

Methodological considerations regarding the assessment of childhood fever management

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To the Editor,

I read with great interest the article by Uygur Külcü et al. investigating maternal knowledge, attitudes, and practices regarding childhood fever. The study addresses an important pediatric and public health issue and benefits from a large sample size. However, I would like to raise several methodological concerns that may affect the interpretation of the study's main finding.¹

The primary analytical objective of the study was to identify independent predictors of incorrect antipyretic administration using multivariable logistic regression. The authors state that the questionnaire was developed based on previous studies and reviewed by two pediatricians for content validity. Nevertheless, no pilot testing, construct validation, internal consistency assessment, test-retest reliability, or other psychometric properties were reported. The authors also acknowledge this limitation in the discussion. While this transparency is appreciated, the methodological implications deserve greater emphasis. Measurement error in the dependent variable is not merely a limitation of questionnaire development; it directly affects the validity of regression analyses. If the classification of "incorrect antipyretic administration" is based on an instrument with unknown measurement properties, outcome misclassification becomes possible.² Even when misclassification is non-

differential, it may attenuate, obscure, or occasionally distort estimated associations.³ Consequently, the reported adjusted odds ratios should be interpreted cautiously because they may partly reflect measurement uncertainty rather than true epidemiological relationships.

An additional issue concerns the analytical strategy. The manuscript presents numerous bivariate comparisons across maternal age groups, educational levels, child age categories, and fever scenarios before constructing the logistic regression model. However, no information is provided regarding adjustment for multiple hypothesis testing, model calibration, goodness-of-fit, or discrimination. Although such analyses may not always be mandatory, their absence makes it more difficult to evaluate the robustness and reproducibility of the reported predictors.⁴

I also question whether the regression model sufficiently accounted for the complexity of parental decision-making. Although maternal education, thermometer ownership, prematurity, and family history of febrile seizures were included, several well-established social determinants of health, including household income, employment status, paternal education, health insurance, and urban-rural residence, were absent from the model. Residual confounding therefore remains a plausible explanation for some reported associations.⁵ Another potentially important

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source of residual confounding is the absence of information regarding whether participating mothers were healthcare professionals. Maternal occupation, particularly employment in healthcare, is likely to influence knowledge of fever management, access to reliable health information, medication administration practices, and healthcare-seeking behavior. Healthcare professionals are also more likely to have higher educational attainment, potentially confounding the observed association between maternal education and incorrect antipyretic administration. Collecting and adjusting for this variable would have strengthened the interpretation of the multivariable analysis.

The study provides valuable descriptive information regarding parental fever management in Türkiye. Nevertheless, future investigations would be strengthened by employing psychometrically validated instruments, reporting diagnostic measures for multivariable models, and using sampling strategies that better support population-level inference. Such methodological refinements would increase confidence in identifying genuine predictors of inappropriate antipyretic administration and facilitate the development of evidence-based interventions.

Author contribution

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Conflict of interest

The authors declare that there is no conflict of interest.

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