

# Movies for use in Public Health Training: A Pilot Method for Movie Selection and Initial Results

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## Abstract

**Background:** A method for systematically identifying, selecting, and ranking high quality movies for public health training does not exist. We therefore aimed to pilot a method and use it to generate an initial selection of suitable movies in a range of public health categories.

**Methods:** To identify possible movies, systematic searches were undertaken of two large movie databases. If meeting minimal criteria for entertainment value (using public and critic ratings), the movies were then systematically evaluated for training suitability.

**Results:** Using the search strategy we developed, it appeared feasible to systematically identify movies of potential educational value for public health training. Out of a total of 29 movies selected for viewing and more detailed assessment, the top ranked 15 were selected as having reasonable potential for training. There was a high correlation between scores of the movie assessors (Spearman's  $\rho = 0.80$ ,  $p < 0.00001$ ). Also 75% of the top 15 movies were found to be referred to in Medline-indexed publications.

**Conclusion:** This pilot study was able to develop a method for systematically identifying and selecting movies that could potentially be used for public health training. The list of 15 top public health movies could be further evaluated with medical and other health science students.

## Background

Movies have long been recognised as an educational tool. They have been used in the teaching of management ethics, sociology, psychology [1-3], and in the training of health-related professionals including nurses, counsellors, doctors and

psychotherapists [4-7]. However, there has been little documented use of movies in public health related education (eg, we identified just one Medline-indexed study [8] which related to environmental health training). There is also little literature that discusses the method by which movies are selected for educational viewing or in-class teaching. Entertainment value, content accuracy and suitability for the class situation are briefly suggested as important [9]. Some authors [4], suggest movies be chosen from published thematic lists, indicating annotated lists are a useful resource for educators wishing to identify movies appropriate for teaching. Given this background, the present study aimed to develop a method and apply it to systematically identify, classify and select the top 10 to 15 entertaining and readily-accessible movies with strong public health content that could be used in public health training.

## Methods

After an extensive literature search, no existing published method was found for identifying appropriate movies for use in public health related education or training. Hence the first step was to develop and test a possible method for identifying and selecting suitable movies. This process was conducted by listing key words relating to various dimensions of public health and then using these keywords as search terms within two computerised databases of movies. The second step was to develop a system for ranking the most suitable movies for training purposes. This process was based on constructing assessment criteria then applying these criteria to the identified movies. These steps are described in more detail below.

***Domains of public health:*** For the purposes of this study, nine themes were devised to encompass the broad scope of public health. The themes were devised based on the experience of two of the authors (who collectively have over three decades of experience as public health physicians). Reflecting the broad structural goals of the WHO Millennium Goals, the themes chosen were:

1. Health inequalities/ vulnerable populations, eg, health of ethnic minorities
2. Lifestyle impacts and determinants eg, food processing and tobacco industries
3. Quality and access to health services eg, health services in various countries
4. Global health and development issues eg, climate change
5. Health protection from environmental hazards eg, contaminated food and water
6. Epidemics and outbreaks eg, the HIV/AIDS pandemic
7. Public health interventions and programmes eg, disease screening
8. Public safety eg, unintentional injury
9. Mental health and well-being eg, addiction.

Keywords pertaining to these themes were identified in discussions amongst the authors and then expanded by identifying if there were related words used in Medline MESH headings (see Appendix). MESH headings words were supplemented by words that were deemed to convey the same or similar ideas but to be more likely to be used in non-medical domains. All the keywords used in the searches are listed in the Appendix.

**The movie databases:** The keyword search was conducted in two different online movie databases. One database, the Internet Movie Database (IMDb), was open to and in part constructed by the public ([www.imdb.com](http://www.imdb.com)). It is reported to be the most popular online movie search engine and appears to be very comprehensive. However, its keyword indexing is completed by site users meaning that keyword searches often generate results that lack specificity. As users have the ability to add or remove keywords, the keyword indexing also varies over time.

The other database, the International Film Index (IFI), was a subscription-based library accessible database with an online index of over 121,600 movies. It is run in collaboration with the British Film Institute ([www.bfi.org.uk](http://www.bfi.org.uk)). Its listings are based on data extracted from the British Film Institute's database called SIFT (*Summary of Film and Television*). It indexes only movies and documentaries that have not been made for television. It allows keyword searching which returns significantly fewer results than IMDb, however it has greater specificity. This is because keyword categorisation on the IFI is devised and matched by professionals. It also makes the IFI a more stable index over time. Another advantage of the IFI is that it offers not only a synopsis of each movie but also a list of links to academic literature on the movie.

**The search and selecting process:** In December 2007 the search terms were entered in the keyword category of both databases. For each keyword search the number of titles returned was recorded. The 50 movies with the highest user ratings on IMDb and the first 50 movies listed in chronological order (starting with the most recent) on the IFI were then investigated. One author read each of the synopses for 50 movies on both databases and decided if they were likely to be relevant to the theme of the keywords searched, including movies where the public health theme appeared to be a major aspect.

Movies were selected for viewing according to the following criteria:

1. Having a synopsis on IFI or IMDb, that was suggestive of some thematic relevance to public health issues.
2. Being at least 70 minutes long (to ensure the movie was a feature length).
3. Not being part of a television series (since movies tend to be better targeted to an international audience and often have a more substantial story line).
4. Being available for purchase online as a DVD at the large online store of Amazon.com (to represent reasonable worldwide availability for students). (Where movies had several alternative titles in both English and other languages, these were searched separately).
5. Having a score on the review website of *Rotten Tomatoes* of at least seven out of 10 or a *Roger Ebert* score of at least three out of four. *Rotten Tomatoes* ([www.rottentomatoes.com/movies](http://www.rottentomatoes.com/movies)) is an online movie and media review site that compiles movie reviews from both amateur and professional movie critics. Movies that made it to the third phase of the selection process had to receive either an average rating of at least seven out of ten on the "T-meter critics" meter or the "top critics" meter. Alternatively, they needed to gain a rating from *Roger Ebert* ([rogerebert.suntimes.com](http://rogerebert.suntimes.com)), a professional movie critic, of at least three out of four.

Collectively, these initial selection criteria were required to be met to help ensure movies were relevant, likely to be available for purchase to be used as a teaching resource and of reasonably high entertainment value so as to be engaging for students.

***The ranking process:*** Two of the authors developed a set of five criteria for assessing and ranking the most suitable public health movies. Movies which had been identified and which met the initial selection described above were systematically observed and scored by the first two authors using the criteria listed below:

1) *Relevance to public health:* This criterion sought to identify the relevance of the movie's content to public health and the importance of the public health issues addressed to the story of the movie. Using a five-point scale, movies in which a public health issue was a fundamental or key part of the story received a score of five while movies in which the public health issues was only touched on briefly were given a score of one.

2) *Sophistication of analysis of public health content:* This criterion sought to distinguish movies in which the public health issue was explored in depth with multiple underlying causes and explanations sought for the problems presented. Movies which gave a thorough analysis of an issue received a five, while movies in which causes and effects were ignored, or presented simplistically or superficially, received a one.

3) *Potential for empowerment and use of advocacy:* This criterion sought to identify movies that left viewers with a sense that issues could be resolved or improved and movies that were instructive in providing the viewer with suggestions about how they might be part of the solution to an issue. The intent of this criterion was to distinguish movies that provided some focus and direction for effective action (which would score highly, ie, up to five) from movies that might merely depress and overwhelm viewers (which would score poorly).

4) *Plausibility of movie:* This criterion sought to characterise how convincing the movie was, evaluating whether the public health message presented seemed genuine and believable. For documentaries, this criterion would be affected by the authority of the sources used and the strength of the arguments. Movies that presented a public health message or issue in a way that was credible and had an impact on the viewer received a five, while movies that seemed implausible or had little impact received a one. Contemporary relevance was also deemed important for a movie to rate highly in this criterion.

5) *Engagement and cinematic quality:* This criteria sought to assess how watchable the movie was and whether it was able to engage the audience and hold their attention and interest. This criterion included the artistic and technical quality of the film such as plot or theme development, quality of acting, editing, cinematography, lighting, and sound. Movies that were engrossing, easy to follow, visually interesting, highly audible with effective use of music and technically well produced would receive a five, while movies that were uninteresting, confusing, hard to watch, poorly made, and inaudible, would receive a one.

Scores from all the above criteria were added to give each movie a score out of 25. The first two authors both scored the movies separately and the final scores were compared statistically. Detailed text on why the movies were given particular scores was placed on a website (<http://www.wnmeds.ac.nz/academic/dph/films/index.html>).

**Additional analysis:** After the above process was completed, an assessment was made to determine the extent to which selected movies from the final list were already referred to in the medical literature. This process involved undertaking Medline searches using the movie name and related words. The focus was only on references within the health-related journals in Medline and not Medline-indexed general science journals.

## Results

There were 29 movies identified and selected for observation and more detailed assessment (Table 1). There was a high correlation between the rankings from the two assessors for the 29 movies overall (Kendall's tau = 0.65,  $p < 0.00001$ , Spearman's rho = 0.80,  $p < 0.00001$ ). However, there was no significant correlation between the public health related scoring and the scores from reviewers on the *Rotten Tomatoes* website.

Of the nine public health themes (Table 2), there was at least one of the top-ranked 15 movies in each theme. However, in two categories (epidemics and mental health) there was only one movie each. Of these top ranked 15 movies there were 10 documentaries and five dramas, though four of the latter were based closely on real life events (Table 2). Three of the documentaries were in the top five documentaries for box office takings and four were in the top 10 (Table 2). The oldest top-ranked movie was released over 15 years ago in 1993 (*And the Band Played On*).

Table 3 details the extent to which the selected movies were discussed in the Medline-indexed health literature. These results indicate that over half of the top ranked 15 movies (8/15) were discussed in this literature compared with only two out of the remaining 14 movies (a statistically significant difference; odds ratio=6.4, 95% confidence interval = 1.1 to 54.8).

Other dimensions, which may be relevant to teaching ethics in a health context, were raised in all of the top 15 ranked movies (Table 4). These were "ethical challenges for a key character &/or director" (in 8/15); "issues raised around poverty or inequality" (7/15); and "corporate power in society" (13/15).

## Discussion

**Main findings and interpretations:** In the absence of any existing system, this study was able to develop a workable method for identifying, selecting and ranking movies for potential use in public health training. It initially relied on expert judgement from experienced public health specialists, a recognised method of forming an evidence base, but this approach was strengthened by the high inter-rater reliability achieved. Furthermore, there is other evidence that the process came up with meaningful results in that over half of the final list of 15 top ranked movies, were ones that were referred

to in the Medline-indexed literature. Furthermore, of the top ranked box office documentary movies, four were in the top ten giving some indication of popularity and entertainment value. Given this outcome we suggest that this system for movie selection could readily be re-used in the future or be used (with minor modifications) for identifying relevant movies for training in other domains of medicine and health sciences and potentially wider social service areas.

The high proportion (10/15) of documentaries in the final selection of the top 15 movies is not surprising. This is because documentaries tended to score well in many of the categories (especially the relevance and sophistication of analysis criteria). Furthermore, of the dramas most (4/5) were based on real life events which is likely to have enhanced their realism and impact on viewers.

Many of the movies provide ideas and examples of public health action and advocacy. For example:

- showing demonstrations advocating a cause (eg, *Who Killed the Electric Car?*);
- role modelling in the form of a journey or quest of a motivated, committed individual to address a problem (eg, *The Insider*, *Erin Brockovich*, *The Constant Gardener*);
- showing before and after a successful public health intervention (eg, to reduce homelessness as in *Dark Days*);
- advocacy by the director or movie maker themselves, including organised events to draw attention to issues and inequalities (eg, *Bowling for Columbine*, *The Yes Men*, and *Born into Brothels*).
- referring to past instances where “people power” and non-violent direct action had been used by a community to effect health protecting change (*The Corporation*).

Some of the top 15 movies not only share a theme but also deal with similar issues. *The Insider* and *Bright Leaves* both examine the tobacco industry but from different perspectives: *The Insider* shows problematic practices at the corporate management level, while *Bright Leaves* shows how embedded tobacco is in the socioeconomic fabric of a tobacco producing society. Several other movies (Table 2) also dealt with corporate behaviour that impacts on health. Therefore some of the movies, when watched sequentially, could provide greater insights into an issue than if watched in isolation.

Similarly, some of the top 15 movies are associated with books that provide more detail than the movie and could be read by students before or after the movie viewing (eg, *A Civil Action*, *And the Band Played On*, and *An Inconvenient Truth*, *The Corporation*).

**Study limitations:** There were a number of limitations with the search strategy, selection, and assessment of movies in this study as detailed below:

**Scope of the public health domain:** The public health themes that were chosen effectively defined the scope of “public health movies”. The key words and exclusions further narrowed the selection. But this process may have limited the broad domain of public health and we acknowledge that others may have different views.

Nevertheless, given the many tens of thousands of movies in existence, it was considered necessary to have such a focus, especially since this appears to be the first attempt to systematically compile such a list of “public health movies”.

*Search techniques:* This study sought to include the broadest possible coverage of each keyword by using the search terms within a database that was librarian catalogued and also in a database that was indexed by movie fans themselves. Nevertheless, for practical (time and resource constraint) reasons, only the first 50 results for each keyword in each database were investigated. With some keywords, for example “drugs”, returning hundreds of results (461 in the IFI and 1852 in the IMDb) the movies listed are therefore biased towards more recently produced (on IFI) or most popular movies (IMDb) associated with the keyword search term.

*Selection criteria:* The availability criteria, which required that movies be available for purchase online at Amazon.com (to facilitate student access to the final list), eliminated many movies from the potential viewing list. Non-English language movies in DVD format were particularly vulnerable to not being eligible through lack of availability, as were older movies. The most restrictive criterion however was probably the requirement that movies have a high rating on the *Rotten Tomatoes* review site or on *Roger Ebert’s* review site. For movies to be given a rating on the former site, at least five reviews with original critic ratings were required. This meant many low budget movies with limited circulation, particularly documentaries, were not ranked and were therefore excluded from selection in this study. In addition, non-English language movies available on Amazon.com frequently did not have enough reviews to have a *Rotten Tomatoes* rating. *Roger Ebert* also only rarely reviews non-English language movies and documentaries. These factors contributed to the final list being dominated by movies made by American directors (other directors were from: Canada, Brazil and England [n=2]). Most movies also had an American setting (10/15), though three had a global setting and two were set in other countries (ie, Kenya and India). The restriction to movies with high critic ratings also appears to have led to the exclusion of some movies, which may still have useful public health content. For example, none of the four movie versions of Ibsen’s powerful play with a strong public health theme, *An Enemy of the People*, meet all the necessary selection criteria. However, the exclusion of such movies was still deemed appropriate for the purposes of this study since to be an effective teaching tool a movie needs to be accessible to students (or available for medical libraries to buy) and generally entertaining and engaging.

*Application of selection criteria:* The process for identifying the list of movies for subsequent detailed assessment was based largely on the assessment of just one of the authors. This process therefore involved moderate levels of subjective judgement though some calibration of the assessment process was possible through ongoing discussions with the co-authors who also examined online reviews of the various movies where discussion was required.

*Assessment criteria and ranking process:* The criteria developed for assessing movies, and therefore determining whether they would be included on the list recommended for public health training, is novel and open to criticism and refinement. The ranking process itself inevitably required judgment. The robustness of the results could be improved by increasing the number of assessments (and assessors). This paper makes

the method used quite explicit, which should encourage scrutiny and repeated assessments by others.

***Implications and future research:*** It is envisaged that this movie list may be of assistance to those involved in public health training in selecting movies for educational purposes within various topic areas. It could also be used as a resource list for a recreational public health DVD section in medical school (or even public) libraries. As there is a dearth of research in the use of movies in health worker education in general and public health in particular, this list may also be a useful starting point for the design of intervention studies to examine promotional strategies and the actual impact of movie viewing in raising student knowledge of public health issues. We plan to add to this list of public health movies periodically and are now routinely collecting data on medical student viewing and evaluation of this list (for students with library access to the DVDs). It may also be valuable to repeat the assessment of the full set of public health movies periodically and in particular to expand search strategies to identify non-English language movies with public health themes.

## **Conclusion**

This pilot study was able to develop a workable method for systematically identifying, selecting and assessing movies that could be used for public health training. Although there were limitations with the various aspects of the search strategy and assessment system, it was possible to produce a final list of 15 movies that are likely to be both entertaining and have substantive public health content. Further evaluation of this particular selection of movies with groups of students studying public health may be warranted.

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Table 1: Movies that met the initial selection criteria and were observed and scored for potential usefulness in public health training (and ranked by score out of 25)\*

Movie (year of first release)	Relevance (x/5)	Sophistication (x/5)	Empowerment (x/5)	Plausibility (x/5)	Engagement (x/5)	Total (x/25)	Rotten Tomatoes score (x/10)
<b>Top ranked 15 movies</b>							
<i>And the Band Played On (1993)</i>	5	5	5	5	5	25	7.3
<i>An Inconvenient Truth (2006)</i>	4	5	5	5	4	23	7.7
<i>Who Killed the Electric Car? (2006)</i>	4	5	4	5	5	23	7.2
<i>Sicko (2007)</i>	5	4	3	4	5	22	7.7
<i>Super Size Me (2004)</i>	5	4	4	4	5	22	7.7
<i>The Insider (1999)</i>	3	3	4	4	5	19	8.0
<i>The Corporation (2004)</i>	3	4	4	4	4	18	7.4
<i>The Yes Men (2004)</i>	2	3	4	4	5	18	7.0
<i>Erin Brockovich (2000)</i>	3	3	3	4	4	17	7.3
<i>Bowling for Columbine (2002)</i>	3	3	3	3	3	15	8.2
<i>A Civil Action (1998)</i>	3	3	2	3	4	15	7.0
<i>The Constant Gardener (2005)</i>	3	3	2	3	4	15	7.6
<i>Born into Brothels (2004)</i>	3	2	3	3	3	14	7.9
<i>Dark Days (2000)</i>	2	2	4	3	3	14	8.0
<i>Bright Leaves (2004)</i>	3	3	2	2	2	12	7.4
<b>Other movies (ranked)</b>							
<i>The Big One (1997)</i>	1	2	3	2	2	10	7.4
<i>Life and Debt (2001)</i>	2	2	2	2	2	10	7.3
<i>Children Underground (2001)</i>	2	2	1	2	2	9	7.5
<i>City of God (2003)</i>	2	1	1	2	3	9	8.3
<i>Down to the Bone (2004)</i>	2	2	1	2	2	9	7.6
<i>Raining Stones (1993)</i>	2	2	1	1	2	8	7.8
<i>Days of Wine and Roses (1962)</i>	1	1	1	2	3	8	8.7
<i>Maria Full of Grace (2004)</i>	2	1	1	1	3	8	8.0
<i>The Lost Weekend (1945)</i>	1	1	1	2	3	8	8.0
<i>A Time for Drunken Horses (2000)</i>	2	1	1	2	1	7	7.2
<i>My Own Private Idaho (1991)</i>	1	1	1	1	3	7	7.0
<i>Stephanie Daley (2007)</i>	2	1	1	1	2	7	7.3
<i>Spider (2003)</i>	1	1	1	1	3	7	7.5
<i>Umberto D (1952)</i>	1	1	1	1	1	5	8.9

Note: \* Explanatory text for the scoring of the top 15 movies is on the website: <http://www.wnmeds.ac.nz/academic/dph/films/index.html>

Table 2: Description of the top ranked 15 movies by public health themes and movie type

Public health theme and Movie	Keywords relating to the movie content	Type of movie
<b>Health inequalities and vulnerable populations</b>		
<i>Sicko</i> # **	Healthcare, health insurance, poverty	Documentary
<i>Dark Days</i> #	Homelessness, poverty	Documentary
<i>Born into Brothels</i> #	Child labour, poverty	Documentary
<b>Lifestyle impacts and determinants</b>		
<i>Super Size Me</i>	Nutrition, fast food, obesity, corporate behaviour	Documentary
<i>Bright Leaves</i>	Smoking, tobacco, tobacco industry	Documentary
<i>The Insider</i>	Smoking, tobacco, tobacco industry	Drama*
<b>Quality and access to health services</b>		
<i>Sicko</i> # **	Healthcare access, health insurance	Documentary
<i>The Constant Gardener</i>	Corporate behaviour, poverty	Drama
<b>Global health and development issues</b>		
<i>The Corporation</i> #	Corporate behaviour, globalisation	Documentary
<i>An Inconvenient Truth</i> **	Climate change, globalisation	Documentary
<i>The Yes Men</i>	Globalisation, corporate behaviour	Documentary
<b>Health protection from environmental hazards</b>		
<i>The Corporation</i> #	Environmental hazards	Documentary
<i>Who Killed the Electric Car?</i>	Environmental hazards, corporate behaviour	Documentary
<i>Erin Brockovich</i> #	Environmental hazards / crime	Drama*
<i>A Civil Action</i> #	Environmental hazards / crime	Drama*
<b>Epidemics and outbreaks</b>		
<i>And the Band Played On</i>	Epidemic emergence	Drama*
<b>Public health interventions and programmes</b>		
<i>Dark Days</i> #	Homelessness	Documentary
<i>Born into Brothels</i> #	Child labour, poverty	Documentary
<b>Public safety</b>		
<i>Bowling for Columbine</i> **	Gun control	Documentary
<i>Erin Brockovich</i> #	Environmental hazards / crime	Drama*
<i>A Civil Action</i> #	Environmental hazards / crime	Drama*
<b>Mental health and wellbeing</b>		
<i>Dark Days</i> #	Drug dependency	Documentary

**Notes:**

\* Drama based on real life events.

\*\* Ranked in the top five documentaries (for 1982-2008) in terms of worldwide box office takings (according to the website: <http://boxofficemojo.com/genres/chart/?id=documentary.htm>). *Super Size Me* was included in the top 10, *Born into Brothels* in the top 25, *The Corporation* in the top 50, and *Who Killed the Electric Car* in the top 100.

# A movie that relates to more than one of the public health themes in this table.

Table 3: Movies that were referred to in Medline-indexed health journals (as of December 2008)

<b>Movie</b>	<b>Details</b>
<b>Top 15 movies</b>	
<i>A Civil Action</i>	A publication refers to the book and the movie with regard to its use in undergraduate student education in environmental health [8]. The key protagonist (Schlichtmann) has also co-authored an article that relates to the story [10].
<i>An Inconvenient Truth</i>	A publication considers the movie in terms of the relationship of sustainability and health [11].
<i>And the Band Played On</i>	The historical omissions of the movie have been critiqued [12].
<i>Bright Leaves</i>	A review has been published [13].
<i>Erin Brockovich</i>	An article considers the movie as part of issues on cancer clusters [14].
<i>Sicko</i>	This movie has many references in Medline eg, one review [15].
<i>Super Size Me</i>	A study has considered the impact of this movie on young people [16].
<i>The Insider</i>	There is a publication by the key person portrayed [17], and a study on the impact of the movie on viewers [18].
<b>Other movies</b>	
<i>Days of Wine and Roses</i>	This movie is included in a study of alcoholism in movies [19].
<i>The Lost Weekend</i>	As above.

Table 4: Selected ethical dimensions of the top ranked 15 movies

<b>Movie (year of first release)</b>	<b>Ethical challenges for a key character &amp;/or director?</b>	<b>Issues raised around poverty or inequality?</b>	<b>Corporate power in society?</b>
<i>And the Band Played On (1993)</i>	Yes	Yes	Yes
<i>An Inconvenient Truth (2006)</i>		Yes	Yes
<i>Who Killed the Electric Car? (2006)</i>			Yes
<i>Sicko (2007)</i>		Yes	Yes
<i>Super Size Me (2004)</i>		Yes	Yes
<i>The Insider (1999)</i>	Yes		Yes
<i>The Corporation (2004)</i>			Yes
<i>The Yes Men (2004)</i>			Yes
<i>Erin Brockovich (2000)</i>	Yes		Yes
<i>Bowling for Columbine (2002)</i>	Yes*		Yes
<i>A Civil Action (1998)</i>	Yes		Yes
<i>The Constant Gardener (2005)</i>	Yes	Yes	Yes
<i>Born into Brothels (2004)</i>	Yes*	Yes	
<i>Dark Days (2000)</i>	Yes*	Yes	
<i>Bright Leaves (2004)</i>			Yes

**Note:**

\* Director could be considered to have faced ethical challenges in how they made the film.

## Appendix

Table A1: Keywords used to search the selected movie databases

Public health theme	Medline MESH headings	Additional database search keywords
1. Health inequalities and vulnerable populations	<ul style="list-style-type: none"> <li>• Social class/ caste/ Socioeconomic status</li> <li>• Health status/ level of health</li> <li>• Socioeconomic factors/ inequalities/land tenure/standard of living (Career mobility/poverty/social class)</li> <li>• Health services accessibility</li> <li>• Health status indicators</li> <li>• Poverty/indigency/ low income population/ indigents</li> <li>• Delivery of health care</li> <li>• Health behavior</li> <li>• Quality of healthcare</li> <li>• Vulnerable population</li> <li>• vulnerable population/ disadvantaged</li> </ul>	<p>Socioeconomic status, deprivation, inequality/inequalities, disadvantaged</p> <ul style="list-style-type: none"> <li>• Poverty: Malnutrition, hunger, starvation, Homelessness, unemployment</li> <li>• Children and Young people: Child abuse, child labour/labor</li> <li>• Ethnic minorities: Immigrant health, refugees, indigenous populations</li> <li>• Vulnerable women: Rape, domestic violence, teenage pregnancy, sexual assault</li> </ul>
2. Lifestyle impacts and determinants	<ul style="list-style-type: none"> <li>• Fast food industry</li> <li>• Obesity</li> <li>• Restaurants</li> <li>• Chronic disease</li> <li>• Food industry</li> <li>• Dietary fats</li> <li>• Diet</li> <li>• Smoking</li> <li>• Tobacco industry</li> <li>• Nicotine</li> </ul>	<ul style="list-style-type: none"> <li>• Obesity: Nutrition, fast food, junk food, diabetes, sugar, processed food</li> <li>• Smoking: Tobacco, tobacco industry, nicotine</li> <li>• Exercise: Physical activity</li> </ul>
3. Quality and access to health services including pharmaceuticals	<ul style="list-style-type: none"> <li>• Delivery of health care</li> <li>• Health behavior</li> <li>• Quality of healthcare</li> <li>• Pharmaceutical industry/ drug industry</li> </ul>	<p>Health services, "access to health", healthcare, malpractice, medical treatment, health system</p>
4. Global health and development issues	<ul style="list-style-type: none"> <li>• World health/international health problems</li> <li>• International co-operation</li> <li>• Chronic disease</li> <li>• Social environment</li> <li>• Tobacco industry</li> <li>• Developing countries</li> <li>• Global warming/ greenhouse effect</li> </ul>	<ul style="list-style-type: none"> <li>• World health/ global health,</li> <li>• Global warming/ greenhouse effect/ climate change,</li> <li>• Developing countries</li> <li>• Global health/ developing world problems</li> <li>• Globalization/globalisation world debt, famine</li> <li>• Global issues</li> <li>• Nuclear weapons, weapons of mass destruction</li> </ul>

Public health theme	Medline MESH headings	Additional database search keywords
		<p>Note: Conflict between groups is an important public health issue. Nevertheless, we limited the focus of this study to movies that covered within-country violence (given that we did not have the time to search the vast number of movies that have themes about war).</p>
5. Health protection from environmental hazards	<ul style="list-style-type: none"> <li>• Environmental exposure/ environmental illness/ environmental monitoring/ environmental pollutants/ multiple chemical sensitivity/ occupational exposure/ Persian Gulf syndrome</li> <li>• Environmental health</li> </ul>	Environmental hazards, pollutants, air pollution, water pollution, radiation, mercury poisoning, arsenic poisoning, lead poisoning, mass poisoning, pesticide poisoning
6. Epidemics and outbreaks	<ul style="list-style-type: none"> <li>• Epidemic</li> <li>• Disease outbreak/ outbreaks/ pandemics/ communicable diseases</li> <li>• AIDS</li> <li>• Acquired immune deficiency syndrome</li> <li>• Influenza, human</li> <li>• Poliomyelitis</li> <li>• Measles</li> <li>• Smallpox</li> </ul>	Pandemic, HIV, infectious disease, disease vectors, polio, pandemic flu/influenza, bioterrorism
7. Public health interventions and programmes	<ul style="list-style-type: none"> <li>• Communicable disease control/ parasite control</li> <li>• Decontamination</li> <li>• Environmental monitoring</li> <li>• Mass screening</li> <li>• Population surveillance</li> <li>• Primary prevention/ health promotion</li> </ul>	Disease control, decontamination, prevention, health protection, epidemiology, immunization/immunisation
8. Public safety	<ul style="list-style-type: none"> <li>• Falls</li> <li>• Aviation</li> <li>• Home</li> <li>• Traffic</li> <li>• Drowning</li> <li>• Consumer product safety</li> <li>• Hygiene/sanitation</li> </ul>	Firearms/ gun violence, gun control, accident prevention, hygiene/sanitation, unsafe product
9. Mental health and well-being	<ul style="list-style-type: none"> <li>• Drugs and alcohol</li> <li>• Street drugs/ recreational drugs/ illicit drugs/ drugs of abuse</li> <li>• Alcoholism/ alcohol abuse/ chronic alcoholic intoxication</li> </ul>	Disability, mental health, gambling, problem gambling, suicide, depression