Chapter 21
Building a Psychometric Instrument and Data Collection Checklist for Healthy Aging Initiatives

Marianne Robin Russo
Florida Atlantic University, USA

Valerie C. Bryan
Florida Atlantic University, USA

ABSTRACT

Instrument design should consider the measurement of constructs that are directly linked to how well the data is generated and subsequently measured and assessed. We need sufficient instruments and archival data that will solve problems for the improvement of human life, inclusive of health-related issues. The purpose of this chapter is to examine the methodological approaches the psychometrician reviewed in order to determine if a need existed to create an adequate, effective, and robust instrument, or if the current primary and/or archival data would be adequate for the study related to healthy aging. The intent of the researchers is to examine the relationship between instrumentation and data and to develop a checklist for instrumentation and data collection. A comprehensive literature review and a final evaluation instrument is constructed that may assist the researcher in the validity and reliability of instrumentation a priori and post-hoc instrument construction in the future.

INTRODUCTION

In today’s world, vast amounts of research are being conducted related to the current and future state of our aging population:

The growth in the number and proportion of older adults is unprecedented in the history of the United States. Two factors—longer life spans and aging baby boomers—will combine to double the population of Americans aged 65 years or older during the next 25 years to about 72 million. By 2030, older adults will account for roughly 20% of the U.S. population. (Center for Disease Control, 2013, p. 2)
Think-tanks and research centers are addressing a host of research agendas such as the “How to”:

- Implement interventions that promote good health in older adults
- Provide community decision-makers with useful information and resources
- Develop practical and effective tools for assessing and evaluating programs and policies
- Summarize and disseminate findings to colleagues across multiple sectors and communities
- Mentor and train public-health practitioners
- Inform research priorities
- Provide access to experts in healthy aging (Center for Disease Control and Prevention Healthy Aging Program, 2012, p. 1)

Regardless of the agencies involved the mission statement in most locations resembles that of the Center for Disease Control Healthy Aging Network (CDC-HAN):

*The mission of the CDC Healthy Aging Research Network (CDC-HAN) is to better understand the determinants of healthy aging in diverse populations and settings; to identify, develop and evaluate programs and policies that promote healthy aging; and to translate and disseminate research into effective and sustainable public health programs and policies throughout the nation. (Center for Disease Control and Prevention Healthy Aging Program, 2012, p. 1)*

These statements reflect the interests in educational research that it can foster innovation for practice and policy considerations for the aged now and in the future. In addition, the mission statements note the need for social justice in this practice, especially in terms of health or medical issues and issues of disenfranchisement. In this sense, the role of measurement holds a sociological juxtaposition in that proper and appropriate use of the research and practices of like centers may result in the amelioration of inequality, the improvement and quality of health and welfare of individuals.

To assure that the mission statement is adhered to it is essential that psychometricians are also mindful of the needs and limitations of the populations under study and the impact of data collection procedures on these participants. Researchers often neglect to consider how valuable the time of the senior individual is during the process of data collection and other elements of tiredness. Individuals that have agreed to a study using their vitals or answers to an instrument are often viewed as “lab rats” themselves in the centers of research and in the medical community. That is not to say that all precautions have been taken to insure the safety of the human subject by an institutional review board, but it does mean that researchers often forget that the individuals have lives and their time and energies are impacted as the research is being conducted, whether those tests are using medical tests or time tests or oral interviews.

It is therefore important that all procedures completed to collect data are designed to be as unobtrusive as possible, as reliable as possible and thought through in great detail prior to the actual collection of the data. In order to make sure research studies in this capacity are sufficient and generate reliable results, special care needs to be generated in the area of methodology and specifically in the design of instrumentation and the data generated from it. Therefore, “The role of measurement procedures is to provide information that will permit these decisions to be informed and appropriate” (Thorndike & Hagen, 1977, p. 1).

*Measurement in any field always involves three common steps: (1) identifying and defining the quality or attribute that is to be measured, (2) determining a set of operations by which the attribute may be made manifest and perceivable, and (3) establishing a set of procedures or definitions*