

Supplementary Material 2. Fuzzy Delphi Method Questionnaire

Title :Expert Evaluation Questionnaire for Screening Evaluation Criteria and Occupational Heat Stress Indices Using the Fuzzy Delphi Method (FDM)

Instructions for Experts

Please evaluate the importance and relevance of each evaluation criterion (C1–C13) and each occupational heat stress index (A1–A10) in assessing cognitive performance impairments under heat stress conditions.

Use the following linguistic scale:

- Very Low Importance
- Low Importance
- Moderate Importance
- High Importance
- Very High Importance

Your responses will be converted into Triangular Fuzzy Numbers (TFNs) for analysis. All data will be kept anonymous and used solely for research purposes.

Section A – Expert Information (Optional)

- Name (optional):
- Organization:
- Position/Expertise Area:
- Years of Experience:
- Field (Safety / Occupational Health / Ergonomics / Thermal Physiology / Other):

Section B – Evaluation Criteria (C1–C13)

Rate each criterion according to its importance in evaluating cognitive performance impairments under heat stress.

No. Evaluation Criterion

C1 Sensitivity to thermal load

C2 Ability to reflect physiological strain

- C3** Applicability in occupational environments
- C4** Measurement feasibility in field conditions
- C5** Reliability and reproducibility
- C6** Capability to predict cognitive performance changes
- C7** Computational simplicity
- C8** Cost of measurement instruments
- C9** Ease of interpretation
- C10** Availability of measurement equipment
- C11** Compatibility with existing standards
- C12** Adaptability to different climates
- C13** Ease of training and implementation

Experts should assign a linguistic rating to each criterion.

Section C – Occupational Heat Stress Indices (A1–A10)

Evaluate the relevance of each heat stress index for assessing cognitive performance impairments.

No. Heat Stress Index

- A1** Wet Bulb Globe Temperature (WBGT)
- A2** Predicted Heat Strain (PHS)
- A3** Universal Thermal Climate Index (UTCI)
- A4** Standard Effective Temperature (SET)
- A5** Heat Stress Index (HSI)
- A6** Heat Index (HI)
- A7** Effective Temperature (ET)
- A8** Humidex

A9 Discomfort Index (DI)

A10 Apparent Temperature (AT)

Each index should be rated using the same five-point linguistic scale.

Section D – Open-Ended Comments

Experts may provide:

- Recommendations for adding or removing criteria
- Practical insights regarding field applicability
- Notes on cognitive performance assessment under heat stress
- Suggestions for improving the evaluation framework

Thank you for your contribution. Your expert judgments will be used in the Fuzzy Delphi Method to refine and finalize the evaluation framework.