

RESEARCH ARTICLE

# Effectiveness of Different Skill Demonstration Methods in Serving Oral Medication Among Student Nurses in a Private Healthcare College, Johor Bahru

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## Abstract

**Background:** The nursing skill laboratory is a learning ground for all clinical skills where it enables nursing students to learn nursing procedures and practice. However, during pandemics, shifts from the traditional nursing procedural display to video demonstration take place as protection. During the conversion from pandemic to endemic, nursing students started college and practised in Nursing Skill Laboratory. Therefore, this research aims to determine the effectiveness of traditional skill laboratory demonstration versus video demonstration on skill performance in serving oral medication among student nurses in a private healthcare college, Johor Bahru. The independent variable used in this research is the traditional skill laboratory method and video demonstration method and the dependent variable is skill performance of undergraduate nursing students during serving oral medication.

**Methods:** Quasi experimental study with post-test 1 and post-test 2 was conducted among undergraduate nursing students in KPJ International College Johor Bahru who came for skill lab practice, total sample size was (n=90). The study duration was within 2 months, from January 2023 to February 2023.

**Results:** When comparing the paired differences, there were statistically significant differences between the Post-Test 1 and Post-Test 2 traditional demonstration group (m = 2.29, SD = 1.74) and the Post-Test 1 and Post-Test 2 video demonstration group (m = 2.09, SD = 1.81), as indicated by the values of t (44), p = < 0.000 (p < 0.05) is significantly different. A two-way repeated measures ANOVA indicate, there is no significant difference between the two methods when they are combined. According to the attitude scale, the Traditional Demonstration method states the highest percentage of 95.9 % as compared to the Video Demonstration method states 91.6 %.

**Conclusion:** This study found that both methods were equally effective on student's skill performance on serving oral medication and recommended that combination of both demonstration method shall be adopted to improve the skill performance among student nurses.

**Keywords:** Skill Laboratory Demonstration, Video Demonstration, Teaching Method, Skill Performance, Student Nurses.

## 1. Introduction

The nursing Skill Laboratory is where skills are taught to the students on a specific nursing procedure. Nursing

education's theoretical and practice components include cognitive, emotional, and psychomotor learning sectors (Uysal, 2016). However, a serious

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threat to public health surfaced in 2020, the SARS-CoV-2 epidemic outbreak (Ramos-Morcillo et al., 2020). Nursing training institutions switched to virtual remote learning to protect the students from the pandemic, and clinical encounters were put on hold. As a result, undergraduate nursing students faced challenges in learning nursing procedures, so they used online video demonstrations (Agu et al., 2021).

### 1.1 Background of the Study

The nursing skill laboratory is an important setting where nursing students learn nursing procedures and, at the same time, practice what they have learned without worrying about harming the patient (Toriente Relloso et al., 2021). The skills lab is a facility that enables nursing students to practice their clinical abilities before their clinical placement. It should be well-established and improved (Hayat, 2021). This research is essential because the researcher identifies effective methods for teaching nursing skills. This approach has been embraced by nursing schools in the Caribbean and other nations, both developed and developing. The content delivery primarily occurs online, although teachers receive training to conduct virtual classroom sessions when necessary. However, the traditional nursing curriculum's standard method, which heavily relied on face-to-face instruction, limited student skill development and clinical practice placement (Agu et al., 2021).

### 1.2 Purpose of the Study

This study determined the effectiveness of different skill demonstration methods in serving oral medication among student nurses (1) skill performance on serving oral medication using traditional skill lab, (2) skill performance on serving oral medication using video demonstration method among student nurses, (3) compare the skill performance on serving oral medication using both methods and (4) attitude related to the skill laboratory procedure demonstration methods.

## 2. Methodology

### 2.1 Research Design

The design used in this descriptive study was a Quasi-experimental design with Post-test 1 and post-test 2 (Sheikhaboumasoudi et al., 2018). Two groups were tested in Post-Test 1 and Post-Test 2 to compare the intervention group with the control, which compares the participant's Post-Test 1 and Post-Test 2 scores to evaluate students' skill performance (Malik & Alam, 2019).

### 2.2 Participants

The respondents were undergraduate nursing students

willing to participate in the study and agreed to informed consent. A total cohort sampling method was used in this study and included 90 students. The study respondents returned to college after post-theory for skill laboratory practice sessions.

### 2.3 Data Collection Tool

The structured questionnaire consisted of two parts. Part I: Demographic profile of the respondents. Part II: A pre-validated questionnaire was used in this research using the Likert scale. Descriptive analysis was done using frequency and percentage. The researcher got approval to use this attitude scale from Madam Sugathapala (Sugathapala & Chandrika, 2021). Strongly agree and agree are categorised as positive attitudes, whereas disagree and strongly disagree are categorised as negative attitudes (Ama, 2016). The original study reported the test-retest reliability was assessed, and the Pearson correlation was significant ( $p = 0.001$ ), showing high internal consistency reliability. However, as part of the data analysis, the total items pool Cronbach alpha's computed value was 0.924. The test confirmed the scale's reliability in this study (Zhang et al., 2020).

### 2.3 Data Collection Procedure

The respondents were divided into two equal groups, traditional skill laboratory demonstration ( $n=45$ ) and video demonstration ( $n=45$ ), using simple random sampling (Noor et al., 2022). Each group was further divided into five subgroups of 9 students each ( $n=9$ ). The students participated in a two-hour session on serving oral medication, with the control group using traditional skill laboratory demonstration and the experimental group using video demonstration. Immediate assessments were conducted by five Nursing Instructors using a validated checklist form on the same day (post-test 1). The control group received an assessment checklist, while the experimental group was given a video assessment link (Bayram & Caliskan, 2019). Both groups were provided with an application manual and practised nursing skills using the application repeatedly for one week. After this week, the Nursing Instructors re-assessed the subgroups (post-test 2). A pre-validated questionnaire consisting of 5 questions on a 4-point Likert scale was used to determine their attitude to different types of skill laboratory demonstration techniques. The blinding technique was implemented to reduce bias, ensuring participants were unaware of their assignment group or the type of demonstration used (Kim & Suh, 2018).

## 2.4 Ethical Clearance and Protection of Human Rights

Research Management Centre approved the study on 25 November 2022 (Ethical form reference No: KPJUC/RMC/SON/EC/2022/437). Respondents had the option to participate in the study by providing informed consent. Confidentiality and anonymity were ensured, with data stored securely on a password-protected personal computer (Mothiba et al., 2020).

## 2.5 Data Analysis

The data was analysed in version 27 of the Statistical Package for the Social Sciences (SPSS). Cronbach's

## 3. Results

**Table 1.** Demographic profile of the respondents

Characteristics	Frequency (f)	Per Cent %
<b>Gender</b>		
Male	10	11
Female	80	89
<b>Age</b>		
19 - 20	1	1
21 - 22	89	99
<b>Race</b>		
Malay	78	87
Indian	9	10
Chinese	1	1
Others	2	2

Table 1 shows the demographic profile characteristics of the respondents. Among the responders, 89% were female (n=80), and 11% were male. Most participants (99%, n=89) were between 21 and 22, while only 1% (n=1) were between 19 and 20. In terms of ethnicity, the majority of respondents were Malay (92%, n=83), followed by Indians (4%, n=4), Chinese (1%, n=1), and others (2%, n=2).

**Table 2.** Skill Performance on oral medication administration

Skill Performance Score	Mean	Mean Difference (d)	SD	Sig. (2-tailed)
Traditional Skill Laboratory Demonstration				< .001
Post-test 1	12.33	2.29	1.91	
Post-test 2	14.62		2.70	
Video Demonstration				
Post-test 1	13.93	1.76	2.38	< .001
Post-test 2	15.69		2.43	

alpha value was identified (Kim & Suh, 2018). The level of skill performance in serving oral medication using both methods was analysed with descriptive analysis and paired sample t-test (Moon & Hyun, 2019). Both methods were compared with Two-Way ANOVA Repeated measures (Tamaki et al., 2019) and Independent Sample T-Test (Tamaki et al., 2019). The students' attitudes were analysed with Likert Scale, Descriptive Analysis using frequency, percentage and Independent Sample T-Test.

## 3.1 Skill Performance in Serving Oral Medication

The Post-Test 1 scores of both groups were compared with the Post-Test 2 scores, and the results are shown in Table 2. Based on the paired t-test result, there was a statistically significant difference between the Post-Test 1 and Post-Test 2 scores of both traditional skill laboratory demonstration and video demonstration,  $p < 0.001$ .

Furthermore, two-way repeated measures ANOVA was performed to determine the interaction between traditional skill laboratory and video demonstration methods. As for the Traditional Demonstration method, 's p-value is 0.819, > 0.05, which is not significant. For the Video Demonstration method, a p-value is 0.000, < 0.05, which is significant. The interaction effect between the two methods, the p-value is 0.615, > 0.05, which is insignificant. There is no significant difference between the two methods when they are combined. Besides, an independent sample t-test was performed to compare the Post-Test

2 scores of both methods (Table 3). The Post-Test 2 Score in Traditional Demonstration groups shows a slightly lower mean (mean = 14.62; S.D. = 2.70) than the Video Demonstration group (mean = 15.69; S.D. = 2.43), with a mean difference of 1.07. The Std. Error Mean shows students in the Traditional Demonstration groups are slightly higher than in the Video Demonstration group. The p > 0.05 indicate that the variability in the two methods is about the same. The Sig (2-tailed) value is 0.05, indicating a statistically significant difference between the means of the two groups being compared.

**Table 3.** Independent Sample t-test of Post-Test 2

Kill Performance Score POST TEST 2	Traditional Skill Laboratory Demonstration	Video Demonstration
Mean	14.62	15.69
Std. Deviation	2.70	2.43
Sig. (2-tailed)	0.05	< .001

### 3.2 Student's Responses to the Attitude Questionnaire

Table 4 shows Descriptive Statistics comparing the Attitude Scale using Likert Scale between the Traditional Demonstration Method and Video Demonstration Method. The total score for each item in the 4-point Likert scale was 4. An Independent sample t-test was performed for each scale to identify the p-value.

The point of strongly agree and agree is categorised under a positive attitude, whereas the point of disagree and strongly disagree is categorised under a negative attitude (Ama,2016). For both demonstrations, the frequency of positive attitudes states a higher percentage than negative attitudes. The Traditional Demonstration method states the highest percentage of 95.9 % compared to the Video Demonstration method, which states 91.6 %.

**Table 4.** Descriptive Statistics of Attitude Scale

	Report				
	Traditional Demonstration		Video Demonstration		
	Mean	Std. Deviation	Mean	Std. Deviation	Sig. (2-tailed)
Enjoyed learning skills	3.62	0.54	3.44	0.66	0.16
Prepared for assessment	3.49	0.63	3.36	0.68	0.34
Motivated to perform	3.58	0.62	3.49	0.66	0.51
Learnt required nursing skill	3.58	0.54	3.47	0.66	0.39
Learnt skills effectively	3.51	0.55	3.27	0.78	0.09

## 4. Discussion

In 2020, the SARS-CoV-2 outbreak prompted a movement control order, requiring everyone to stay home. This measure aimed to curb the disease's spread while vaccines were being developed. Undergraduate nursing students encountered difficulties in learning nursing procedures due to these circumstances. To address this, nursing instructors and Lecturers

recorded nursing procedures and utilised online video demonstrations for teaching. Video-assisted online tools effectively teach clinical skills, enabling learners to connect theory to practice and fostering learner autonomy (Hasan & Khan, 2020). In Post-test 1, the majority of students grading was satisfactory, 44 %; however, in Post-test 2 majority of students' grading was good, 62 %. These conclusions are supported by

Dash, who conducted a randomised clinical trial with Post-Test 1 and Post-Test 2 designs to evaluate the effectiveness of the video-assisted teaching module on suggested that there was a significant improvement in post-test knowledge, attitude, and practice compared with Post-Test 1 and demonstrated the effectiveness of the video-assisted teaching programme (Du et al., 2022). When comparing the paired differences, there were statistically significant differences between the Post-Test 1 and Post-Test 2 traditional demonstration group ( $m = 2.29$ ,  $SD = 1.74$ ) and the Post-Test 1 and Post-Test 2 video demonstration group ( $m = 2.09$ ,  $SD = 1.81$ ), as indicated by the values of  $t(44)$ ,  $p < 0.000$  ( $p < 0.05$ ) is significantly different. According to another study, the persistence of learning experience skills may be improved by using auditory, visual, and other abilities.

Consequently, it is crucial to practice the skills several times before using them in a real-world setting (Arslan, 2018). A two-way repeated measures ANOVA indicates no significant difference between the two methods when combined. In terms of clinical skills, McCutcheon et al. compared the results of traditional face-to-face instruction versus online learning. Despite the lack of statistical significance, they reported that the effectiveness of the online teaching group was comparable to that of traditional instruction. According to the attitude scale, the Traditional Demonstration method states the highest percentage of 95.9 % compared to the Video Demonstration method, which states 91.6 %. This review, however, was distinct from more general nursing education because it only included two blended learning studies, and the participants were continuing education students (Du et al., 2022). Consequently, it may be argued that traditional skill laboratory demonstration and video demonstration method approaches are deemed ideal in and of themselves or fully provide the treatment performed on an actual patient (Jallad & Işık, 2022).

## 5. Conclusion

This study found that both traditional skill laboratory and video demonstration methods were equally effective on students' skill performance on serving oral medication. Thus, it is recommended that a combination of both demonstration methods be adopted to improve the skill performance among student nurses. A traditional skill laboratory method is preferred; however, video demonstration can be implemented too. The integration of both methods appears to be a promising, pertinent, and often

implemented instructional strategy that could improve clinical skills education under current circumstances, even if there is a need for more research in the field.

## Limitations

The limited sample size (the students of year 1 semester 2) was one of the research limitations.

## Recommendations

It is recommended that future studies use larger sample sizes and in a wider context. It is also recommended that in further studies, both methods, one group that received the traditional skill laboratory method and another group that received both the traditional skill laboratory method and video demonstration method, can be used together. They should be carried out using these demonstration methods in different student groups. It is also recommended to analyse more than one procedure in future studies.

## Conflict of interest

This study has no conflict of interest.

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