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Do **online** case-based discussions foster **clinical reasoning** among medical students?



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Disclosure Statement

“There are no conflicts of interest to declare”

- Ethical approval was granted by the Research, Policy, Intelligence, and Ethics Team, Newcastle University Research Office, case number Ref: 11486/2020.



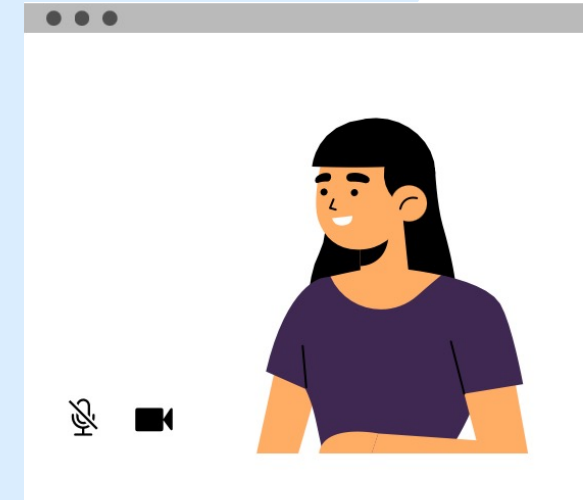
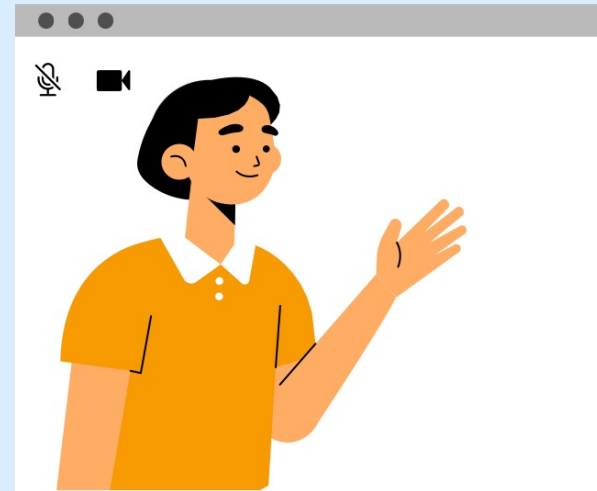
Background

- Clinical reasoning (CR) is paramount in providing the best patient care and minimising diagnostic errors.
- During the start of the pandemic, online case-based discussions (CBD) have entirely replaced face-to-face teachings.
- To date, little research has explored students' perceptions of online CBD, particularly its ability to foster clinical reasoning skills.



Research questions

- Do students perceived online CBD to foster their clinical reasoning skills?
- Is there an association between students' year group and perceived clinical reasoning ability?
- How do online CBD foster clinical reasoning skills?



Methods

Quantitative

- 16 items 4-point Likert scale questionnaire
- Perceived clinical reasoning ability
- SPSS



Qualitative

- 3 focus group
- Thematic analysis
- NVivo

Questionnaire

History Taking

- Lead the history
- Specifying symptoms
- Logically ordered questions
- Effective & sufficient data collection
- Summarising

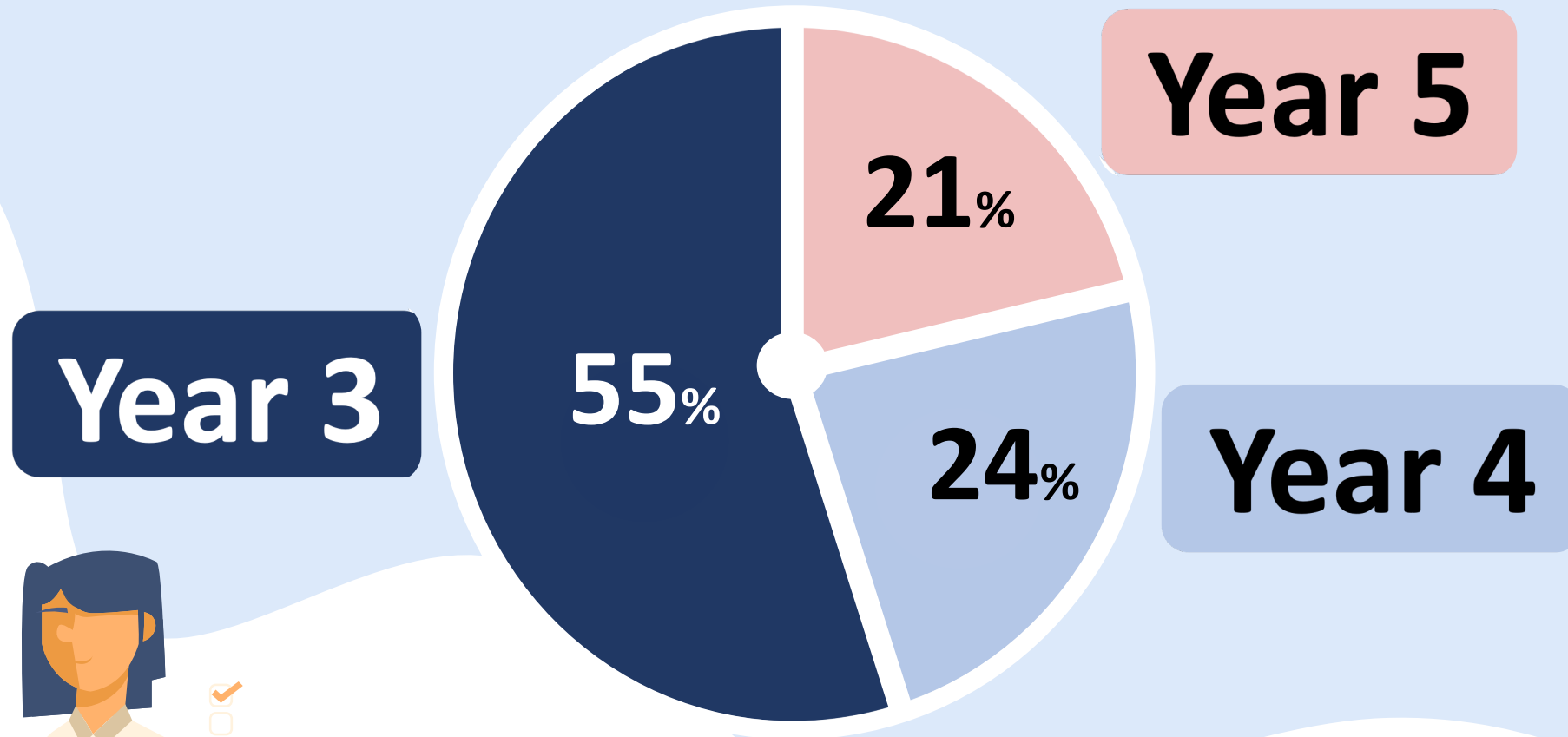
Case Discussion

- Identify risk factors
- Identify differential diagnosis
- Identify most likely diagnosis
- Identify clinical urgency

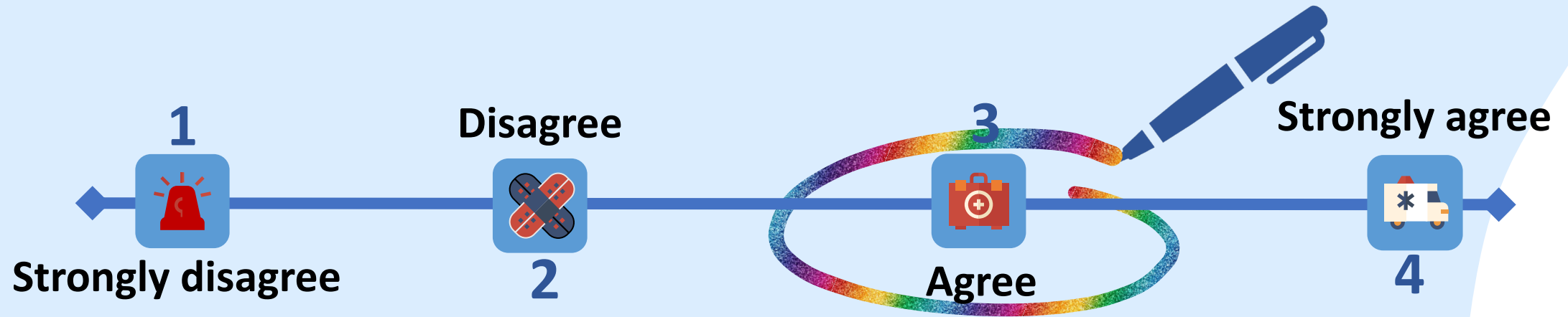
Investigations & Management

- Identify investigations
- Identify management plans
- Identify complications and disease impact
- Assess prognosis
- Identify follow-up
- Identify knowledge gaps

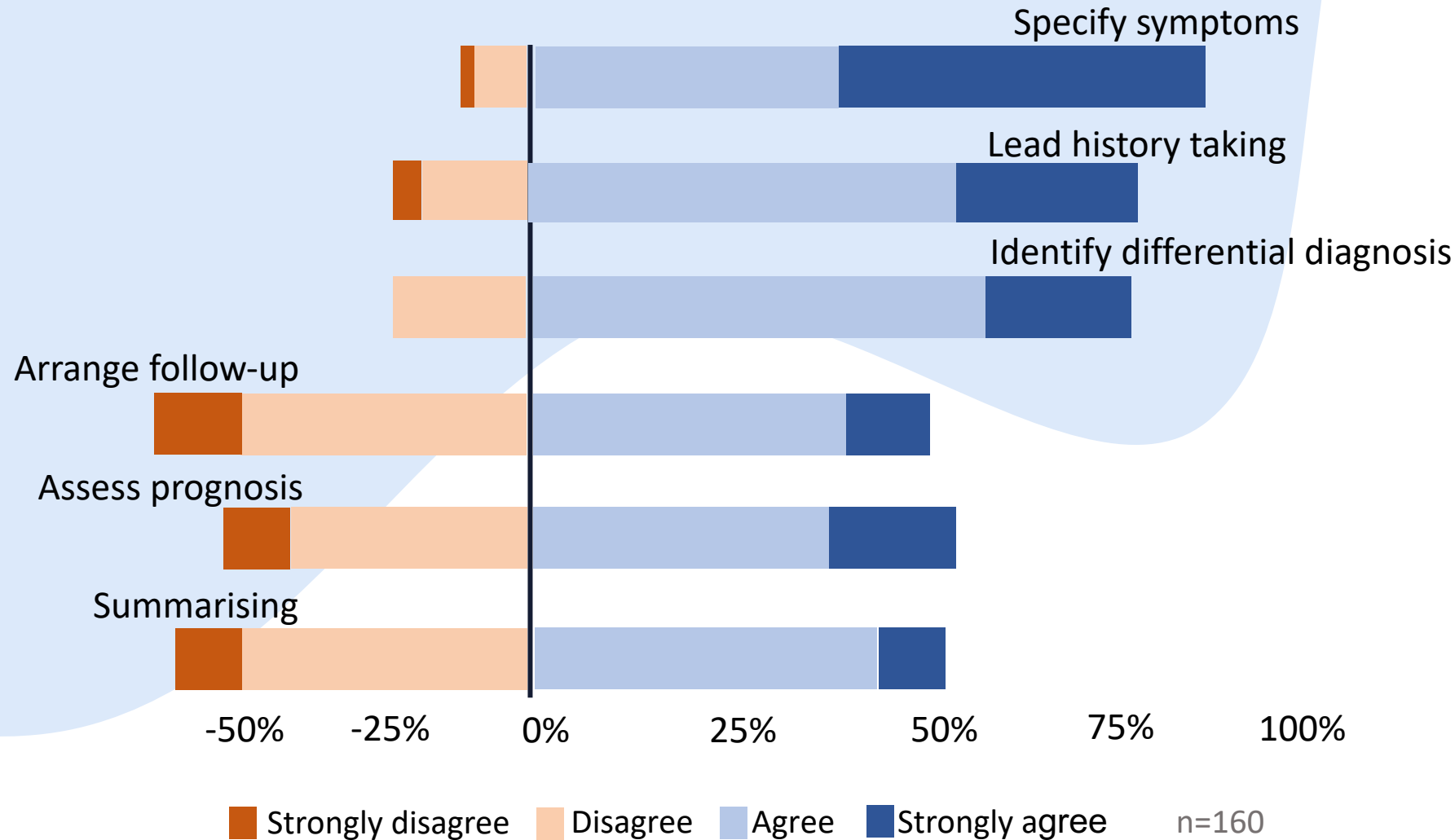
Sample



Self-rated clinical reasoning ability

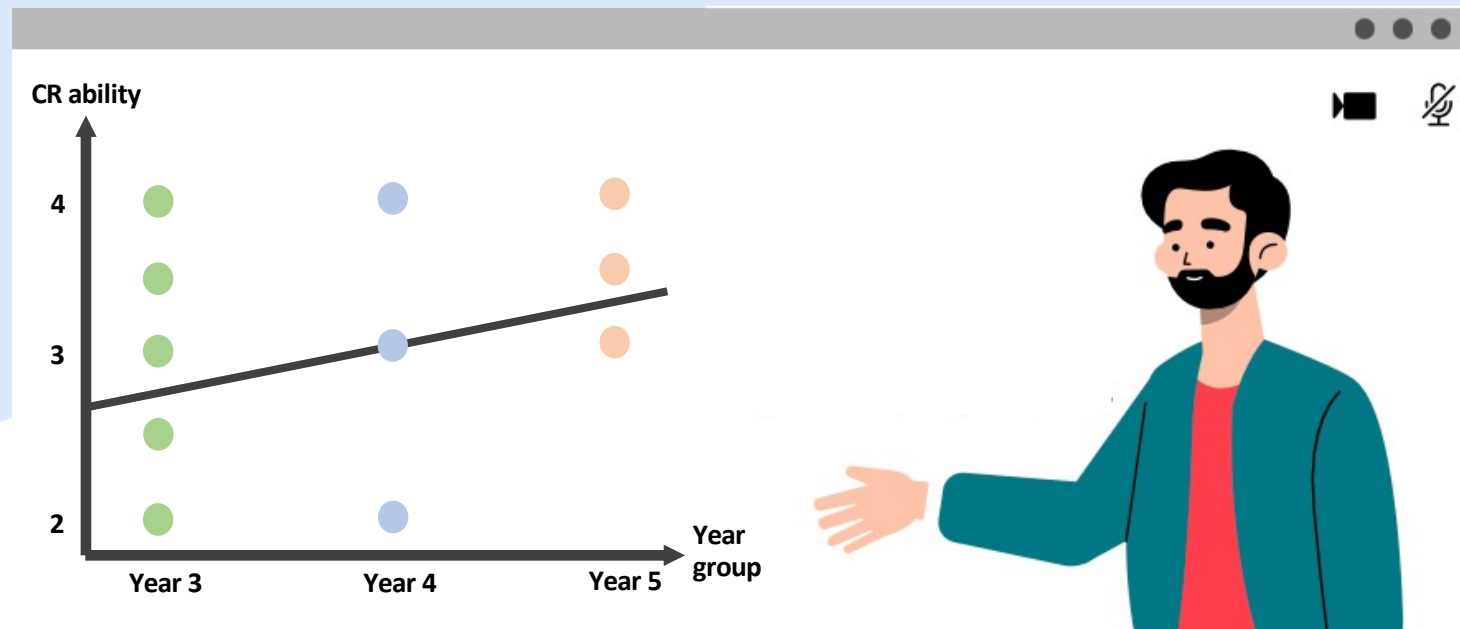


CR skills fostered through online CBD

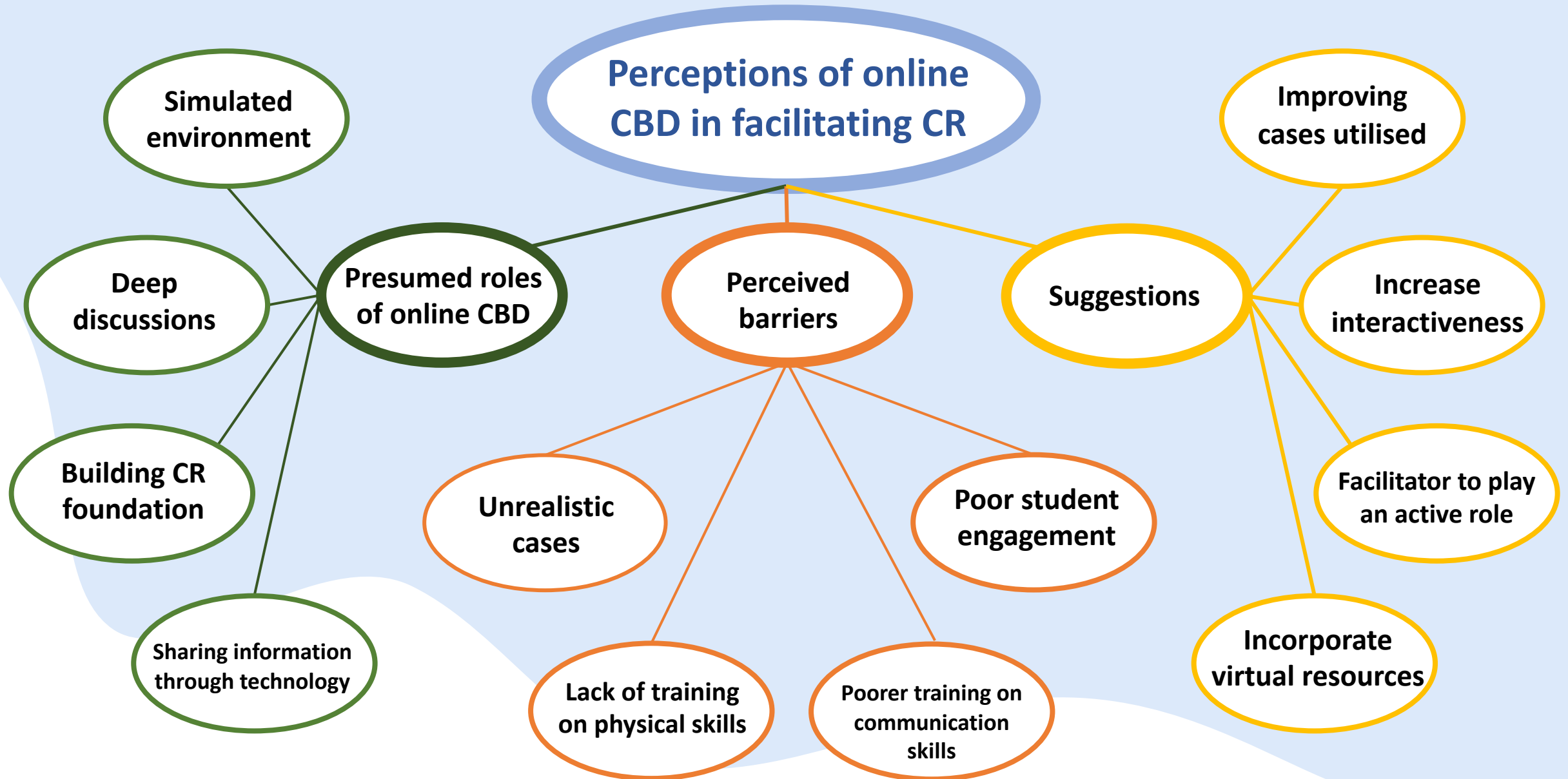


Stage of clinical years vs CR ability

- As student progress through their clinical years, their perceived clinical reasoning ability fostered through online CBD increases (spearman correlation, 0.36, $p < 0.001$)



Qualitative results: Themes and subthemes



Theme 1 – Presumed roles of online CBD

1. Simulated environment

“We had two online simulated ward rounds, and it was very useful”. – Y5

“The online CBD is better for me as it more of asking thoughtful structured questions while in real life, I tend to sway off to ask questions randomly which is not relevant or less important.” – Y4

2. Deep discussions

“Online CBD help me in explaining the management to patient and reason it out, which you don’t get in the busier hospital settings.” – Y5

“We had more time to discuss, which is something I quite like in online teaching as supposed to in person” – Y3

Theme 1 – Presumed roles of online CBD

3. Building CR foundation

Online CBL help us to build up our foundation skills, because we newly transition from pre-clinical to clinical, so to start off with online CBD, I think it helped me – Y3

4. Sharing information through technology

We would be able to share information through our screen, play or send videos or any link. We may also have breakout rooms for a smaller session. On the contrary, we can't share information in face to face teaching as there are not many locations to do so." – Y4

Theme 2 – Perceived barriers to CR

1. Unrealistic

“Online CBD is very unrealistic because they usually come with one problem only, whereas in real life the patients have whole list of problems and complications.” – Y5

2. Lack of physical training

“You tend to miss the techniques on identifying signs during physical examination.” – Y4

3. Poorer communication skills training

“Communication skills is better by face to face learning as communicating with real patients are better.” – Y5

4. Poorer student engagement

“In zoom, people tend to lay back and just listen, discussion is just only between lecturers and 1-2 students.” –Y4

Theme 3 – Suggestions to online CBD

1. Improving cases utilised

- a. Increase complexities
- b. Utilizing actual patient cases or bringing actual patients

- c. Discuss cases rarely encountered in hospital
 - “A lecturer specifically chooses certain cases that we won’t see in hospital setting and that really helps.” – Y3

2. Increase interactivensess

- a. Breakout rooms
- b. Smaller groupings
- c. Task division
- d. Quizzing

“A lecturer’s approach is useful for online. She will randomly assign students to certain task such as A to history taking, B to physical examination, we will be given 10 minutes for a student led discussion then present as a group.” – Y5

Theme 3 – Suggestions to online CBD

3. Facilitator to play an active role

- a. Quizzing students' rationale
behind their clinical decisions
- b. Explain their own clinical thought process

“I think it is a very important job for facilitator to probe you to ask why do you think this is the differential, why do you do this investigation. Is there anything else you would like to do, that probes me to think more.” – Y5

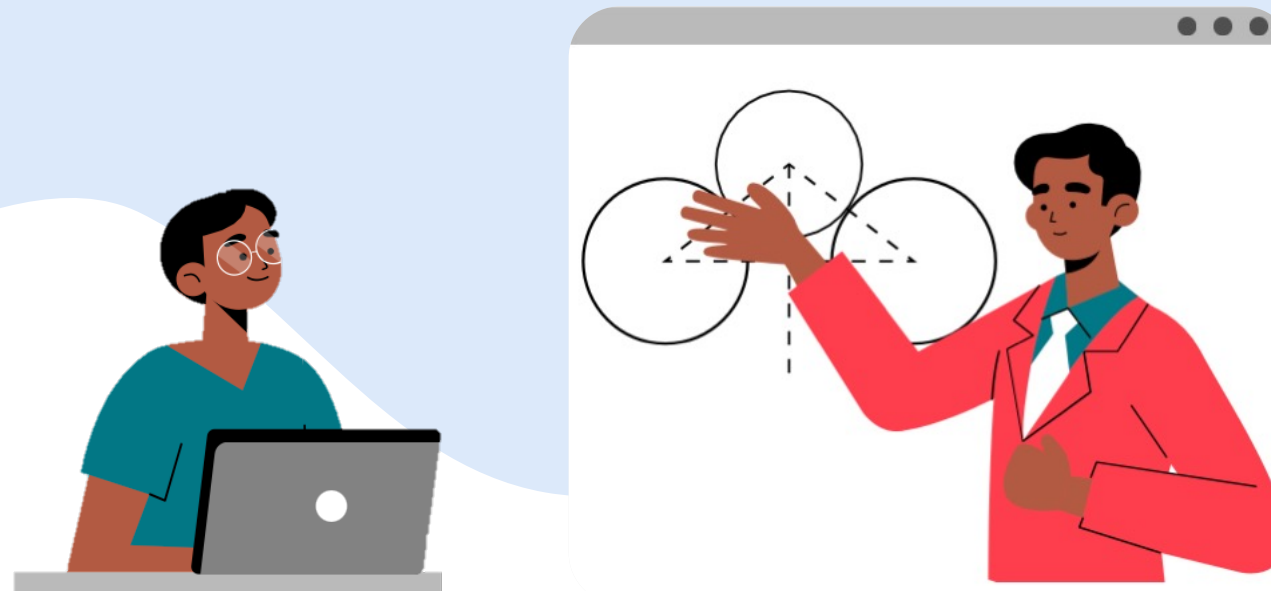
4. Incorporate virtual resources

a. Virtual Primary Care

“We would watch the video with lecturers and see how GP would take the history, manage patients expectations, communication skills and handling patients. The lecturers would pause the videos at certain points and ask us to think what would be the first thought that comes to our mind when the patients mention their symptoms. – Y4

Take home message

- Students perceived online CBD as a practicable alternative to improve their clinical reasoning skills amid the disruption to face-to-face education during COVID-19.
- This paper delivered valuable insights into students' perception of online CBD that will enhance the future teaching and learning of clinical reasoning in the undergraduate medical curriculum.



Thankyou:



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