

# Effectiveness of Pre- and Post-Clinical Conferences in Improving Clinical Learning Among Midwifery Students of Jimma University: Pre-Experimental Study

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**Background:** Although clinical conferences are promising clinical teaching strategy for ensuring meaningful clinical learning, they were mostly overlooked. Thus, this study aimed to assess the effectiveness of pre- and post-clinical conferences in improving clinical learning among third-year undergraduate midwifery students of Jimma University.

**Methods:** A quantitative institution-based pre-experimental study was performed among consecutively selected thirty-four third-year regular undergraduate midwifery students of Jimma University from February 14 to 25/2021. Data were collected by using both a self-administered questionnaire and an observational checklist. The collected data were entered into Epi\_data version 4.6 and exported to SPSS version 23 for analysis. To test the difference in the participants' clinical learning before and after the pre- and post-clinical conferences, a paired-samples *t*-test analysis was done at a 95% confidence interval and *p*-value <0.05. To quantify the magnitude of the intervention's effect, Eta squared was computed as an effect size statistic. The results were presented by text and tables.

**Results:** There was a statistically significant improvement in the overall clinical learning score from pre-intervention (*M* = 8.79, *SD* = 4.1) to post-intervention [*M* = 15.65, *SD* = 15.65, *t* (33) = 8.53, *p* < 0.0005]. Also, the Eta squared = 0.69 indicated a large effect size.

**Conclusion:** Since pre- and post-clinical conferences resulted in improvement of clinical learning among the respondents, the routine utilization of the pre- and post-clinical conferences as an effective clinical teaching strategy should be encouraged among the midwifery clinical teachers of Jimma University.

**Keywords:** effective clinical teaching, clinical conferences, midwifery, Jimma University

## Background

Clinical education involves a practical application of theoretical knowledge in a situation where there is the direct involvement of the patient.<sup>1</sup> It enables midwifery students to become competent midwife professionals who exhibit proficient clinical skills and humanistic behavior.<sup>2</sup> As a matter of its nature, clinical teaching is provided in an ill-structured situation where learners face a variety of patient problems for which there are insufficient, incompatible, or multiple solutions.<sup>1,3</sup> Especially, beginner students suffer great challenges in the clinical learning environment if they do not gain adequate, appropriate, well-organized, and detailed guidance from their clinical teachers.<sup>4,5</sup> Why because, the beginner student may have ineffective communication ability, inadequate readiness, lack of optimum self-discipline, and may suffer emotional disturbances when exposed to clinical learning environments.<sup>5,6</sup>

Undergraduate midwifery students need to gain optimal clinical teaching provided by conducive and various clinical teaching strategies to become competent, responsible, accountable, and independent professionals.<sup>2,4</sup> From among different clinical teaching strategies; pre- and post-clinical conferences enable learners to become well-oriented in all aspects of their clinical

learning, to develop problem-solving, critical thinking, and clinical judgment skills, which are the core goals of clinical teaching.<sup>1,7</sup>

The pre-clinical conference is held before the clinical practice mainly to orient learners on their clinical practicum which involves clarifying clinical learning objectives; assuring learners' cognitive, affective, and psychomotor preparedness for the clinical learning; and enabling learners to take necessary measures when they faced difficulties thereby contributing to effective clinical teaching and learning.<sup>3,6–9</sup>

Post-clinical conference is undertaken after a day of clinical practice is over to develop students' reflective thinking ability, which is very vital for students' development as health professionals.<sup>1,7,10</sup> Also, post-clinical conference help learners amalgamate their clinical learning and advance it; provide opportunities to appraise, analyze, critique, and take a lesson from each other's work; and clarify the association between theoretical learning and clinical practice.<sup>7–13</sup>

Generally, pre- and post-clinical conferences augment the relationship between clinical teachers and learners thereby creating better and deeper clinical learning opportunities which are very essential in midwifery education.<sup>5,14–16</sup> The existing evidence,<sup>16</sup> and our practical observation of the clinical teaching practice in the area where this study was conducted showed that pre- and post-clinical conferences were applied poorly and the undergraduate midwifery students had a poor performance in their clinical learning. Thus, this study aimed to assess the effectiveness of pre- and post-clinical conferences in improving clinical learning among third-year undergraduate midwifery students of Jimma University. The findings of this study are believed to have great practical implications for alarming and encouraging midwifery educators to use pre- and post-clinical conferences as one of their clinical teaching strategies, thereby leading to better student clinical learning.

## Materials and Methods

### Study Setting, Design, and Period

This is a quantitative institution-based pre-experimental study conducted among third-year undergraduate midwifery students of Jimma University (JU) from February 14 to 25/2021 while they have been having their obstetrics three and gynecology practicum in Jimma Medical Center (JMC). JU is one of the leading universities in the country and it is located in Jimma town which is a big town in the southwest part of the country at a distance of 356 kilometers from Addis Ababa, the capital city of Ethiopia. JU has a state-of-the-art tertiary hospital named Jimma Medical Center within its main campus. Thus, the university uses its hospital for clinical teaching of all its students under its' Institute of Health. This means that JMC is mostly overcrowded by students from different departments such as medicine, nursing, midwifery, medical laboratory, pharmacy, public health officer, and anesthesia. Thus, the students might be confused by a high load of students and challenged with their clinical practicum if not gained adequate clinical guidance from their clinical teachers.

### Source Population

All regular undergraduate third-year midwifery students of JU were the source population.

### Study Population

All regular undergraduate third-year midwifery students of JU who were undertaking their obstetrics and gynecology practicum in JMC were the study population.

### Inclusion and Exclusion Criteria

All regular undergraduate third-year midwifery students of Jimma University who were undertaking their obstetrics and gynecology practicum at the time of the data collection period of this study were included. The third-year regular undergraduate midwifery student of JU who were absent during the pre-intervention data collection on the clinical learning status and those who have been taking any re-exam at the time of the data collection period and the intervention period of this study were excluded from the study.

## Sample Size Determination and Sampling Method

Since the total population was only 40 regular undergraduate midwifery students, all the students who met the inclusion criteria were included in this study without calculating the sample size. Thus, since six students were not met the inclusion criteria, only the rest 34 regular undergraduate third-year midwifery students were included in this study by using a census method.

## Data Collection Instrument

The data were collected by using a structured questionnaire developed after reviewing relevant literature.<sup>2,14–16</sup> The questionnaire contained four sections: socio-demographic characteristics (five questions), cognitive aspect of clinical learning (seven questions), affective aspect of clinical learning (eight questions), and psychomotor aspect of clinical learning (sixteen questions). English version questionnaire was used for data collection as both the data collectors and the respondents were considered as they can understand English in a good manner since it is the official language of instruction in the country starting from grade nine through university.

## Operational Definitions

### Cognitive Aspect of Clinical Learning

It is considered as the learner's comprehension of their clinical learning objectives, their motivation towards their clinical learning, and investing their clinical learning time in their clinical learning activities.

### Cognitive Aspect of Clinical Learning Measurement Scale

It was measured by using seven items that have only one correct answer. The correct response was scored "1" and the incorrect response was scored "0". Finally, the score was summed up making the maximum score "7" and minimum score "0". As a result, students who had a total score of four or more (half and above) were considered as had good cognitive aspect of clinical learning and the rest were considered as had poor cognitive aspect of clinical learning.

### Affective Aspect of Clinical Learning

It is considered as the learners' emotional and attitudinal reactions to their clinical learning activities, students, teachers, clinical staff, clients or patients, and the clinical learning environment.

### Affective Aspect of Clinical Learning Measurement Scale

It was measured by 8 items that have only one correct answer. The correct response was scored "1" and the incorrect response was scored "0". Finally, the score was summed up making the maximum score "8" and minimum score "0". As a result, students who had a total score of four or more (half and above) were considered as had good affective aspect of clinical learning and the rest were considered as had poor affective aspect of clinical learning.

### Psychomotor Aspect of Clinical Learning

It is considered as the learners' observable level of interaction with others, practicing their learning activities, and efforts for self-learning.

### Psychomotor Aspect of Clinical Learning Measurement Scale

It was measured by 16 items scored as "yes" or "no" and "not observed" after 30 minutes of consecutive observation of each student's action in their clinical learning site. If the students' practice of certain components of the questionnaire was not observed, they were observed for another 30 consecutive minutes again. As a result, if the student's interaction, the practice of their learning activities, and efforts for self-learning were as per the expected level indicated on the questionnaire, they were scored as "yes" and if not scored "no". Then, "yes" converted to "1" and "no" converted to "0". Finally, the scores were summed up making the maximum score "16" and the minimum score "0". As a result, students who had a total score of eight

and above (half and above) were considered as had good psychomotor aspect of clinical learning and the rest were considered as had poor psychomotor aspect in clinical learning.

## The Overall Clinical Learning Score

It was measured by summing up the participants' uncategorized cognitive (7 items), affective (8 items), and psychomotor aspect (16 items) scores in their clinical learning. Thus, the overall clinical learning score ranged from "0" to "31" and it was used as it is (without being categorized) for testing if there is a significant difference in its mean score before and after providing the pre- and post-clinical conferences intervention for the participants. Also, to see the overall status of clinical learning before and after the pre- and post-clinical conferences, the overall clinical learning score was categorized as good if the sum score was greater than or equal to half ( $\geq 15.5$ ) and regarded as poor if the sum score was less than half ( $< 15.5$ ).

## Data Collection Methods

The data were collected both before and after the five rounds of pre-clinical and post-clinical conferences were provided as interventions. The pre-intervention data were collected one day before starting the intervention and the post-intervention data were collected one day after the last pre- and post-clinical conferences were provided. Both the pre-intervention and post-intervention data were collected while the study participants were in their clinical learning site. The conferences were provided for the study participants as a group. The pre- and post-clinical conferences were given to the study participants by the investigator each for 40 minutes on a daily basis before starting and after finishing the day's clinical practicum, respectively. A self-administered questionnaire was used to collect data on the socio-demographic characteristics, cognitive, and affective aspect of clinical learning. The observational checklist was used to collect data on the psychomotor aspect of clinical learning. The data collectors were four Master of Science degree holder midwifery educators whom the respondents did not know before. The observer used the participatory observational technique while doing the clinical learning tasks as a student and closely followed the observable interaction of the study participants with the students, clinical staff, the patients/clients, the client companions, and students' actual observable effort in their clinical practicum task performance, their effort to self-directed learning and scored them as appropriate. The overall process of the data collection procedure was supervised by a senior clinical midwifery educator.

## Data Quality Control

To assure the quality of the data, an appropriately designed questionnaire was used for data collection. One day of training was given to the data collectors and the supervisor on the data collection tool, how to approach the respondents and how to observe the respondent's psychomotor aspect in clinical learning. The filled questionnaires were checked for completeness by the data collectors just before taking from the respondents (for the self-administered part) and if it had an incomplete part it was informed to the respective respondent and informed to be filled again and coded. To minimize errors during the data entry and analysis appropriate software was used.

## Data Analysis and Presentation

Collected data were entered into Epidata version 4.6 and exported to SPSS version 23 for analysis. Descriptive analysis was done and a Paired-samples *t*-test analysis with a 95% confidence interval and *p*-value  $< 0.05$  was done to test if there is a significant difference in the overall clinical learning score of the respondents as a result of the pre- and post-clinical conference intervention. To reveal the magnitude of the intervention's effect, effect size statistics were calculated by the most commonly used effect size statistics called eta squared ( $\text{Eta squared} = t^2/t^2 + N - 1$ ). The results were presented by tables and text.

## Ethical Consideration

This pre-experimental study was undertaken as per the declaration of Helsinki. Ethical approval was obtained from the institutional review board of the Institute of Health, Jimma University. The reference number of the ethical approval was IHRPGn/475. Written informed consent was obtained from each study participant after briefly informing them about the anonymity of their response; the purpose, benefit, and risk of participating in the study; and the confidentiality of their responses.

## Results

### Socio-Demographic Characteristics of Respondents

In this study, a total of 34 undergraduate third-year midwifery students participated with a 100% response rate. Just more than half 18 (52.9%) of the respondents were female. The mean age of the respondents was  $22.29 \pm 1.1$  years. Nearly three-fifths 20 (58.8%) of the respondents can speak two local languages (Afan Oromo and Amharic) and English. But one of the respondents was a foreign student who cannot speak any of the local languages and communicated in English only. Regarding the residence, a higher proportion 16 (47.1%) of the respondents were grown up in urban areas (Table 1).

### Clinical Learning Status Before and After the Intervention with Pre- and Post-Clinical Conferences

The overall clinical learning among the study participants was improved from less than one-tenths 3 (8.8%) to more than half 18 (52.9%) after the pre- and post-clinical conferences intervention. When we see the status of the clinical learning engagement in terms of the three educational domains; just less than one-fourths 8 (23.5%) of the study participants had a good cognitive engagement in their clinical learning before the intervention. But after the intervention, nearly more than half 18 (52.9%) of the study participants had good cognitive engagement in their clinical learning. Also, nearly one-fifths 7 (20.6%) of the study participants had a good affective engagement with their clinical learning before the intervention. But the affective engagement in the clinical learning was increased to nearly two-thirds 22 (64.7%) after the intervention. In addition, just less than one-tenths 3 (8.8%) of the participants had a good psychomotor engagement in their clinical learning before the intervention. But after the interventions, half 17 (50%) of the participants had a good psychomotor engagement in their clinical learning (Table 2).

### The Results from the Paired-Sample *t*-Test Analysis

A paired-sample *t*-test analysis was done to evaluate the effectiveness of pre- and post-clinical conference intervention on Jimma University's third-year undergraduate midwifery students' clinical learning. As a result, there was a statistically significant improvement in their overall clinical learning score from pre-intervention ( $M = 8.79$ ,  $SD = 4.1$ ) to post-intervention [ $M = 15.65$ ,  $SD = 15.65$ ,  $t(33) = 8.53$ ,  $p < 0.001$ ]. The eta squared statistics ( $\text{Eta squared} = t^2/t^2 + N - 1$ ; where " $t$ " = 8.53; and " $N$ " = 34;  $\text{Eta squared} = 0.7$ ) indicated a large effect size on the average improvement in the overall clinical learning after the intervention (Table 3).

**Table 1** Socio-Demographic Characteristics of Regular Undergraduate Third-Year Midwifery Students of Jimma University, Southwest Ethiopia, 2021 ( $n = 34$ )

Variables	Category	Frequency	Percent (%)
Sex	Female	18	52.9
	Male	16	47.1
Age in years	21–22	18	52.9
	23–25	16	47.1
Language ability	Fluent in $\geq$ two local languages and English	20	58.8
	Fluent in one local language and English only	13	38.2
	Fluent in English only and cannot speak any local language	1	3
Residence	Rural	6	17.6
	Semi-urban	12	35.3
	Urban	16	47.1

**Table 2** Clinical Learning Status Before and After the Intervention with Pre- and Post-Clinical Conferences Among Regular Undergraduate Third-Year Midwifery Students of Jimma University, Southwest Ethiopia, 2021 (n = 34)

Variables	Category	Pre-Intervention		Post-Intervention	
		Frequency	Percent (%)	Frequency	Percent (%)
Cognitive aspect of clinical learning	Good	8	23.5	18	52.9
	Poor	26	76.5	16	47.1
Affective aspect of clinical learning	Good	7	20.6	22	64.7
	Poor	27	79.4	12	35.3
Psychomotor aspect of clinical learning	Good	3	8.8	17	50
	Poor	31	91.2	17	50
Overall clinical learning status	Good	3	8.8	18	52.9
	Poor	31	91.2	16	47.1

**Table 3** The Paired Samples *t*-Test Statistical Analysis Output on Effectiveness of Pre- and Post-Clinical Conferences in Improving Clinical Learning Among Regular Undergraduate Third-Year Midwifery Students of Jimma University, Southwest Ethiopia, 2021 (n = 34)

Paired Samples Statistics		Mean		N	Std. Deviation		Std. Error Mean		
Pair 1	Overall clinical learning score after the pre and post-clinical conferences intervention	15.65		34	3.992		0.685		
	Overall clinical learning score before the pre and post-clinical conferences intervention	8.79		34	4.088		0.701		
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Overall clinical learning score after the intervention - Overall clinical learning score before the intervention	6.85	4.685	0.803	5.218	8.488	8.53	33	0.000

## Discussion

This study revealed that the overall clinical learning of the study participants improved from 3 (8.8%) to 18 (52.9%) after the pre- and post-clinical conferences intervention. Also, the paired samples *t*-test result evidenced that there was a statistically significant difference in the overall clinical learning score before and after the pre- and post-clinical conference intervention. In addition, the eta squared value indicated that there is a large effect size on the clinical learning engagement status due to the pre- and post-clinical conferences intervention.

The findings of this study are consistent with the existing evidence that pre- and post-clinical conferences are effective in improving clinical learning.<sup>1,7</sup> This can be justified by the fact that pre-clinical conferences provide opportunities for clinical teachers by which they can distribute and clarify the clinical learning outcomes for learners. Thus, if the students got clarification on their clinical learning outcomes, it means that they got the best necessary conditions for effective learning that enable them to focus their learning efforts towards achieving it without being confused and expending their time on unnecessary things.<sup>1,2</sup>

As additional justification for the effectiveness of pre- and post-clinical conferences in improving clinical learning in this study; during the pre-clinical conference the clinical teachers can provide all necessary orientation for learners whether it may be orienting them on how the students should prepare themselves for better clinical learning; how students should respectfully interact with health-care seekers/providers; or on how students can gain better clinical learning opportunities for better clinical learning by applying their theoretical knowledge practically.<sup>1</sup> In addition, the pre-clinical conferences pave the opportunity by which students can ask questions to gain clear necessary direction regarding their overall clinical learning. Moreover, the interaction clinical teachers make with their students can arouse and uphold students' interest in clinical learning and contributes to better clinical learning.<sup>6,13</sup>

In the same manner, the other justification for the effectiveness of pre- and post-clinical conferences intervention in improving clinical learning in the current study can be the fact that post-clinical conferences avail the opportunities by which students can reflect on their clinical learning, take lessons from it, gain feedback on it, and refine and strengthen their learning.<sup>10</sup> Moreover, during the post-clinical conference, students can criticize the work of each other, develop their clinical reasoning, problem-solving, and interpersonal communication ability which are essential competencies for midwifery professionals.<sup>7-13</sup> This implies that both pre- and post-clinical conferences are very important clinical teaching strategies by which students' clinical learning can be better facilitated, strengthened, and the transfer of the learning is ensured.

Moreover, the effectiveness of pre- and post-clinical conference intervention in improving clinical learning in the current study can be supported by the evidence revealed by a meta-analysis done in 2016 that pointed out coaching and mentorship as mechanisms for alleviating students' stress and burnout leading to better clinical learning outcome.<sup>17</sup> This means that since pre- and post-clinical conferences provided in the current study widen the opportunity by which the clinical teachers coach and mentor students on their clinical learning; it may have resulted in the better clinical learning by reducing learners' stress and burnout with their clinical learning.

## Strengths and Limitations

This study was done on the very important aspect of a clinical teaching strategy which is mostly overlooked but very effective in ensuring better clinical learning. Thus, the result of this study is believed to arouse many clinical teachers to recognize the importance and effectiveness of the pre- and post-clinical conferences and foster them to routinely use it as their best clinical teaching strategy thereby providing their clinical teaching effectively. Data quality control measures were undertaken throughout the process of this study. Also, since there was limited literature on the area, this study will contribute to filling the existing literature gap. But, due to limited literature on the area, the discussion was not that extensive.

## Conclusions

Pre- and post-clinical conference intervention was found to have a statistically significant difference in improving the overall clinical learning score among the third-year undergraduate midwifery students of JU with a large effect size. Thus, the midwifery clinical educators of JU should routinely use it as their best and most effective clinical teaching strategy. Also, recognizing the effectiveness of pre- and post-clinical conferences in improving students' clinical learning; all stakeholders including students should request and encourage the midwifery clinical educators to routinely use it as a clinical teaching strategy of their choice.

## Abbreviations

JU, Jimma University; SD, standard deviation; SPSS, Statistical Package for Social Science.

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## Disclosure

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