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Multilevel Models in Single-Case Design: A Systematic Review of Existing Research and Gaps

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Poster

Multilevel Models in Single-Case Design: A Review of Trends, Challenges, and Future Directions

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Abstract

Multilevel models (MLMs) have been increasingly used in single-case design (SCD) research, providing a statistical framework to account for the hierarchical structure of repeated measurements within individuals. However, the extent to which MLMs have been applied and the specific methodological aspects that have been prioritised remain unclear. This systematic review maps the existing literature on MLMs in SCD, identifying key research trends and areas that require further attention. Our findings indicate that studies have primarily focused on model estimation procedures, fixed and random effect specifications, and handling of autocorrelation. However, critical aspects such as statistical power, Type I error rates, model selection strategies, the use of more complex models, and the treatment of non-normal data have received less attention. By outlining what has been explored and what remains underdeveloped, this review provides a foundation for future research to refine the application of MLMs in SCD and improve methodological rigour in psychological research.

Keywords

SCED; multilevel models; systematic review;

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