**Validity and Reliability**

Validity and reliability are concepts used to evaluate the quality of research. They indicate how well a method, technique or test measures something. Validity is about the accuracy of a measure and reliability is about the consistency of a measure. The issue of validity and reliability addresses the crucial question. To what extent do the data yielded by measurement schemes, accurately represent the nature and structure of the phenomena being measured.

**Validity**

The validity of measurement instrument may be defined as the extent to which differences in scores reflect true differences among individuals on the characteristics that we seek to measure, rather than constant or random errors (Selltiz,1976).

* In scientific measurements of a given phenomena is views as a valid measure if it successfully measures the phenomenon.
* A measuring instrument is considered valid when it fully and accurately measures the construct it purports or related words to measure.
* Validity, then addresses the critical link between our measurement schemes and the precise constructs we wish to measure.

It is a matter of close fit or correspondence between conceptual and operational definition of a concept. In short to determine validity the researcher needs a very clear conceptual definition of a concept or to have indicators which reveal also in operational definition of a given concept.

**Definitions**

* Evaluating the quality of research is essential if findings are to be utilized in practice and
incorporated into care delivery (Smith, 2015)
* Evidence-based practice of well-conducted quality research studies being able to critique quantitative research is an important skill for nurses. Consideration must be given not only to the results of the study but also the accuracy of validity and reliability Twycross, and Heale, 2015). .
* The concepts of reliabilityand validity have been used in nursing research, provide guidance for improving the psychometric soundness of instruments (DeVon et al.; 2007)
* The validityand reliabilityshould be conceptualized differently across the various forms of content and the various uses of theory. This is especially true with applied communication research where a theory is not always available (Potter, and Donnestein, 1999)
* The use of reliabilityand validityare common in quantitative research and now it is
reconsidered in the qualitative research paradigm (Golafshani, 2003).
* Issues related to the validityand reliabilityof measurement instruments used in
research are reviewed. Summary. Key indicators of the quality of a measuring instrument are the reliabilityand validityof the measures (Kimberlin, and Winterstein, 2008)

In validity and reliability measurement process the researcher adheres to the principle that reality is known only that if the measuring instrument produce reasonably reliable and valid information about the variables we could understand.

**Validity** is the degree to which we are actually measuring what we intend to measure.

**Reliability** is the extent to which a result is stable and consistent.

**Types of Validity**

Methodologists have described three different types of validity: content validity, criterion validity and construct validity.

**Content or Face Validity**

It is just a matter of judgment which determine for whether the indicators reflect consensus of relevant concepts, it is a judgment or logical validation procedure. Content or face validity asks whether a measuring instrument fully reflects a construct universe of discourse, that is, whether it contain a representative sample of a constructs empirical indicators. For example , when students complain that a final semester exam was unfair because it did not ask about the material covered in the course, they are questioning the content validity.

**Criterion Validity**

It is also called predictive validity. The behavior we wish to predict is called the criterion and the measuring instrument its self is the predictor. Measure of a person’s attitude toward some behavior has criterion validity if it reliability predicts the behavior in question. For example, if there are some intelligence students in the class then they should get higher score on the index as compare to the other students of the class. It’s called criterion validity.

**Construct Validity**

It directly confronts the question: Does one’s chosen measuring instrument accurately and completely measure the specific theoretical construct to be studied? It implies that the measuring instrument is actually measuring the concept in question and that the concept is being measured accurately.

For example, If your conceptual definition of a concept relate with your operational definition of the same concept and again check the operation definition of a concept’s continuation with another conceptual definition of the relevant concept, then it is called construct validation (see the below graph).

 

Interpretation: A is the IV/conceptulization; B is the DV/conceptualization; C is the operationalization (question form) of the IV A; and D is the operationalization of the DV B.

For example: TV coverage to NAB (IV). A is the conceptual definition that refers to the people extend of watching TV coverage to the NAB performance?

Where C is the operational definition of the same concept that means, how much do the viewers prefer to watch TV coverage given to the role of NAB in elimination of corruption?

 Response categories: very much, much, somewhat, rarely, never

Similarly people information level is the DV indicated by B. conceptually it refers to the people amount of information usually they acquire from watching TV coverage to the NAB performance. Where D is the operational definition of the same concept that means, how much information do the viewers obtain from watching TV coverage to the NAB performance?

 Response categories: very much, much, somewhat, rarely, never

In short all research process depending on the validation of a **construct** validation.

Content or face validity is the lowest level validation of measuring instrument.

Criterion validity is the low level validation of measuring instrument, while construct validity is the higher level validation of measuring instrument.

**Reliability**

Reliability is nothing but the consistency of an instrument or mechanism, by consistency we mean that instrument should give the same result on successive administration. For example, if a person true score on the concept under observation remain constant, then the score pattern should replicable, and reliable one that reduces the margin of error.

Reliability is equated with measuring instruments consistency or stability. If the same scale is administered repeatedly to the same individuals and it yields roughly the same set of responses, then the scale is said to be reliable (ibid).

For instance : If a class take one course exam several times and average class grades are approximately the same each time then the test is probably a reliable measurement. If the class test varies considerably from one test to another, then the test is probably unreliable.

**Assessing Reliability**

To estimate reliability: the test method, the alternative forms method, and the internal consistency method are the procedure criteria which commonly used.

The **test-retest method** is the most straight forward approach of all reliability estimators. In such method the same instrument is administered to the same group of people on two separate occasions and the extent to which the two sets of score are mutually consistent is determined. Researchers determine the direction and magnitude of response consistency by calculating a reliability coefficient, a statistical index ranging from 0 to 1, where 0 signifies no reliability and 1 indicates perfect reliability.

The **alternative forms method** is designed to overcome the flaws in the test-retest approach. The alternative forms method requires two parallel versions of the same instruments. The two instruments use different scale items to measure precisely the same concept. The two versions of the instrument are administered to the same group of people, often reversing the order of presentation for roughly one half the group members.

**Internal consistency method** is designed to get through the problems associated with both the test-retest and alternative forms approaches. The internal consistency method administers a single instrument to one group of people at the same time. In such method a researcher assesses the extent to which responses to each separate subset are consistent with one another.