

Use of Objective Structured Clinical Examination and Structured Clinical Instruction Module for Interprofessional Education on Cancer: A Focused Review

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Abstract

American association for cancer education had emphasized the role of structured educational programs for medical students and residents in primary care specialties in order to improve palliative oncology education. Dissatisfaction with the conventional methods of clinical assessment on the part of teachers and students led assessors to search for appropriate alternatives and in 1975, Harden and his colleagues introduced the objective structured clinical examination (OSCE). OSCE was introduced as a standardized tool for objectively assessing clinical competencies - including history-taking, physical examination, communication skills, data interpretation etc. It consists of a circuit of stations connected in series, with each station devoted to assessment of a particular competency using pre-determined guidelines or checklists. The Structured Clinical Instruction Module (SCIM) modifies the Objective Structured Clinical Examination (OSCE) for teaching purposes. The objective of this review is to provide a focused update on the status and applicability of SCIM and OSCE in cancer for educational use in palliative care. From the 12 studies which were on OSCE and 6 studies which were on SCIM, it appears that the two competency-based evaluation methodologies used in cancer education namely the OSCE and SCIM, are well validated and reliably used across settings and samples of students, practitioners and patients. Future studies in Indian palliative care settings are warranted prior to extrapolation of existing evidence.

Keywords: Cancer education; Structured instruction; Clinical skills; Objective evaluation; Teaching-learning.

Introduction

Education is the foundation for knowledge both in theoretical and clinical skills for healthcare professionals working on cancer patients in palliative care.[1] American association for cancer education[2] had emphasized the role of structured educational programs for medical students and residents in primary care specialties in order to improve palliative oncology education. The AACE had developed the first structured teaching module for quality of life assessment in terminally ill

patients which consisted of 1-hour long small-group session with four learning objectives.[3]

Kelly *et al*[4] qualitatively interviewed a range of professionals (nurses, allied health professionals (AHPs), health care support workers and educationalists) and also analyzed the curriculum documents of local universities, and they found that most cancer and palliative care education was directed towards nurses employed in specialist oncology settings. Some groups appeared to be poorly served (including community nurses, senior nurses and AHPs). No evidence could be found of inter-professional cancer or palliative care education within the university sector. Curriculum content did not appear to reflect the ethnic diversity or socio-economic deprivation that characterized the local health economy.

The main aim of medical education is to foster the development of clinical competence in students at all levels. Differences in

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experiences, methods of instruction and ambiguous forms of assessment are obstacles to attaining this goal.[5] Dissatisfaction with the conventional methods of clinical assessment on the part of teachers and students led assessors to search for appropriate alternatives and in 1975, Harden and his colleagues[6] introduced the objective structured clinical examination (OSCE).

OSCE was introduced as a standardized tool for objectively assessing clinical competencies - including history-taking, physical examination, communication skills, data interpretation etc.[7] It consists of a circuit of stations connected in series, with each station devoted to assessment of a particular competency using pre-determined guidelines or checklists.[8,9]

The OSCE is a versatile multipurpose evaluative tool that can be utilized to assess health care professionals in a clinical setting. It assesses competency, based on objective testing through direct observation.[10] It is precise, objective, and reproducible allowing uniform testing of students for a wide range of clinical skills. Unlike the traditional clinical exam, the OSCE could evaluate areas most critical to performance of health care professionals such as communication skills and ability to handle unpredictable patient behavior.[11]

The OSCE has become a gold standard for performance-based assessment in many health professions.[10] Originally developed for assessment in medical schools, the OSCE has been widely adopted for teaching, assessment, and certification purposes in most health professions.[12]

Brannick *et al*[13] in their recent systematic review found that OSCE appeared to be more reliable and valid than other similar methods to assess clinical skills both as general traits and as situation-specific behaviors. The six core competencies most commonly evaluated in a typical OSCE are Interpersonal communication skills, patient care, professionalism, practice-based learning, medical knowledge and systems-based practice.[14]

The Structured Clinical Instruction Module (SCIM) modifies the Objective Structured Clinical Examination (OSCE) for teaching purposes. The objective of this review is to provide a focused update on the status and applicability of SCIM and OSCE in cancer for educational use in palliative care.

Search methods

Search terms of (structured) AND (clinical OR practical) IN title were used to identify studies with search limits activated for cancer, published and abstracted in MEDLINE. The identified studies were scrutinized for their relevance and appropriateness and included studies were compared for their professional specialty, type of cancer, sample characteristics, OSCE method, core competencies evaluated and main findings.

Main findings of the review

A total of 30 articles were obtained and upon further scrutiny, a final list of 18 studies was included for consideration. 12 studies were on OSCE (Table 1) and 6 studies were on SCIM (Table 2).

Discussion

The present review highlighted the applicability and feasibility of OSCE and SCIM for different cancer types, in different professional categories under different methodologies. Overall, the educational methods utilizing SCIM and OSCE were effective and were well received by participants and patients in a wide variety of academic and clinical settings. Very few studies examined the measurement properties of such educational modules and though the studies findings in breast cancer are encouraging, there is still scope for further research on other types of cancer in palliative care educational settings. This review included studies from MEDLINE since it was the most authentic and widely searched database available for free access throughout the globe. Also MEDLINE was

Table 1: Comparison of studies on Objective structured clinical instruction (OSCE) in cancer education

Author and year	Healthcare specialty	Type of cancer	Sample characteristics	OSCE method	Core competencies tested	Main findings about OSCE
Davis and Lee[15]	Plastic surgery	Melanoma	6 post-graduate residents	30-minute videotaped encounter with simulated patient	Interpersonal communication skills, patient care, professionalism, practice-based learning, medical knowledge, systems-based practice.	Realistic and educational, provided comprehensive and meaningful feedback and identified areas of strengths and weaknesses both of the sample and of the program.
Maker and Bonne[16]	General surgery	Breast cancer	24 senior-level residents	Clinical encounter with patients seen for breast care	All 6 core competencies, number of cases seen, number of responses on breast-related American Board of Surgery in Training Examination module.	Comprehensive, complete care OSCE represents a valuable learning tool for residents to increase their competence and improve their outcomes in breast care.
Shehmar <i>et al</i> [17]	Colposcopy and Cytopathology	Cervical cancer	Expert Obstetricians and Gynecologists	Laboratory evaluation with patient encounter stations	Measurement properties.	OSCE had face, content and concurrent validity, a good reliability.
Houts <i>et al</i> [18]	Community Oncology	Cancer (all types)	21 adult distressed cancer patients and 21 matched non-distressed patients.	Structured Clinical Interview for DSM-IV Axis I Disorders	Patient Care Monitor (PCM1.0) Acute Distress and Despair normalized T scores.	The scores are reasonable screening indicators of clinical depression in cancer patients.
Auret and Starmer[19]	Entry-level medical course at The University of Western Australia	Not mentioned	Undergraduate medical students	2-hour Structured Clinical Instruction Module (SCIM) workshop.	Pre-workshop and post-workshop questionnaires on self-rated competence.	SCIMs appear to be an effective instructional format in the small group setting that covered a broad range of topics in a cost-effective manner and with minimal tutors and resources.

Author and year	Healthcare specialty	Type of cancer	Sample characteristics	OSCE method	Core competencies tested	Main findings about OSCE
Brewster et al[20]	General surgery	Vena cava tumor model	7 residents	Videotaped standardized patient encounters during tumor dissection in a simulated operating room	Preoperative and postoperative assessments were compared with standardized patient (SP) assessments, and correlated with faculty assessments and resident self-assessments.	Faculty and SP assessments can provide reliable data useful for formative feedback.
Geiger et al[21]	Co-operative care	Cancer (all types)	Family caregivers	Analysis of documents, viewing videos, observation with note taking, and a focus group session.	Core content domains and competencies were identified and used to develop OSCEs.	The efficacy of the OSCE approach used for the identification and validation of competencies for lay caregivers was well demonstrated.
Sloan et al[22]	General surgery	Breast cancer	48 surgical residents	Interactive Breast Cancer Structured Clinical Instruction Module (BCSCIM) Workshop.	11-problem OSCE was administered immediate post and 8-months post-workshop. The course was an intensive multidisciplinary, multi-station workshop where residents rotated in pairs from station to station interacting with expert faculty members and breast cancer patients.	This interactive patient-based workshop was associated with objective evidence of educational benefit as determined by a unique method of outcome assessment using OSCE.
Vetto et al[23]	Primary care providers	Breast cancer	205 providers	Self-study manual and 1½ hour skills-based practicum	Percentage accuracy in detecting lumps and predictive rates.	Formal clinical breast examination improved the sensitivity of lump detection.

Author and year	Healthcare specialty	Type of cancer	Sample characteristics	OSCE method	Core competencies tested	Main findings about OSCE
Cerilli <i>et al</i> [24]	Surgical educators	Cancer (all types)	674 educators	84 topics from History Taking, Physical Examination, Data Interpretation, and Surgical Technique.	Percentage rating for the self-ranked important topics under each of the four categories.	The findings offer guidelines for composition of surgical OSCEs.
Sloan <i>et al</i> [25]	Medical students	Cancer pain (all cancer types)	34 third-year medical students	Assessment of students' skills using an evaluation format consisting of history-taking, focused physical examination, analgesic management of cancer pain, and communication of opioid analgesia myths.	The students were asked to complete a cancer pain history, physical examination, manage cancer pain using analgesics, and communicate with a family member regarding opioid myths.	Cancer Pain OSCE is a useful performance-based tool to test individual skills in the essential components of cancer pain assessment and management.
Plymale <i>et al</i> [26]	Academic medical institutions	Cancer (all types)	Forty-two cancer survivors, 354 trainees, and 54 faculty members took part in the structured clinical instruction modules (SCIMs) at five academic institutions.	Cancer survivors' perceptions of the course, and all participants rated the benefit of the participation of cancer survivors.	The evaluation responses were very positive, and the cancer survivors expressed a strong willingness to participate in future courses. Faculty members, residents, and medical students all rated the benefit of using cancer survivors highly.	The participation of cancer survivors in structured clinical teaching was considered beneficial not only by the cancer survivors themselves, but also by the faculty members, residents, and medical students who were involved in the educational program.

considered as a component of OSCE and was also evaluated for its curricular integration.[33]

OSCE has been used as a tool for both formative and summative evaluation of medical graduate and postgraduate students across the globe. The use of OSCE for formative assessment has great potential as the learners can gain insights into the elements making up clinical competencies as well as feedback on personal strengths and weaknesses.[8] There are however numerous challenges to developing, examining, implementing and establishing an OSCE in general,[34,35] as well as specifically in cancer and palliative care educational settings.

The success of OSCE is dependent on adequacy of resources, including the number of stations, construction of stations, method of scoring (checklists and or global scoring), the number of students assessed, and adequate time and money.[5] It is perceived that OSCEs test the students' knowledge and skills in a compartmentalized fashion, rather than looking at the patient as a whole.[8]

OSCE can test the practical aspects of therapeutics,[36] has the ability to predict future performance of post-graduate residents,[39] can be structured to teach real-life situations like patient safety,[40] can be a useful tool to measure profession-related constructs such as professionalism,[41] has positive experiences and perspectives of lecturers[42] and students[43] and thus can be used as an audit for teacher-student performance by detecting and correcting teaching-learning errors in education.[44,45]

OSCE should not be confused with Objective structured practical examination (OSPE) which is an academically centered paradigm evolved four years later than the original OSCE which is a clinically oriented paradigm.[46]

Incorporating OSCE into an interprofessional learning framework[47] is essentially the need of the hour in a multidisciplinary setting which demands interpersonal relationships and communication such as palliative care. Such

an OSCE-based interprofessional education would facilitate shared learning[48] and ongoing collaborative teamwork in practice, research and education.[49]

Examples of such studies on palliative care were reported by Auret and Starmer[19] and Hall *et al*[50] primarily targeting undergraduate medical students. Although the former was a monodisciplinary study, it was unique and was the only study that applied SCIM on palliative care. The latter study was an interprofessional multidisciplinary one, which evaluated Observed structured clinical encounter using 3 palliative care stations.

National guidance is of utmost requirement to standardize the OSCE procedures across the country, and when it is used carefully; it can make a helpful and meaningful contribution to health professional education[51] in the direction of competency-based evaluation.[52]

Conclusion

The two competency-based evaluation methodologies used in cancer education namely the OSCE and SCIM, both appear to be well validated and reliably used across settings and samples of students, practitioners and patients. Future studies in Indian palliative care settings are warranted prior to extrapolation of existing evidence.

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Table 2: Comparison of studies on Structured clinical instruction module (SCIM) in cancer education

Author and year	Healthcare specialty	Type of cancer	Sample characteristics	SCIM method	Core competencies tested	Main findings about SCIM
Plymale <i>et al</i> [27]	Hospice nurses	Cancer pain	25 nurses	2-hour cancer pain structured clinical instruction module.	Self-assessments of competence and mastery of specific clinical skills during their patient handling.	The SCIM format has great potential to improve the quality of cancer pain education.
Plymale <i>et al</i> [28]	Medical students	Cancer pain	34 third-year medical students	Eight instructors and six standardized patients (five cancer patients) participated in the course. All participants evaluated the course using a five-point Likert scale (1 = strongly disagree; 5 = strongly agree).	Students self-assessed their clinical skills before and after the course using a five-point scale (1 = not competent; 5 = very competent).	The SCIM is a valuable and novel instructional format to teach essential skills in the assessment and management of cancer pain to medical students.
Blue <i>et al</i> [29]	Surgical students	Breast cancer	Three student groups each experienced a different type of instruction about breast care and treatment (condition A = lecture; condition B = nine-station SCIM, lecture, and manual; and condition C = five-station SCIM).	All students subsequently participated in a surgery OSCE that included standardized patient stations on taking a breast history and performing breast examinations.	The mean scores of students in conditions B and C were significantly higher than those of students in condition A.	SCIM is an effective patient-based standardized instructional program that enhances the instruction of clinical skills to students.
Sloan <i>et al</i> [30]	Surgical residents	Breast cancer	137 residents at five institutions, together with 66 faculty members and 52 patients.	Abbreviated (3-hour) clinical skills course that places residents in realistic clinical settings.	Self-assessment of clinical skills.	Residents were acutely aware of their deficiencies in understanding breast cancer. The SCIM was a standardized, reproducible, portable, and effective educational vehicle.
Sloan <i>et al</i> [31]	Surgical residents	Breast cancer	25 residents, 15 faculty members and 12 patients.	Multistation, multidisciplinary SCIM (with simulated and actual patients)	18-item self-assessment of skills	The SCIM provides an excellent format for residents to be aware of their deficiencies and to improve their clinical skills.
Sloan <i>et al</i> [32]	Medical students	Breast cancer	30 students, 9 patients and 14 faculty members.	The SCIM consisted of 12 10-minute stations, each covering a different aspect of the diagnosis and management of breast cancer (e.g., history, physical examination, treatment options, mammography, cytology, and pathology).	At the end of the SCIM, students, faculty, and patients rated their level of agreement (on a five-point scale ranging from "Strongly Disagree" to "Strongly Agree") with statements on a multi-item evaluation questionnaire.	Both students and faculty agreed that the SCIM increased students' clinical skills. Patients agreed that they enjoyed the SCIM and was well received by them.

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