

Evaluation of a New Screening Tool: Lucidity in Mental Capacity (LIMCap) Assessment Tool

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Abstract

Aim: The Lucidity In Mental Capacity (LIMCap) Assessment Tool was designed to provide untrained doctors with a flexible tool to assess decision making capacity (DMC) in different scenarios and to screen for patients who require further in-depth specialist capacity assessments.

Methods: This prospective validation study compares the assessment of DMC between untrained doctors using this tool on various inpatient decisions with trained consultants' independent assessment and assesses the tool's user-friendliness. 55 tertiary hospital in-patients were selected by their respective consultants and assessed on a single decision and re-interviewed with the tool by registrars. Our exclusion criteria included on-going delirium, depression or psychosis. Their average age was 85 years with 32.73% male.

Results: Patients were assessed on decisions regarding discharge planning, resuscitation, financial planning, electing enduring power of attorney(s), medical choices or driving. The LIM Cap was 0.53 sensitive and 0.7 specific, the Cohen's kappa was 0.3 and the tool took 10.5 minutes (mean) to administer. The feedback demonstrated satisfaction with the instructions (85.73%), method of scoring (85.73%), deciding on DMC (71.43%) and improvement in confidence in assessing DMC (92.86%). However, some registrars (14.29%) struggled with constructing the questions to suit their assessment and assessing for depression and psychosis.

Conclusions: The LIM Cap is a versatile tool that was quick and easy to use by untrained doctors to assess DMC in different scenarios. There was fair correlation between the results of the consultants and registrars, and the test detects patients with capacity with good specificity but appears less sensitive in diagnosing patients without capacity.

Keywords: Competence; Competency; Mental competence

Introduction

In the setting of patient care, capacity is defined as a patient's ability to understand information relevant to a decision and to appreciate the potential consequences of a decision. In many instances, clinicians are able to identify which patients clearly have or do not have capacity. However in some cases, a clinical capacity assessment is required [1]. An assessment of capacity is the objective evaluation of a person's ability to make a choice regarding personal, financial or health matters.

During this evaluation, the clinician must disclose information effectively before assessing the patient's four specific abilities: (i) the ability to understand information about the decision they have to make,

- (ii) to appreciate how the information applies to their circumstances,
- (iii) to reason with that information and
- (iv) to make the decision and express it [1-3].

Government legislations in the United Kingdom [4] and Australia [5-7] define the assessment of capacity following similar principles. The person must be assumed to have capacity unless all practicable steps to help them to do so have been taken without success. Substitute decision making should be a last resort and only carried out in an action that is regarded for the purpose but in a way that is least restrictive of the person's rights and freedom of action. Decision making capacity (DMC) is specific to the decision assessed and a person's ability to make decisions may fluctuate. Thus, they should be assessed at the time a significant decision is required to ascertain their ability to make decision(s). A common trigger for capacity assessments is when a patient refuses a recommended treatment [8], but it should be noted that the refusal of treatment should not be considered evidence of incapacity. In fact, most refusals to treatment are secondary to factors other than incapacity [9]. Several studies of unstructured assessments by clinicians have found that the reliability of judgments of capacity

have been poor, inconsistent and easily biased [10-12], however, these inconsistencies have been found to improve when clinicians use a systematic set of questions [13].

Screening tools

The screening tools that are currently available target decision making in medical choices only, such as the Aid to Capacity Evaluation (ACE), which takes approximately 15 minutes to administer [13], the MacArthur Competence Assessment Tool-Treatment (Mac CAT-T) that takes approximately 60 to 90 minutes [14], the Capacity to Consent to Treatment Instrument (CCTI) which takes approximately 30 to 60 minutes [15,16] and the Hopkins Competency Assessment Test (HCAT) that takes 10 minutes [17]. Other capacity assessment tools developed are aimed at assessing consent of research projects participants [18-24].

At present, there is no DMC tool that is flexible enough to be used for multiple areas of decision making. We have designed the Lucidity in Mental Capacity (LIM Cap) Assessment Tool with these objectives in mind:

- Provide an assessment tool that is reliable and versatile that empowers untrained doctors to assess a patient's ability to make decisions in any part of medical care.

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- Screen patients to reveal if they need further education of the specific area of capacity in question and exploration of their understanding of this area.
- Screen for patients who may require further neuropsychology, geriatric or psychiatric assessment as indicated on the test.

Methods

A prospective validation study was carried out to compare the clinical judgment on DMC between non-consultant medical staff interviewers using the LIM Cap Assessment Tool on a variety of decisions that patients encounter during their admission against a consultant geriatrician's or a consultant rehabilitation physician's independent assessment. We used these consultants' clinical judgment of their patient on the same area of capacity as the comparative standard of capacity assessment. The two main priorities of this test were to compare the validity of the judgment made regarding the patient's DMC by the untrained doctor using the LIMCap Assessment Tool against a consultant's evaluation of a patient's capacity and to assess the ease of use of this tool. To appraise this, we recruited basic trainee medical registrars (who did not have formal training to assess capacity) to evaluate a patient's capacity based on an interview regarding a single decision using the LIM Cap Assessment Tool. Inpatients at The Prince Charles Hospital's (Queensland, Australia) Orthogeriatric Unit, Geriatric Evaluation and Management Unit (GEM) and Rehabilitation and Stroke Unit (RAS) were selected by their respective consultants targeting patients over 75 years old to increase the likelihood of selecting patients with dementia. Patients were excluded if they were assessed to have delirium, altered levels of consciousness, depression or psychosis. The patients recruited were patients who had previously had discussions with their respective consultants regarding a single decision. The LIM Cap questionnaire (Appendix A) was then carried out by a registrar not known to the patient to discuss the same single decision.

Our flexible assessment tool evaluated the following areas:

1. Do they understand why their capacity is being tested?
2. Do they understand all the elements of the decision?
3. Can they balance the competing interests?
4. Do they understand the consequences of their decision?
5. Can coercion or external influence be excluded?
6. Can depression and psychosis be excluded?

The assessor (basic trainee registrar) was expected to phrase their questions with the help of sample questions to satisfy the above areas of assessment and conclude at the end of the interview if they felt the patient had capacity (when answers are all 'Yes's) or did not have capacity (when answers are all or mostly 'No's) or if they needed further review (when answers are 'Uncertain' or a mixture of 'Yes' and 'No's).

The results of the assessors were compared to the clinical judgment of the consultants regarding the patient on that specific decision making topic. Further information attained from the patients (blinded to the registrars) were the patients standardised mini mental state examination (sMMSE) scores from tests carried out less than six months prior to the study, the patients' level of education and their ethnic origin. Each registrar carried out 1-3 interviews with patients and gave feedback via a feedback form to assess the ease of use of the questionnaire. Further,

the level of medical experience of these interviewers was ascertained.

Ethics

We received approval for our study protocol from The Human Research Ethics Committee of The Prince Charles Hospital, Queensland and proxy consent from family members of participants whose consultants decided did not have capacity on their testing but were willing to participate.

Results

Patient selection and characteristics

We approached 94 patients who were selected by the consultants for our study (Table 1). These patients were assessed by the consultants prior to their selection for their DMC on a selected topic that was relevant for their clinical inpatient care. 39 were excluded for the following reasons: Not meeting eligibility criteria [9], patient or family refusal [19], deteriorating medical status, discharge or death prior to testing being able to be carried out [11]. The average age of the patients recruited was 85 years of age and 32.73% were male (Table 2 and 3). 80% of patients included in the study were Australian while 20% had European origins

Patients Selected	N (94)
Patients Excluded (Did not meet criteria), (n)	9
Patients/Family Declined, (n)	19
RIP/Discharged/Medically unwell, (n)	11
Patients Included in Study, (n)	55

Table 1: Patient selection.

Characteristic	Value, n (%)
Age in years, median (range)	85.09 (76-96)
Male gender, %	18 (32.73)
Ethnicity, %	
Australian	44 (80)
European	11 (20)
Asian	0
Highest level of education, %	
Primary school (≤12 years old)	2 (3.64)
Secondary school (12-18 years old)	51 (92.72)
College/University (>18 years old)	2 (3.64)
sMMSE score (out of 30), median (range)	22.49 (8-30)
Decision discussed, %	
Discharge planning	40 (72.73)
Resuscitation	7 (12.73)
Financial planning	3 (5.45)
EPOA	2 (3.64)
Medical choice	2 (3.64)
Driving	1 (1.82)

Table 2: Characteristics of patients included in study.

Consultants results, (n)	Registrars Result, n (%)		
	No, has no capacity	Yes, has capacity	Uncertain
No, has no capacity, (15)	8 (53.33)	6 (40)	1 (6.67)
Yes, has capacity, (40)	3 (7.5)	28 (70)	9 (22.5)

Table 3: Results of consultants against results of registrars using LIMCap assessment tool.

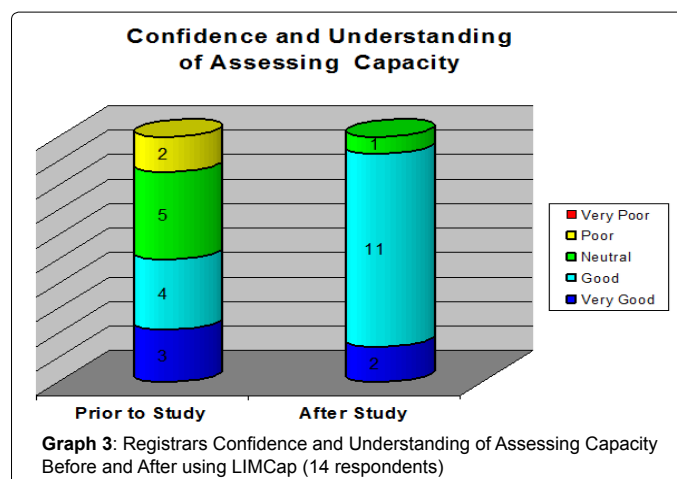
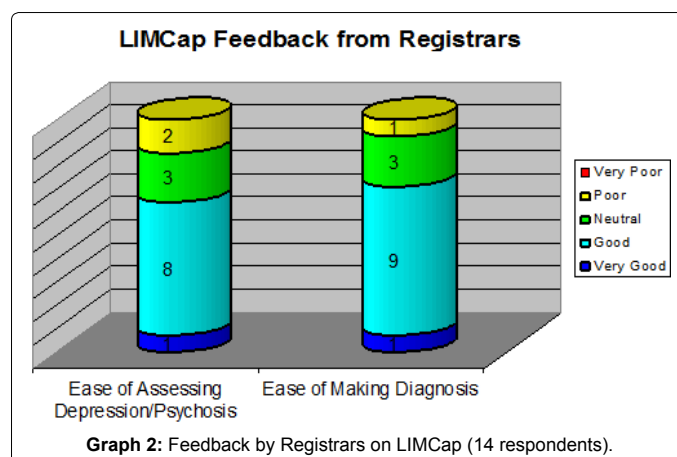
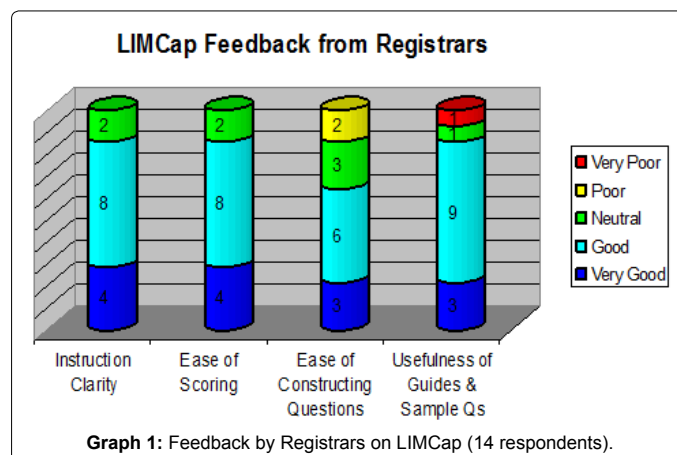
which is similar to the local demographics in the northern suburbs of Brisbane [25]. A majority of these patients received education until secondary schooling (92.72%) which is in keeping with educational trends in Australia prior to the 1930s [26]. 54 out of the 55 participants were screened with the sMMSE as one patient was discharged prior to being screened. However, this patient did have a score for the Rowland Universal Dementia Assessment Scale (RUDAS) which has previously been found to be well correlated to the sMMSE in terms of scores [27]. The mean sMMSE score of the patients was 22.49, but ranged from 8 to 30. The areas of discussion were categorised to discharge planning including discharge destinations (72.73%), resuscitation choices (12.73%), financial planning (5.45%), electing an enduring power of attorney (3.64%), making a medical decision (3.64%) and decision on returning to driving (1.82%).

Analysis

Using the Consultants' clinical judgment as a comparison on assessing their own patient's capacity (Table 3), the registrars were only able to identify 53.33% of patient's without capacity correctly when the LIM Cap Assessment Tool was used, while they diagnosed 40% of patients with no capacity wrongly and were uncertain of 6.67% of them. In contrast, the registrars were able to detect 70% of patients with capacity accurately however misdiagnosed 7.5% and were uncertain of the decision making ability of 22.5% with the assessment tool. The LIM Cap Assessment Tool was found to have a sensitivity of 0.53 and to be 0.7 specific. If the test was positive, the chance that they had no capacity was 0.72 (PPV), while if they were diagnosed as having capacity, there was a 0.82 chance that this was true (NPV). To estimate the reliability of the LIM Cap Assessment Tool against the results by the consultants, we calculated the Cohen's kappa value, κ to be 0.3 which indicates that the measure between these two raters is a fair correlation.

The assessors

The average post-graduate years' experience that the registrars had was 6.8 years but varied between three and seventeen years and the duration of their experience as a registrar was a mean of 2.7 years and ranged from one to eight years. The basic trainee registrars that were involved in this study took a mean time of 10 minutes 29 seconds to carry out the LIM Cap Assessment Tool and assess patients' capacity on various topics of decision making. Each assessor interviewed an average of 2 patients. 14 out of the 26 registrars responded to the feedback form. This is due to registrar rotations to different facilities and their availability. A majority of the assessors found that the instructions for the LIM Cap Assessment Tool and the method of scoring easy or very easy (85.73%) (Graph 1). 64.29% of the registrars found it easy or very easy to construct questions to suit their assessment topic while 14.29% had difficulty phrasing their questions. Although most of the registrars found that the question guides and samples helpful, there was one registrar that did not agree with this (7.14%). Regarding assessing the patients for depression and psychotic symptoms, there were 64.28% who found this easy or very easy but two registrars found this challenging (Graph 2). Most of the assessors found making the diagnosis straightforward (71.43%) in contrast to one registrar who found it difficult. There was a wide distribution of understanding and experience among the registrars prior to participating in this study and a majority felt they had average understanding of capacity assessments (Graph 3). However, this was improved after the study where all but one registrar felt that they either had good or very good confidence (92.86%) in assessing a patient's capacity post-participation.



Discussion

It was found that this tool has only a fair correlation with the consultant results, however further testing with a larger sample size will be required to confirm these findings. While there were only 53.33% of patients that did not have capacity that were accurately matched to the consultants' diagnosis, there was a high correct detection rate of 70% of patients with capacity. It is difficult to assess if this is because junior doctors in general will be reluctant to classify a patient as having no capacity due to lack of their own experience and conviction rather than a lack of success in the questionnaire itself.

Strengths

Regarding the design of this study, we successfully trialed the LIM Cap Assessment Tool on a variety of decision topics by basic trainee registrars who did not have formal training on assessing DMC. Throughout the testing, the assessors were blinded from the consultants' results of the patients' capacity as well as the patients' sMMSE scores to avoid self doubt of their own ability to diagnose the patients and to avoid pre-test bias. Most of the assessors managed to use the LIM Cap Assessment Tool with its flexible sample questions to aid their interviews with the patients without difficulty. This is despite only reading the instructions and not being given formal education on how to use the tool or how to assess a patients' capacity. The tool took a mean of 10 minutes 29 seconds for assessors to interview the patients and this short duration of testing would be ideal for use in acute medical care.

Weaknesses

The quality of the consultant assessments could have been improved by better calibration of the consultants such as applying two consultants to assess the same patients [13] or to have their assessments monitored or witnessed by the researchers as previously done in other studies. Furthermore, there was often a lapse of several days between the interviews of the consultants and that of the registrars using the LIM Cap Assessment Tool. This could make the test less reliable as it is noted that the ability of a person to have capacity fluctuates [1] especially in the acute medical setting. It is emphasised in the literature that capacity assessments are only as good as their accompanying disclosure during the capacity assessments [1]. As the patients were known to the consultants, they had a much better understanding of the patient's situational factors that would affect their decision. Conversely, the registrars were only given a brief summary of the patient's circumstances and medical history based on chart reviews by the researcher prior to interviewing the patient. When the assessors were interviewed for feedback, several suggestions were brought to the forefront such as to include in the instructions that the assessor may prompt the patient and give examples during the interview to aid their assessment as well as suggestions to change some of the wordings in the questions to describe what is being assessed more accurately. It was of the general opinion that repeated use of questionnaire allowed each assessor to gain better understanding of the questions, how to assess capacity and develop a better flow of interviewing patients to this respect.

Conclusion

While this tool has advantages in its flexibility assessing different decision making scenarios, speed of interviewing the patients and providing structure to inexperienced doctors to assess patients for DMC, further research on this tool is still required. Reanalysis with a larger sample size, specific amendments of the instructions and questions, calibration of the consultants as well as a closer interview interval between consultants and assessors is required to improve its sensitivity and specificity to make it a more reliable tool. It needs to be highlighted that if there are concerns regarding a person's capacity based primarily on the clinician's interpretation of their assessment, the clinician should seek collateral input either from the patient's family or relevant representatives such as from a cultural or religious group that might influence their decision [1]. It is recommended that when the tool is used by a non-consultant doctor, the results of their assessments should be discussed with their consultants prior to making judgment on a patient's capacity. While there is an abundance of capacity assessment tools available to healthcare professionals, it has to be kept in mind that a comprehensive evaluation requires time and is often impeded in

the acute care setting due to the intrusion of acute illness, delirium and complex underlying circumstances that affect a person's DMC. While capacity assessment tools aid in providing structure to the evaluation and reasoning of the assessor, it does not replace experienced clinical judgment [28].

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