

What is positionality and should it be expressed in quantitative studies?

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ABSTRACT

Although we are increasingly reaping the benefits of qualitative studies, their approach and that of quantitative studies remain rather separate. Emergency medicine practitioners thrive off research in context as we deal with such an undifferentiated population however quantitative 'hard-science' work is conspicuous for its absence of positionality. This contrasts strongly with the way in which qualitative research, within the domain of so-called soft-science literature, uses positionality as an integral element of the research process. Without contextualising the researcher and research environment in qualitative studies, often the meaning of any research output is lost. What follows is that positionality does not undermine the truth of such research, instead it defines the boundaries within which the research was produced. The absence of positionality when considered alongside the notion of bias, may challenge the quantitative idea of validity.

The majority of research conducted in medicine is quantitative. Although we are increasingly reaping the benefits of qualitative studies, the two approaches remain rather separate. Quantitative studies are considered somewhat synonymous with 'hard science' defined as:

science, or a branch of science, in which facts and theories can be firmly and exactly measured, tested, or proved¹

Whereas 'soft science' (better associated with disciplines adopting qualitative methods) is defined as:

a science, such as sociology or anthropology, that deals with humans as its principal subject matter, and is therefore not generally considered to be based on rigorous experimentation²

Bearing this alone in mind, we ought to question the hard edges of a quantitative study, which in medicine very much 'deals with humans as its principle subject matter'. Human subjects are notoriously diverse; no two individuals have precisely the same lifetime exposures, views, ideas and experiences. Therefore, interpreting and applying well-defined quantitative research findings to individuals can be as much an art as it is a science. Furthermore, the subjects of the research itself can only be controlled for with respect to certain logical confounding factors, and so there always remains the possibility of less obvious, perhaps less tangible confounders that have not been accommodated for when conducting any kind of quantitative study. This applies to the subjects of research and may also extend to those conducting a study.

In our current way of researching, there is a fundamental juxtaposition between the broad methods of quantitative and qualitative research, which can best be understood by comparing how each handles 'bias' and 'positionality'. Research bias is well recognised in the medical literature and overwhelmingly it sits as a negative element to eradicate as far as possible because it undermines the research in all its forms.³ If we look at the definition of 'bias' in statistical terms, we see the word 'distortion', which implies that the truth of the research has been impaired by one or more factors.⁴ In contrast, the definition of positionality is:

The recognition and declaration of one's own position in a piece of academic work⁵

Positionality is a positive and integral element of qualitative work because without contextualising the researcher and research environment, often the meaning of any research output is lost. What follows is that positionality does not undermine the truth of such research; instead, it defines the boundaries within which the research was produced.

To consider knowledge in such a way is highlighted best by looking at the epistemology (theory of knowledge) of positivism versus constructivism. Positivism denotes that knowledge comes from objective and rigorous scientific measurement and testing to provide a fixed answer, whereas constructivism denotes that knowledge depends entirely on subjective perception and consequently is not a fixed entity. Positivism, which fits into the more generic concept of 'hard-science', considers something to be true, false or without meaning. For something to be meaningful, it must be able to logically be proven or disproven. As an example: 'There are currently 6.2 billion units of blood in fridges worldwide' would fit with positivist thinking as it is either true or false. A statement such as 'cold blood flows like silk' can neither be proven true nor false by logical means and therefore is meaningless in the positivist realm.

As an example of constructivism, if a group of your emergency department colleagues were shown a first image of a pressure gauge attached by tubing to a cuff wrapped around an arm and asked what it is called, their answer would almost certainly be: a sphygmomanometer. If the same group of people were shown a second image with the same pressure gauge attached by tubing to the wheel of a car, they would likely call it a tyre pressure gauge. What has changed is not the object itself but the context of the object and the prior knowledge and understanding of the observer. Imagine a mechanic who had no knowledge of human anatomy or physiology



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and had never in their life seen or heard of the idea of taking a person's blood pressure. If this mechanic saw the first image, they may call it a tyre pressure gauge that has been attached to a cuff around an arm. Would this answer be incorrect? Based on this person's worldview, this answer would in fact be true and correct.

For a researcher to demonstrate positionality requires some reflexivity, which is very simply:

An act of self-reflection that considers how one's own opinions, values, and actions shape how data is generated, analysed and interpreted⁶

As a simplified example, from my own research experience of exploring medical record-keeping in sudden onset disasters, I have needed to place my researcher self in perspective. I am an emergency medicine trainee, therefore I am involved in direct care of patients, and although I have an awareness and understanding of Public Health, I am not an epidemiologist. The result of holding this position is that I naturally tend towards a practitioner's viewpoint when it comes to developing and thinking about my current research. In many ways, this is a helpful position because I represent the end-user of a medical record. However, research in the area of medical records in a disaster may have its weight of focus shifted by, for example, an epidemiologist's position, whose role would be to use data to inform how best to manage a disaster response. The research question and even the methods might be the same; however, the emphasis and importance placed on the results and their interpretation might be quite different. Therefore, I must make anyone who reads my research analysis aware of my position in order that they know the lens through which the work was analysed and through which the 'truth' of the research was generated. To a purist quantitative researcher, this process represents the validity of the study because it allows a reader to be very clear about what was being measured. However, it also challenges the quantitative approach to validity and suggests that in order to know what is really being measured, it is essential to know in more detail *who* is doing the measuring. .

To extend this to a well-known study, we can look at Rivers' study on early goal-directed therapy as an example⁸. There is nothing unusual about the way the authors expressed this quantitative study, the introduction is factual, the methods are clearly presented and the discussion is to the point. However, from the paper itself, we do not truly know why the authors decided to develop this study in the first place: did their department struggle to get such patients admitted to the intensive care unit and felt they needed to provide evidence to back this up? Were the authors all dual-trained and therefore had an interest and detailed knowledge of the intensive care management of

such patients? Did they work between clinical areas? Was there a grant opportunity coming up or a newly recruited research team that lent itself to this study? Did the initial research plan change, as they often seem to, due to practical considerations? Some, all or none of the above questions may change the way the study is understood. Without knowing anything of the positionality of the research team and context, a reader can never know whether the researchers thought this had any influence on the study, nor can they judge for themselves how important they think it is in interpreting the study as a whole. This same idea could apply to almost any quantitative research study found in the medical literature.

Ultimately, we all direct our research based on innumerable factors, most of which never make the page. This absence of positionality does not provide opportunity for the audience to decide how important these factors might be and as a consequence this reduces the validity of the research conclusions.⁷ Within Emergency Medicine, context is everything when it comes to using research findings on our wide population as we are a specialty of decision-making, risk-balancing and expectation-managing. Perhaps we ought to lead from the front, bringing statements of position into our research, regardless of methodology.

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Correction: *What is positionality and should it be expressed in quantitative studies?*

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