The language of research (part 5): research terminology — validity

KEY WORDS

- External validity
- Generalisability
- Internal validity
- Measure
- Valid
- Validity

PETER ELLIS
Nursing Director, Hospice in the Weald, Pembury, Tunbridge Wells

In earlier papers in this series we have introduced the ideas of research paradigms and methodologies (*Wounds UK* 10(2) and 10(3)); the first being the overarching world view that informs the approach to study and the second, the blueprint that is used to design a study of a given phenomenon. In *Wounds UK* 10(4) and 11(1), we discussed two approaches to research (methodologies) — cross sectional studies and case-control studies — and we will continue to look at methodologies and methods in future papers in the series. In this paper, and others interspersed throughout the series, we will stop to consider the terminology — some of the words associated with research — their meaning and applicability to the research process. We will also examine some research methods and appraise their usefulness in health care research.

Research, and perhaps more especially health-related research, has a language all of its own. In order to understand the design and execution of research, it is important to understand this language, not only for its own sake, but in order to make informed judgements about the quality of the research we choose to apply to practice.

The research-associated word we will consider in this paper is validity. Validity is an important word, primarily in quantitative research, as it is associated with making judgements about the usefulness of the processes that are used to answer the research question. Qualitative researchers tend not to use the term validity as a measure of the quality of their research processes preferring instead terms like:

- Quality
- Rigour
- Trustworthiness (Davies and Dodd, 2002; Stenbacka, 2001).

We will explore measures of quality in qualitative research in a later paper in this series.

RESEARCH QUALITY

In terms of supplying information to inform evidence-based nursing practice, it is important that any research we as nurses choose to use is of a high enough standard to be taken seriously (Ellis, 2013). With respect to all research methodologies (approaches) and methods (tools used to collect data), there are a number of measures of quality, some of which are more important than others, depending on the question being asked and the methods and methodologies being employed.

WHAT IS VALIDITY?

Validity is the ability of a methodology (research approach) or method (data collection technique) to measure accurately what it is supposed to be measuring (Polit and Beck, 2008). We are all comfortable with the fact that a clinical thermometer (when placed in the right place and for the right amount of time) will measure a person's body temperature. Likewise, properly calibrated and applied, a sphygmomanometer will measure a person's blood pressure with a fair degree of accuracy. The validity of such tools might be argued therefore to be relatively high.

Some things are not, however, quite so easy to measure, for example, how can one measure pain, wound healing or patient satisfaction? In terms of these concepts, one of the big obstacles to validity is defining exactly what is meant by pain, a wound, healing or satisfaction. If the terms are hard to define, then measuring them will be equally hard.

Wainer and Braun (1998) describe the use of the term validity in the quantitative research sense as actually a 'construct validity'. They argue the 'construct' is the initial concept, notion, question or hypothesis that governs the type, nature and amount of data collected within a piece of research.

Wainer and Braun (1998) also remind us, usefully, that quantitative researchers inadvertently can actively cause or affect the interrelationship between 'construct' and data in order to validate their investigation — in that sense the human element of the process interferes with the exacting objective requirements of the science.

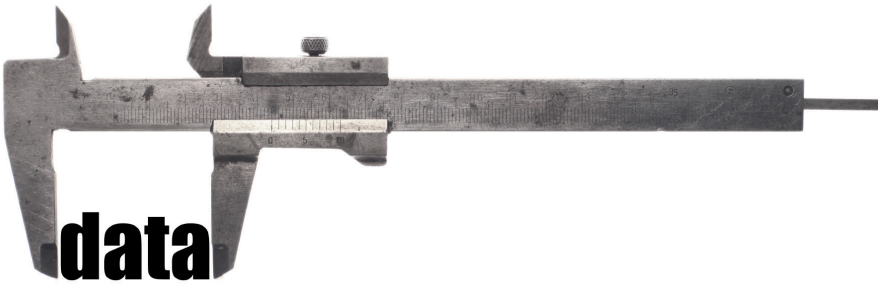
The fact is that humans are involved in the generation of research data, and we often look for outcomes that perhaps suit our hypothesis of what might or should happen, which may mean that validity is not all it is made up to be.

In the previous issue of *Wounds UK*, Rippon (*Wounds UK* 11(1): 48) makes the statement: "The technician made an objective assessment of dermatological parameters, which included erythema, dryness, barrier disruption, papules and swelling". He might equally have said "the technician attempted to make an objective assessment", or "the technician applied a series of objective tools to assess". The point is that with some measures, objectivity, and hence true validity, cannot be guaranteed. That is not to say the measures are wrong or poor, it is just that they are only as good as they can be; they are not perfect.

Ideally, researchers should use pre-validated tools to measure whatever it is they are measuring in a study. Using existing data collection instruments (for example, the Bates Wound Assessment Tool) does not only save the researchers time but bring with them varyingly high degrees of validity, as they have been used and tested widely in the collection of the sorts of data the researchers are seeking. Pre-validated tools have usually been tested in well-defined groups for defined health conditions within defined parameters to ensure they measure what they set out to measure. They are not always transferable between groups or conditions (Polit and Beck, 2008) — for example, an adult pain assessment tool may not work with children or perhaps even people with learning difficulties.

The validity of methodologies refers to the fact researchers need to choose the appropriate research approach to answer the question they are setting out to address. For example, to understand cause and effect one can only use experimental (such as randomised control trials) or cohort studies, but to study the prevalence of something one might use a cross sectional study. Choosing the wrong approach means the question cannot be answered and therefore the research would be invalid.

Cormack (2000) defines two measures of validity, which help us to better understand how and why validity is so fundamental to the quality of quantitative research methodologies and methods. Internal validity, which is what we have discussed in this paper so far, is a measure of the extent to which the findings of a study are a true reflection of reality and what is actually happening, rather than arising out of some unquantified reason — such as the data collection tool not actually measuring what it claims to.



Using existing data collection instruments (for example, the Bates Wound Assessment Tool) for your research, provides a high degrees of validity.

The second measure of validity establishes why validity is important in studies that are used to inform nursing practice. This second form of validity refers to the extent to which the findings of a study can be applied (generalised) to people like those in the study; this is termed external validity.

CONCLUSION

This paper has established the importance of validity to both the research process and the application of the findings of research. In order to establish validity within a study we must first know what it is that we want to study and secondly we must understand how this can be measured. We need some certainty that the tool actually measures what we think it is measuring in the way in which we think it is measuring it. Perhaps the best way to achieve this is to use tools for data collection that have been tried and tested before — pre-validated tools.

As well as having faith in the tool we also need to have faith in the way in which the tool is used; how reliable it is in use — we will discuss reliability in the research sense in a later paper in the series.

Perhaps the biggest reason a wound care professional needs to be certain about the quality of the research they read is that they may choose to use research to inform their clinical decision making. Understanding validity is therefore a pre-requisite of good evidence-based practice. WUK

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