Relation between obesity and depression using structural equation modelling

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Abstract

In the medical sciences, apart from the observation of parametric differences between two groups of subjects, the determination of a network of causes is also desired. In such cases one of the best approaches is Structural Equation Modelling (SEM), especially when a number of variables are not directly measurable. Structural equation modelling can test a series of independent relations simultaneously. This feature is particularly useful when a dependent variable in an equation is converted into an independent variable in another equation. The structural equations are a set of $m$ equations, each having a different dependent variable and $n$ independent variables. The dependent variable in one equation may be an independent variable in another. By the use of indexes presented by Karl Joreskog, the LISREL pattern can be represented in the following figure:

$$\eta = \beta \eta + \Gamma \xi + \Psi$$  
as the structural equation model

and

$$Y = \Lambda_y \eta + \epsilon, X = \Lambda_x \xi + \delta$$  
as the measurement model for $Y$ and $X$ respectively.

In the present study, the SEM method has been employed to study the association between obesity and depression and a network of variables expected to be linked to these two conditions, on a sample of
1093 inpatients in Khorshid center for behavioral disorders in Isfahan, Iran.

Keywords: SEM, LISREL, Obesity, Depression