Competency assessors' cognitive map of practice when assessing practice-based encounters

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Abstract

Introduction: There is growing evidence that inconsistencies exist in how competencies are conceptualised and assessed. **Aim**: This study aimed to determine the reliability of pharmacist assessors when observing practice-based encounters and to compare and contrast assessors' cognitive map of practice with the guiding competency framework. **Methods**: This was a qualitative study with verbal protocol analysis. A total of 25 assessors were recruited to score and verbalise their assessments for three videos depicting practice-based encounters. Verbalisations were coded according to the professional competency framework. **Results**: Protocols from 24 participants were included. Interrater reliability of scoring was excellent. Greater than 75% of assessment verbalisations were focused on 3 of the 27 competencies: communicate effectively, consults with the patient, and provide patient counselling. **Conclusion**: Findings support the notion that assessment completed within practice could be largely informed by a single component of the interaction or more specifically, what 'catches the eye' of the assessor.

Introduction

The evolution of competency-based education has resulted in positive impacts on health professional programmes worldwide by aiming to guide the development of the clinical competencies required to best meet societal health care needs (Frank *et al.*, 2010). Compared to traditional educational systems, competency-based education allows for flexibility and change during times of shifting societal priorities (Iobst *et al.*, 2010; Pharmacy Council of New Zealand, 2015). Competency-based education is underpinned by professional competency standards, and the publication of these standards allows governments, practitioners, educators, trainees, and the public to understand the role and expectations for health professionals in today's society (Cate *et al.*, 2015; Pharmacy Council of New Zealand, 2015). Competency standards refer to the various skills, attitudes, values, and beliefs gained by individuals throughout both their training and clinical experience, which allow for effective practice in the healthcare profession and guide curriculum development for educational programmes (Nash *et al.*, 2016). Although competency standards have improved

education and regulation of professions, there is growing evidence that there is inconsistency in how professionals conceptualise, value, and assess competency outcomes (Ginsburg *et al.*, 2010; Hanson, Resenberg & Lane, 2013; Eva, 2018).

A key area of growing importance and controversy is the assurance that trainees (pre-registration) and practising professionals (post-registration) are meeting minimal expected competency levels in training and practice (Holmboe *et al.*, 2010). Each country or jurisdiction has its way of assessing performance, but self, peer, and 360-approaches to assessment are becoming common. For these assessments to be accurate, professionals must have a clear perception of the competencies required by the regulating body and be able to disentangle performance against different competency standards when observing a limited number of practice-based encounters. Although tools exist to help aid this process, there is a growing body of literature that suggests individuals may not value or focus on the skills and behaviours as stated within competency frameworks (Ginsburg *et al.*, 2010; Hanson, Resenberg & Lane, 2013; Eva, 2018). It may also be possible that the cognitive load

of being required to focus on multiple competencies may overwhelm assessors and lead to a lower quality assessment (Tavares & Eva 2013).

The answer to solving the mismatch between the competency frameworks and assessment tools with an assessors' interpretation of competency during a practice-based encounter is not yet clear. Some may argue that assessor training could be an effective tool to align assessors' judgements according to those intended by the competency framework (Holmboe *et al.*, 2011). The literature repeatedly shows, however, that training does not consistently (or greatly) improve assessments and that despite training, assessors continue to conceptualise performance according to their values, beliefs, and/or expertise (Kogan *et al.*, 2015; Eva, 2018). It has therefore been argued that performance-based assessment should be designed to accommodate assessors' cognitive influences rather than attempting to change them through training or feedback (Eva, 2018). Before doing so, however, those designing assessments must have an understanding of what assessors are valuing or focusing on during performance assessment and how an assessors' cognitive map of practice aligns with the guiding competency framework and standards.

Given the increasing demand for competency-based assessment in practice and the known limitations of competency frameworks and tools, efforts must be made to explore how assessors conceptualise performance when assessing others. The aims of this study were, therefore, to determine the reliability of pharmacist assessors when observing practice-based encounters and to compare and contrast assessors' cognitive map of practice with the guiding competency framework.

Methods

This was a qualitative study using interviews with a verbal protocol content analysis. Ethics approval was provided by the Human Ethics Committee at the University of Otago (D19/061).

Participants

A total of 25 pharmacist assessors were conveniently sampled for this study. Participants must have been practising pharmacists in New Zealand for at least one year and have had a supervising experience of students or interns within a university or practice setting. Participants were recruited via email to known preceptors at the University of Otago. Investigators also forwarded emails to known contacts that matched the inclusion criteria. Interested individuals were contacted by the investigator team to provide written informed consent prior to the enrolment.

Interviews

One investigator (MR) was responsible for conducting all interviews. This investigator had previous research experience and was further trained to complete interviews by the senior investigator (KW). Interviews occurred in person or via videoconferencing software. All interviews were audio-recorded. After explaining study procedures, the investigator instructed the participant to watch a pre-selected short video depicting an encounter occurring in pharmacy practice. Video descriptions are provided in Table I.

Table I: Descriptions of practice-based encounter videos shown to pharmacist assessors

Video	Description
1	The interaction is a counselling session on statin therapy. The pharmacist briefly asks about the patient's history and makes many assumptions. Counselling on the product is brief and the pharmacist neglects to mention many pertinent adverse effects. The communication is pleasant and the pharmacist appears to try to relate personally to the patient.
2	The pharmacist provides counselling on a refill for montelukast. The information provided is comprehensive. The interaction takes place over six minutes. The pharmacist is professional, responds to the patient's questions and provides comprehensive information.
3	The pharmacist provides a new medication counselling session on statin therapy. The pharmacist comprehensively consults with the patient about the past medication history, past medical history, and lifestyle factors. The pharmacist asks a number of questions and maintains a polite and friendly attitude. The pharmacist provides extensive counselling on the benefits and risks of medication therapy.
4	A patient presents to a pharmacist seeking supplementation with L-arginine for weight lifting. The pharmacist must consult with the patient to establish a medical and medication history. The pharmacist provides an overview of the evidence of L-arginine and a list of side effects. The pharmacist leaves it to the patient to decide if the product is right for them.
5	The pharmacist was presented with a prescription for oxycodone from a patient's son. The pharmacist questions the utility of the medication for the patient's condition. The pharmacist looks puzzled but provides the medication to the son and states that it likely isn't the best option for the patient. The pharmacist then calls the patient after the son leaves and determines that he is no longer taking this medication. This presents an ethical/legal issue that the pharmacist leaves mostly unresolved.
6	A patient presents to a pharmacist seeking a recommendation for an over-the-counter product for constipation. The pharmacist comprehensively assesses the patient (medical history, medication history, lifestyle), provides a product and then provides both medication and lifestyle counselling.

Videos were purposively selected to represent different performance levels of the pharmacist and to include a diverse range of pharmacy practice encounters (e.g. counselling, patient assessment, ethical dilemma). Each participant was scheduled to watch three videos, and these were randomised across participants to ensure an equal viewing of each video occurred. After viewing the first video, the investigator asked the participant to rate the performance of the pharmacist according to the following scale (Ginsburg, Vleuten & Eva, 2017): A=outstanding, exemplary, excellent; B=solid, safe, may need some fine-tuning; C=borderline, bare minimum, remediable; D=unsafe, unacceptable, multiple deficits. The interviewer then prompted the participant to verbalise their overall assessment and justify why they provided a specific score. The only prompt provided during the interview was *'was there anything else you noticed that influenced your assessment of that pharmacist?'*. The same process repeated until each participant rated and described their assessments for the three pre-selected videos.

Inter-rater reliability

According to the video pre-selections, each video would be rated 12 times. Inter-rater reliability was determined by inputting rating data into SPSS version 25 and conducting a reliability analysis using a two-way random (absolute agreement) intraclass correlation coefficient (ICC). Both single and average measures values were reported. Inter-rater reliability was determined to be excellent if the ICC was more than 0.80, moderate if it was between 0.50 and 0.80, and low if it was less than 0.50.

Verbal protocol content analysis

Immediately following each interview, transcripts of recordings were produced verbatim. Transcripts were read multiple times by two investigators (JD, KW) to familiarise themselves with the data before coding. All transcripts were then deductively coded once by one investigator (JD) according to the competence standards for the pharmacy profession published by the Pharmacy Council in New Zealand (Pharmacy Council of New Zealand, 2015). During this process, coding was frequently discussed with the senior investigator (KW) in order to help interpret statements and place them within the coding framework. Once all data were coded, the senior investigator (KW) reviewed all codes. Any code that was not agreed upon during this exercise was discussed and resolved between coders. Finally, one investigator (JD) calculated the proportion of statements for each interview that were coded for a particular competency. All interview data were then combined to provide a representation of the entire participant sample.

Results

A total of 25 participants were recruited, but one was excluded due to not being able to conduct the interviews. The total number of participants completing the protocol was 24. All participants were currently practising in the community setting, and all had at least one year of practice experience. Each interview lasted approximately 20 to 30 minutes.

Inter-rater reliability

Results from the inter-rater reliability analysis show excellent reliability with multiple assessors (ICC = 0.905, average measures) but low reliability with only one assessor (ICC = 0.443, single measures). Median ratings with ranges are provided for each video in Table II.

Table II: Assessors' median ratings for each video assessed (1 = worst, 4 = best)

Video	Median (range)
1	1.5 (1 – 3)
2	4 (2 – 4)
3	3.5 (2 – 4)
4	3 (3 – 4)
5	3 (3 – 4)
6	2 (1 – 4)

Assessors' framework of competency assessment

A total of 386 statements across the 24 included participants were coded. Results from the verbal protocol analysis are provided in Table III. A total of 11 of 27 (41%) competencies were mentioned at least once. There was no competency mentioned by all participants. The most common competency addressed by participants was O3.5: *"Provide patient counselling"* (n=23 mentioned, 34% of total statements coded), followed by M2.1: *"Communicate effectively"* (n=22 mentioned, 25% of total statements coded), and O1.1: *"Consult with the patient"* (n=20 mentioned, 16% of total statements coded). Competencies within the domains of O.2: *"Public healthcare"* and O.4: *"Leadership and organisational management"* were not addressed by any participant.

Table III: The frequency of each competency assessed across all participants and videos

Domain	Competency	Number of assessors mentioning at least once	Total proportion of coded data	Quote
M1: Professionalism	M1.1: Demonstrate personal and professional integrity	2	0.54%	'She called the patient to clarify things, didn't mean to alarm him but did it in a professional way'
	M1.2: Comply with ethical and legal requirements	9	5.6%	'And then she called the father, I don't think that's ethical'
	M1.3: Contribute to quality improvement	0	0%	--
	M 1.4: Practice pharmacy within New Zealand's culturally diverse environment	0	0%	--
	M1.5: Understand Hauora Maori	0	0%	--
	M1.6: Make effective decisions	1	0.47%	'If he stopped taking it, then she shouldn't be giving it out'
M2: Communication and collaboration	M2.1: Communicate effectively	22	25.0%	'She has to explain slowly for the patient to understand'
	M2.2: Establish and maintain collaborative working relationships	4	0.91%	'I would have called the doctor to see what the doctor would say for this situation'
	M2.3: Resolve conflict	0	0%	--
	M2.4: Supervise and support colleagues	0	0%	--
	M2.5: Facilitate education of colleagues	0	0%	--
O1: Health and medicine management	O1.1: Consult with the patient	20	16.0%	'I liked how she did her safe flags checking, if there was any allergy'
	O1.2: Provide healthcare	9	2.9%	'I think he can probably offer some cream for some relief as well'
	O1.3: Review and manage patient's medicine therapy	5	2.2%	'He did a good look through what medication the patient is on'
	O1.4: Deliver quality and safe services	18	10.3%	'I think it was good, like the service that he provided was really, really good, like how he had a look at his ankle, how he did his repeats.'
	O1.5: Access, evaluate and provide medicines information	6	1.7%	'She covered a lot of information that is relevant to the patient'
O2: Public healthcare	O2.1: Contribute to community health	0	0%	--
	O2.2: Health promotion	0	0%	--
O3: Supply and administration of medicines	O3.1: Assess prescriptions	0	0%	--
	O3.2: Dispense medicines	0	0%	--
	O3.3: Compound pharmaceutical products	0	0%	--
	O3.4: Administer medicines	0	0%	--
	O3.5: Provide patient counselling	23	34.4%	'I liked how thorough she is, like all the information includes all the side effects, how to use it.'
O4: Leadership and organisational management	O4.1: Provide leadership	0	0%	--
	O4.2: Manage quality improvement and safety	0	0%	--
	O4.3: Manage and develop personnel	0	0%	--
	O4.4: Provide safe working environment	0	0%	--

Discussion

The purpose of this study was to investigate what pharmacist assessors focused on and valued when observing practice-based encounters and how this compared to the guiding professional competency framework. Findings showed pharmacists were relatively consistent in how they interpreted performance but primarily focused on few competencies to inform their overall assessment. This may suggest that pharmacists' assessments are linked to only one or two components of a practice-based interaction, specifically what may *'catch their eye'* could inform their overall performance rating. Alternatively, assessors may approach the interaction through a *'hierarchy of needs'*. For example, if the pharmacist appeared reasonably professional, uses professional language, dressed appropriately, etc., the assessor may deem professionalism to be fine and move on to focus on the next element in their hierarchy (e.g. communication). Findings have implications for both practice and research, specifically for future planning of competency-based assessment within a continuing professional development (CPD) model.

The key finding from this study was that assessors' cognitive map of practice was consistent but narrow in breadth. Of 27 available competencies, >75% of assessment statements were coded for three specific competencies (communicate effectively, consult with the patient, provide patient counselling). Although certain competencies (up to 13 of 27) would not be expected to be stated based on the videos selected (e.g. dispensing, manage and develop personnel), this narrow focus shows that pharmacists in New Zealand primarily value the information pharmacists obtain from patients, the information pharmacists provide to patients and the ways in which they accomplish these tasks. The lack of focus on professionalism deserves further exploration. Although it is possible that pharmacists conceptualised this competency as part of communication, the specific disregard for it suggests that pharmacists may need to be reoriented to this competency, including how to identify and interpret another's professionalism in practice. This finding may warrant a review of how the professionalism competency is stated within the competency framework and/or how it is communicated to pharmacists through training and CPD requirements.

The findings of this study align with previous studies within the realm of assessor cognition (Ginsburg *et al.*, 2010; Hanson, Resenberg & Lane, 2013; Eva, 2018). Despite widespread publication and socialisation of competency frameworks for informing practice standards and performance indicators, it appears that assessors value or focus on a narrow set of competencies when asked to judge others'

performance. There may be many explanations for this finding, including the cognitive load required to disentangle performance into multiple competencies (Tavares & Eva, 2013), idiosyncrasies in how assessors conceptualise performance (Gingerich *et al.*, 2014), an assessor's own expertise/experience (Oudkerk *et al.*, 2018; Berendonk, Stalmeijer & Schuwirth, 2013), or others. This study adds to the understanding of this phenomenon by pinpointing specific competencies assessors appear to value and by identifying broad competencies that assessors appear to neglect when observing performance. This study also shows that assessors appear to focus on or value the same set of competencies, yet their interpretations and judgements of performance may differ.

These findings have implications for practice and future research. For practice, regulatory authorities should work to develop competency assessments that align with assessors' cognitive abilities (Eva, 2018). For example, it might be determined that self or peer assessment should only be focused on competencies relating to patient care and/or communication. Assessment of other competencies, such as professionalism, may need to be collected via a different mechanism, such as direct observation or patient feedback. Although training is known to have a limited role in shifting assessors' focus, efforts should be made to orient and familiarise assessors with competencies being assessed. Future research should explore the findings related to professionalism further and attempt to determine how this competency fits into assessors' cognitive maps of practice. Research should also be conducted to optimise assessment processes and tools and work towards accounting for differences in how assessors conceptualise good performance and the role of competency frameworks in helping (or hindering) accurate interpretations of practice.

This study should be interpreted in light of some limitations. Firstly, the videos that were assessed by subjects were not always relatable to all competencies presented within the competency framework. This means that some competencies may not have been mentioned as a result of them not being applicable to that situation rather than them not being considered by the individual. However, it would be expected that competencies such as professionalism would be applicable to all encounters. Secondly, the assessors are all practising pharmacists from New Zealand, and therefore this may limit the transferability of the results. Similar studies should be done in other settings to determine if results are consistent or if findings are setting specific. Thirdly, this study only captured those comments verbalised by assessors. Although it is possible assessors did consider unaccounted for competencies in their assessments, it was assumed

that those they valued/focused on were the ones that they verbalised.

Conclusion

This study found pharmacist assessors focus on a narrow set of competencies when assessing practice-based encounters. These findings support the notion that assessment completed within practice could be largely informed by a single component of the interaction or, more specifically, what 'catches the eye' of the assessor. Practice-based assessments should therefore be reviewed to ensure all competencies are being adequately assessed according to current procedures and tools. Future research should aim to investigate how to optimise assessments given the known limitations in how assessors conceptualise performance across only a limited number of competencies.

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