# Getting Started with the Graded Response Model (GRM): A gentle introduction and tutorial in R

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# Abstract

This tutorial introduces the Graded Response Model (GRM), a tool for testing measurement precision within the Item Response Theory (IRT) paradigm. Addressing common problems of measurement imprecision and lack of construct validity, the tutorial guides researchers through a unidimensional GRM analysis in the R environment, using *psych*, *mirt*, and *ggmirt* packages. GRM is specifically designed to examine the psychometric properties of psychological scales with polytomous (Likert-style) items. The tutorial illustrates the procedure using data from the Open Psychometrics Database on the Right-Wing Authoritarianism (RWA) scale, outlining the theoretical underpinnings of GRM, and steps for data preparation, testing model assumptions, model fitting, and interpretation of results.

*Keywords*: graded response model, item response theory, *mirt*, *ggmirt*, *psych*, R