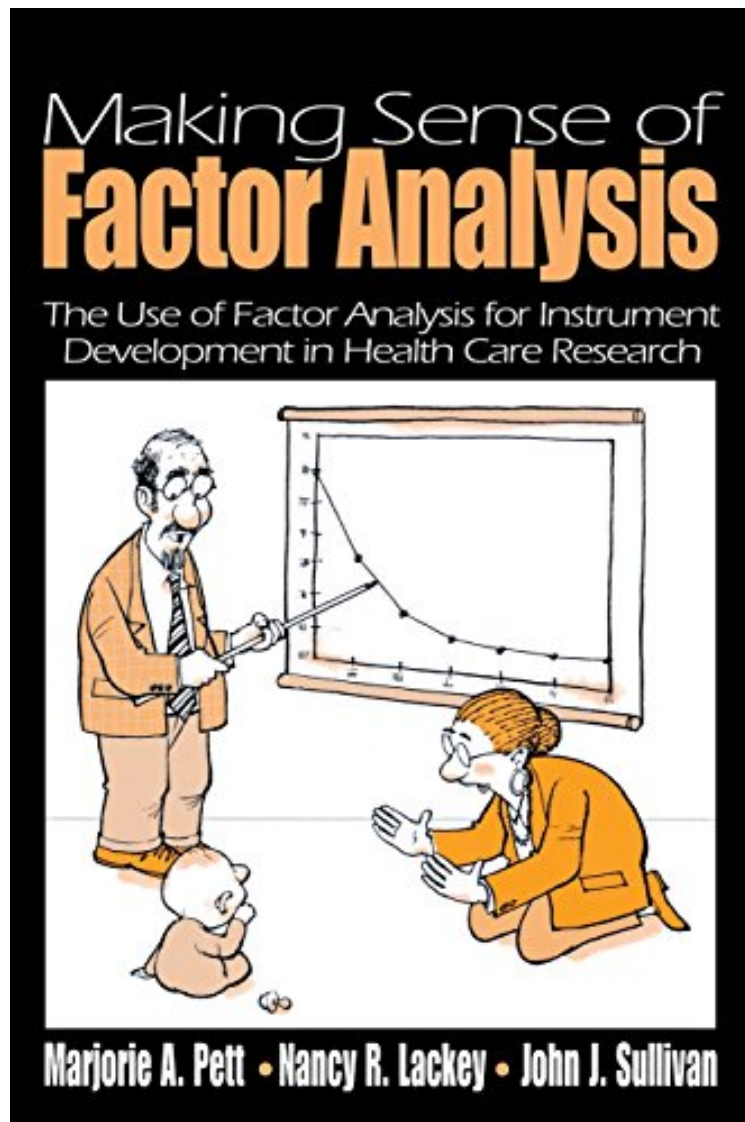


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Making Sense of Factor Analysis: The Use of Factor Analysis for Instrument Development in Health Care Research

Marjorie (Marg) A. Pett, Nancy R. Lackey, John Sullivan
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Marjorie (Marg) A. Pett, Nancy R. Lackey, John Sullivan : Making Sense of Factor Analysis: The Use of Factor Analysis for Instrument Development in Health Care Research before purchasing it in order to gage whether or not it would be worth my time, and all praised Making Sense of Factor Analysis: The Use of Factor Analysis for Instrument Development in Health Care Research:

5 of 5 people found the following review helpful. A First-Rate Introduction to a Tough Topic
By not a natural
Many of us who have used factor analysis had only a vague notion of what we were doing, namely trying to reduce a large number of items into a smaller, less unwieldy, more readily interpretable set of variables. With user-friendly software such as SPSS, the mechanics -- entering items, extracting factors, rotation of factors, saving factor scores if needed, and calculating reliability coefficients -- are sufficiently obvious to permit rough and ready, sometimes quite useful factor solutions that provide insights that otherwise would not have been available. Without studying factor analysis as such, however, such quick and dirty applications often yield misleading results, something that anonymous reviewers of submitted manuscripts will be only too happy to acerbically explain. In my own work, I stared off routinely using principal components analysis, the SPSS default option for factor analysis, but had no notion that principal components analysis and factor analysis in its various forms are mathematically distinct. Principal components uses all three sources of variance -- shared, random, and error variance in formulating components, while factor analysis uses only shared variance. One common outcome is that principal components will typically yield a misleadingly clear-cut solution, while factor analysis rightly yields a solution that requires more interpretative effort. Furthermore, when trying to reduce a comparatively large number of items to a small set of themes or variables, we get our most informative results when the analysis is limited to shared variance. Thus, while principal components has its uses, one of the many forms of factor analysis, say alpha factoring, is usually better suited to the task at hand. Before I read *Making Sense of Factor Analysis*, I had a vague notion of how factor extraction was accomplished. Having read the book, I can now understand the procedures pretty clearly. I find the regression-based approaches intuitively appealing, and this book explains them very well. Rotation of factors was something I previously did ritualistically, but I had no idea what was really going on. Having read this book, however, a good deal of the mystery has been dispelled. I must admit, however, that while I can now see how rotation of factors is accomplished, and I understand that some factors yield orthogonal solutions while others yield factors that are associated, the reason why rotated factors are generally more readily interpretable still eludes me. Furthermore, I have done factor analyses in which the non-rotated factors were more readily interpretable than the rotated ones. The book is silent as to whether or not rotation is a requirement in all instances. Finally, when looking for composite variables to insert as an independent variable in a regression equation, I have sought and found single-factor solutions. These can be very illuminating, yielding powerful explanatory variables or predictors. Given the scale-construction nature of this book, however, these useful procedures are not discussed. (By the way, single factors cannot be rotated.) Factor analysis is a complex statistical tool that comes in explanatory and confirmatory forms. No one text can do justice to the entire topic, but *Making Sense of Factor Analysis* gives most of us most of what we need. If you're put off by the seemingly extraneous material at the beginning of the book, stay with it. It turns out to be really quite pertinent and definitely worth reading. This is a very good textbook, and the health-related questionnaire that the authors produce is exemplary, a tribute to their patient and methodical application of this complex statistical technique. Nevertheless, if you come away from the book with the feeling that factor analysis is not foreign to guess-work and fishing, and that some crucial issues remain the subject of heated debate, you're right.

1 of 1 people found the following review helpful. Excellent text
By Kathryn Wood
My professor says it's a little outdated, but I had only a vague understanding of factor analysis before reading the book and after, I was able to correctly conduct factor analysis for work. Excellent text. Too bad it's a little outdated.

7 of 7 people found the following review helpful. This book is awesome!
By Sara A. Scott
This is the best book I've found on factor analysis - I am not mathematically inclined, but I do want to understand "the sense" of factor analysis. This book is detailed, clear, with concise summaries as well as detailed explanations of the matrix algebra and math of factor analyses. It contains clear and useful diagrams. I have checked out several other books on factor analysis - this is the one that finally explained the subject to me.

Making Sense of Factor Analysis: The Use of Factor Analysis for Instrument Development in Health Care Research presents a straightforward explanation of the complex statistical procedures involved in factor analysis. Authors Marjorie A. Pett, Nancy M. Lackey, and John J. Sullivan provide a step-by-step approach to analyzing data using statistical computer packages like SPSS and SAS. Emphasizing the interrelationship between factor analysis and test construction, the authors examine numerous practical and theoretical decisions that must be made to efficiently run and accurately interpret the outcomes of these sophisticated computer programs.

About the Author Marjorie A. Pett, MStat, DSW, is a Research Professor in the College of Nursing at the University of Utah, Salt Lake City, Utah, having been on the faculty since 1980. By her own admission, she is a collector of academic degrees: BA (Brown University), MS in sociology (University of Stockholm, Sweden), MSW (Smith College), DSW (University of Utah), and MStat (Biostatistics) (University of Utah). Dr. Pett has a strong commitment to facilitating the practical application of statistics in the social, behavioral, and biological sciences, especially among practitioners in health care settings. She has designed and taught graduate courses to students from a variety of disciplines at the beginning and advanced levels, including research design and data management, parametric and nonparametric statistics, biostatistics, multivariate statistics, instrument development, and factor analysis. She has tried

to approach the teaching of statistics with humor and from a clinician's perspective and has been the recipient of several distinguished teaching awards both at the College and University levels. Her most recent research interests include the development of client-centered assessment tools and interventions to evaluate and enhance health-related quality of life (HRQoL) for persons with intellectual disabilities. She is the author of numerous research articles and chapters, and is an author of the Sage publication, *Making Sense of Factor Analysis: The Use of Factor Analysis for Instrument Development in Health Care Research*. When not engaged in research, writing, or teaching, Marge is a (now retired) state soccer referee, devotee of tennis, an avid (high handicap) golfer, student of Italian and French, reader of mystery novels, grandmother to three, mother to two, and wife to (only) one.

Dr. John Sullivan has been a professor of management for over 26 years at San Francisco State University. His specialty is HR strategy and designing world class HR systems and tools for Fortune 200 firms. He has worked with over 200 different businesses and organizations in more than 30 countries around the world as a speaker or advisor. He has written a weekly column for ERE for over eleven years. Overall, he has written ten books, dozens of white papers and over 700 articles. He was the chief talent officer for Agilent (the 40,000+ employee HP spin off). He has appeared on the CBS and ABC national nightly news, CNN and in various publications including Fortune, the Economist, CIO, BusinessWeek, the WSJ, the Washington Post, Money, Time and every major HR magazine. Fast company called him the Michael Jordan of hiring. He was listed among the 40 most influential people in HR. Tom Peters cites and utilizes his work in his latest book *Re-Imagine*.