinemeducation in teaching bioethical issues related to the COVID-19 pandemic to students of health sciences and humanities. Participants were recruited from two classes of fourth-year undergraduate students: those enrolled in a bioethics course in the Human Biology degree program (n=34) and in a course on social transformation in the Humanities degree program (n=29). The two classes watched clips from the TV medical dramas *Grey's Anatomy*, *The Good Doctor*, and *Chicago Med* in a guided two-hour classroom activity. Participation in the study was voluntary. To measure the activity's effects on learning, a 10-question multiple-choice questionnaire was administered before and after the activity. To measure students' satisfaction, a survey about the usefulness of the activity was also administered. A total of 45 out of 63 (71.4%) students completed the questionnaires. Scores in both groups were higher after the activity ($p < 0.05$); mean improvements were 0.607 (95% CI: 1.16–0.45) for Human Biology students and 3.00 (95% CI: 3.87–2.12) for Humanities students. The improvement was higher in Humanities students ($p < 0.05$). Students' satisfaction was high in both groups. The findings imply that cinemeducation can be effective for teaching some complex bioethics concepts in relation to the COVID-19 pandemic.

Contribution/Originality: Teaching requires innovating with new methodologies to face the challenge of addressing complexity in a changing world. This study assessed the effectiveness of using cinemeducation methodology. For the first time, medical dramas were used in teaching bioethical issues related to the COVID-19 pandemic to health sciences and humanities students.

1. INTRODUCTION

The COVID-19 pandemic has posed major challenges worldwide, especially in healthcare. Around the world, unprecedented measures have been taken, including confining the general population, isolating the sick, and rationing healthcare resources (Smithard & Haslam, 2021) in response to shortages (Wu et al., 2022). The pandemic has also taken an extraordinary toll on the mental health of the population in general and of health professionals in

particular (Khoo & Lantos, 2020) while shining a spotlight on health professionals' duties and responsibilities in serving the public (Gostin, Friedman, & Wetter, 2020). Moreover, vaccines against COVID-19 have generated fierce debates about bioethics issues related to clinical research in vaccines (Monrad, 2020), to their distribution and administration (Emanuel, Persad, & Kern, 2020) and to the requirements for "immune passports" (Persad & Emanuel, 2020).

To prepare future professionals for health situations that involve the entire planet, university education should cover global challenges and complex bioethical issues raised by the pandemic, providing students with the necessary context and background to enable them to discuss these subjects from different perspectives (Rose, 2020). However, teaching bioethics has always been a challenge. In undergraduate degrees, students can find it difficult to understand the abstract principles of moral philosophy in the framework of a globalized world (Ten-Have, 2014), and they can also find it difficult to conceptualize and apply bioethical principles, respect for autonomy, beneficence, non-maleficence, and justice (Beauchamp & Childress, 2013). This situation is particularly challenging for students of disciplines based on the practical application of knowledge rather than theoretical reflection, such as the health sciences.

One promising approach to promote health science students' understanding of the basic concepts of bioethics and their importance in the real world is to use scenarios that arouse their interest and engage their emotions and empathy. Fictional audiovisual media can achieve these goals (Goodman, 2007). Cinemeducation methodology uses clips or full movies or episodes of television (TV) series for specific purposes in medical education (Alexander, Lenahan, & Pavlov, 2005; Alexander, 2012). Various studies have examined how projecting and discussing fictional audiovisual materials can help health sciences students grasp important issues that can be difficult to learn through traditional teaching methods. Cinemeducation has proven useful in providing models of behavior and professionalism (Czarny, Faden, & Sugarman, 2010; Ketiš & Švab, 2017; Pavlov & Dahlquist, 2010), exploring doctor-patient communication (Wong, Saber, Ma, & Roberts, 2009), and portraying patients' experiences, helping students see the processes of diagnosis and treatment from different perspectives (Jerrentrup, Mueller, & Glowalla, 2018; Williams, Evans, & Alshareef, 2015).

It is necessary to point out that cinemeducation is not merely the use of cinema for teaching purposes. Rather, it is a rigorous method that requires specific steps in selecting audiovisual material, in guiding the classroom debate, and in assessing students and gathering their feedback (Cambra Badii & Baños, 2020). TV series are particularly suitable for this teaching approach. In the last two decades, series have become the dominant audiovisual format (Lobato, 2018). Every day, millions of people watch TV series through online platforms such as Netflix or Amazon Prime Video, and many medical and nursing students follow TV medical dramas (Cambra-Badii, Moyano, Ortega, Baños, & Sentí, 2021; Czarny, Faden, Nolan, Bodensiek, & Sugarman, 2008; Weaver & Wilson, 2011; Weaver, Wilson, & Langendyk, 2014; Williams, Re, & Ozakinci, 2014).

Cinemeducation is especially useful for teaching bioethics (Arawi, 2010; Blasco, Moreto, & Pessini, 2018; Borry, 2018; Czarny et al., 2010; Fariña, 2009; Hirt, Wong, Erichsen, & White, 2013; Lumlertgul, Kijpaisalratana, Pityaratstian, & Wangsaturaka, 2009; Pavlov & Dahlquist, 2010; Spike, 2008; Van Ommen, Daalmans, & Weijers, 2014; Volandes, 2007; Ward & Summers, 2008; Weaver et al., 2014; White, 2008; Wicclair, 2008; Williams et al., 2015). Nevertheless, only two articles have reported empirical results of experiences using feature films and TV series in teaching bioethics: one focused on students' opinions about a cinemeducation class (Jerrentrup et al., 2018), and the other on a pre- and post-intervention study about teaching professionalism and ethics (Patel, Gandhi, & Desai, 2022).

Although several reports have described experiences using cinemeducation with health science students (Darbyshire & Baker, 2012; Hoffman et al., 2018; Law, Kwong, Friesen, Veinot, & Ng, 2015; Rueb, Siebeck, Rehfuess, & Pfadenhauer, 2022), scant information has been published about how to systematize their use in teaching activities and assessment (Cambra Badii & Baños, 2020; Law et al., 2015). Moreover, none of these studies

have focused on the COVID-19 pandemic, and to the best of our knowledge, no published studies have explored the use of cinemeducation methodology in teaching the subjects of humanities or social sciences. Therefore, the main objective of this study was to assess the effectiveness of cinemeducation for teaching bioethical issues in the context of COVID-19 pandemic to students enrolled in undergraduate programs in the health sciences and humanities.

2. METHODS

2.1. Study Population

In the third quarter of the 2021–2022 academic year, in the context of regular teaching activities, a cinemeducation activity was carried out in two classes comprising a total of 63 fourth-year students (34 enrolled in a bioethics course within an undergraduate degree program in human biology and 29 enrolled in a course entitled “Historical and philosophical projects of social transformation” within an undergraduate degree program in humanities). All students were invited to participate in the current study.

Potential participants were informed of the background, aims, and procedures of the study, of the confidentiality of the data, and of their right to decline to participate or to drop out of the study at any time without any consequences. Those who wished to participate provided written consent. Participation in the study entailed completing a multiple-choice questionnaire about the issues discussed in the seminar before and after the session and completing a survey about participants’ satisfaction with the activity. The study was performed following the principles of the Declaration of Helsinki (World Medical Association, 2008). Data confidentiality was ensured according to local laws on the protection of personal data.

2.2. The Teaching Activity

2.2.1. Designing the Activity

In preparation for the activity, a content analysis of the main medical dramas that included the COVID-19 pandemic in their plots (*The Good Doctor*, *Grey’s Anatomy*, *Chicago Med*, *The Resident*, and *New Amsterdam*) was performed. From this analysis (Cambra-Badii, Guardiola, & Baños, 2022), clips from episodes of these medical dramas about issues that fit our teaching objectives were selected (Table 1).

Table 1. Selection of scenes from TV medical dramas for the teaching activity

Main issue (S)	TV series (Season: Episode)	Description	Clip duration (Min)
Misinformation	Grey’s anatomy (17:12)	A young patient with COVID-19 refuses treatment because he doesn’t believe the pandemic is real	5’40”
Shortages of healthcare supplies, including personal protective equipment	Grey’s anatomy (17:1)	A shortage of masks means they must be disinfected and reused	4’11”
Shortages of hospital resources, death of patients, dying patients accompanied through video calls	Chicago med (6:1)	A COVID-19 patient dies because no ventilator is available; His wife accompanies him through a video call because no visitors are allowed in the COVID-19 wing	5’50”
Psychological effects of the pandemic on healthcare workers	The good doctor (4:6,8,9)	A physician struggles to cope with her experiences in the ICU during the pandemic	10’20”

2.2.2. Questionnaires for the Study

To assess students' knowledge before and after the classroom activity, a questionnaire comprising 10 multiple-choice questions about bioethical principles in COVID-19 pandemic scenarios was elaborated. It included shortages of hospital resources in relation to justice, psychological effects of the pandemic on healthcare workers in relation to non-maleficence, limitations to autonomy during the pandemic, COVID-19 research, and misinformation in relation with autonomy and beneficence. Each question had four possible answers, of which only one was correct Annex 1.

To assess students' opinions about the organization of the activity, the dynamics of the debate, the teacher's knowledge, and the usefulness of the activity, an *ad hoc* instrument was designed asking participants to score 10 affirmative statements on a Likert scale ranging from 1 = totally disagree to 5 = totally agree.

2.2.3. Carrying Out the Classroom Activity

The same tutor carried out the activity with each of the two groups (with the Human biology group in March 2022 and with the Humanities group in April 2022) in a 2-hour class, first explaining the aims and procedures of the study, introducing the main topic of the COVID-19 pandemic, and then showing students the clips with scenes from the episodes of the medical dramas (25 min in total). After viewing each fragment, a semi-structured discussion was held to resolve doubts about relevant aspects of the episode and to analyze the main topics covered in the scene (30 min in total).

Students who agreed to participate completed the same questionnaire to assess their knowledge about bioethical principles in COVID-19 pandemic scenarios before (pre-activity assessment) and after (post- activity assessment) the teaching activity, as well as complete the *ad hoc* instrument to assess their opinions about the activity. Answers were collected immediately after the questionnaires were completed.

2.3. Data Analysis

Qualitative variables were reported as frequencies and quantitative variables as means and standard deviations (SD). To check whether quantitative variables were normally distributed, the Shapiro-Wilk test was used. To compare participants' scores on the pre- and post- activity assessments, the Wilcoxon signed-rank test was used for paired samples. To compare groups of participants, the Mann-Whitney U test was used. The results of the satisfaction survey were expressed as frequencies. Significance was set at 0.05. All analyses were done with Statistical Package for the Social Sciences - SPSS (SPSS Inc. SPSS for Windows, Version 15.0. Chicago, SPSS Inc.).

3. RESULTS

3.1. Study Sample

A total of 45 (71.4%) students agreed to participate and answer the questionnaires; the sample comprised 28 (82.3%) of the 34 students in the human biology class and 17 (58.6%) of the 29 students in the humanities class.

3.2. Knowledge Assessment Questionnaire

In both groups, mean scores were significantly higher on the post-activity assessment than on the pre-activity assessment ($p < 0.05$) (Table 2). The absolute increase in scores between the pre- and post-activity assessments was higher in the Humanities group [3.00 vs. 0.61 in the Human Biology group, $p < 0.05$].

Table 2. Scores (Over 10) of pre- and post- activity assessments, by class group- Values are expressed as means (SD).

Group	N	Pre- activity	Post- activity	P overall
Human biology	28	6.21 (1.47)	6.82 (1.09)	0.035
Humanities	17	3.65 (1.73)	6.65 (1.32)	0.000

In the pre-activity assessment, compared to the Humanities group, a greater proportion of students in the

Human Biology group correctly answered question #1 (about hospital resources, $p=0.000$) and #5 (about confinements, $p=0.008$). In the post-activity assessment, a greater proportion of students in the Human Biology answered question #6 (about psychological effects of the pandemic on healthcare workers) ($p=0.034$). For the remaining questions in the pre- and post-activity assessments, the proportions of students who answered correctly did not differ significantly between the two groups.

3.3. Questionnaire to Gauge Students' Opinions of the Activity

Most participants expressed full or partial agreement with all the statements about the usefulness of the activity and the class dynamics. No significant differences were found between questions or groups (Table 3).

Table 3. Student's opinion questionnaire by class group

Questionnaire statement	Human biology group	Humanities group	P value
1. The duration of the activity was adequate.	4.31	4.67	0.112
2. The debate helped me to better understand the situation presented in the TV series.	4.66	4.06	0.070
3. The activity has enriched my knowledge through the debate with my classmates.	4.66	4.00	0.087
4. In the session, all participants were given sufficient opportunities and time to speak.	4.86	4.78	0.523
5. I found the class dynamic interesting compared to other more traditional class activities.	4.83	4.22	0.082
6. The teacher showed that she mastered the subject of the course (Confidence in explanations and answers, connection with her background and research, etc.).	4.83	4.72	0.455
7. I will be able to apply the knowledge acquired in this activity to real situations.	4.41	4.11	0.229
8. After the activity, I am better equipped to deal with this topic in my professional life.	4.07	3.61	0.200
9. The knowledge acquired in this activity will be useful in my field of work.	4.28	3.78	0.111
10. The use of films and series makes teaching activities more enjoyable.	4.86	4.56	0.163
Total	4.58	4.25	0.138

4. DISCUSSION

This study aimed to assess how an educational activity using cinemeducation could facilitate learning about the application of bioethical principles in the COVID-19 pandemic. Some studies have used films and TV series in the teaching of bioethics (Goodman, 2007; Hirt et al., 2013; Spike, 2008; Weaver et al., 2014) but to our knowledge this study is the first one to deal with the COVID-19 pandemic.

Our exploratory results show that the teaching activity was effective in improving students' understanding of bioethical principles in the context of the COVID-19 pandemic; and that most students were satisfied with the activity. Differences between the scores on the assessments before and after the activity indicate a gain in knowledge attributable to the teaching activity. The magnitude of the gain depends on students' baseline knowledge (measured in the pre-activity assessment) and the pedagogical usefulness of the teaching activity, which the students themselves assessed through the opinion questionnaire.

On the pre-activity assessment, the Human Biology group scored better than the Humanities group. These results were expected because fourth-year students in the Human Biology degree program had already been introduced to some bioethics concepts and were more familiar with the pandemic context. The improvement in

Humanities students' knowledge between the two assessments was striking—scores on the post-activity assessment were nearly twice as high as those on the pre-activity assessment. Although this improvement was partly due to their lower baseline level of knowledge, another important factor that likely contributed to their high level of learning was their experience in learning through debate and their training in critical thinking and in applying holistic approaches to complex situations (Lumlertgul et al., 2009). Moreover, students had expressed interest in topics related to the COVID-19 pandemic, but none had been incorporated into previous class discussions. Nevertheless, both groups had significantly higher scores on the post-activity assessment, showing that their knowledge improved through the activity. Moreover, students' ratings of the items on the opinion questionnaire indicate that they considered that they had learned through the activity.

The responses of the two groups on the post-activity questionnaire differed significantly on only one question, which was related to the psychological effects of the pandemic on healthcare workers. Factors that may have contributed to this difference in knowledge gain include the time available for the debate about this topic (slightly greater in the Human Biology class, because less time was devoted to the previous discussion points than in the Humanities class) and a possible difference in the relevance of this point (somewhat greater for Human Biology students, who share classes with Medicine students and may be more aware of the effects of the COVID-19 pandemic on health professionals). It is interesting to note that the video about this topic was the longest fragment and the last to be shown in class, because fragments were ordered to promote increasing emotional involvement in the viewers (Vollandes, 2007). The video shows how a physician suffers after having many patients die during the first wave of COVID-19 pandemic. This is a very important issue that was already being studied during the pandemic, when different groups tried to identify risk factors for frontline professionals developing problems like insomnia, anxiety, and depression (Da Silva Neto, Benjamim, De Medeiros Carvalho, & Neto, 2021; Danet, 2021). This question can reflect students' concern for health science professionals' well-being and the importance they place on other people's feelings, empathy, and emotions (Ozcakir & Bilgel, 2014).

Considering that students in these two degree programs had not planned to work with patients in their professional life, the activity focused on clinical judgment rather than on healthcare professionalism (Spike, 2008). It was planned to frame the discussion of bioethical conflicts in the context of the COVID-19 pandemic through principlism (Beauchamp & Childress, 2013). Although this approach can be criticized as reductionism or an overgeneralization (Clouser & Gert, 1990; Gert, Culver, & Clouser, 1997, 2006), the principlism approach was used as a prism to analyze bioethical principles in concrete situations. Bioethical principles are still undeniable reference points that remain useful for bioethical debates (Schöne-Seifert, 2006), and in teaching bioethics, bioethical principles should be applied and contextualized rather than merely imparted as theory (Emmerich, 2013, 2014). It is increasingly recognized that it is important to incorporate and understand the context in which bioethical principles are applied in public policy (Dawson, 2013; Pavarini, McMillan, Robinson, & Singh, 2021) and this can be a good way to teach bioethics in university education (Emmerich, 2013).

Both movies and TV series, especially medical dramas, are useful tools for teaching complex bioethical issues to university students. Since medical dramas take place in hospital environments, they can portray complex, true-to-life situations involving patients, health workers, diseases, and treatments in an audiovisual format that engages and motivates students (Vollandes, 2007). However, this approach can also promote the misconception that bioethics is confined to the hospital environment, when the field actually transcends this context by far (Evans, 2012).

Furthermore, it is important to remember that fictional audiovisuals sometimes fail to accurately represent medical reality, often depicting health professionals' roles erroneously or compressing the timeframe for health processes in the interest of narrative economy. However, in these cases plausibility is often more important than accuracy (Baños & Bosch, 2015); it is important to mention these deviations from medical accuracy in the guided discussion, but without allowing them to distract students' from the bioethical issues being taught (Cambra Badii & Baños, 2020). Guided discussion can encourage constructive interchange between teachers and students (Cambra

Badii & Baños, 2020). It is best to avoid moral judgments about what is right or wrong, and it is important to include different nuances in the discussion, including behavioral and social factors in every decision-making, as well as the potential limitations of the audiovisual material. Because discussions always depend to a certain extent on the teacher leading them, empirical comparative studies should ensure a homogeneous approach to discussions, using the same teacher for all groups, if possible.

This pilot study successfully generated discussion and analyses about complex issues related to the COVID-19 pandemic while the health crisis was still raging. The chosen film clips and the discussions after viewing them dealt with pertinent contemporary issues in these uncertain times, such as life-and-death decisions or saying goodbye to relatives without physically accompanying them (Romera, 2022). These topics were the subject of questions that students in both groups answered the best. University students need to learn about death and dying and decisions about providing optimal healthcare, but they also need to learn about communicating, empathizing, and respecting patients' wishes (Marco & Schears, 2006).

Bloom's taxonomy (Bloom, 1956) is a useful framework for designing learning objectives. In this pilot study, the main objective was to assess the effectiveness of the activity and resulting gains in knowledge at several levels, from the description of the most basic concepts of bioethics and principlism (level 1 – remembering), the comprehension of the meaning of bioethical principles (level 2 – understanding), the application of these concepts to concrete situations in the TV series (level 3 – applying), and the identification of conceptual categories in a complex situation (level 4 – analyzing).

5. CONCLUSION

The teaching activity used in this study helped students learn about bioethics in the context of COVID-19 pandemic, remembering, understanding, applying and analyzing bioethical concepts such as bioethical principles (Beauchamp & Childress, 2013). Cinemeducation methodology, using popular medical dramas, can help teachers introduce health sciences students to some medical scenarios that may be difficult to understand using traditional educational methods. Future research should compare cinemeducation and traditional educational methods, as well as include larger groups. In classes with medical and nursing students, cinemeducation can also be used to teach aspects of professionalism and caregiver-patient relationships. Cinemeducation methods also promise to be useful for promoting interdisciplinary activities and discussions with students from different degree programs, especially in social sciences, humanities, and health sciences, enabling a more plural debate about bioethical principles and their application in different situations.

Cinemeducation activities could use other movies or TV series episodes to teach students about bioethics, both in relation to the COVID-19 pandemic and outside this particular context. It could also be useful to compare learning outcomes between cinemeducation and other innovative methodologies (e.g., movies versus literature, popular movies versus nonfiction or documentary films, popular movies versus simulation or games, or movies versus problem-based learning). However, as mentioned above, specific and complex scenarios can be difficult to replicate, and TV series offer rich materials to work with. The approach used in the current pilot study can easily be reproduced in different groups of students at other universities, thus adding to our knowledge about the effectiveness of cinemeducation.

In addition to quantitative approaches, future studies can use qualitative approaches to evaluate learning about these issues. It can be difficult for students to grasp bioethical principles in a single class, but incorporating these nuances in different situations can enrich students' understanding of these principles and how they can be applied.

Future studies can include assessments at increasing levels of complexity using Bloom's taxonomy: level 5 (evaluating) and level 6 (creating). These levels of learning are crucial in future professionals who will need to be able to critically evaluate bioethics in complex situations effectively and to create new ways to apply bioethical principles in medical care. In addition, further investigations will also assess long-term gains. One limitation of this

cinemeducation study is that our results could be influenced by differences in the lengths of the clips from TV series, possibly focusing more attention on some topics than on others. Finally, participation was voluntary and not all students agreed to complete the questionnaires, even though their performance had no impact on their grades in the course. Nonetheless, this pilot study enabled us to test the methodology, identify mistakes, and gauge students' opinions, making our data of interest to educators interested in incorporating cinemeducation in their teaching.

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REFERENCES

- Alexander, M., Lenahan, P., & Pavlov, A. (2005). *Cinemeducation: Using film and other visual media in graduate and medical education*. Oxford: Radcliffe Publishing.
- Alexander, M. (2012). Let's look at the data: A review of the literature. *Cinemeducation: Using films and other visual media in graduate and medical education 2*. In (pp. 3–9). London: Radcliffe Publishing.
- Arawi, T. (2010). Using medical drama to teach biomedical ethics to medical students. *Medical Teacher*, 32(5), e205–e210. <https://doi.org/10.3109/01421591003697457>
- Baños, J.-E., & Bosch, F. (2015). Using feature films as a teaching tool in medical schools. *Medical Education*, 16(4), 206–211. <https://doi.org/10.1016/j.edumed.2015.09.001>
- Beauchamp, T., & Childress, J. (2013). *Principles of biomedical ethics* (7th ed.). New York: Oxford University Press.
- Blasco, P. G., Moreto, G., & Pessini, L. (2018). Using movie clips to promote reflective practice: A creative approach for teaching ethics. *Asian Bioethics Review*, 10(1), 75–85. <https://doi.org/10.1007/s41649-018-0046-z>
- Bloom, B. (1956). *Taxonomy of educational objectives: The classification of educational goals*. New York: Longmans Green.
- Borry, E. L. (2018). Teaching public ethics with TV: Parks and recreation as a source of case studies. *Public Integrity*, 20(3), 300–315. <https://doi.org/10.1080/10999922.2017.1371998>
- Cambra-Badii, I., Moyano, E., Ortega, I., Baños, J.-E., & Sentí, M. (2021). TV medical dramas: Health sciences students' viewing habits and potential for teaching issues related to bioethics and professionalism. *BMC Medical Education*, 21(1), 1–11. <https://doi.org/10.1186/s12909-021-02947-7>
- Cambra-Badii, I., Guardiola, E., & Baños, J.-E. (2022). The COVID-19 pandemic in serial medical dramas. *JAMA*, 327(1), 20–22. <https://doi.org/10.1001/jama.2021.19779>
- Cambra Badii, I., & Baños, J. E. (2020). The University goes to the movies: Our experience using feature films and tv series in teaching health sciences students. *Medical Schools: Past, Present and Future Perspectives*, 105–148.
- Clouser, K. D., & Gert, B. (1990). A critique of principlism. *The Journal of Medicine and Philosophy*, 15(2), 219–236. <https://doi.org/10.1093/jmp/15.2.219>
- 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. <https://doi.org/10.1080/15265160802559153>
- Czarny, M. J., Faden, R. R., & Sugarman, J. (2010). Bioethics and professionalism in popular television medical dramas. *Journal of Medical Ethics*, 36(4), 203–206. <https://doi.org/10.1136/jme.2009.033621>
- Da Silva Neto, R. M., Benjamim, C. J. R., De Medeiros Carvalho, P. M., & Neto, M. L. R. (2021). Psychological effects caused by the COVID-19 pandemic in health professionals: A systematic review with meta-analysis. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 104, 110062. <https://doi.org/10.1016/j.pnpbp.2020.110062>
- Danet, A. D. (2021). Psychological impact of COVID-19 pandemic in Western frontline healthcare professionals. A systematic review. *Clinical Medicine (English Edition)*, 156(9), 449–458. <https://doi.org/10.1016/j.medcle.2020.11.003>
- Darbyshire, D., & Baker, P. (2012). A systematic review and thematic analysis of cinema in medical education. *Medical Humanities*, 38(1), 28–33. <https://doi.org/10.1136/medhum-2011-010026>

- Dawson, A. (2013). IAB presidential address: Contextual, social, critical: How we ought to think about the future of bioethics. *Bioethics*, 27(6), 291-296. <https://doi.org/10.1111/bioe.12037>
- Emanuel, E., Persad, G., & Kern, A. (2020). An ethical framework for global vaccine allocation. In (Vol. 369, pp. 1309-1312). New York: United States: Science.
- Emmerich, N. (2013). *Medical ethics education: an interdisciplinary and social theoretical perspective*. Belfast: Springer.
- Emmerich, N. (2014). Reframing bioethics education for non-professionals: Lessons from cognitive anthropology and education theory. *The New Bioethics*, 20(2), 186-198. <https://doi.org/10.1179/2050287714Z.00000000052>
- Evans, J. (2012). *The history and future of bioethics: A sociological view*. New York: Oxford University Press.
- Fariña, J. J. M. (2009). A model for teaching bioethics and human rights through cinema and popular TV series: A methodological approach. *Counselling Psychology Quarterly*, 22(1), 105-117. <https://doi.org/10.1080/09515070902853946>
- Gert, B., Culver, C., & Clouser, K. (1997). Principlism. In: Gert B (ed.) bioethics: A return to fundamentals. In (pp. 71-92). New York: Oxford University Press.
- Gert, B., Culver, C., & Clouser, K. (2006). *Bioethics: A systematic approach*. New York: Oxford University Press.
- Goodman, K. (2007). Imagining doctors: Medical students and the TV medical drama. *AMA Journal of Ethics*, 9(1), 182-187.
- Gostin, L. O., Friedman, E. A., & Wetter, S. A. (2020). Responding to COVID-19: how to navigate a public health emergency legally and ethically. *Hastings Center Report*, 50(2), 8-12. <https://doi.org/10.1002/hast.1090>
- Hirt, C., Wong, K., Erichsen, S., & White, J. (2013). Medical dramas on television: A brief guide for educators. *Medical Teacher*, 35(3), 237-242. <https://doi.org/10.3109/0142159x.2012.737960>
- Hoffman, B. L., Hoffman, R., Wessel, C. B., Shensa, A., Woods, M. S., & Primack, B. A. (2018). Use of fictional medical television in health sciences education: A systematic review. *Advances in Health Sciences Education*, 23(1), 201-216. <https://doi.org/10.1007/s10459-017-9754-5>
- Jerrentrup, A., Mueller, T., & Glowalla, U. (2018). Teaching medicine with the help of 'Dr. House'. *PLoS One*, 13(3), e0193972. <https://doi.org/10.1371/journal.pone.0193972>
- Ketiš, Z. K., & Švab, I. (2017). Using movies in family medicine teaching: A reference to EURACT educational agenda. *Slovenian Journal of Public Health*, 56(2), 99-106. <https://doi.org/10.1515/sjph-2017-0013>
- Khoo, E., & Lantos, J. (2020). Lessons learned from the COVID-19 pandemic. *Acta Paediatrica*, 109(7), 1323-1325.
- Law, M., Kwong, W., Friesen, F., Veinot, P., & Ng, S. L. (2015). The current landscape of television and movies in medical education. *Perspectives on Medical Education*, 4(5), 218-224. <https://doi.org/10.1007/s40037-015-0205-9>
- Lobato, R. (2018). Rethinking international TV flows research in the age of Netflix. *Television & New Media*, 19(3), 241-256. <https://doi.org/10.1177/1527476417708245>
- Lumlertgul, N., Kijpaisalratana, N., Pityaratstian, N., & Wangsaturaka, D. (2009). Cinemeducation: A pilot student project using movies to help students learn medical professionalism. *Medical Teacher*, 31(7), e327-e332. <https://doi.org/10.1080/01421590802637941>
- Marco, C. A., & Schears, R. M. (2006). Death, dying, and last wishes. *Emergency Medicine Clinics*, 24(4), 969-987. <https://doi.org/10.1016/j.emc.2006.06.007>
- Monrad, J. T. (2020). Ethical considerations for epidemic vaccine trials. *Journal of Medical Ethics*, 46(7), 1-5. <https://doi.org/10.1136/medethics-2020-106235>
- Ozcakir, A., & Bilgel, N. (2014). Educating medical students about the personal meaning of terminal illness using the film, "Wit". *Journal of Palliative Medicine*, 17(8), 913-917. <https://doi.org/10.1089/jpm.2013.0462>
- Patel, P. P., Gandhi, A. M., & Desai, C. K. (2022). Cinemeducation: A teaching-learning tool to teach professionalism and ethics in medical undergraduates. *International Journal of Basic & Clinical Pharmacology*, 11(2), 1-14. <https://doi.org/10.18203/2319-2003.ijbcp20220405>

- Pavarini, G., McMillan, R., Robinson, A., & Singh, I. (2021). Design bioethics: A theoretical framework and argument for innovation in bioethics research. *The American Journal of Bioethics*, 21(6), 37-50. <https://doi.org/10.1080/15265161.2020.1863508>
- Pavlov, A., & Dahlquist, G. E. (2010). Teaching communication and professionalism using a popular medical drama. *Family Medicine*, 42(1), 25-27.
- Persad, G., & Emanuel, E. (2020). The ethics of COVID-19 immunity-based licenses ("Immunity Passports"). *JAMA*, 323(22), 2241-2242.
- Romera, A. (2022). No room for patients or ethics: COVID-19-broken hospitals in Madrid Andrea Romera 1. *Ethics & Bioethics*, 12(1), 79-83. <https://doi.org/10.2478/ebce-2022-0005>
- Rose, S. (2020). Medical student education in the time of COVID-19. *JAMA*, 323(21), 2131-2132. <https://doi.org/10.1001/jama.2020.5227>
- Rueb, M., Siebeck, M., Rehfuess, E. A., & Pfadenhauer, L. M. (2022). Cinemeducation in medicine: A mixed methods study on students' motivations and benefits. *BMC Medical Education*, 22(1), 1-19. <https://doi.org/10.1186/s12909-022-03240-x>
- Schöne-Seifert, B. (2006). Danger and merits of principlism. Meta-theoretical Reflections on the Beauchamp/Childress Approach to Biomedical Ethics. In: Rehmann-Sutter C, Düwell M, and Mieth D (eds) *Bioethics in Cultural Contexts*. In (pp. 109-119). Dordrecht: Springer Netherlands.
- Smithard, D. G., & Haslam, J. (2021). COVID-19 pandemic healthcare resource allocation, age and frailty. *The New Bioethics*, 27(2), 127-132. <https://doi.org/10.1080/20502877.2021.1917101>
- Spike, J. (2008). Television viewing and ethical reasoning: Why watching *Scrubs* does a better job than most bioethics classes. *The American Journal of Bioethics*, 8(12), 11-13. <https://doi.org/10.1080/15265160802495630>
- Ten-Have, H. (2014). *Bioethics education in a global perspective: Challenges in global bioethics*. New York: Springer.
- Van Ommen, M., Daalmans, S., & Weijers, A. (2014). Who is the doctor in this house? Analyzing the moral evaluations of medical students and physicians of *House, MD*. *AJOB Empirical Bioethics*, 5(4), 61-74. <https://doi.org/10.1080/23294515.2014.938198>
- Volandes, A. (2007). Medical ethics on film: Towards a reconstruction of the teaching of healthcare professionals. *Journal of Medical Ethics*, 33(11), 678-680. <https://doi.org/10.1136/jme.2006.017665>
- Ward, F. R., & Summers, S. (2008). Ethics education, television, and invisible nurses. *The American Journal of Bioethics*, 8(12), 15-15. <https://doi.org/10.1080/15265160802478586>
- Weaver, R., & Wilson, I. (2011). Australian medical students' perceptions of professionalism and ethics in medical television programs. *BMC Medical Education*, 11(1), 1-6. <https://doi.org/10.1186/1472-6920-11-50>
- Weaver, R., Wilson, I., & Langendyk, V. (2014). Medical professionalism on television: Student perceptions and pedagogical implications. *Health: (United Kingdom)*, 18(6), 597-612. <https://doi.org/10.1177/1363459314524804>
- White, G. B. (2008). Capturing the ethics education value of television medical dramas. *The American Journal of Bioethics*, 8(12), 13-14. <https://doi.org/10.1080/15265160802568782>
- Wicclair, M. R. (2008). The pedagogical value of *house, MD*—Can a fictional unethical physician be used to teach ethics? *The American Journal of Bioethics*, 8(12), 16-17. <https://doi.org/10.1080/15265160802478503>
- Williams, D. J., Re, D., & Ozakinci, G. (2014). Television viewing habits of preclinical UK medical undergraduates: Further potential implications for bioethics. *AJOB Empirical Bioethics*, 5(2), 55-67. <https://doi.org/10.1080/21507716.2013.826297>
- Williams, R., Evans, L., & Alshareef, N. T. (2015). Using TV dramas in medical education. *Education for Primary Care*, 26(1), 48-49. <https://doi.org/10.1080/14739879.2015.11494308>
- Wong, R. Y., Saber, S. S., Ma, I., & Roberts, J. M. (2009). Using television shows to teach communication skills in internal medicine residency. *BMC Medical Education*, 9(1), 1-8. <https://doi.org/10.1186/1472-6920-9-9>
- World Medical Association. (2008). *Declaration of Helsinki*. Retrieved from <https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki/doh-oct2008/>

Wu, H., Soe, M. M., Konnor, R., Dantes, R., Haass, K., Dudeck, M. A., . . . Allen-Bridson, K. (2022). Hospital capacities and shortages of healthcare resources among US hospitals during the coronavirus disease 2019 (COVID-19) pandemic, national healthcare safety network (NHSN), March 27–July 14, 2020. *Infection Control & Hospital Epidemiology*, 43(10), 1473-1476. <https://doi.org/10.1017/ice.2021.280>

Annex 1. Multiple-choice questionnaire for the pre- and post-activity assessments.

- 1) The bioethical conflict in the limitation of hospital resources is mainly related to:
 - a) The principle of beneficence
 - b) The tension between the principles of non-maleficence and justice
 - c) The principle of autonomy
 - d) The tension between the principles of beneficence and non-maleficence
- 2) Indicate which situation in the context of the pandemic could be related mainly with the principle of justice:
 - a) Restriction of freedom of movement (lockdowns)
 - b) Life support priority in ICUs
 - c) The psychological impact on healthcare workers
 - d) The isolation of people admitted to the ICU
- 3) How should the triage of patients be regulated in the emergency room?
 - a) By the professionals working in the emergency department
 - b) As required by law
 - c) According to each hospital's protocol
 - d) According to the pandemic protocol established by each hospital
- 4) In the context of a scarcity of resources, the adoption of a criterion for the allocation of resources (such as ventilators) based on the patient's probability of recovering is mainly related to the principle of..
 - a) Autonomy
 - b) Beneficence
 - c) Non-maleficence
 - d) Justice
- 5) The suspension of freedom of movement (e.g., confinements to home or geographical areas) in the first wave of the pandemic is mainly related to the bioethical principle of..
 - a) Autonomy
 - b) Beneficence
 - c) Non-maleficence
 - d) Justice
- 6) If a health professional cannot attend a patient because he/she is burnt out from work, he/she runs the risk of violating mainly the principle of..
 - a) Autonomy
 - b) Beneficence
 - c) Non-maleficence
 - d) Justice
- 7) In the context of vaccine research (prior to their distribution), there was a discussion about the needs to lessen protective measures for research subjects to set a high threshold of certainty about their safety and efficacy. This situation shows the tension between the principles of..
 - a) Beneficence and non-maleficence
 - b) Beneficence and justice
 - c) Non-maleficence and autonomy

- d) Non-maleficence and justice
- 8) In the context of the first marketing of vaccines, a debate arose about the need to protect personal data and the need to use these data in research. This situation shows the tension between the principles of...
 - a) Beneficence and non-maleficence
 - b) Beneficence and justice
 - c) Autonomy and justice
 - d) Autonomy and non-maleficence
- 9) The term *infodemic*, introduced by the journalist David Rothkopf in 2003, designates the rapid spread of erroneous information, mainly with manipulative interests, and the excess of information related to a particular topic. In the context of the pandemic, the right to information and freedom of expression is related to the principles of...
 - a) Beneficence and non-maleficence
 - b) Beneficence and justice
 - c) Non-maleficence and autonomy
 - d) Non-maleficence and justice
- 10) In the context of the first wave of the pandemic in Spain, visitors were prohibited in hospitals, even at the end of life in patients admitted to ICUs. This situation shows the tension between the principles of...
 - a) Beneficence and non-maleficence
 - b) Beneficence and justice
 - c) Non-maleficence and autonomy
 - d) Non-maleficence and justice

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