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Review

Qualitative research in cardiac arrest research: A narrative review

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Abstract

Qualitative research is defined as “*the study of the nature of phenomena*”, including “*their quality, different manifestations, the context in which they appear or the perspectives from which they can be perceived*”. It is a methodology which is becoming extremely valuable in resuscitation science, especially in terms of improving our understanding of the true impact of sudden cardiac arrest on survivors, family members, lay responders and health care providers. This narrative review provides a high-level overview of qualitative methods as well as the current state of the qualitative evidence and key knowledge gaps in resuscitation science. It finishes with discussion of the bright future of qualitative research in our field.

Keywords: Qualitative research, Methodology, Resuscitation science, People with lived experience

Introduction

Qualitative research is defined as “*the study of the nature of phenomena*”, including “*their quality, different manifestations, the context in which they appear or the perspectives from which they can be perceived*”.¹ There is evidence of the emergence of qualitative research at the start of the 20th century as psychoanalysis started to enter into the commercial world. As early as 1894, Wilhelm Dilthey made a plea for a descriptive as opposed to an explanatory approach to psychology, stating ‘we explain nature, we understand life’.² By 1945 the person considered to be the father of qualitative research, Paul Felix Lazarsfeld, had shown how psychology could provide a framework to interpret human behaviour. He introduced the world to unstructured interviewing and group discussions and stressed the importance of answering the important ‘why?’ question.³ All this to say, that qualitative research has a long and rich history of exploring questions about lived experiences, perspectives, behaviour and practices, the factors and social processes that influence and shape particular phenomena, the explicit and implicit norms and ‘rules’ governing particular practices, as well as the how people make meaning of objects in particular texts and contexts.⁴ While its presence in resuscitation science has been much more recent, its use and value is definitely on the rise and hence why it deserves review in this issue.

A few notes as we head into the content of this article. Firstly, as the sole author of this review I must declare my positionality – I am a

qualitative social scientist and I firmly believe that qualitative research holds tremendous power to help us improve survivorship from and the human response to sudden cardiac arrest. As someone who has been conducting qualitative and mixed methods studies in the resuscitation space for over 15 years, I have seen firsthand how unpacking long held assumptions and diversifying ways of thinking about common constructs related to cardiac arrest can shed new light on some of our most challenging questions.

Secondly, I have chosen to start with a very high-level overview of qualitative research methods in order to socialize those readers that might be less familiar with the tradition. From there I review the current state of qualitative research in resuscitation science and share my hopes for its increased utility in the future. So, let’s begin.

Overview of the qualitative research approach

Methodologic assumptions

Most qualitative research works from what we call the ‘interpretivist’ or ‘constructivist’ paradigm or world view. These ways of viewing the world assume that reality as we know it is constructed by those who live it through the meanings and understandings developed socially and experientially.⁵ It prioritizes people’s subjective interpretations since the social world and reality are dependent who is involved. It also assumes that we cannot separate ourselves from what we know. The investigator and the object of investigation are inextricably

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<https://doi.org/10.1016/j.resplu.2024.100568>

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linked so that who we are and how we understand the world is a central part of how we understand ourselves, and the world and that findings or knowledge claims are negotiated through dialogue as a study proceeds.⁶ Lastly, all interpretations/findings are based in a particular moment, context or situation and time. They are open to re-interpretation and can inform a broader understanding but are not meant to be ‘generalizable’ to all places, spaces and populations across the board; there is no single truth or answer, and we accept that perception is one’s reality.⁷

These assumptions are quite contradictory to quantitative or more positivistic approaches which assume that there is an objective reality which we can know and accurately describe with symbols (ie. numbers) and measure with concrete, pre-defined variables.⁸ Such approaches operationalize variables as quantitative data; that is, by translating a social phenomenon like “health” into a quantifiable or numerically measurable variable like “number of visits to the hospital.” Quantitative research also assumes that there are patterns of cause and effect that can be used as a basis for predicting and controlling natural phenomenon. Finally, it holds that the research is value-free; if strict methodological protocols are followed, research will be free of subjective bias and objectivity will be achieved.⁹

Lastly, there is not just one kind of qualitative research, although it is often referred to very generically like this. Likewise, it is important to consider the difference between *methodology* and *method*. Different ‘methodologies’ that tend to employ qualitative methods such as ethnography, phenomenology, grounded theory, etc. all use similar data collection *methods* (interviews, focus groups, etc.), however the way they view how we can know things, handle data and interact with participants are very nuanced.¹⁰ For example, ethnography explores cultural phenomena from the point of view of the subject of the study – it focuses on the behavior of the participants in a given social situation and understanding the group members’ own interpretation of such behavior. As such, it relies heavily on participant observation with the researcher participating in the setting or with the people being studied, at least in some marginal role, and seeking to document, in detail, patterns of social interaction and the perspectives of participants, and to understand these in their local contexts.¹¹ In contrast, a goal of the researcher employing grounded theory methods is to generate concepts that explain the way people deal with their central concerns regardless of time and place.¹² These concepts help organize the ground-level data into building blocks of hypotheses and those hypotheses lead to new theorizations. As in almost all qualitative research, the researcher does not formulate hypotheses in advance of data collection, otherwise the hypotheses/interpretations would not be *grounded* in the data.¹³

Qualitative research methods

The most commonly used qualitative methods include focus groups, interviews, and observations. Each one has specific strengths and limitations and choosing the right data collection (and analysis) method includes carefully considering the objectives of the study at hand. For example, one-on-one key informant interviews are usually used to elicit in-depth insight on individual participant’s personal (and sometimes sensitive) life experiences whereas focus groups are better suited to topics where discussion and interaction between participants aids in eliciting rich data about a particular shared phenomenon.

Once data has been collected there are several different analytic approaches to consider as well. The most commonly used method seems to be what is referred to as “thematic analysis”. Most

importantly thematic analysis goes beyond simply counting phrases or words in a text (as in content analysis) and explores explicit and implicit meanings within the data.¹⁴ Coding is the primary process for categorizing items of analytic interest in the data and tagging these with a coding label.¹⁵ In some thematic analysis approaches coding is a deductive process of allocating data to pre-identified themes such as from an existing conceptual framework. In other approaches, including in the very popular reference from Braun and Clarke, a coding framework is built inductively from the data and themes are built from codes.¹⁶ Themes are the overarching ideas and subject areas within the corpus of research data. Researchers develop themes by collating together the results of the coding process into groups or patterns of ideas according to their meaning or subject matter. The process of qualitative data analysis is too complex to cover in full here but most importantly, the methods used in analysis follow from the methodologic design of the study. Innovations in qualitative methods are on the rise in health research including nuanced approaches such as discourse analysis, mobile ethnography, arts-based data, interaction with online communities, and other novel ways of understanding the human experience.

Measures of trustworthiness and rigour

Rigor, in qualitative terms, and reliability/validity, in quantitative terms, are ways to establish trust or confidence in the findings or results of a research study. Rigor in the research process and results are achieved when “each element of study methodology is systematic and transparent through complete, methodical, and accurate reporting”.¹⁷ Beginning with a well-developed conceptual framework and active use of both researcher reflexivity and rigorous peer review during data collection, analysis and reporting are crucial to rigor and quality. This includes consideration of ethical validity - recognition that the choices we make through the research process have political and ethical implications.¹⁸ Researchers need to always ask if research is helpful to the target population, and if we have really furthered our learning or understanding about something from our work.

A variety of checklists have been published that describe key points of rigor, validity and transparency to be considered when seeking to disseminate research that uses qualitative methods.¹⁹ Although these lists have been critiqued as being too prescriptive²⁰, they provide necessary guidance for ensuring the methodological rigor of the research design and should be taken up explicitly by authors and journal alike to ensure we are producing and publishing the highest quality qualitative research we can, to inform our field.

Qualitative research in resuscitation science

As would be expected, the majority of published qualitative resuscitation research lives in the spaces of survivor, family, and lay responder experience of out-of-hospital cardiac arrest. Although a formal bibliometric analysis has not been done, an informal analysis of publications in the three top resuscitation-specific journals, *Circulation*, *Resuscitation* and *Resuscitation Plus* in the last twenty years (2003–2023) reveals that only about 9% of articles published about cardiac arrest employ qualitative methods (3%, 7% and 16% respectively). While there are obviously qualitative studies on resuscitation related topics published in hundreds of other journals, I think it is safe to say that at the time of publication of this article, we have a way to go before qualitative studies are on equal footing with randomized and observational studies within our academic community.

That said, the first papers on the qualitative experience of life after cardiac arrest for survivors were published around the early 2000s and since then the experiential evidence base has grown exponentially, leading to the American Heart Association Scientific Statement on Survivorship in 2017.²¹ Most recently, Southern et al have completed a large meta-ethnography of all qualitative research related to survivor and key supporter evidence and included 38 articles in their review.²² Of those included 27 described survivor experience ($n = 419$), 16 described family member or key supporter experience ($n = 178$) and 1 included both ($n = 15$). Out of the studies included, 25 focused on out-of-hospital cardiac arrest experiences, 2 on in-hospital cardiac arrest experiences, 3 covered both and 2 did not report the population focus.

The qualitative research on survivorship after cardiac arrest specifically deserves special attention. Unfortunately, many *quantitative* papers on survivor quality of life, both older and very recent, have concluded that most survivors have acceptable health-related quality of life, as measured by crude health utility scores such as the Health Utilities Index (HUI) or good neurologic outcome as superficially measured by the five-point Cerebral Performance Category (CPC) assessed by clinicians at hospital discharge.^{23,24} However multiple in-depth *qualitative* studies have since uncovered common themes which elucidate the impact of 'a disrupted normality' after cardiac arrest with consequences on physical, existential, and emotional domains. Concepts such as uncertainty and fear about "what to expect" or "when it will happen again" and grief for the 'lost sense of self, or their old life' for both survivors and family members are common.^{25–29} Many survivors report struggling to navigate the world at home after hospital discharge and feeling like they were pushed off a cliff because of the lack of support for adapting to or overcoming physical, emotional changes, and overall cognitive fatigue.³⁰ Disruption in important components of survivor's identities such as the ability to return to work and hobbies, driving, running or exercising, social activities with friends and relationships with family and spouses have been shown to significantly influence the definition of "good outcome" after sudden cardiac arrest.^{26,31–33} Furthermore, qualitative research has clearly documented that the experience of family members of cardiac arrest survivors is also extremely challenging and includes high levels of stress, anxiety given new roles and relationships with the survivor.³⁴ It is rigorous qualitative research that has shown us that "survival" from cardiac arrest is not only a yes or no data point in a clinical trial but rather a complicated, intersectional, psychosocial recovery process for both the survivor and their loved ones.

Similarly, the nuances of the experience of lay rescuers who respond to out-of-hospital cardiac arrest has been more recently documented qualitatively and was first summarized in the AHA Scientific Statement on Lay Responder Experience in 2019.³⁴ Qualitative research has been particularly enlightening in this space as it was by reporting the first-hand experience of lay responders that the resuscitation world has begun to understand the trauma and impact that comes with choosing to do cardiopulmonary resuscitation (CPR) and save someone's life. It has shone a light on our limited understanding of basic human behaviour, psychology, and sociology with regard to training, recognition, willingness to do CPR and use an AED and lay people's ability to process being involved in such a distressing situation after the fact.^{35–40} When you layer on the fact that >75% of out-of-hospital cardiac arrests happen at home⁴¹ and therefore the victim is likely to be a loved one, the trauma increases

exponentially, and only qualitative methods can help us to unpack such complexity.

Qualitative research on bystander CPR has also been very helpful in diving deeper on specific situations and contexts as well as perceptions of interventions to increase willingness. In 2020, Dobbie et al conducted a study in deprived communities across central Scotland and found that while many barriers such as self-efficacy; knowledge and awareness of how, and when, to administer CPR; were similar to other communities, environmental barriers focused on the safety of the physical environment in which people lived, and fear of reprisal from gangs or the police were very unique. As they concluded, qualitative studies like this make us reconsider whether "a one-size-fits-all approach is not sufficient to promote 'CPR readiness'".⁴² Sasson et al have done significant work in high-risk communities in the United States and have found similar findings including distrust of law enforcement, language concerns, lack of recognition of cardiac arrest, and financial issues as key factors influencing lay response in such communities.⁴³ Farquharson et al piloted a text-message behavioural intervention designed to increase intentions to initiate CPR and used qualitative interviews to explore participant responses to inform tailoring in the larger scale randomized study.⁴⁴ This paper is a great example of how qualitative research can be used to develop a fuller understanding of human interaction with an intervention before investing in more large-scale research which is doomed to fail due to ignorance of the impact of human psychology.

Several other topics, such as survivor and family experience of prognostication⁴⁵ the experience of dispatchers and first responders during out-of-hospital cardiac arrest,⁴⁶ family presence during resuscitation,⁴⁷ medical trainee and acute care provider's experiences of continuous exposure to resuscitation⁴⁸ and CPR training personnel experiences⁴⁹ have also been interrogated with qualitative methods but not yet to the same extent. These are all areas which will benefit from further qualitative research to deepen our understanding of the real impact of sudden cardiac arrest on all those involved.

In general, the majority of the qualitative work in resuscitation science has employed key informant-type interviews as the main method of data collection and approached the research from what we can label as a very qualitative descriptive methodologic standpoint.⁵⁰ Qualitative descriptive research is appropriate when a straight description of a phenomenon is what is the goal of the study, however it does not tend to delve in to more rigorous methods of interpretation or make strong theoretical ties. These more critical qualitative approaches will be needed in the future to take our understanding of the lived experience of cardiac arrest to the next level. Use of more innovative methods, such as analysis of social media data and arts-based approaches also look very promising as a way to further magnify the power of qualitative methods in resuscitation science.

With the exception of the few papers found by the Southern review,^{51,52} very little qualitative work has been done on the in-hospital cardiac arrest population. This tends to be a different population from the out-of-hospital cardiac arrest group as they often have more complicated medical histories. The experience of and survivorship after paediatric cardiac arrest is also an area that has not been qualitatively explored in much depth. However, both are areas which are ripe for further research to ensure we are not making fatal assumptions about their experiences and needs.

What is the future of qualitative research within resuscitation science? – 500

In a word? Bright. In the 1980s there was a shift of opinion within psychology, as well as in the philosophy of the human sciences, away from causal, natural science explanation and towards explanation based on understanding of meaning, experience, and language.⁵³ I feel as though we are on the precipice of a similar shift in resuscitation science – an increasing appreciation for the value of experiential data and the influence of psycho-social constructs on the complex problems before us. However, we are not alone in this approach - we can learn the most from many who have gone before us. Other areas of healthcare such as mental health, stroke, and cancer have long histories and rich qualitative evidence base in patient and family experience. In particular there has been some excellent work done in cancer survivorship⁵⁴ which could parallel cardiac arrest including in the areas of patient-centred outcome measurement, quality of care delivery and use of technology.

An area we have woefully undervalued in resuscitation science is the impact of cultural differences in understanding of cardiac arrest, of the human side of the chain of survival and most importantly the lived experience of different types of cardiac arrest survivors, co-survivors and lay responders.⁵⁵ Bystander CPR can double the chance of survival but there is limited evidence to truly explain why B CPR rates have not improved and are highly variable in different communities and parts of the world. Is cardiac arrest and bystander CPR understood the same way by people in Tokyo, Japan as it is in Amsterdam, Netherlands or Dallas, Texas? We desperately need to understand how the behaviours and practices we expect of lay responders are heavily influenced by cultural norms and personal perceptions, attitudes, beliefs and values which in turn are forged from location, demographics, socioeconomic status, education, ideology, religion, etc.⁵⁶ To date our science has been rooted in a very Euro-Western viewpoint of these topics and I posit that this line of qualitative, anthropologic research will improve our ability to increase lay response rates across the globe more than anything else we study in the future.

Finally, the future of strong qualitative research in resuscitation science will require the field to engage with scholars outside our traditional ranks – scientists in the areas of human behaviour, psychology, sociology and anthropology – and for us to be open to new ways of thinking about old problems.

Summary and conclusions

In summary, I feel it can reasonably be claimed, that the readiness to accept qualitative research as a legitimate scientific approach within resuscitation science is steadily increasing. Qualitative inquiry represents a rich, heterogeneous field comprising various techniques, methods, concepts, theories, interpretive patterns, value orientations, ontological, anthropological, epistemological assumptions, ethical principles, and social and political views – all of which can dramatically influence the science of survival. I encourage my colleagues in the field of resuscitation to embrace what qualitative approaches can add to our understanding of survival, lay rescuer response and care delivery and how mixed methods studies may allow us to find solutions to some of the complex challenges that have eluded us for years.

CRedit authorship contribution statement

Katie N. Dainty: Writing – review & editing, Writing – original draft, Resources, Project administration, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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