

OSCE (Objective Structured Clinical Examination) for Nutrition Professionals

Shih-Ching Lo^{1,2}, Ming-Yu Hsieh^{3,4} & Hsing-Chun Lin^{1,2}

Traditional graduate programs in nutrition and dietetics in Taiwan cultivate professionals and specialists in the fields of food and nutrition. At the undergraduate level, although students possess comprehensive nutritional and medical knowledge, they are often deficient in skills related to clinical nutrition therapies. To develop undergraduate student potential in this area, the Department of Nutrition of Chung Shan Medical University, established an elective course entitled “Objective Structured Clinical Examination (OSCE) for nutrition professionals” for third-year students and above. The objectives of this course are to help students understand what they will be doing in their future careers and to prepare them for hospital internships. The focus of this article is on the curriculum, training process and effectiveness of this course. Based on the results, this course should be considered an internship opportunity in undergraduate clinical nutrition education.

**Key words: Objective Structured Clinical Examination, nutrition, clinical skills
(J Med Education 2019; 23: 197~199)**

DOI: 10.6145/jme.201909_23(3).0004

The Objective Structured Clinical Examination (OSCE) covers a broad range of skills such as problem-solving, communication, decision-making and patient management skills.^[1] Different from written examinations, it involves completing practical tasks. Since 2013, passing the National OSCE has been a requirement for the Step-II test of the National Medical Licensing Examination

in Taiwan.^[2] Chung Shan Medical University (CSMU) is located close to its associated medical center and has adequate resources for clinical skills simulation training and administration of centrally organized OSCE, as well as for engaging students in the process of self-appraisal, identification of individual learning needs and self-directed learning.^[3] The Clinical Skills Center of Chung

¹ Department of Nutrition, Chung Shan Medical University Hospital, Taiwan, R.O.C.; ² School of Nutrition, Chung Shan Medical University, Taiwan, R.O.C.; ³ Institute of Medicine, Chung Shan Medical University, Taiwan, R.O.C.; ⁴ Department of Surgery, Chung Shan Medical University Hospital, Taiwan, R.O.C.

Received: 27 August 2019; Accepted: 2 September 2019

Correspondence to: Hsing-Chun Lin, Department of Nutrition, Chung Shan Medical University Hospital, No.110, Sec. 1, Jianguo N. Rd., South Dist., Taichung City 40201, Taiwan.

E-mail: cshc143@csh.org.tw

Shan Medical University Hospital (CSH) includes a simulated intensive care unit with SimMan, simulated operating room, video recording/central control room, and OSCE classrooms. With standard-setting examination stations, institutionalized standard patients and qualified examiners, OSCE is a feasible model to assess and improve students' clinical and teaching skills.^[4]

In the undergraduate program, first and second-year students receive an introduction to medical science and basic nutrition. Among third-year students who are about to enter an internship there is a large gap between schoolwork and clinical work. Therefore, the curriculum needs to be modified to include practical training. The Department of Nutrition of CSMU designed an innovative elective course for third-year students to prepare them for hospital internships. Although "OSCE for nutrition professionals" was an elective, more than 70% of third-year students enrolled in and completed this course. The curriculum included OSCE introduction and sharing of practical experience by attending physicians serving on the Medical Education Committee of CSH and dietitians from other medical centers. After delivering criterion-based design checklist items to students and carrying out assessments using the Angoff method, we implemented several OSCEs based on borderline group method with regression. From Feb to Jun 2019, 69 students completed the course and feedback (formative) OSCEs that included 2 or 3 stations of 6 to 8 minutes each. In terms of team resource management, students were divided into seven groups to assess their skills, help each other at different stations, and point out any omissions in the procedures. Following 18 sessions, students' clinical performance improved and OSCEs pass ratio rose from 57.1% to 100%. To ensure test validity, blueprint matrices of OSCEs were

included in nutrition assessment and diagnosis, anthropometric measurements, parenteral/enteral nutrition intervention and diet planning with instruction.

Near the end of the semester, we selected two groups of volunteer students to participate in "The 2nd National Nutrition-related Clinical Nutrition Skills Competition". There were 3 to 4 students in each group from nutrition-related departments of seven universities in Taiwan: Chang Gung University of Science and Technology, National Taiwan Normal University, CSMU, Fu Jen Catholic University, Shih Chien University, Chinese Culture University, and Kainan University. Our teams earned marks of distinction and honorable mention, respectively.

After entered the clinic for the internship, like other hospitals, the students also received the OSCE test. In figure 1, students who had received the course (group 1) performed significantly better OSCE scores than those who did not receive the course (group 2) ($p < 0.05$). These two results demonstrate that OSCE education before entering the clinic is of significant help to the performance of the students in clinical learning. In conclusion, OSCE can be applied to the evaluation of clinical competencies and communication skills of students.^[5] Furthermore, the Department of Nutrition of CSH developed several OSCE teaching plans for which reliability and validity analyses, based on the integration of theoretical knowledge and clinical experience, were carried out. The most appropriate were submitted to the Taiwan Association of Medical Education to serve as references for nutrition departments of colleges and universities. A competency-based OSCE can effectively evaluate student performance to understand learning outcomes. This information can then be used to improve individual and overall program performances.^[6]

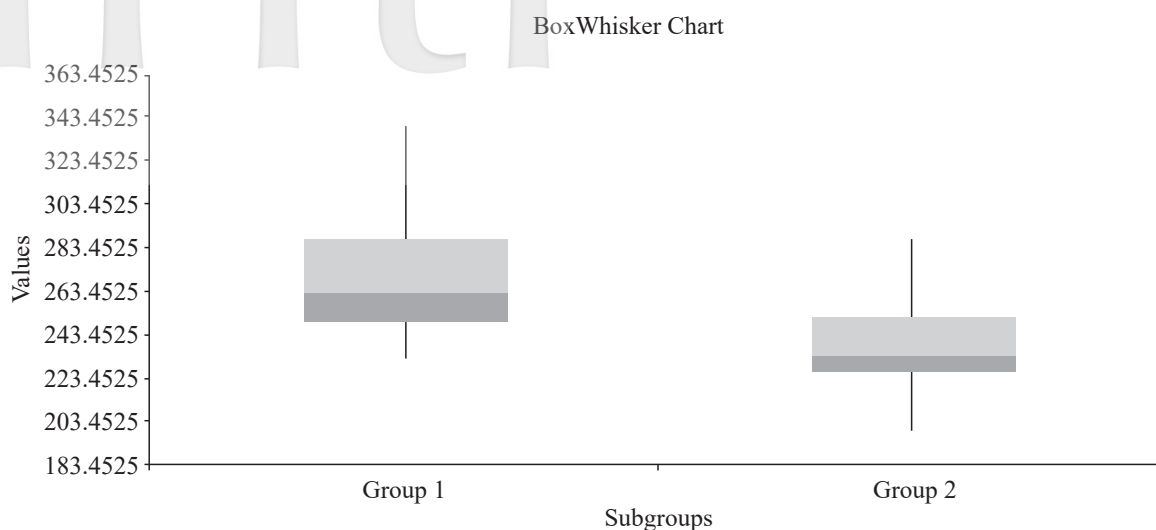


Figure 1. The scores of OSCE from different groups of students are analyzed by t-test. ($p < 0.05$)

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