

PEER REVIEW HISTORY

BMJ Paediatrics Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Third grade school performance in children with special health care needs: a prospective cohort study
AUTHORS	Schlecht, Jennifer; König, Jochem; Kuhle, Stefan; Urschitz, Michael

VERSION 1 - REVIEW

REVIEWER NAME	<i>Javier Ballesteros</i>
REVIEWER AFFILIATION	University of the Basque Country, Dept of Neuroscience - Psychiatry
REVIEWER CONFLICT OF INTEREST	
DATE REVIEW RETURNED	09-Sep-2024

GENERAL COMMENTS	<p>This manuscript presents convincing data on the causal association of special health care needs with grade school performance in an area of Germany. The study's design and methods (prospective cohort study with effect estimates adjusted by conceptual confounding variables) make a compelling narrative of the association and its likely importance regarding the German educational context. I want to add just a couple of comments to the manuscript. Comments that could be considered, or not, by the authors:</p> <ol style="list-style-type: none">1. Since the response variable (academic grade) has a short range of variability (1 to 6 points), it would be relevant to discuss and justify using mixed models to obtain mean average grades. The Sankey diagram of Figure 1 and Figure 2 present the relevant analyses compactly and clearly.2. The adjustment for confounders in the regression models has been based on a causal framework the authors have worked out through a directed acyclic graph (DAG) previously published in an open-access journal. I'm not a fan of copying things already done but of recycling information when needed, and I consider this to be one of the cases where recycling the DAG would be important for readers to grasp the conceptual foundation of the causal mechanism theorized.
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REVIEWER NAME	<i>Amelia Lewis</i>
REVIEWER AFFILIATION	None Disclosed
REVIEWER CONFLICT OF INTEREST	
DATE REVIEW RETURNED	17-Sep-2024

GENERAL COMMENTS	This is a clear, well-structured research paper which will be of interest to the scientific and clinical community. The language is succinct, the scientific rationale is clear, and the results are well-
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	<p>presented with logical conclusions drawn. Two minor suggestions are noted below which would strengthen the paper.</p> <p>Introduction: It would be helpful to define Special Health Care Needs upfront.</p> <p>Methods: In the Study Sample section, it would be helpful to provide a rationale for the exclusion criteria.</p>
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VERSION 1 – AUTHOR RESPONSE

Dear Dr. Rungan, dear Dr. Raman,

Thank you for giving us the opportunity to revise our manuscript bmjpo-2024-002987 - "Third grade school performance in children with special health care needs: a prospective cohort study"

Please find attached the revised manuscript along with a point-by-point response to the reviewers' comments.

Sincerely,

Michael S. Urschitz, MD, MSc

Reviewer: 1 (Dr. Javier Ballesteros, University of the Basque Country)

Comments to the Author

Comment: This manuscript presents convincing data on the causal association of special health care needs with grade school performance in an area of Germany. The study's design and methods (prospective cohort study with effect estimates adjusted by conceptual confounding variables) make a compelling narrative of the association and its likely importance regarding the German educational context. I want to add just a couple of comments to the manuscript. Comments that could be considered, or not, by the authors: 1. Since the response variable (academic grade) has a short range of variability (1 to 6 points), it would be relevant to discuss and justify using mixed models to obtain mean average grades. The Sankey diagram of Figure 1 and Figure 2 present the relevant analyses compactly and clearly.

Response: We agree that the grades per subject have relatively few categories and have a right skewed distribution. The dependent variable of our models was the average over three grades from

different subjects, which is no longer a discrete variable but still skewed to some extent. Thus, the linear mixed model might be misspecified. Due to ceiling or bottom effects, residual variance could be heterogeneous, which in turn may lead to incorrect standard errors for the regression coefficients. However, we deem these risks minor, because all effects were low compared to the residual standard deviation. In general, modelling Likert-scale data with linear models is quite common and the cited literature in the manuscript also used linear scores of grades (z-scores). We would, thus, stick to the presented analyses but – if judged necessary by this reviewer – we could add a sensitivity analyses with ordinal regression.

Comment: 2. The adjustment for confounders in the regression models has been based on a causal framework the authors have worked out through a directed acyclic graph (DAG) previously published in an open-access journal. I'm not a fan of copying things already done but of recycling information when needed, and I consider this to be one of the cases where recycling the DAG would be important for readers to grasp the conceptual foundation of the causal mechanism theorized.

Response: We agree and have added the DAG to the manuscript (new Figure 2).

Reviewer: 2 (Amelia Lewis)

Comments to the Author

This is a clear, well-structured research paper which will be of interest to the scientific and clinical community. The language is succinct, the scientific rationale is clear, and the results are well-presented with logical conclusions drawn. Two minor suggestions are noted below which would strengthen the paper.

Comment: Introduction: It would be helpful to define Special Health Care Needs upfront.

Response: We added the definition of McPherson et al. to the Introduction.

Methods: In the Study Sample section, it would be helpful to provide a rationale for the exclusion criteria.

Response: We have now explained in the Methods section why children with mental disabilities including cerebral palsy, and children attending regular schools despite a recommendation for a special needs school were excluded (page 6, para 3).

VERSION 2 – REVIEW

REVIEWER NAME	<i>Javier Ballesteros</i>
REVIEWER AFFILIATION	University of the Basque Country, Dept of Neuroscience - Psychiatry
REVIEWER CONFLICT OF INTEREST	
DATE REVIEW RETURNED	04-Nov-2024

GENERAL COMMENTS	All the previous issues have been resolved by the authors in the current version of the manuscript.
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REVIEWER NAME	<i>Amelia Lewis</i>
REVIEWER AFFILIATION	None Disclosed
REVIEWER CONFLICT OF INTEREST	
DATE REVIEW RETURNED	30-Oct-2024

GENERAL COMMENTS	This is a well-designed and clearly presented study which will be of interest to the academic community. Recommendations from the preliminary review have been addressed to a satisfactory standard.
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