Assumptions

Assumptions: Hypothesis 1

The assumption of a normal distribution of the random effect was verified using a Q-Q Plot, which is depicted in Figure 9. Additionally, the model was tested for overdispersion, which can lead to inaccurate standard errors (Bono et al., 2021). The overdispersion ratio for the model is .99, indicating no relevant overdispersion with a p-value of .07. The model, which included the fixed effect, was compared to a null model using a likelihood ratio test and did not fit significantly better than the null model. The detailed comparison table is provided in Figure 8a.

Assumptions: Hypothesis 2

The normal distribution assumption of the random effect was checked using a Q-Q Plot, which can be found in Figure 10. The overdispersion ratio for the model is .99, suggesting no significant overdispersion, with a p-value of .19. A likelihood ratio test was conducted to compare the fixed effect model to a null model. The comparison showed that the model did not fit significantly better than the null model. A detailed comparison table is available in Figure 8b.

Assumptions: Hypothesis 3

The normal distribution assumption for the random effect was verified with a Q-Q Plot, provided in Figure 11. The model's overdispersion ratio is .99, indicating no significant overdispersion ($p = .17$). A likelihood ratio test comparing the fixed effect model to a null model revealed that the fixed effect model did not fit significantly better. The comparison table can be found in Figure 8c.

References

Bono, R., Alarcón, R., & Blanca, M. J. (2021). Report quality of generalized linear mixed models in psychology: A systematic review. *Frontiers in Psychology*, *12*, 666182. https://doi.org/10.3389/fpsyg.2021.666182