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The Autonomy-Validity Dilemma in Mechanical Judgment Procedures

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Marvin Neumann, Susan Niessen, Jorge Tendeiro, and Rob Meijer

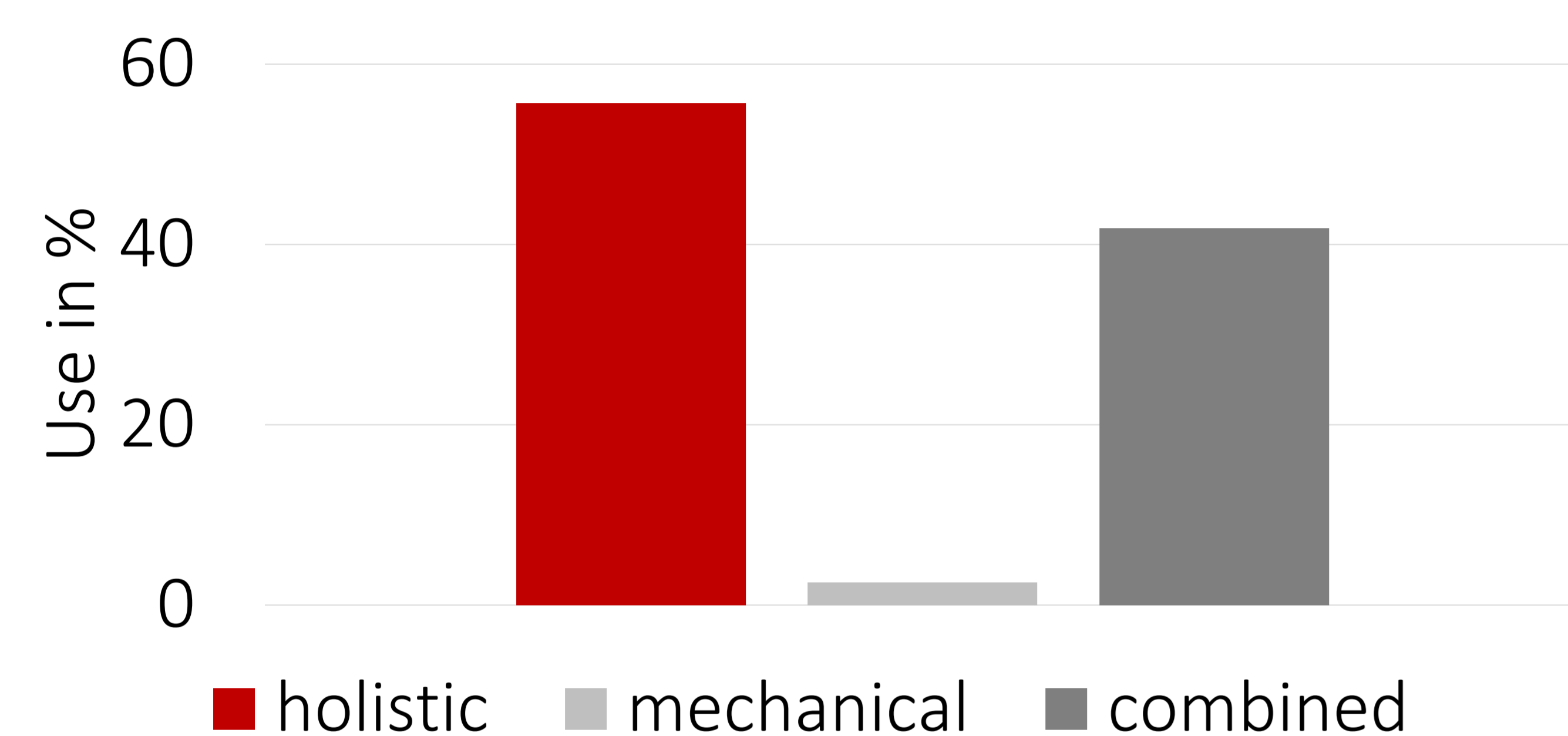
Introduction

Background

- In personnel- and educational selection, information from multiple assessments (e.g., test scores and interview ratings) is often used, which can be combined in two ways^{1,2}:
 - Holistic judgment: information is subjectively combined in the mind
 - Mechanical judgment: information is combined with an explicit decision rule
 - Prediction = predictor 1 * w1 + predictor 2 * w2 ...
- Mechanical judgment is on average more valid than holistic judgment^{1,2}

The problem

Holistic judgment dominates in practice^{3,1}



Contribution

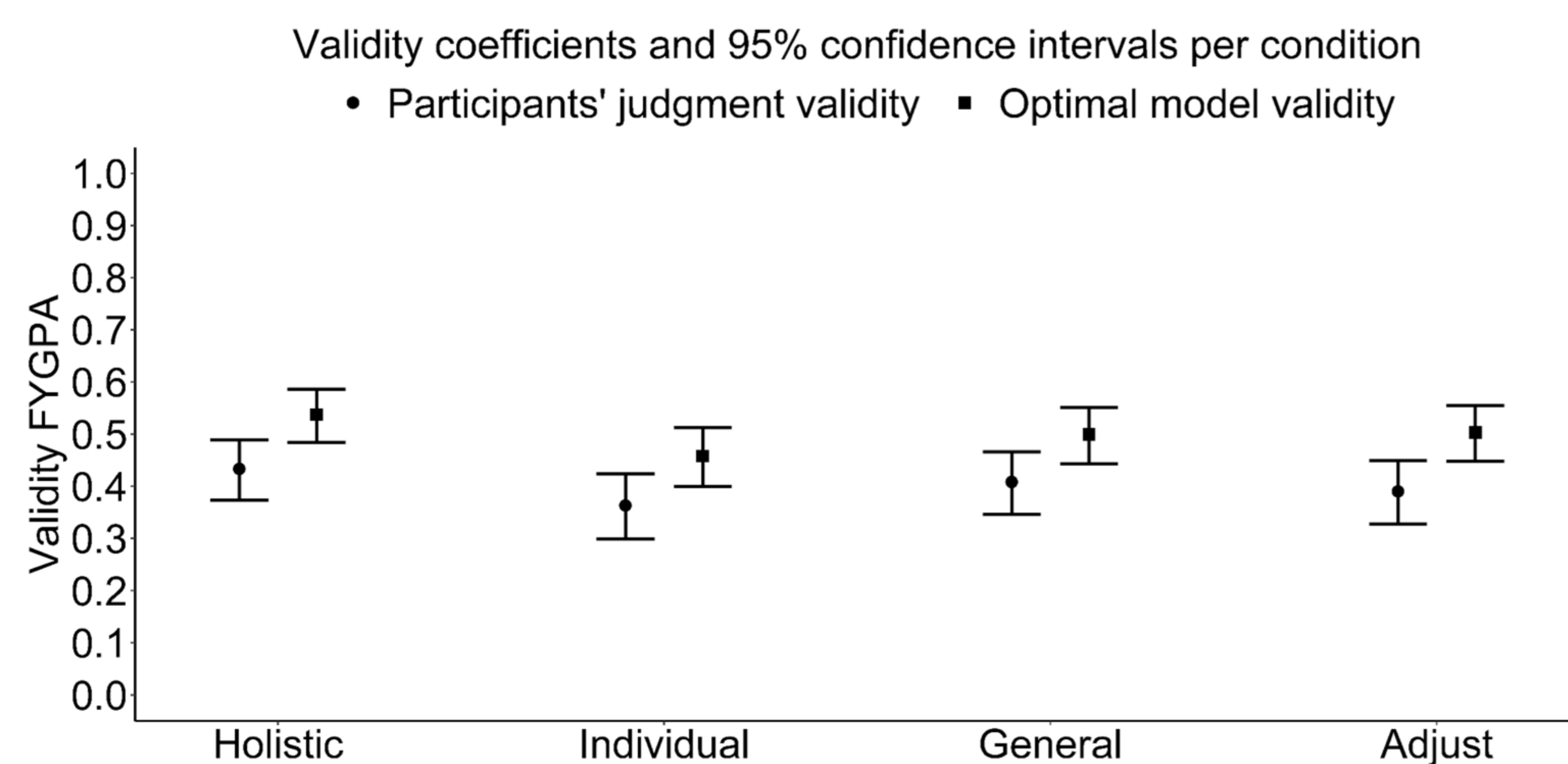
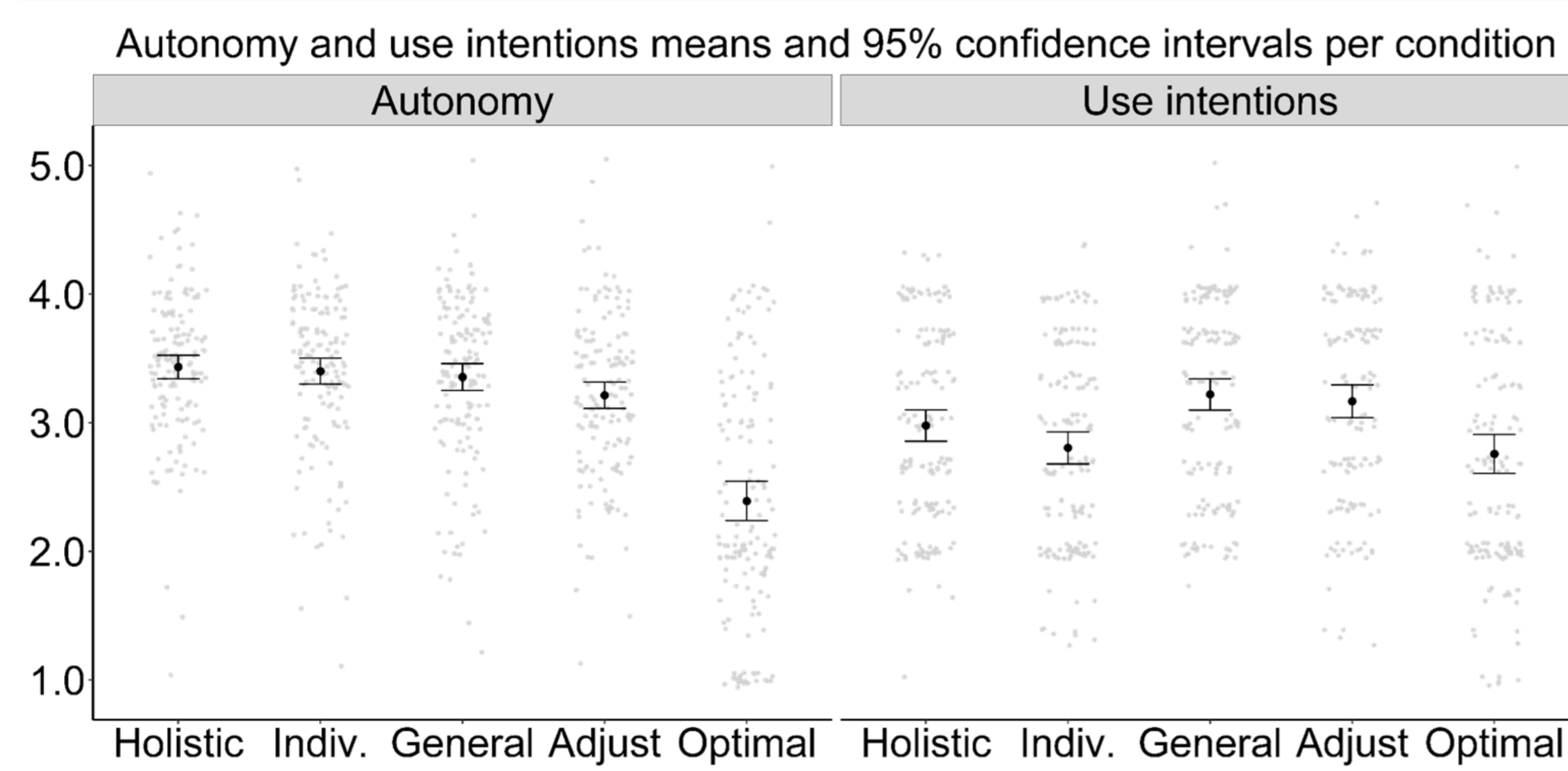
- Decision makers may use mechanical judgment more often when they retain autonomy
 - Decision makers could choose predictor weights (w1, w2)⁴
 - Decision makers could holistically adjust predictions⁵
- Research questions:
 - Do decision makers prefer autonomy-enhancing judgment procedures, compared to strictly using an optimal decision rule?
 - How does increased autonomy affect predictive validity?

Method

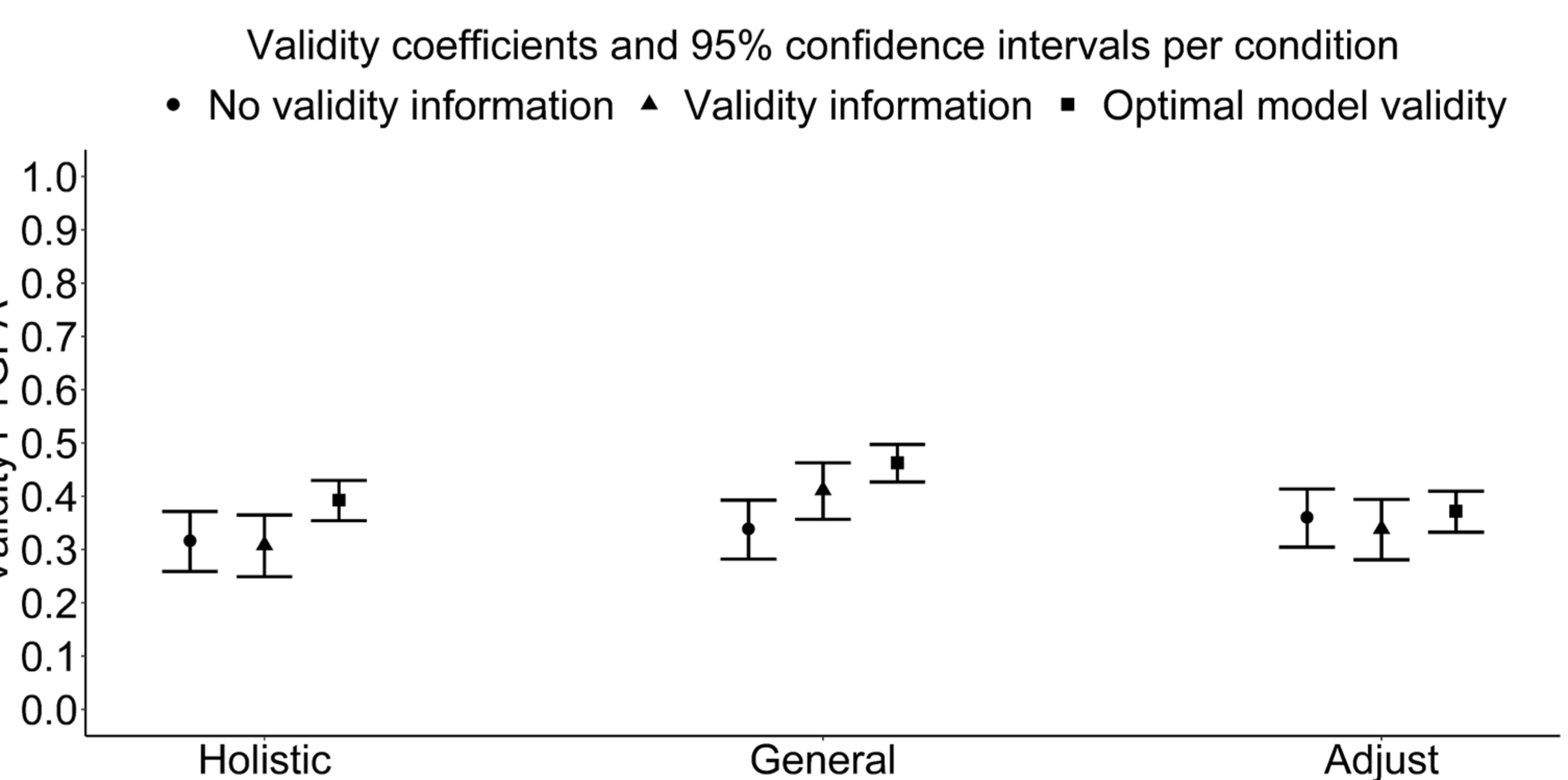
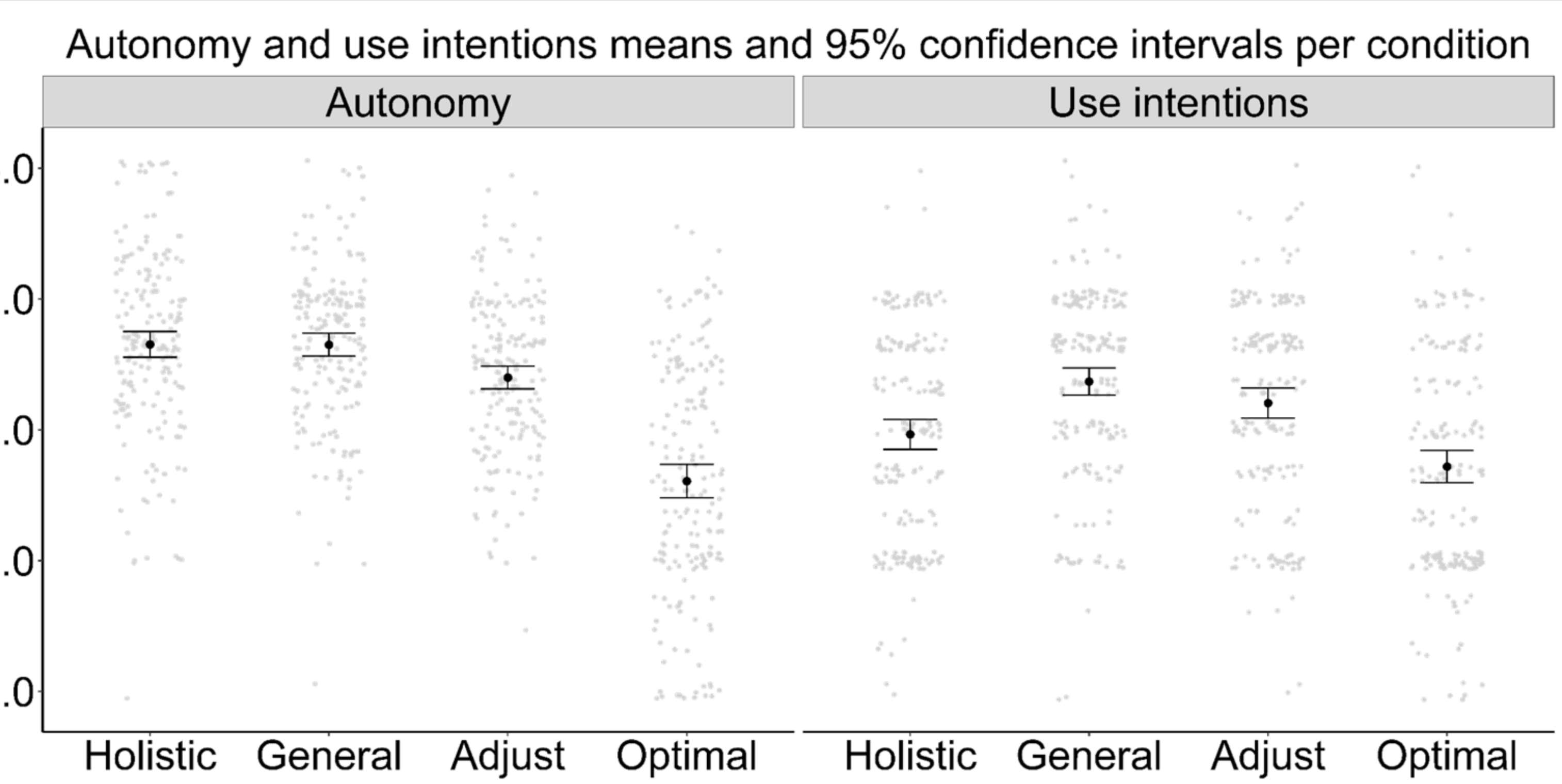
- Prediction task:** Predict first-year GPA (FYGPA) of 5 applicants using high school GPA, admission test scores, and personal statements. Participants (students) were informed of predictor validities
- Study 1 (N = 150):** within-subjects design, in which the autonomy in making predictions was varied in five conditions
 - Holistic: Predictions based on participants' subjective impression of the predictors
 - Individual: Assignment of percentage predictor weights for each of the five applicants judged
 - General: Assignment of percentage predictor weights that applied to all of the five applicants judged
 - Adjust: Participants could adjust the predictions of a statistical model as much as they wanted
 - Optimal: Participants imagined a statistical model would make predictions that they could not adjust
- Study 2 (N = 192):** mixed design
 - Same within-subjects factor as in Study 1. The "individual" condition was dropped because Study 1 results were not promising. Furthermore, participants could only restrictedly adjust model predictions in the "adjust" condition
 - Between-subjects factor: A random half of participants was not informed of predictor validities

Results and Discussion

Study 1



Study 2



- Perceived autonomy:** was similar across conditions, but much lower in the "optimal" condition (e.g., general vs. optimal, $d = 1.17$ and $d = 1.35$ in Study 1 and 2, respectively)
- Use intentions:** was higher in all autonomy-enhancing conditions than in the "optimal" condition (e.g., general vs. optimal, $d = 0.54$ and $d = 0.81$ in Study 1 and 2, respectively)
- Predictive validity:** was similar across conditions, but optimal model predictions were always better than participants' predictions. Knowing predictor validities only slightly increased predictive validity in the "general" condition

Conclusion

- The most promising procedure in terms of decision-makers' acceptance and validity is the use of a decision rule with self-chosen predictor weights when predictor validity information is available. Similarly, letting decision makers holistically adjust optimal model predictions seemed promising
- Yet, our results prevent a clear conclusive statement regarding a compromise between autonomy and validity

Key references

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