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Experiences and Perceptions of Lay Bystanders Responding to Out-of-Hospital Cardiac Arrest: A Qualitative Systematic Review

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ADMINISTRATIVE INFORMATION

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INTRODUCTION

Review question / Objective What are the experiences and perceptions of lay bystanders who witness and/or participate in real OHCA events, including recognition of the event, decisions to intervene, performance of CPR or use of an AED, and psychological adjustment after the event?

Condition being studied Out-of-hospital cardiac arrest (OHCA) is the sudden cessation of effective cardiac mechanical activity and circulation occurring outside a hospital. It is a time-critical public health emergency for which survival depends on early recognition, prompt activation of emergency medical services, immediate cardiopulmonary resuscitation (CPR), and early use of an automated external defibrillator (AED). Because professional emergency responders cannot usually reach the scene immediately, lay bystanders play a critical role in initiating the chain of survival. However, responding to OHCA may

involve cognitive uncertainty, emotional distress, situational barriers, physical challenges, and potentially persistent psychological effects. This review focuses on the experiences and perceptions of nonprofessional lay bystanders who witnessed and/or participated in real OHCA events, including event recognition, decisions to intervene, performance of CPR or AED use, interaction with others during resuscitation, and post-event psychological adjustment.

METHODS

Participant or population Lay bystanders who witnessed a real OHCA event were included. Participants who responded in a professional healthcare capacity were excluded. When a study used the term 'first responder,' it was included only if the role was nonprofessional or if findings representing lay rescuers could be clearly extracted.

Intervention The inclusion criteria were defined using the PICO framework for qualitative evidence synthesis: population, phenomenon of interest, and context. Eligible study designs were specified separately.

Comparator No comparator was applicable. This qualitative systematic review used the PICO framework (Population, Phenomenon of Interest, and Context) and did not evaluate comparative intervention effects; therefore, no comparator or control group was specified.

Study designs to be included Primary qualitative studies using phenomenology, phenomenography, grounded theory, qualitative description, qualitative content analysis, or other recognized qualitative methodologies were eligible. Mixed-methods studies were included only when the qualitative data and author-derived findings relevant to the review question could be separately extracted.

Eligibility criteria Studies were eligible if they: (1) used a primary qualitative design or contained an independently extractable qualitative component; (2) included lay bystanders or non-healthcare first responders who witnessed an actual OHCA; (3) explored their experiences, perceptions, decision-making, CPR/AED actions, emotional responses, or post-event adjustment; and (4) were conducted in community settings and published in English or Chinese. Studies limited to healthcare professionals, simulated events, in-hospital cardiac arrest, quantitative data, reviews, editorials, or guidelines were excluded.

Information sources PubMed, Embase, the Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang Data, CQVIP, and the Chinese Biomedical Literature Database (CBM/SinoMed) were searched from database inception to July 31, 2026. Controlled vocabulary and free-text terms were combined according to the requirements of each database. The reference lists of eligible studies were also screened, and citation tracking was conducted to identify additional relevant studies. Studies published in English or Chinese were considered.

Main outcome(s) The main outcome was a qualitative synthesis of lay bystanders' experiences and perceptions of responding to actual out-of-hospital cardiac arrest across the pre-response, response, and post-event phases. Relevant domains included recognition and interpretation of OHCA, motivations and barriers to intervention, decision-making, CPR and AED actions, teamwork and interaction with emergency

services, emotional impact, post-event adjustment, and support needs. Author-derived findings and supporting illustrations were extracted and assigned levels of credibility as unequivocal, credible, or unsupported. Findings rated unequivocal or credible were aggregated into categories and synthesized findings using the JBI meta-aggregation approach. Confidence in each synthesized finding was assessed using ConQual. As this was a qualitative review, no numerical effect measure or fixed follow-up time point was prespecified.

Quality assessment / Risk of bias analysis Two reviewers independently assessed the methodological quality of each included study using the 10-item JBI Critical Appraisal Checklist for Qualitative Research. Each item was rated as "Yes," "No," "Unclear," or "Not applicable." For descriptive reporting, "Yes" was assigned one point and all other responses zero points; however, no numerical cutoff was used to exclude studies. Disagreements were resolved through discussion, with unresolved disagreements adjudicated by a third reviewer. Appraisal results were used to interpret the evidence and to assess the dependability component of ConQual.

Strategy of data synthesis Data were synthesized using the JBI meta-aggregation approach. Author-derived findings and their supporting illustrations were extracted verbatim from each included study. Each finding was assigned a credibility level: unequivocal, credible, or unsupported. Only unequivocal and credible findings were included in the synthesis. Findings with sufficiently similar meanings were grouped into categories, and categories were subsequently combined into synthesized findings that provided actionable statements while remaining grounded in the original evidence.

Confidence in each synthesized finding was assessed using the JBI ConQual approach. As all included evidence was qualitative, each synthesized finding initially received a high confidence rating. Dependability was assessed using items 2, 3, 4, 6, and 7 of the JBI checklist: no downgrading was applied when four or five items were rated "Yes," one level was deducted when two or three items were rated "Yes," and two levels were deducted when zero or one item was rated "Yes." Credibility was assessed according to the composition of unequivocal and credible findings. Final confidence was classified as high, moderate, low, or very low.

Subgroup analysis No formal subgroup analysis was performed because this was a qualitative

meta-aggregation and the available studies were insufficient for meaningful subgroup synthesis. Differences relating to country or cultural context, event setting, bystander role, prior CPR/AED training, relationship with the patient, and participation in emergency-response systems were considered narratively when interpreting the synthesized findings. These contextual comparisons were used to assess the transferability of the evidence rather than to estimate subgroup effects.

Sensitivity analysis No formal sensitivity analysis was conducted because this was a qualitative meta-aggregation. The robustness of the findings was considered through methodological quality appraisal, credibility assessment, and ConQual evaluation.

Country(ies) involved China.

Keywords out-of-hospital cardiac arrest; cardiopulmonary resuscitation; lay bystander; qualitative systematic review; meta-aggregation.

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