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Research Article

Life or Death Decisions: Understanding Public Perception of Cardiopulmonary Resuscitation (CPR) in Emergency Departments

Short title: Public Perception of CPR

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A B S T R A C T

Background: Decisions about cardiopulmonary resuscitation (CPR) should be made jointly by patients and physicians, but informed decision-making requires accurate knowledge of the procedure's risks and benefits. Public understanding of CPR is often shaped by television and other media rather than clinical evidence, which may lead patients and families to overestimate survival and choose resuscitation even when meaningful recovery is unlikely.

Objective: To survey adults about their television viewing habits and perceptions of survival and neurological recovery after CPR.

Methods: Prospective written surveys were distributed to a convenience sample of non-critically ill patients and/or family members at two academic medical centers in West Michigan during 2023-2024. A previously validated instrument assessed demographics, sources of CPR information, television habits, and four anchoring vignettes in which respondents used visual analog scales to estimate survival and neurological recovery after cardiac arrest in different scenarios (elderly in-hospital arrest, pediatric traumatic arrest, out-of-hospital arrest in a middle-aged man, and in-hospital arrest in a middle-aged woman). Bivariate Pearson correlations assessed associations between response accuracy and age or media exposure.

Results: Among 1000 respondents (mean age 38 years, range 18–87; 60.8% female), participants watched an average of 19.8 ± 11.3 hours of television weekly, including educational medical programs (59.2%) and fictional dramas (54.6%). CPR training was the most cited source of information about CPR (53.7%), followed by television (41.1%), friends or family with medical training (18.8%), personal experience (15.2%), and social media (14.4%). Across vignettes, respondents substantially overestimated CPR success (53.4-82.6% predicted postcardiac survival) and long-term outcome (47.7-79.7% predicted complete neurological recovery). No significant correlation was found between response accuracy and age, television viewing, or internet use (all P values were > 0.10).

Conclusion: Most respondents overestimated survival and recovery after CPR regardless of media exposure or prior CPR

training, placing an extra burden on emergency clinicians who must discuss end-of-life decisions with patients and families who are likely misinformed about probable outcomes.

Keywords: Cardiopulmonary resuscitation (CPR), survival outcomes, neurological recovery, public perception, health literacy, shared decision-making, emergency department, patient education

Introduction

Cardiopulmonary resuscitation (CPR) is among the most consequential interventions discussed in emergency and critical care settings, yet the decision to pursue or forgo it is frequently made under emotional duress and with incomplete information[1]. Shared decision-making models require that patients and families understand the probable outcomes of CPR, including rates of survival to discharge and the likelihood of meaningful neurological recovery[2]. In practice, however, these decisions are often shaped less by clinical counseling than by prior exposure to media portrayals of resuscitation, which tend to depict dramatically higher survival rates than those observed in real clinical practice[3].

This gap between perception and reality has been documented in the literature on medical television dramas, which depict resuscitation success rates far exceeding published outcomes from cardiac arrest registries[4]. When patients and families overestimate the probability of survival or full neurological recovery, they may be more likely to request resuscitation even when the benefit is marginal or the burden disproportionate to the likelihood of a favorable outcome. This places clinicians in the difficult position of counseling patients and families whose expectations are already anchored to unrealistic figures learned from television or other public sources[1,4]. The stakes are real: misinformed expectations can drive requests for CPR in situations of medical futility, prolonging non-beneficial resuscitative efforts, deepening moral distress among staff, and complicating goals-of-care conversations at the bedside[3]. Quantifying the scope and persistence of this misperception is a necessary first step toward counseling tools and curriculum changes that could reduce inappropriate resuscitation attempts and improve shared decision-making in the emergency department.

The purpose of this study was to characterize adult patients' and family members' perceptions of CPR survival and recovery outcomes across a range of clinical scenarios, and to examine whether television viewing habits, age, or other sources of information were associated with the accuracy of these perceptions.

Methods

Study design and setting

This was a prospective, cross-sectional survey study conducted at two academic medical centers in West Michigan: an adult urban teaching hospital and a children's hospital. Data collection occurred from November 2023 through March 2024. A validated, written questionnaire was administered by trained researchers to a convenience sample of non-critically ill patients and/or their families during randomly selected shifts.

Participants

A convenience sample of non-critically ill emergency department patients and/or their accompanying family members was recruited during randomly selected shifts by trained researchers. Eligible respondents were adults capable of completing a written survey.

Inclusion criteria were adults aged 18 years or older; presenting to the emergency department as a non-critically ill patient or accompanying a patient as a family member/support person; able to read and complete a written survey in English; and willing and able to provide informed consent.

Exclusion criteria included critically ill or unstable patients; patients with altered mental status, significant cognitive impairment, or intoxication precluding reliable survey completion; prisoners or individuals in custody; hospital staff or medical professionals completing the survey in a professional (rather than patient/family) capacity, to preserve the lay-perception focus of the study; and incomplete surveys with missing responses to the core anchoring vignettes.

Survey instrument

A previously validated survey instrument, originally developed to assess lay-person perceptions and expectations of cardiac arrest survival, was administered[1]. The instrument collected demographic information, provisions for advance directives (living will), sources of information about CPR (including CPR training, television, friends or family with medical training, personal experience, and the internet/social media), and weekly television viewing habits, including the proportion attributable to educational medical programming versus fictional medical dramas. The survey is shown in the Appendix.

The core of the instrument consisted of four anchoring vignettes describing distinct cardiac arrest scenarios:

- Cardiopulmonary arrest in an elderly woman (in-hospital, post-surgical)
- Traumatic arrest in an 8-year-old boy
- Out-of-hospital arrest in a 54-year-old man
- In-hospital arrest in a 54-year-old woman

For each vignette, respondents used a visual analog scale (0 to 100%) to estimate the probability of survival to discharge and the probability of complete neurological recovery.

Researcher training

Trained researchers were medical students who completed a standardized orientation prior to data collection, including a scripted introduction protocol, instruction on neutral and non-leading survey delivery, practice administrations with investigator feedback, and review of consent and data-handling procedures, to ensure consistent administration of the instrument across both study sites. Students were trained to read vignettes and instructions verbatim without editorializing, providing hints,

or influencing visual analog scale responses, to avoid introducing interviewer bias. Researchers completed supervised practice administrations (role-play or pilot surveys) with feedback from the principal investigator, followed by periodic fidelity checks or spot audits during the enrollment period to confirm protocol adherence.

Statistical analysis

The primary outcome was the respondents predicted probability of survival and complete neurological recovery after CPR, as estimated via a visual analog scale across the four anchoring vignettes (elderly in-hospital arrest, pediatric traumatic arrest, out-of-hospital arrest in a middle-aged man, and in-hospital arrest in a middle-aged woman). Secondary outcomes were sources of CPR information reported by respondents, television viewing habits, association between response accuracy and age or media exposure, and the prevalence of advance care planning.

Sample size was estimated a priori using a conservative proportion estimate of p=0.5. At a margin of error of 5%, a minimum of 385 respondents was required; at a stricter margin of error of 3%, a minimum of 1,068 respondents was required. Anticipating a moderate rate of incomplete or unusable surveys, enrollment was targeted to substantially exceed this minimum. The final analytic sample of approximately 1,000 respondents therefore provided adequate precision (margin of error ≤5%, and approaching 3% for several key proportions) for estimating the prevalence of CPR information sources and outcome expectations reported in this study.

Descriptive statistics were used to characterize the study sample and survey responses. Continuous variables, including respondent age, weekly television viewing hours, and predicted survival and neurological recovery estimates for each vignette, were summarized as means with standard deviations. Categorical variables, including sex, advance directive status, and sources of CPR information (CPR training, television, friends/family with medical training, personal experience, and internet/social media), were summarized as frequencies and percentages. Bivariate Pearson correlations were used to assess associations between the number of accurate responses to the vignettes and respondent age or frequency of media exposure (television viewing and internet use). A two-tailed p-value of less than 0.05 was considered statistically significant for all analyses.

This study was approved by the Institutional Review Board (IRB) at Corewell Health Hospitals prior to initiation of survey distribution, and all participants provided informed consent before completing the survey.

Results

Sample demographics and media exposure

Approximately 188 individuals (18.8%) approached for the survey did not consent to participate. The final analytic sample included 1,000 completed survey responses, with a mean respondent age of 38 years (range 18–87 years); 60.8% (608/1000) of respondents were female. Overall, 22.4% (224/1000) of respondents reported having made provisions for a living will. Respondents reported watching an average of 19.8 ± 11.3 hours of television weekly, including educational medical programs (592/1000, 59.2%) and fictional medical dramas (546/1000, 54.6%). A total of 17.6% (176/1000) of respondents felt these dramatic programs were a reliable source of health information.

When asked to identify their major sources of information regarding CPR, respondents most often cited formal CPR training (537/1000, 53.7%), followed by television (411/1000, 41.1%), friends or family with medical training (188/1000, 18.8%), personal experience (152/1000, 15.2%), the internet or social media (144/1000, 14.4%) and books or magazines (53/1000, 5.3%). Twenty-two respondents (2.2%) had worked in a medical/dental office or clinic.

Perceptions of CPR outcomes

Across the four anchoring vignettes, respondents consistently and substantially overestimated the probability of both survival and complete neurological recovery relative to published clinical outcomes.

Vignette	Predicted survival	Predicted complete neurological recovery
Out-of-hospital arrest, 54-year-old man	66.3%	64.1%
In-hospital arrest, 80-year-old post-surgical patient	53.4%	47.7%
Traumatic arrest, 8-year-old boy	70.7%	65.0%
Home arrest requiring paramedic CPR, 54-year-old woman	82.6%	79.7%

In the first vignette, participants predicted postcardiac survival following CPR to be 66.3% (663/1000), and 64.1% (641/1000) predicted complete neurological recovery in a 54-year-old man who suffered a cardiac arrest at a store and required CPR by paramedics. Respondents also overestimated the success rate of CPR in an 80-year-old woman who suffered a cardiac arrest in the hospital after surgery, with 53.4% (534/1000) predicting survival and 44.7% (447/1000) predicting complete neurological recovery. In the vignette describing a traumatic arrest in an 8-year-old, the success rate of CPR was estimated at 70.7% (707/1000), with long-term survival predicted at 65.0% (650/1000). In the final vignette, a 54-year-old woman who suffered a cardiac arrest at home and required CPR by paramedics, respondents predicted postcardiac survival of 82.6% (826/1000) and complete neurological recovery of 79.7% (797/1000). Bivariate correlation analysis showed no significant association between the number of correct responses and age, television viewing patterns, or internet use (all P values were > 0.10).

Discussion

Adult emergency department patients and family members substantially overestimated their odds after CPR. This held for survival as well as complete neurological recovery, across every scenario tested. The pattern matches prior work showing that public expectations of resuscitation outcomes run well ahead of real-world data, a gap attributed in part to how television dramas portray CPR[1,2]. The actual numbers are far lower: survival to discharge after out-of-hospital cardiac arrest runs approximately 9-11%, and survival after in-hospital arrest is roughly 15-25%[5-7]. Only 16-21% of all treated patients achieve a favorable neurological outcome[8,9]. Respondents in this study predicted 53-83% survival and 45-80% neurological recovery across the four vignettes, several-fold higher than reality.

Formal CPR training, not television, was the most commonly cited source of information about resuscitation, yet overestimation persisted regardless. Standard certification courses such as Basic Life Support and Heartsaver programs emphasize compression technique, AED use, and activating emergency services, spending little time on survival statistics or on how outcomes vary by arrest location, rhythm, and comorbidity[10]. A trainee can leave certified and confident, with expectations no more accurate than before the course. Accuracy did not correlate with age or media exposure either, so this is not a problem confined to heavy television viewers or any single demographic. It appears to be widespread.

This pattern extends beyond lay audiences. Studies of medical students and residents have found similarly inflated expectations: more than 60% of medical students estimate CPR success above 30%, and residents holding an Advanced Life Support certification report a mean estimated survival to discharge of 35%, several-fold higher than actual rates[11,12]. That formal medical training fails to correct these assumptions suggests the bias runs deeper than a simple knowledge gap. Both lay CPR courses and medical school or residency curricula on code status conversations could incorporate outcome data stratified by arrest setting and patient characteristics, pairing procedural competence with a more realistic sense of how often CPR actually restores meaningful function.

Our group's earlier survey of public perceptions of CPR, conducted ten years earlier at the same institution, found nearly identical overestimation[1]. That 2018 study of 1,000 respondents across four West Michigan academic medical centers reported 72% predicted survival and 65% predicted complete recovery after out-of-hospital arrest, 57% and 53% respectively after in-hospital arrest in an older post-surgical patient, and 71% and 64% after pediatric traumatic arrest[1]. Holding steady across the whole decade, this gap looks less like a transient artifact of one sample or media cycle and more like a durable feature of public understanding. Some shifts did emerge between the two surveys: personal CPR training fell from the top-cited source in 68% of the 2018 sample to 53.7% currently, television held roughly steady (39% versus 41.1%), and citation of the internet or social media rose under more current, standalone terminology (9% versus 14.4%)[1]. Reported provisions for a living will also be declined markedly, from 39% in 2018 to 22.4% now. If that trend reflects a broader pattern rather than sampling variation, it would leave more patients without documented preferences heading into an acute resuscitation decision, compounding the communication burden described above.

Code status and end-of-life conversations occur frequently in the hospital, often under time pressure and emotional strain[13,14]. When patients and families arrive at these discussions expecting survival and recovery rates several-fold higher than actual outcomes, clinicians must correct these misconceptions while remaining sensitive to the emotional weight of the moment. Structured, explicit discussion of realistic outcome probabilities, potentially through decision aids or visual tools like the anchoring vignettes used here, may help align expectations with clinical reality and support genuinely informed decision-making[14,15].

These results also carry implications for medical education. Television and other media remain a substantial secondary source of CPR-related information for the public, and medical dramas are recognized to depict resuscitation outcomes inaccurately. A related study from our institution examined how medical dramas portray CPR outcomes and found that television characters were 4.6 times more likely to survive a medical cardiac arrest with a good neurological outcome, and nine times more likely after a traumatic arrest, than real-world patients[4]. There may be value in addressing this directly, both in patient and family counseling and in medical student and resident curricula on code status and goals-of-care discussions.

The persistence of inflated expectations across all four vignettes, spanning pediatric trauma, an older post-surgical patient, and both in-hospital and out-of-hospital arrest in middle-aged adults, suggests this bias is not simply unfamiliarity with rare presentations. It is especially striking that respondents predicted very high survival and recovery in the pediatric traumatic arrest vignette, where real-world pediatric out-of-hospital and in-hospital arrest outcomes remain poor and neurologically intact survival is uncommon[16]. Even the vignette closest to a best-case scenario, an out-of-hospital arrest with paramedic response, generated predicted recovery rates several times higher than what cardiac arrest registries report[5-7]. This fits a psychological anchoring effect, in which repeated exposure to dramatized, high-success resuscitation scenes on screen establishes a mental reference point that persists even when people reason through specific clinical details[17,18]. Correcting it likely requires more than a single educational encounter or pamphlet; recurring, scenario-based counseling embedded directly into the code status discussion may prove more effective.

Limitations

This study has several limitations. The sample was a convenience sample drawn from only two academic medical centers in West Michigan, which may limit generalizability to other regions or healthcare settings. Nearly one in five individuals declined to participate, and non-responders may systematically differ in health literacy, media use, or code-status preferences, limiting the representativeness of the final sample. Self-reported television viewing habits and information sources are subject to recall and social desirability bias. The vignette-based visual analog scale approach, while previously validated, relies on hypothetical scenarios rather than participants' actual real-time decision-making during an acute event, which may not fully capture behavior under the emotional stress of a genuine resuscitation decision. Finally, the cross-sectional, vignette-based survey cannot determine causality between media exposure and outcome expectations, nor whether these expectations actually translate into code-status choices during real clinical encounters.

Conclusion

Most surveyed adults substantially overestimated the likelihood of survival and complete neurological recovery after CPR across a range of clinical scenarios, regardless of age, television viewing habits, internet use, or prior CPR training. Television, and medical dramas in particular, remain an important secondary source of CPR-related information, despite being viewed by only a minority of respondents as reliable. These pervasive misconceptions place an additional communication burden on emergency clinicians tasked with facilitating informed, realistic discussions about resuscitation and end-of-life care and highlight an opportunity for targeted

patient education and decision-support tools in the emergency department. These findings support the development and prospective evaluation of structured, vignette-based counseling tools that emergency clinicians could deploy at the bedside during code status discussions, potentially reducing requests for medically futile resuscitation and easing the communication burden this misinformation currently places on emergency staff. Future interventional studies should test whether presenting patients and families with accurate, scenario-specific survival data measurably shifts resuscitation preferences and advance care planning behavior, extending this descriptive work toward a direct clinical application.

Conflict of interest and funding

The authors declare no conflicts of interest and that no funding was provided for this clinical study.

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Appendix. Survey instrument[1]

Please answer the following questions to the best of your ability. This survey is being conducted by medical students from the MSU College of Human Medicine. The results from this survey will be used to assess your overall perception of the usefulness of CPR. You are under no obligation to complete this survey, and your results will remain anonymous (unidentified). By completing this survey, you agree to allow this information to be used for research purposes. Thank you very much for your participation in this survey!

What is your age:

Sex (circle one): Male Female Prefer not to answer

Cardiopulmonary Resuscitation (CPR) is an emergency lifesaving procedure that is performed when a person's own breathing or heartbeat has stopped, such as in cases of electric shock, heart attack, or drowning. CPR combines rescue breathing and chest compressions to manually circulate blood and oxygen through the body.

What has been your major source of information about CPR (circle all that apply):

TV	newspaper	books	internet (social media)
CPR course	personal experience	friends	book/magazines

Have you ever worked in a medical or dental office or clinic? Yes No

Do you have a living will? Yes No Unsure

Do you watch educational medical TV programs (like Discovery Channel)?

Not at all 1-2 times/month 3-4 times/month > 4 times/month

Do you watch medical fiction programs on TV (like House MD or Grey's Anatomy)?

Not at all 1-2 times/month 3-4 times/month > 4 times/month

Do you think that medical fiction programs on TV are reliable? Yes No Unsure

Estimate (or guess) how many hours of TV do you watch during an average week?

Medical Case Examples: Please read each case example and answer the question. The scale is 0 to 100. You may place a mark anywhere on the line.

David, a 54-year-old man suffers a heart attack at home and requires CPR by paramedics. Please estimate what is his chance of surviving after he has been taken to the hospital (between 0% to 100%)?

What is David's chance of making a complete recovery and returning to normal life (between 0% to 100%)?

Mary is an 80-year-old woman who has a cardiac arrest in the hospital after surgery. What is her chance of surviving (between 0% to 100%)?

What is Mary's chance of making a complete recovery and returning to normal life (between 0% to 100%)?

Jill is a 54-year-old housewife who has a heart attack in the hospital and requires CPR by medical personnel. What is her chance of surviving (between 0% to 100%)?

What is Jill's chance of making a complete recovery and returning to normal life (between 0% to 100%)?

Steve, an 8-year-old boy, falls from a tree and requires CPR by people at the scene. What is his chance of surviving (between 0% to 100%)?

What is Steve's chance of making a complete recovery and returning to normal life (between 0% to 100%)?