**RESEARCH ARTICLE**                                                                    **Open Access**

# Perception of the usability and implementation of a metacognitive mnemonic to check cognitive errors in clinical setting

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## Abstract

**Background:** Establishing a diagnosis is a complex, iterative process involving patient data gathering, integration and interpretation. Premature closure is a fallacious cognitive tendency of closing the diagnostic process before sufficient data have been gathered. A proposed strategy to minimize premature closure is the use of a checklist to trigger metacognition (the process of monitoring one's own thinking). A number of studies have suggested the effectiveness of this strategy in classroom settings. This qualitative study examined the perception of usability of a metacognitive mnemonic checklist called TWED checklist (where the letter "T = Threat", "W = What if I am wrong? What else?", "E = Evidence" and "D = Dispositional influence") in a real clinical setting.

**Method:** Two categories of participants, i.e., medical doctors ($n = 11$) and final year medical students (Group 1, $n = 5$; Group 2, $n = 10$) participated in four separate focus group discussions. Nielsen's 5 dimensions of usability (i.e. learnability, effectiveness, memorability, errors, and satisfaction) and Pentland's narrative network were adapted as the framework to study the usability and the implementation of the checklist in a real clinical setting respectively.

**Results:** Both categories (medical doctors and medical students) of participants found that the TWED checklist was easy to learn and effective in promoting metacognition. For medical student participants, items "T" and "W" were believed to be the two most useful aspects of the checklist, whereas for the doctor participants, it was item "D". Regarding its implementation, item "T" was applied iteratively, items "W" and "E" were applied when the outcomes did not turn out as expected, and item "D" was applied infrequently. The one checkpoint where all four items were applied was after the initial history taking and physical examination had been performed to generate the initial clinical impression.

**Conclusion:** A metacognitive checklist aimed to check cognitive errors may be a useful tool that can be implemented in the real clinical setting.

**Keywords:** Cognitive errors, Clinical decision making, Mnemonic, Checklist, Usability, Implementation

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