Estimating Power in Moderated Mediation Models and Endogenous Moderation Model: The *pwrModMed* R-package

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Moderated-mediation models as well as endogenous moderation models are increasingly used because research questions are becoming more complex. With the increase in complexity, many parameters need to be estimated. To reduce the number of parameters, many researchers still rely on moderated regression or path analysis using scale means and product variables to examine their research questions, thereby ignoring that data were not collected without measurement error. Many methods have been developed, which also model measurement error, but which rely on rather strong distributional assumptions and require many parameters to describe the data. To plan their research designs, researchers are often interested in power analyses. Simulation based power analyses have already been implemented for regression-type analyses, but an extension to methods modeling measurement errors is still lacking. Therefore, we examined complex latent moderator and mediator models and conducted a power analysis for scale regression analyses compared to more sophisticated but easy-to-use methods (latent moderated structural equations, LMS, Klein & Moosburgger, 2000, simplified factor score approach, Ng & Chan, 2020) in a simulation study using a logistic regression model to predict power for large numbers of different sample sizes and effect sizes. The results of the power analyses are provided and the problem concerning the tradeoff between method complexity and performance is discussed. We aim at providing a user-friendly R package that can be used to estimate the power of complex models with moderator and moderated mediation effects in latent variable modeling.