**Inter-rater reliability, structure, and construct validity of the Observation of Human-Animal Interaction for Research, Version 3 (OHAIRE-V3)**

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**Introduction:** The use of behavioral data is an objective and quantitative approach that can complement standardized questionnaires in human-animal interaction (HAI) research. The Observation of Human-Animal Interaction for Research, Version 3 (OHAIRE-V3) is a behavior coding system designed specifically for HAI. We investigated its psychometric properties through analyses of its inter-rater reliability, structure, and construct validity.

**Methods:** Data were extracted from four studies investigating the outcomes of animal-assisted intervention. Studies assessed the effect of different types of animal-assisted intervention with guinea pigs, dogs, and horses. Participants included children with autism spectrum disorder, children with attention-deficit hyperactivity disorder, and typically-developing children ages 5 to 18 years (N = 202). More than 2,000 minutes of videos were coded using the OHAIRE-V3. Inter-rater reliability was calculated for a random subset of 20% of videos. The structure of the tool was explored using a factor analysis. Correlations of data from each study with standardized questionnaires (e.g., Social Skills Rating System, Social Communication Questionnaire, Social Responsiveness Scale) via Pearson's r informed convergent and divergent validity.

**Results:** Results indicate excellent inter-rater reliability (kappa = 0.81). Factor analysis results suggest a two-factor structure, with main axes representing social communication and problem behaviors. Correlation analyses showed small to medium relationships between scores of the OHAIRE-V3 and matched questionnaire subscales, providing initial evidence of construct validity.

**Conclusion**: Initial analyses suggest that the OHAIRE-V3 is a reliable and valid tool to enhance the rigor and standardization of HAI research. Its use in future studies will allow confirmation of its structure on a larger sample, and explore its generalizability with a broader population.