

### Review Form 3

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| Journal Name:            | <a href="#">Journal of Advances in Medicine and Medical Research</a>                            |
| Manuscript Number:       | Ms_JAMMR_130979   |
| Title of the Manuscript: | Clinical Reasoning Assessment Tool (CRAT) for Preclinical Medical Students: a validation study. |
| Type of the Article      |   |

#### **PART 1: Comments**

|  | Reviewer's comment | Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i> |
|--|--------------------|---|
| Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part. |                    |   |
| Is the title of the article suitable?<br>(If not please suggest an alternative title)  |                    |   |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.      |                    |   |
| Is the manuscript scientifically, correct? Please write here.  |                    |   |
| Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.                              |                    |   |

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| <p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p> |   |  |
| <p><b>Optional/General</b> comments</p>   | <p><b>Comment for the manuscript</b></p> <p><b>Suggest major revision</b></p> <p><b>Introduction</b></p> <p>The introduction effectively outlines the critical challenges faced in medical education, particularly emphasizing the importance of clinical reasoning (CR) in ensuring accurate diagnosis and reducing errors. Overall, the introduction sets a solid foundation for the study by clearly stating its objectives and the necessity for validating a clinical reasoning assessment tool for preclinical medical students.</p> <p>For improvement, please consider providing a brief overview of existing assessment tools and their limitations, which would underscore the relevance and necessity of your research further.</p> <p><b>Material and methods</b></p> <p>The Materials and Methods section provides a comprehensive overview of the development and application of the Clinical Reasoning Assessment Tool (CRAT). The clear linkage to established frameworks by Daniel et al. and Cate underlines the foundation upon which the CRAT is built, enhancing its credibility. The selection process for the assessment questions, drawn from a systematic review and incorporating various testing formats, illustrates a thorough approach to constructing a valid tool that addresses multiple components of clinical reasoning.</p> <p>For further improvement:</p> <p>#1 Consider including information on the demographics of the participants to contextualize the findings (e.g. age, gender, and educational background).</p> <p>#2 The authors should provide a rationale for the choice of statistical tests could also add clarity, especially for readers who may not be familiar with these methods.</p> <p># 3 The author can use abbreviations which are clearly stated in the introduction part (e.g. CR)</p> <p>#4 The authors should organize the section into clear subsections (e.g., Tool Development, Participant Selection, Administration, Scoring, Statistical Analysis). This will make it easier for readers to navigate and understand each aspect of your methodology.</p> <p># 5 The authors should provide a brief explanation of why specific questions were chosen from the systematic review and how they were deemed to be the most discriminative.</p> <p>#6 The authors should explain the setting in which the CRAT was administered (e.g., classroom, online) and any steps taken to control for environmental factors that could affect performance.</p> <p># 7 The authors should mention whether a pilot test of the CRAT was conducted prior to the study, and what insights were gained from it. This can provide evidence that the tool has undergone preliminary validation, and by who.</p> <p>#8 The authors should clarify the criteria for scoring each component of the assessment in more detail. Adding examples of acceptable answers could provide insights into your scoring approach and its alignment with educational objectives.</p> <p>#9 The author should include a brief justification for each statistical method used, explaining why each was chosen and what aspect of the data it addresses. This will strengthen the credibility of your</p> |  |

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|  | <p>analysis plan.</p> <p># 10 While the authors mention ethical registration, elaborating on how informed consent was obtained and how participant confidentiality was maintained can enhance the ethical rigor of your study.</p> <p>Results</p> <p>The results section presents a clear and concise analysis of the data obtained from the Clinical Reasoning Assessment Tool (CRAT). The application of the Kolmogorov-Smirnov test to assess the normality of the primary objectives—accuracy and self-confidence—provides a solid statistical foundation for the subsequent analyses. Notably, specifying the results of the test reinforces the rigor of the methodological approach.</p> <p>Discussion</p> <p>#1 The authors should organize the discussion into distinct subsections, such as key findings, implications for education, limitations, and future directions. Clear headings will help readers navigate the discussion effectively.</p> <p>#2 The authors should provide more detailed interpretation of the results, especially regarding the lack of difference in self-confidence despite variations in accuracy. Elaborate on the implications of the Dunning-Kruger effect, including how this may impact student learning and patient care.</p> <p>#3 The authors should discuss more how CRAT's findings compare or contrast with other studies on clinical reasoning and self-confidence in medical education.</p> <p># 4 The authors should offer concrete recommendations for curriculum changes based on the findings. For example, consider suggesting specific training interventions to address the identified gap in differential diagnosis skills among preclinical students.</p> <p># 5 Besides the limited sample size, the authors should discuss other potential limitations, such as the convenience sampling method, the homogeneity of the participant group, and any biases that might have affected the results. Reflecting on how these limitations impact the generalizability of the findings will strengthen your discussion.</p> <p>#6 The authors should discuss how the findings can be applied in real-world settings. For instance, elaborate on how medical schools can implement the CRAT within their assessment frameworks or integrate CBL more effectively.</p> <p>#7 The authors should emphasize the role of mentorship and feedback in improving both clinical reasoning skills and self-confidence among medical students, integrating references to literature that supports this notion.</p> <p>Conclusion</p> <p>To improve the conclusion:</p> <p>#1 The authors should focus on synthesizing the main findings while emphasizing the practical implications of the CRAT for medical education.</p> <p>#2 The authors should highlight its ease of application and ability to effectively assess varying levels of clinical reasoning among preclinical students, which can inform tailored educational interventions.</p> <p>#3 The authors should encourage continuous research to validate and refine the CRAT across diverse</p> |  |
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|  | educational settings, ensuring its relevance in the dynamic landscape of medical education. |  |
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**PART 2:**

|   | <b>Reviewer's comment</b>  | <b>Author's comment</b> <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i> |
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| <b>Are there ethical issues in this manuscript?</b> | <i>(If yes, Kindly please write down the ethical issues here in details)</i> |   |

**Reviewer Details:**

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|----------------------------------|--|
| Name:                            | <b>Komson Wannasai</b>                 |
| Department, University & Country | <b>Chiang Mai University, Thailand</b> |