Study 3 Protocol: What are the barriers that influence the adoption of online professional education in low to middle-income countries? A Qualitative Study

Stroke kills more people than cancer, and rates of death are increasing in the developing world (GBD 2019 Stroke Collaborators, 2021; Rahbar et al., 2022; The World Health Organization, 2022). According to the Global Burden of Stroke (GBD 2019 Stroke Collaborators, 2021), stroke deaths among adults in low- and middle-income countries surged by 37% between 1990 and 2013. Across the same period, rates declined by 20% in high-income countries.In contrast, current evidence-based guidelines might be less accessible and applicable in low to middle income countries. Slow knowledge translation may explain why 70-90% of stroke related death and disabilities are in low to middle-income countries (Rahbar et al., 2022; Rowe et al., 2021; Yaria et al., 2021).

Professional training is often used to update routine clinical practice and reduce the burden caused by poor quality care. Systematic reviews established that professional development programs improve clinical performance in low- and middle-income countries (Abdel-All et al., 2017; Pantoja et al., 2017; Rowe et al., 2018, 2021). The current problem is healthcare professional development programs have largely been face-to-face (Rowe et al., 2021). Face-to-face programs are time-consuming, have limited geographical reach, and are expensive. For example, Rowe and colleagues' (2021) systematic review synthesised eleven economic evaluation studies to analyse the cost of face-to-face professional development programs. The cost of professional development was higher in low income (median = $54/per professional/per day, N=5 arms) than middle-income countries (median = $27/per professional/day, N = 10 arms; Rowe et al., 2021). The immense cost confines low-income countries access to professional development programs which hinders healthcare professionals'

ability to improve routine care and patient outcomes (Rahbar et al., 2022; Rowe et al., 2021; Yaria et al., 2021).

Although low to middle-income countries differ in terms of availability of resources and access to services (Rahbar et al., 2022), internet access is not limited to high-income countries (Watts & Andrews, 2014). Online professional development may be a cost-effective method of closing the treatment gap (Rahbar et al., 2022; Yaria et al., 2021). However, it would be naive to translate an online learning program into a low-income country without first assessing whether the program fits the constraints upon practitioners in those countries.

The present study will assess those constraints using the Theoretical Domains Framework (TDF) and COM-B. The TDF is a comprehensive implementation framework to assess the cognitive, emotional, social, and environmental factors that influence behaviour change. The 14 TDF domains ('Knowledge', 'Skills', 'Social/Professional Role and Identity', 'Beliefs about Capabilities', 'Optimism', 'Beliefs about Consequences', 'Reinforcement', 'Intentions', 'Goals', 'Memory, Attention and Decision Processes', 'Environmental Context and Resources', 'Social Influences', 'Emotions', and 'Behavioural Regulation') provide an extensive framework to understand potential barriers of change. The TDF has been effective for expertise and specialists to identify change mechanisms (Craig et al., 2017; McInnes et al., 2020; Nicholson et al., 2014) and inform implementation interventions (Dyson & Cowdell, 2021; French et al., 2012; Michie, van Stralen, et al., 2011; Taylor et al., 2013). As the TDF is a synthesised framework–derived from 33 behaviour change theories–it requires an in-depth knowledge of behaviour and implementation science (C. J. Phillips et al., 2015). Thus, there are inconsistent results (Craig et al., 2017; C. J. Phillips et al., 2015) that healthcare professionals can use the framework to improve professional development. Utilising a simple theoretical behaviour framework may

improve widespread implementation of change interventions. The COM-B model is a simplified behaviour framework that directly links to TDF domains (Michie, van Stralen, et al., 2011; Vasiliou et al., 2021). The COM-B model claims that behaviour (B) changes when the individual feels they possess capable skills and knowledge (C), have the opportunities in the environment (O), and are motivated to implement the practice change (M) (Michie, 2011; Michie 2012). For example, the absence of an active learning environment (M) can influence health professionals' perception of their own capabilities to translate knowledge into practice (C), thus hindering the implementation of best-practice guidelines (Keyworth et al., 2019; Vasiliou et al., 2021). Therefore, recommendations that are mapped onto the COM-B framework to improve stakeholder usability (Keyworth et al., 2019; Michie, van Stralen, et al., 2011).

The Proposed Study

A one-size-fits all approach for healthcare professional development is unlikely to promote behaviour change when translating a program across very different contexts. This qualitative study will use the TDF to identify what barriers might prevent low to middle-income countries from adopting online professional learning. I will provide clear recommendations for those translating interventions into low-income countries using actionable insights via COM-B. The secondary aim of the study (use existing data from QASC Australia, QASC trial, QASC Europe trial and T_3 trial) is to TDF (Michie, van Stralen, et al., 2011; Vasiliou et al., 2021) and COM-B (Keyworth et al., 2019; Michie, van Stralen, et al., 2011) to explore what barriers might prevent low-, middle - and high-income countries from adopting best-practice guidelines.

Methods

Study Design

A qualitative study design using a semi-structured, theoretically informed interview to

develop an in-depth understanding of the barriers faced by healthcare professionals situated in low- to low-middle-income countries. We will conduct 10 to 15 studies or until saturation occurs (continuing new interviews until there is no additional information or findings; Braun and Clarke 2021; Vasileiou et al. 2018; Knott et al. 2022). These methods were prepared following the Standard for Reporting Qualitative Research (SRQR; O'Brien et al., 2014).

Participants

We will recruit healthcare professionals in low-, low-middle-income and high-income countries using a convenience sampling method for one-on-one interviews. Participants will be recruited in consultation with key QASC partner's including the Nursing Research Institute at Australian Catholic University and the Angles Initiative (a global non-for-profit that aims to improve access to stroke care). We aim for the interviews to take one hour per participant. We will conduct the interviews for this study virtually, using Zoom. We will explore whether it is feasible to conduct interviews in a low-income country. As a contingency, we will focus on lower-middle-income countries that have a high proportion of English speakers (e.g., India, Philippines) or lower-middle countries where we have colleagues who speak the local language (e.g., Indonesia). We will transcribe the interviews using Express Scribe Transcription Software, if required we will outsource a transcription service such as REV.com.

Existing qualitative data will be obtained from four studies (QASC Australia, QASC trial, QASC Europe trial and T_3 trial) that conducted a semi-structured interview. Those interviews assessed barriers and facilitators associated with implementing acute stroke care guidelines (FeSS) in upper and upper-middle-income countries.

Data Collection

Qualitative data will be collected through semi-structured interviews (Knott et al. 2022)

focusing on TDF (Michie, van Stralen, et al., 2011; Vasiliou et al., 2021) topics such as;

1. How do you usually stay up to date on knowledge in your field?

Today will be focused around online professional learning for people like you: [their role], doctors, and nurses, working in [country].

Knowledge

2. Can you tell me about your experience with (or understanding of) online professional learning?

Memory, attention and decision processes

3. Is professional learning something you usually complete?
4. Is there something you use to remember to complete professional learning?
5. What may help you remember to complete an online learning course?

Skills

6. How easy or difficult would you find using an online learning program?
7. Do you think there are particular skills you would need to learn before being able to complete an online learning program?

Motivation and Goals

8. In your opinion, what are the best things about online learning for professionals like you?
9. What best motivates you to complete professional learning?
10. What are the worst things about online learning for people in your position?

Reinforcement

11. What gets in the way of you engaging in professional learning?
12. What do you think may help you engage with online professional learning?

Emotions

13. To what extent do you feel your emotional state may affect your ability to complete an online learning?

Social influences

14. Is there anyone in your workplace that has used online learning for professional development before? How did the workplace support their participation in online learning?

Environmental context and resources

15. What systems in your workplace would support you completing online professional learning?
16. Many people fail to finish online professional learning. What makes it hard to finish online professional learning?

Translating FeSS

17. If we were to try to offer an online course like this [show OpenLearning] to a few nurses in your hospital, what do you think would be most likely to get in the way?
18. What do you think would help nurses to adopt the training program?

Beliefs about capabilities

19. How confident are you in using an online learning environment like this [show OpenLearning]?
    a. What would make you feel more confident?
    b. How confident are you in being able to maintain online learning?

Behavioural regulation

20. Are there things that you would need to receive before you can start online learning like this [show OpenLearning]?
21. Is there anything in particular that might make online learning more difficult for you?

Social/professional role and identity

22. To what extent would you recommend online learning like this [show OpenLearning] to be a part of your professional role?
23. Is it your job to recommend online learning to your workplace? (If not, what is the role of individuals that recommend professional learning)

Beliefs about consequences

24. How do you think online learning would benefit: you, patients, your practice
25. Do you think there would be any negative impacts of completing professional development in an online learning environment?
26. Would the benefits you discussed outweigh the negatives?

Optimism

27. How confident are you that online learning could change clinical performance and impact patient care with your community?

Closing

28. Is there anything else you would like to add?
29. Any other factors about online learning that you think might be important that we haven't covered?

Data Analysis

Thematic analysis to identify the pattern within the data. We will replicate Braun and Clarke (2006) thematic analyses which means we will code the obtained data into themes and

subthemes. Barriers will be dual coded, independently and in duplicate, to reduce bias and allow for triangulation. The interview transcripts will be coded according to the Theoretical Domains Framework Domains (Cane et al., 2012).

The COM-B (Keyworth et al., 2019; Michie, van Stralen, et al., 2011) model will be used to inform the deductive thematic analysis for the qualitative interview data. The deductive analysis will explore healthcare professional capabilities (ie, physical and psychological ability to use online professional development programs), motivations (i.e., automatic and reflective mechanisms that facilitate or inhibit the use of online education) and opportunities (ie., physical and social environments impact on the use of online education).

Ethics

This study will be registered with the Australian Catholic University Human Research Ethics Committee. Additional data will be obtained from the forthcoming larger studies Quality of Acute Stroke Care (QASC; Middleton et al., 2011), QASC Australia Project, and the T_3 Trail led by Professor Sandy Middleton.