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Can an online clinical communication course impact learner behaviour?

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Abstract

Background: Effective communication between doctors and patients leads to better compliance, health outcomes and higher doctor and patient satisfaction. Although in-person communication skills training programs are effective, they require high resource utilisation and may provide variable learner experiences due to challenges in standardisation.

Objective: This study aimed to develop and implement an evidence-based, self-directed and interactive online communication skills training course to determine if the course would improve learner application of communication skills in real clinical encounters.

Methods: The course design utilised the Kalamazoo Consensus framework and included videos based on common paediatric clinical scenarios. Final year medical students in academic year 2017/2018 undergoing a two-week paediatric clerkship were divided into two groups. Both groups received standard clerkship educational experiences, but only the intervention group (88 out of 146 total students) was enrolled into the course. Caregiver/patient feedback based on students' clinical communication was obtained, together with pre- and post-video scenario self-reported confidence levels and course feedback.

Results: There were minimal differences in patient feedback between intervention and control groups, but the control group was more likely to confirm caregivers'/patients' agreement with management plans and provide a summary. However, caregivers/patients tended to feel more comfortable with the intervention compared to the control group. Median confidence levels increased post-video scenarios and learners reported gains in knowledge, attitudes and skills in paediatric-specific communication.

Conclusion: Although online video-based communication courses are useful standardisation teaching tools, complementation with on-the-job training is essential for learners to demonstrate effective communication.

Keywords: *Online Learning, Undergraduate Medicine, Professionalism, Communication Skills, Patient Feedback*

I. INTRODUCTION

Effective doctor-patient communication leads to better compliance, health outcomes and higher doctor and patient satisfaction. Online video-based communication skills courses can be feasible, with learners reporting increased confidence in key communication skills (Kemper, Foy, Wissow, & Shore, 2008). However, these evaluation methods have been limited to the Kirkpatrick levels of "reaction" and "learning", instead of "behaviour" and "results", which are more reflective of applied learning.

While in-person communication skills training programs simulate clinical environments, they can have inconsistent delivery because facilitators and standardised patients provide variable training experiences. In order to replace traditional role-play sessions, this study aimed to develop and implement a pilot online communication skills course to provide standardised, video-based scenarios in a self-directed interactive learning format using an evidence-based framework.

Our research questions are as follows:

1. Would an online communication course improve the application of communication skills in real clinical encounters?
2. What is the impact of an online communication course on learner-rated confidence levels in paediatric-specific clinical communication encounters?
3. What are the self-reported aspects of learning that participants of an online communication course experience?

II. METHODS

This course design utilised the Kalamazoo Consensus framework (Makoul, 2001) which included the essential elements of clinical communication: Open the discussion, gather information, understand patient's perspective, share information, reach agreement and provide closure.

Through Bandura's social learning theory, people learn through observing others' behaviour. The attitudes and outcomes of those behaviours then guide subsequent actions. This course therefore utilised videos featuring positive doctor-caregiver interactions, to encourage modelling through observation. The 3-5-minute video scenarios acted by practicing healthcare professionals were based on commonly encountered general paediatric clinical situations.

The course was designed using Articulate© software. "Pop-up" prompts highlighting important clinical or communication points, a pre- and post-test and in-video multiple-choice questions were included to increase learner engagement. To evaluate the impact of the course on learner-rated confidence levels, students were shown a clinical vignette, and asked to rate their self-confidence on a 4-point Likert scale before and after each video. Each video concluded with a summary, emphasising the utilisation of the Kalamazoo Consensus Framework.

Q1: Did the student introduce his/ her name? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not sure	Q2: Did the student allow you to express your concerns? <input type="radio"/> Yes, ALL my concerns <input type="radio"/> Not really, only SOME of my concerns <input type="radio"/> No, NONE of my concerns
Q3: How much was the student interested in <u>your point of view</u> (e.g. expectations, ideas, beliefs, values) when he/she was asking you questions ? <input type="radio"/> Very interested <input type="radio"/> Somewhat interested <input type="radio"/> Somewhat uninterested <input type="radio"/> Not interested at all	Q4: How much was the student interested in <u>your point of view</u> (e.g. expectations, ideas, beliefs, values) when he/she was planning and explaining things ? <input type="radio"/> Very interested <input type="radio"/> Somewhat interested <input type="radio"/> Somewhat uninterested <input type="radio"/> Not interested at all
Q5: Did you feel that the student listened to you? <input type="radio"/> Listened all the time <input type="radio"/> Listened sometimes <input type="radio"/> Did not listen at all	Q6: How well do you feel the student explained things to you? <input type="radio"/> Very well – I understood all the explanation <input type="radio"/> Fairly well – I understood some of the explanation <input type="radio"/> Not well at all – I did not understand all of the explanation
Q7: Did the student check if you were agreeable with the management plan? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not sure	Q8: Did the student provide a summary of the problem/ plans at the end of the conversation? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not sure
Q9: Overall, how comfortable were you interacting with the student? <input type="radio"/> Very comfortable – I would like to have him/ her be my/ my child's doctor <input type="radio"/> Somewhat comfortable <input type="radio"/> Somewhat uncomfortable <input type="radio"/> Not comfortable at all – I do not want him/ her to be my/ my child's doctor	Q10: What do you think this student could improve in? E.g. Be more courteous/ respectful, speak or explain more clearly, listen more, check my understanding, answer my queries etc.

Table 1. Caregiver/Patient Feedback Form

To evaluate the self-reported learning points from the course, students were asked upon course completion to provide course feedback, including free-text completion of the phrase: “Things I have learnt include...” To evaluate whether the course improved the application of communication skills in real clinical encounters, caregiver/patient feedback was obtained towards the end of the paediatric clerkship for all students, regardless of course participation (Table 1). This form was modified based on course content from a family feedback instrument utilised in a paediatric setting (Zimmer, Solomon, Siberry, & Serwint, 2008). Implied informed consent was obtained from all participants.

Final year medical students from a five-year Singapore undergraduate medical program were enrolled over one academic year (2017/2018). Alternate batches (2nd, 4th, 6th, 8th) were enrolled into the course. Each student was provided a unique username and password for course access on any internet-enabled device throughout his/her 2-week paediatric clerkship and course participation was strongly recommended. Students from other batches (1st, 3rd, 5th, 7th) were analysed as controls. All students integrated into paediatric clinical teams, participated in ward rounds and communicated plans to patients/caregivers.

Statistical analysis was performed using SPSS© Statistics version 25.0 and chi-square analysis was used for patient feedback analysis.

This study was exempted from formal Centralized Institutional Review Board review and implied informed consent was granted by the SingHealth Centralized Institutional Review Board.

III. RESULTS

A total of 146 students were posted to the study institution in academic year 2017/2018 and 88 students were enrolled into the course. There were 80 (90.9%) attempts at the course, of which 76 (95%) students provided course feedback. The median time needed for course completion was 59 minutes. Patient feedback was successfully collected for 94 students, of which 44 (46.8%) attempted the course. Main reasons for unsuccessful collection were fast patient turnovers and patients/caregivers rejecting the request to provide feedback, usually due to perceived insufficient student contact time.

A. Application of Communication Skills – Evaluated via Patient Feedback

Although there were generally no differences in patient feedback between intervention and control groups, the control group was more likely to check with

caregivers/patients whether they were agreeable with the management plan (76.0% vs. 56.8%, $p < 0.05$) and provided a summary to the caregiver/patient (74.0% vs. 47.7%, $p < 0.05$). Approaching statistical significance was the finding that caregivers/patients were more likely to feel very comfortable with the intervention compared to the control group (65.9% vs. 48.0%, $p = 0.062$).

B. Course Impact on Self-Reported Confidence Levels

For scenario 1, the median confidence level increased from 3 (“somewhat confident”) to 4 (“very confident”). For the subsequent scenarios, this increased from 2 (“a little confident”) to 3 (“somewhat confident”).

C. Self-Reported Learning Points – Evaluated via Course Feedback

1) *Knowledge*: The majority of students mentioned learning about the clinical management and discharge advice for gastroenteritis and urinary tract infection, and the need for procedural sedation in uncooperative young children. Students reported that they had learnt general frameworks and principles for communication, and concepts of consent-taking. Students also frequently mentioned “practical”, in terms of “practical knowledge” and “practical tips” for communication.

2) *Attitude*: Students mentioned that they learnt about the importance of empathy. They also reported important aspects of patient-centred care, such as understanding the parent’s or patient’s perspective to formulate a treatment plan together and ensuring mutual understanding via “checking back to ensure the parent truly understands” and “to have a closed loop at the end of each communication”.

3) *Skills*: On a broader perspective, students described that they had learnt “how to properly structure communication with a patient’s parents” and “how to better communicate with parents using the various strategies”. Almost all students reflected that they had learnt specific communication skills, particularly with regards to dealing with challenging situations such as “how to approach parents who may not be cooperative/willing to listen to you” and “how to address angry parents” as well as “how to address their concerns and manage their expectations”. Two students also mentioned that they may not have been exposed to similar scenarios in their daily work: “... handle scenarios which are often not taught within lectures.”

IV. DISCUSSION

Computer-based communication courses have shown to improve students’ self-efficacy in performing communication tasks and assessments of students’ perceptions and practice of communication skills

(Kemper et al., 2008), which was also demonstrated in this study's improvement in self-reported confidence levels. It is however, expected that most students would experience increased confidence immediately after receiving new information about an unfamiliar topic.

This study provides an example of how a course that is traditionally delivered face-to-face can be designed to be delivered online, utilising less time and manpower resources while providing standardised teaching instruction in an evidence-based manner.

The qualitative findings in this study have not been replicated elsewhere, and provide an interesting perspective to student course perception. Students gained practical knowledge which is not readily available in clinical clerkships due to patient case variability and gained insight into an applicable framework for future clinical communication encounters. It is possible that the interactive nature of the course increased student presence and participation, resulting in improved learning outcomes in this aspect (Ammenwerth et al., 2019). Empathy, an important professional skill not easily taught but reflected as a learning point, was likely acquired through non-verbal communication demonstrated in the videos. Although it is not guaranteed that self-reported knowledge, skills and attitudes will translate into practice, future e-learning communication courses can be designed as pre-course material for traditional role-play facilitators to enhance learning experiences.

This study's use of patient feedback provides unique insight into applied learning. Interestingly, the control group fared better in the actions of checking with caregivers/patients about management plan agreement and providing caregivers/patients with a summary. As clerkships also provide opportunities to observe healthcare professionals conducting clinical communication, it is likely that the control group learnt these behaviours from real-life encounters. Caregivers/patients tended to feel more comfortable with the intervention group, which could be explained through unmeasurable, subtle behaviours that the group may have learnt from the course, such as empathy, attentiveness and appropriate body language. Although the use of standardised patients for comparing both groups might have shown different results, it is known that how learners behave in the classroom and with real patients when unobserved is often less reflective of true workplace behaviours (Malhotra et al., 2009).

This study is limited by small participant and patient feedback numbers. Culturally, many patients forget their healthcare providers and experiences. An ideal situation

would be direct clinical encounter observation, but due to the Hawthorne effect, a less truthful version of student behaviour may be observed instead.

V. CONCLUSION

Although online video-based communication courses can be used as a standardised teaching tool to improve student self-reported confidence levels and self-perceived knowledge, skills and attitudes, it remains to be proven if they can result in a change in student behaviour. It is likely that on-the-job experiences also contribute to their ability to demonstrate effective communication, which supports the supplementation, rather than the replacement of such practical experiences with online video-based course material.

Note on Contributor

CC, CL and TKC contributed to the conception and design of the work. CC, CL and TKC also analysed data and drafted the work. CC, CL and TKC approved the final published version and are agreeable to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. CC, CL and TKC collectively contributed equally to this paper.

Ethical Approval

This study was exempted from formal Centralized Institutional Review Board review by the SingHealth Centralized Institutional Review Board (CIRB Ref: 2017/2178).

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Declaration of Interest

All authors disclose that there are no potential conflicts of interest, including financial, consultant, institutional and other relationships that could have direct or potential influence or impart bias on the work.

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