Structural Equation Modeling (SEM) Workshop for Lecturers and Postgraduate Students

Aniza Abd Aziz, Wan Nor Arifin, Siti Nor Ismalina Isa, Norsa'adah Bachok, Sarimah Abdullah, Nyi Nyi Naing

Medical Unit of Biostatistics and Research Methodology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Context & reason for the idea

Structural Equation Modeling (SEM) is one of the most versatile confirmatory modeling tools for university lecturers, researchers and postgraduate students, and in the areas of studies including social, medical, clinical and health sciences research. We describe in this article a new statistical analysis skill programme known as 'SEM Workshop' which was first time ever conducted in our institution. The importance of SEM analysis is becoming more apparent in the medical and health sciences research. SEM is an important analysis particularly for its use in confirmatory factor analysis (e.g. validation of questionnaire) and path analysis (e.g. infectious disease modelling) (1). This workshop was developed to expose the lecturers and postgraduate students to methods of SEM analysis, to develop essential skills in SEM analysis and to foster discussions among the lecturers with regard to potential study areas using SEM.

Methods

The workshop was a three-day event conducted by the members of the Biostatistics and Research Methodology Unit, Universiti Sains Malaysia. The invited speaker was a lecturer and an expert in SEM analysis from other local university. Participants were exposed with the application of SEM analysis from basic topics including the elements of SEM, confirmatory factor analysis, analyzing correlation relationships and causal effects among constructs, modeling and analyzing mediating construct. Upon understanding the concept of SEM analysis, the participants have enjoyed the hands-on guides on how to execute SEM, and also how to interpret the results. At the end of workshop, most of the essentials skills to conduct different SEM analyses were covered.

Evaluation

A total of 40 participants including lecturers, statisticians and postgraduate students from biostatistics, public health, medical education, psychiatry, pharmacology and medical department attended this course. They were given evaluation questionnaires at the end of the workshop. 21 participants (52.5%) returned the evaluation forms. The majority of the participants (76.2%) rated on scale 5 (excellent) and 4 (good) for contents, speaker, each lecture topic, venue, timing and duration, and refreshment of the workshop. In general, the participants gave positive comments on the workshop and the speaker. They commented that the course was interesting subject and beneficial for their theses and research analyses. A number of participants planned to apply this analysis in their future research. The lectures were properly explained and guided by the speaker using a standardized textbook. Examples and training datasets were given prior to the workshop. The majority of participants (90%) also suggested the need to proceed with intermediate and advanced SEM workshop in the future. This three-day workshop was considered as successful and achieved its objectives.

Reference

1. Zainudin A. Structural Equation Modeling Using AMOS Graphic. Shah Alam: UiTM Press; 2012.

CORRESPONDING AUTHOR: Aniza Abd. Aziz, MD, MCommMed. Unit of Biostatistics and Research Methodology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia. Telephone number: 60139811303/ 6097676825, Fax number: 6097653370, E-mail: draniza@kk.usm.my