

## **Media Mutations 14th International Conference**

Theme: Investigating Medical Drama TV series: approaches and perspectives

Venue: Bologna, Dipartimento delle Arti – DAMSLab

Date: May 18-19, 2023

To: [submissions@mediamutations.org](mailto:submissions@mediamutations.org)

Organization: Università degli Studi di Urbino Carlo Bo & Università di Bologna

## **Health Empowerment Communication in Television: A Comparative Study of Resuscitation in American and Japanese Medical Drama**

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### **Abstracts**

Health empowerment communication is a strategy used to educate and inform individuals about health-related issues through various forms of media, including television dramas. TV medical dramas often depict resuscitation and health communication between doctors, patients, and their family members in a dramatic and intense way, with a focus on the medical procedures and the emotions involved. These scenes can be a useful way to educate viewers about resuscitation techniques and the importance of clear communication in the healthcare setting.

Two TV medical dramas produced are chosen for a couple of reasons: Grey's Anatomy produced in America is a popular TV medical drama that has aired on the ABC network since 2005 and then to the worldwide audiences. Sampling another Japanese TV drama series (i.e., Dr. X) because it is insightful and fairly new (premiered in 2012 on TV Asahi), and circulated widely among Asian audiences.

Previous existing studies of health communication mostly adopted qualitative content analysis instead of using computational analytics. To fill out the research gap that few empirical study with big data analytics to analyze about the health empowerment communication, it is one of the research objectives. Automated quantitative content analysis of total 46 episodes from two TV drama series was employed. A comparative study of resuscitation in American and Japanese examined the differences and similarities in the procedures, guidelines, and practices for resuscitation, and family member's role in patient's empowerment.

The codebook included a comparison of cardiopulmonary resuscitation (CPR) techniques, use of automated external defibrillators (AEDs), survival rates, doctor and patient conversation, and training and certification programs. The representation of resuscitation in TV dramas can have both positive and negative impacts. On the one hand, it can raise awareness about the importance of CPR and the role of first responders in saving lives. TV medical dramas educate viewers about the signs of cardiac arrest and the steps they can take to help someone in need. On the other hand, it can also lead to misconceptions or unrealistic expectations about the success rates of resuscitation attempts, or the ease of performing the procedure. For this registered report, it's important to note that TV dramas may not always

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reflect the reality of resuscitation and other medical procedures, and should not be used as a sole source of information. However, it can be a powerful tool to raise awareness, educate and inspire people to act and save lives. In conclusion, the study assesses cultural, ethical, and legal differences related to resuscitation in the two cultures.

## **1. Introduction**

TV medical dramas often depict resuscitation and health communication between doctors, patients, and their family members in a dramatic and intense way, with a focus on the medical procedures and the emotions involved. These scenes can be a useful way to educate viewers about resuscitation techniques and the importance of clear communication in the healthcare setting. When compared to the few studies that used big data analytics on the same topic, reams of prior studies used qualitative content analysis of TV drama to learn health communication. This study looked at a broader problem of how medical procedures and health-related concerns are represented on television in an effort to sift through communication patterns for more opportunities to learn from. In particular, the way that doctors, patients, and caregivers are portrayed during resuscitation in medical dramas on television.

Health empowerment communication is a strategy used to educate and inform individuals about health-related issues through various forms of media, including television dramas. By incorporating health messages into popular TV shows, viewers may be more likely to engage with and retain the information being presented. This can include messages about disease prevention, healthy behaviors, and access to health services. Additionally, TV dramas can be used to address sensitive or stigmatized health topics, such as mental health or sexually transmitted infections, by depicting relatable characters and storylines. Overall, using TV dramas for health empowerment communication can be an effective way to reach a wide audience and promote positive health outcomes.

One of this study's objectives is to offer insights into the ways in which medical dramas can shape public understanding of health and medicine. The authors argue that it is important for media professionals to accurately depict medical procedures and to provide accurate information to the public. This study also intends to highlight the potential impact of media on public health and underscores the need for ongoing research in this area. Thus, it is important to note that TV dramas may not always reflect the reality of resuscitation and other medical procedures, and should not be used as a sole source of information. However, it can be a powerful tool to raise awareness, educate and inspire people to act and save lives.

## **2. Research Questions**

Existing studies suggest that TV dramas often present an idealized and simplified version of patient and doctor communication, which may not reflect the complex and nuanced interactions that occur in real-life clinical settings. In addition, the portrayal of patient and doctor communication in TV dramas may have implications for public understanding of health and medicine, and may influence patients' attitudes and behaviors towards seeking medical care. By examining these and other questions, we can gain a better understanding of how the show portrays patient empowerment and the role of patients in their own healthcare. Therefore, five research questions are raised to fill out the research gap.

1. How accurate are the depictions of CPR on popular medical dramas in the US compared to American Heart Association guidelines?

2. How accurate are the depictions of CPR on popular medical dramas produced in Japan compared to Japan Circulation Society (JCS) guidelines?
3. To what extent do depictions of resuscitation on medical dramas influence public perceptions of CPR effectiveness?
4. How are patients depicted in the show? Are they active participants in their own care, or are they passive recipients of treatment?

### 3 Methods

To conduct a computational content analysis of resuscitation in TV medical drama, a large amount of data from the show were collected, such as transcripts and video clips of scenes that involve resuscitation. This data could then be processed and analyzed using a variety of methods, including natural language processing (NLP) techniques, to identify patterns and trends in the depiction of resuscitation on the show.

Two TV medical drama including Grey's anatomy produced in America and Dr. X Surgeon Michiko Daimon broadcasted from Japan were crawled. Grey's Anatomy, a TV medical drama produced in American is chosen for a couple of reasons. It has been a popular medical drama TV show that has aired on the ABC network since 2005 and then to the worldwide audiences. It follows the lives of a group of surgeons and healthcare professionals working at the fictional Grey Sloan Memorial Hospital in Seattle, Washington. The show has included many storylines involving resuscitation, as it is a common medical procedure that is often depicted in medical dramas. [Until 2023, there were total 418 episodes.](#)

Dr. X (Doctor X) is a Japanese television drama series that premiered in 2012 on TV Asahi. The series follows the character of Dr. Michiko Daimon, a highly skilled and talented surgeon who works at a university hospital. The show is known for its medical themes and focus on resuscitation and critical care. In the show, Dr. Daimon is known for her exceptional medical skills and her ability to save lives in high-pressure situations. She is often called upon to perform difficult surgeries and procedures, and is known for her calm and composed demeanor in the operating room. [Until 2023, there were total 69 episodes.](#)

The original screen caption, in which 46 episodes are all available for free download and open access, was used to generate the raw data. Based in Beijing, China it is a nonprofit organization (<https://www.yysub.net/subtitle>). It was downloaded in Jan 2023.

For Dr. X Surgeon Michiko Daimon's study, the screen caption and subtitle were downloaded in Chinese while occasionally utilizing mixed English terms after filtering total 143,893 characters was used in the research, while the caption for Grey's Anatomy was crawled in English and analyzed without any effort in translation (total 168,480 characters).

DivoMiner platform was adopted because it is designed for computational content analysis of audiovisual media. The platform offers a suite of tools for analyzing video and audio content, including speech recognition, natural language processing, and machine learning algorithms that can identify patterns and themes in large datasets (e.g., Chang, Schulz, Jiao & Liu, 2021 ; Chang, Schulz, Tu, & Liu, 2020). Therefore, DivoMiner was used to enhance content analysis of TV medical dramas on the dialogue between characters, and also non-verbal cues such as facial expressions, body language, and camera angles.

It then adopted statistical analysis techniques (descriptive analysis, Chi-square test, and narrative analysis) to analyze and interpret the data, looking for patterns and trends in the content of the show. This approach helps to provide a more objective and unbiased understanding of the characteristics and themes of two TV medical dramas.

#### 4. Preliminary Results

A total of 46 episodes produced from two TV drama series was analyzed — 26 on Grey’s Anatomy, and 20 on Dr. X Surgeon Michiko Daimon. There were a total of 12 cardio-respiratory arrest and 2 happened in Dr.X. One CPR incident occurred on a youngster under the age of 18, whereas other incidents were adults age 18 or \ It is found that 12 episodes (46.2%) of Grey's Anatomy, 2 episodes (10%) of Dr. X has included storylines involving resuscitation, as it is a common medical procedure that is often depicted in medical dramas.

he first research question in this study aims to investigate the accuracy of CPR depictions on popular medical dramas in the US when compared to American Heart Association (AHA) guidelines. The AHA's 2020 guidelines highlight the concerning fact that less than 40% of adults receive layperson-initiated CPR, with fewer than 12% having an AED applied before EMS arrival. In response, the updated guidelines encourage individuals to perform CPR for others. The study found that Grey's Anatomy accurately followed the guidelines by clearly demonstrating the CPR process, enabling the audience to better understand how to perform it. The show portrayed CPR being performed, with both an AED machine and compression equipment being utilized, demonstrating a comprehensive depiction of the life-saving technique.

According to the second research question, only constant compression and the use of an AED machine were portrayed in the play; mouth-to-mouth breathing was not, which is due to the JCS guideline, that people find it challenging to learn or do CPR because of the intricacy of CPR with rescue breathing, dislike to mouth-to-mouth breathing, and the lengthy nature of CPR instruction. Many individuals have the incorrect idea about CPR and believe it is difficult to do it on strangers, particularly when performing mouth-to-mouth compressions.

The codebook's cardiopulmonary resuscitation section has seven important terms related to the causes, instruments, and process, including “heart”, "chest," "cardiac arrest," "CPR," "ECMO," "emergency," and "resuscitation." Resuscitation-related terms totaled 344; the resuscitation instrument occurred 339 times. The most common therapy used during resuscitation is epinephrine and the epinephrine therapy featured five times in two dramas (i.e., 4 times on Grey’s Anatomy). The keywords "Resuscitation" and related medical terms from Grey's Anatomy and Dr. X Surgeon Michiko that were compared and distributed for the codebook are shown in Table 1.

Table 1. A comparison of the causes of resuscitation and the related terms indicated in two medical dramas on television.

<b>Resuscitation (N = 339)</b>	Grey's Anatomy (n = 278)	Dr. X Surgeon Michiko Daimon (n = 61)	Total
Heart/心臟	152 (54.6%)	33 (54.0%)	185

Chest/epinephrine/胸腔	62 (22.3%)	5 (8.2%)	67
Emergency/emergency room/ICU/緊急/急診	33 (11.9%)	17 (27.8%)	50
ECMO/體外膜肺氧合	14 (5.0%)	0 (0.0%)	14
CPR	11 (4.0%)	3 (5.0%)	14
Cardiac arrest	3 (1.1%)	0 (0.0%)	3
Resuscitation/急救	3 (1.1%)	3 (5.0%)	6
Total	278	61	339

Compression and defibrillation are used in CPR in 100% (N=14) Dr. X and Grey's Anatomy.

CPR techniques were used 12 times in Grey's Anatomy but only two times in Dr. X. Surgeon. Four of the twelve patients on Grey's Anatomy passed away (66.7%); yet, on Dr. X, all patients are saved (100%, n=2). [The immediate success rate \(66.7%\) is higher from AHA-published real-life figures, which is 24.2% \(p < .03 \) \(Chan et al., 2022\) or from JCS figures 36.0% to 42.8% \(p < .001\) \(Nishiyama et al., 2020\). The resuscitation process appeared to follow current guidelines.](#)

In the Japanese TV medical drama "Dr. X Surgeon Michiko Daimon," resuscitation and CPR (cardiopulmonary resuscitation) are likely depicted as medical procedures used to restore blood flow and breathing in a person whose heart has stopped functioning. These procedures can be critical in saving the life of a person who has experienced a cardiac arrest, and are often performed by medical professionals in a hospital setting. In the show, it is likely that the character Michiko Daimon, a skilled surgeon, would be involved in performing resuscitation and CPR on patients in need. When a heart disease patient has surgery or in any other emergency circumstance, CPR is employed. In the Dr. X drama, the term "success" was referenced 73 times in total, compared to 16 times in Grey's Anatomy. [By using Chi-square analysis, the appearance of “success” and “survival” shows significant different in two dramas \( \$\chi^2 = 8.578, p < .05\$ \).](#) Table 2 compares the causes of resuscitation and the survival rates indicated in two medical dramas on television.

Table 2. A comparison of the survival rates indicated in two medical dramas on television.

Result for resuscitation	CPR appeared in Grey's Anatomy	CPR appeared in Dr. X Surgeon Michiko Daimon	Total
Success	16 (4.4%)	73 (48.3%)	89
Survival	5 (1.4%)	3 (2.0%)	8
Total	21	76	97

In response to the research question 4, In both drama shows, every patient (in Dr. X n = 29; in Grey's Anatomy n = 63) is actively participating in their care. [No patient is in coma or unable to make decided situation.](#) Doctors also educated the patient's relatives about the illness. For instance, patients can decide whether they want surgery or not, and the medical procedure can be customized to their desires. But the protagonist will persuade the majority

of them. Additionally, during treatment, the patient has a right to express their opinions and not just follow the doctor's advice.

Grey's Anatomy featured 57 patients, of whom 61.40% (n = 35) were accompanied by friends or family members in 26 (45.61%) or 35 (9.79%) cases.

In the Dr. X series drama, there were 27 patients, 13 of whom have family members who stay with them in the hospital. These family members can include the patient's mother, father, or loved ones. In other words, 48.15 percent of patients are cared for by family members. In contrast, none of the close friends will offer the suffering support or aid with decisions. Friends are typically depicted in American dramas more frequently than in Japanese dramas. [No significant different in two dramas were found by using Chi-square analysis \( \$\chi^2 = 5.040\$ ,  \$p = 0.080\$ \)](#)

TV shows showcase medical procedures with family members in mind in response to RQ5. To guarantee that these representations for health empowerment are covered, further procedures included an active participation in enquiring about the patient's medical state, providing emotional support, and helping the patient make decisions. The role of a patient's family member is very significant in a Japanese TV medical drama for their empowerment in terms of their health. In a TV medical drama, family could assist with a patient's treatment in the following ways: First, a family member actively participated in learning about the patient's condition and available treatments. The family member then acted as the patient's advocate by seeking out information and posing questions.

Family members can help patients become more empowered by advocating for their rights or expressing their preferences when the patient is unable to do so on their own. Second, a patient's relationship with a family member was crucial to their general wellbeing since they offered them emotional support and helped them through a trying period. Third, a family member had the authority to make choices for the patient. Some patients who were unable to make their own medical decisions were urged to have a family member act on their behalf. In these situations, it's critical that the family member's choices are in the patient's best interests. Table 3 contrasts the roles played by family members, friends, and individuals in the two medical dramas.

Table 3. A comparison of roles of family members, friends, and nobody else in two medical drama.

	Grey's Anatomy (N = 57, 100%)	Dr. X Surgeon Michiko Daimon (N = 27, 100%)	Total
Family	26 (45.61%)	13 (48.15%%)	39
Friend	9 (15.79%)	0 (0%)	9
Nobody else	22 (38.60%)	14 (51.85%)	36
Total	57	27	75

## 5. Discussions & Conclusion

On the basis of this foundation, increasing public education should be taken into consideration. In both drama series, the majority of the patients are engaged in treatment. They can choose whether surgery they wish to have or not, for example and the medical procedure can be tailored to their preferences. But the protagonist will persuade the majority of them. Additionally, the patient has a right to voice their thoughts and not merely accept the doctor's recommendations during the course of treatment. This confirms the findings of a study conducted in 2008 that suggested physicians should prioritize patient and family preferences when making resuscitation decisions. (Marco, & Larkin, 2008). The quality of healthcare is improved, and patients, families, and medical professionals are more satisfied when they receive this type of patient, family-centered care (Park et al., 2018).

It should be noted that a comparison of CPR techniques and success rates in saving lives in TV medical dramas in the US or Japan could be problematic for several reasons. Firstly, medical dramas may not always present accurate and evidence-based depictions of medical procedures, including CPR. This could lead to misinformation and potentially harmful actions by individuals who attempt to replicate the techniques they see on TV. Secondly, CPR success rates in TV medical dramas may not reflect real-world outcomes, as the depiction of CPR on TV may be exaggerated or oversimplified for dramatic purposes. Therefore, it may not be appropriate to compare CPR techniques and success rates in TV medical dramas to real-world CPR outcomes. Instead, studies should focus on the effectiveness of CPR techniques and the factors that impact CPR success rates in real-world settings, where accuracy and applicability are more reliable.

Family members frequently contribute significantly to the medical procedure. The family member is required to make the decision for the unconscious patient and participate in the entire medical procedure, particularly in two medical TV dramas. They are occasionally the subjects of medical discussions. They mostly assist the doctors in persuading the patient or encouraging the patient's choice. The level of patient care was raised when families felt empowered and got involved (Mackie, Mitchell, & Marshall, 2019). They serve as a link between the doctor and the patient. Greater resilience was produced by greater family adaptability and communication, which was correlated with a higher likelihood that treatment plans would be followed (Kukihara et al., 2020).

In the Asian view of the family, especially in Japan, giving care was viewed as fulfilling a socially prescribed job, paying back a debt, and expressing gratitude for the patient's unconditional affection (Yamaguchi, Cohen, & Uza, 2016). They must provide the patient with more care; else, society will hold them accountable. For instance, in the drama, the most recalcitrant and elderly patients who have a poor relationships with their relatives; are left behind during the healing process. This is very rare in Asia concept.

In addition to depicting resuscitation and CPR as important medical procedures, Grey's Anatomy also touches on the ethical and moral dilemmas that can arise in such situations. For example, the show has explored issues such as patient autonomy and the right to die, as well as the difficult decisions that medical professionals may face when deciding whether or not to perform CPR on a patient.

Whether the portrayal of CPR on these shows is realistic or unrealistic and assess the implications of such depictions for public knowledge and expectations of CPR was

investigated. American TV drama, Grey's Anatomy is found to have been praised for its realistic portrayal of medical procedures, including resuscitation. The show often depicts the use of advanced medical technology, such as defibrillators and extracorporeal membrane oxygenation (ECMO), to assist with resuscitation efforts. The show also portrays the emotional toll that resuscitation can take on both the patients and the healthcare professionals involved. Overall, Grey's Anatomy has contributed to public understanding of resuscitation and has helped to educate viewers about the importance of this life-saving procedure.

### **Limitations**

Automated content analysis of TV medical dramas involves using computer programs to analyze the content of these shows and extract information about their characters, plot, dialogue, and other aspects. This was used to track trends over time, identify common themes and motifs, and perform other types of analysis on the data. DivoMiner was used to enhance computational content analysis of TV medical dramas not only on the dialogue between characters, and also non-verbal cues such as facial expressions, body language, and camera angles. For example, we used computational content analysis to examine how often resuscitation is shown on the show, which characters are most likely to perform resuscitation, and how successful resuscitation efforts are depicted. We also used the analysis to look at the language used to describe resuscitation, such as the words and phrases that are most commonly used, and how these change over time.

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## Short biography

Angela CHANG, Ph.D., is an Associate Professor in the Department of Communication at University of Macau since 2005. Her research interests span both public health and communication science. Much of her recent work has been on improving the understanding of media's function in health communication efforts, mainly through the application of data mining, statistics, and modeling. She has presented over 60 conference papers and published over 30 book chapters and indexed journal articles such as *Journal of Medical Internet Research*, *JMIR Public Health and Surveillance*, *BMC Public Health*, and *Journal of Business Research*. She also serves as an external researcher in the Institute of Communication and Health at Lugano University, Switzerland.

Mary HO, is a Master's Student in the Department of Communication, Management & Health at Università della Svizzera italiana (USI). Her area of research interest links between diseases and medical knowledge, as well as the distribution of health information. She presented on COVID-19 misinformation, food safety issues, and automatic content analysis of health disinformation at ten international conferences and workshops, where she won the International Communication Association's prize for best paper (2023).