

These are all on par or better than weighted majority baselines expected from baseline distribution of faculty IDEA scores. Additionally, the NLP algorithm had better inter-rater reliability (IRR) when compared to prior studies on human IRR using the IDEA tool.

Discussion & Conclusions: Graded A/Ps from standardized cases have the potential to train NLP algorithms regarding appropriate Clinical Reasoning. Future studies may focus on the feasibility of using NLP for formative or summative assessment of student's CR.

Take-home message: This study offers a novel method to train NLP to reliably assesses CR presented in student's A/P.

10GG3 (971)

"5x5 Approach": New framework for clinical reasoning

Authors

Hisashi Shimozono, Tokyo Medical and Dental University, Tokyo, Japan

Yujiro Tanaka, Tokyo Medical and Dental University, Tokyo, Japan

Makoto Takahashi, Tokyo Medical and Dental University, Tokyo, Japan

Presenter: Hisashi Shimozono, Tokyo Medical and Dental University, Tokyo, Japan

Background: Clinical reasoning is an essential competence of a physician. Dual process theory suggests that this skill is a combination of two systems: System 1 (intuitive and quick), and System 2 (analytical and slow). This theory, however, has no specific underlying method. We, therefore, propose a new "5x5 Approach". Two dimensions of 5 organs (brain, heart, lung, liver/intestine, and kidney) and 5 systems (metabolism, endocrine, blood/tumor, infection, and autoimmune) enable residents to visualize whole image of patients' pathophysiology from symptoms to diagnoses and treatments. The primary hypothesis is that 5x5 Approach improves residents' capacity for clinical reasoning.

Method: Participants were PGY1 residents (n=100). The intervention was one-hour lecture of "5x5 Approach". Forty-five residents attended a live lecture and the other 55 viewed the same lecture through a video feed. Before and after the lecture, the residents had multiple examinations which included questions about differential diagnoses for a case summary. We checked for the use of 5x5 Approach by each resident during the posttest.

Results: We divided the participants according to their scores for differential diagnoses on the pretest, which could show their knowledge level, into two groups: high-level (n=59) and low-level (n=41). In the high-level group, the change of scores from the pretest to the posttest was higher in 5x5 users (n=33) than non-users (n=26) (-1.58 (95%CI: -4.09 ~ 0.94) vs -4.92 (95%CI: -6.9 ~ -2.93), p=0.046) by repeated measures ANOVA. Use of 5x5 Approach during the posttest was related to neither the knowledge level nor the lecture style.

Discussion: 5x5 Approach is useful for residents with high-level knowledge to make differential diagnoses. That is to

say, 5x5 Approach can provide a clinical model upon which for making differential diagnoses.

Conclusion: 5x5 Approach has a potential for residents to structure knowledge systematically and to improve their clinical reasoning, particularly System 2 reasoning.

Take-home message: "5x5 Approach" which is a combination of 5 organs and 5 systems could be a new framework for clinical reasoning.

10GG4 (3510)

Effects of teaching critical thinking on medical students' skills: results from a three-year longitudinal study

Authors

Akbar Soltani, Tehran University of Medical Sciences, Tehran, Iran

Mahboobeh Khabaz Mafinejad, Tehran University of Medical Sciences, Tehran, Iran

Taha Bayat, Tehran University of Medical Sciences, Tehran, Iran

Maryam Tajik, Tehran University of Medical Sciences, Tehran, Iran

Hamideh Moosapour, Tehran University of Medical Sciences, Tehran, Iran

Ahmadreza Dorri, Science and Research Branch, Islamic Azad University, Tehran, Iran

Presenter: Mahboobeh Khabaz Mafinejad, Tehran University of Medical Sciences, Tehran, Iran

Background: Integration of critical thinking into medical school programs is crucial in order to ensure that future physicians are able to put their knowledge into practice. Research indicates that in most medical curricula there is a lack of emphasis on improving the critical thinking ability. The aim of the study was to evaluate the effects of holding a longitudinal critical thinking course on medical students' skills at Tehran University of Medical Sciences in Iran.

Method: A prospective, one-group, longitudinal pretest-posttest design was used with a convenience sample of 103 students; 91 medical students participated two times in completing a questionnaire each March from 2011 to 2014. The valid responses rate was 57%. So, sixty-eight percent of students were excluded because of deciding not to participate in the study or not completing both of the tests. The California Critical Thinking Skill Test (CCTST) was administered as pretest and posttest. Participants were asked to complete the CCTST in the week before their first educational session and posttest data were collected 8 weeks after the program.

Results: Ninety-one medical students with the mean age of 20±2.8 years participated in this study. Forty-three of them were male (%47.3) and 48 others were female (%52.7). The highest score in both pre and post-test was for the deductive part. While the lowest mark in both is for analysis. We have a positive difference in all the fields but the difference is not significantly meaningful for inference and deductive part (P-value= 0.287 and 0.421). We found no significant difference between the scores of male and female participants in any of the fields (P=0.77).

Discussion & Conclusions: There was no significant difference between the scores in male and female