# 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, which is useful for informing researchers about the item and person properties of their measurement. The tutorial aims to guide applied researchers through a unidimensional GRM analysis in the R environment, using the 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, plotting item parameters, and interpretation of results.

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