

Electronic Supplementary Material 2 (ESM 2) for
**Development and Validation of an Aviation Safety Climate Scale for the
German Armed Forces**

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Information about the procedure and instructions

As part of the safety audits it was asked who would like to participate in the study. Persons who decided to do so were given a copy of the questionnaire that had to be completed by hand. The instructions of the questionnaire included the aim of the study, the responsible persons, a reference to the anonymous processing of the data, a reference to the voluntary nature of the participation, a reference that no disadvantages will arise if the study is not participated in and the expected duration of the questionnaire. In addition, it was pointed out that the statements in the questionnaire relate to the participant's own unit and area of work and that there are no right or wrong answers here, but that only the personal assessment counts, which is why the participant should answer quickly without spending a long time looking for a "right" answer. Furthermore, information was given about the modalities of answering and how a statement once made can be made unrecognizable/changed. Finally, it was pointed out that the study was approved by the Federal Ministry of Defence and the corresponding registration number was given. Thus, the subjects were informed in detail about the study and were able to give their informed consent. The study was conducted in accordance with the relevant, national data protection regulations. In order not to jeopardize the perceived voluntary nature of the survey, no information was collected on how high the percentage of participation was. However, from on-site experience, it can be stated that only very few individuals did not want to participate in the study.

Information about chosen method and fit indices for CFA

The maximum likelihood method (ML) was chosen as the estimation method for model testing, which, according to Bühner (2006), is considered to be relatively robust against a violation of the multivariate normal distribution. Nevertheless, due to the underestimated significance of the model test, the Bollen-Stine-Bootstrap procedure was carried out with

1000 samples. To evaluate the model fit, Bühner (2006) recommends the combined evaluation of the χ^2 test and several fit indices. With regard to the χ^2 test, it should be noted that, in the case of large samples, very small deviations between the implicit and the observed covariance, respectively correlation matrix can lead to significant values and thus to discarding the model. Bühner (2006) therefore recommends the additional consideration of the following indices with corresponding cut-off values to gain a good model fit:

- Comparative Fit Index (CFI): $> \sim .95$
- Root Mean Square Error of Approximation (RMSEA): $< .06$ (for $N > 250$)
- Standardized Root Mean Square Residual (SRMR): $< .11$

However, some authors point to specific characteristics of certain fit indices. For example, Beauducél & Wittmann (2005) warn against the fact that even for very small deviations from a factorial simple structure, the CFI can already indicate a missing model fit. Bühner (2006) states that the RMSEA can show excessive values for complex models while Cheung & Rensvold (2001) come to the conclusion that especially CFI and RMSEA tend to underestimate the model fit when degrees of freedom increase. Marsh, Hau & Wen (2004) are convinced that the cut-off values mentioned above are often not reachable and thus plead for a more generous interpretation. Thus, the interpretation of the fit indices were based on the aforementioned recommendations.

References

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