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Original article

Active learning improves nursing student clinical performance in an academic institution in Macao<sup>☆</sup>Cindy Sin U Leong<sup>a,\*,1</sup>, Lynn B. Clutter<sup>b,1</sup><sup>a</sup> School of Health Sciences, Macao Polytechnic Institute, Macao 999078, China<sup>b</sup> School of Nursing, College of Health Sciences, The University of Tulsa, Tulsa, OK 74104-9700, USA

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## ABSTRACT

**Objective:** To assess the outcome of the application of active learning during practicum among nursing students using clinical assessment and evaluation scores as a measurement.

**Methods:** Nursing students were instructed on the basics of active learning prior to the initiation of their clinical experience. The participants were divided into 5 groups of nursing students ( $n = 56$ ) across three levels (years 2–4) in a public academic institute of a bachelor degree program in Macao. Final clinical evaluation was averaged and compared between groups with and without intervention.

**Results:** These nursing students were given higher appraisals in verbal and written comments than previous students without intervention. The groups with the invention achieved higher clinical assessment and evaluation scores on average than comparable groups without the active learning intervention. One group of sophomore nursing students (year 2) did not receive as high of evaluations as the other groups, receiving an average score of above 80.

**Conclusions:** Nursing students must engage in active learning to demonstrate that they are willing to gain knowledge of theory, nursing skills and communication skills during the clinical practicum.

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## 1. Introduction

Nursing students in Macao are educated in a 4-year baccalaureate program, and students are required to participate in a clinical practicum annually. Clinical preceptors prefer nursing students to ask questions and seek answers when they are unsure of information and then report on the results of their search. In addition, the nursing education program subscribes to the current philosophy of lifelong continuing education.<sup>1,2</sup> Beginning in 2012, all nursing students graduating in Macao will receive a four-year bachelor's degree. Due to aging of the population worldwide, the number of nursing staff is inadequate in Macao to provide care for this growing segment of the population and their increased needs for health care and nursing services. Thus, additional nursing students are needed to be trained as qualified nurses. Recently, the

government has begun to provide additional support to nursing education in the form of tuition subsidies for students and increased salary and benefits for nurses in an attempt to double the number of students enrolled in nursing programs. Consequently, the nursing shortage has been dramatically reduced. However, experienced nurses and clinical preceptors have repeatedly complained that the recent nursing students have not been performing well in clinical practice initially. With the goal of increasing the number of nursing graduates and more interest in becoming a nurse because due to governmental support, the preparedness of the new nursing graduates may have been diminished by the increasing workload for the faculty and preceptors. Faculty has also noted an increase in students who fail the clinical practicum and require remediation. The clinical preceptors have also observed that the current generation of young people, including nursing students, generally lives in peaceful and financially self-sufficient families. In addition, they may have had no siblings to care for and few household chores or experience. These generational changes may also affect the assessments of proficiency of the seasoned preceptor. To address the problem of dissatisfied clinical preceptors and lowered nursing students performance, a qualitative study was performed to determine what

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the clinical preceptors consider to be the most essential elements of clinical practice. This study enabled the clinical preceptors to describe the inadequacies of the nursing students in the clinical practicum, thereby providing the nursing students with a better understanding of what they need to do to improve their performance during their clinical education. Previous research has shown that nursing students need to garner their clinical preceptors' positive evaluation and respect.

However, there may be some controversy over the perceptions of nursing students that "belonging, knowing and receiving affirmation"<sup>3</sup> influence professionalism. Clinical preceptors serve as experts in nursing and thus, they are selected as the students' evaluators. They have a high expectancy in nursing students who are required to fully understand the essential elements of knowledge and performance to achieve a satisfactory or passing rating in their clinical practicum. These standards should increase as the student moves through their training and towards the terminal outcomes. The information provided by the clinical preceptors should be collected to offer valuable suggestions to the academic faculty on areas needing more or less instruction. Testing should also focus on these areas for needed growth. The preceptors and academic faculty can work together to improve student performance. Moreover, it is good practice and an expectation that nursing students understand how they will be assessed. Understanding the assessors' requirements for improved performance is integral to improving their practicum scores. Thus, this intentional study may assist the nursing students to better understand the expectations of the clinical preceptors and to begin to regulate their own lifelong learning.

The aim of this pilot study was to explore the areas of greatest concern to clinical preceptors in nursing students in Macao. The results may provide programs with a successful strategy to increase student performance and preceptor satisfaction while the conditions require a greater enrolment and productivity by both groups to achieve staffing needs to meet the increasing demand. The purpose of this study is to provide essential information about active learning among nursing students during practicum in Macao.

## 2. Material and methods

### 2.1. Study design

Every semester, students are assigned to rotate to fulfil their clinical practicum and to be promoted to subsequent courses. The participants in this study were frequently reminded to apply the principle about active learning during the practicum. Students were instructed of the philosophy of active learning, including categories of asking questions whenever unsure, requesting to perform various nursing skills, requesting to observe related skilled performances and answering the call button.

### 2.2. Setting and samples

The subjects of this study were consisted of nursing students who had their clinical practice in wards. In total, 56 participants were included from the same nursing school and under the same academic educator, but with different clinical preceptors. All of the nursing students had graduated from grade twelve and had completed the necessary examinations and interviews prior to enrolment in the nursing program. These nursing students were sophomores, juniors and seniors in the program who were approximately 20 years old (Table 1).

### 2.3. Ethical consideration

This study was approved by the Management Board of the Research Committee at Macao Polytechnic Institute. Participants were provided with an explanation of the need for active learning during practicum. Participants agreed to provide their informed consent.

### 2.4. Measurements

This study used clinical assessment and evaluation scores as a measurement to evaluate the outcome of the application of active learning during practicum among nursing students.

### 2.5. Procedure

The researcher met regularly with the nursing students before they attended the assigned wards for clinical practice. The researcher is also an academic educator who supervises the nursing students in the wards as described above. During the clinical briefing, the importance of active learning was explained to the nursing students in these five groups. The five groups began their practicum at different times, beginning in mid-September. During the supervision of the nursing students in different wards from year 2 to year 4, the students were frequently reminded to engage in active learning during the clinical practice. During year 4, senior nursing students participated in one-week intensive experiences of clinical practice in each of the three wards, which closely resembled their beginning assignments as new graduates. Each group undertook the practicum following completion by the previous group. One group of year 3 junior nursing students completed the practicum in two wards for six weeks and then returned for additional classroom instruction prior to their progression into their fourth year experiences. The second group of year 3 students undertook their practicum in critical care and then began clinical practice in the surgical (digestive) ward. Year 2 sophomore nursing students completed their practicum and returned to class for theory learning.

### 2.6. Data analysis

Final clinical evaluations were averaged and compared between groups with and without the intervention.

## 3. Results

All 5 groups of students obtained high scores on the clinical practicum, with an average score of 95, (See Table 2), except in the medical and surgical wards where the nursing students must provide routine caring similar to the staff. The detail of the give in scores for all five groups was arranged by year 2–4 in order shown in Table 2. The assessments and evaluations were highly demanding. The comments written by the clinical preceptors provided an appraisal of the nursing students' implementation of active learning.

The first and second groups included year 4 participants who had 3 weeks of intensive clinical practice in three different wards. Three clinical preceptors from these wards evaluated these students positively. When the students reached the end of the practicum, the preceptors reported that these students were highly active in the learning process, asking questions when they were unsure about specific issues. The students were also highly active in their requests for demonstrations of nursing skills. They also answered the patients' call button and were able to effectively work with terminal cancer patients with complex and demanding

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