



# The Effects of the COVID-19 Pandemic on the Clinical Practicum of Undergraduate Nursing and Midwifery Students in Jordan: A Descriptive Survey

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## Abstract

**Introduction:** The effects of COVID-19 lockdowns and the discontinued face-to-face clinical practicum had negative consequences on nursing and midwifery students at many levels. The clinical learning environment includes all the training and learning experiences that nursing students undergo during their clinical practicum.

**Objectives:** This study aimed to assess the effects of the COVID-19 lockdowns on the nursing and midwifery students' practicum training in governmental and private universities and academic faculties of nursing in Jordan.

**Methods:** A descriptive cross-sectional study of 1025 nursing and midwifery students from academic faculties of nursing of both governmental and private Jordanian universities was conducted in September 2021. The research group from two Jordanian universities designed and validated a 13-item survey to determine and evaluate the impact of mass lockdowns on nursing and midwifery students' practicum training. The responses were assessed using descriptive and inferential analyses.

**Results:** The findings revealed that the lockdown had a negative impact on nursing and midwifery students' self-confidence and competency in performing nursing procedures. The academic year of the students was a significant independent predictor of their self-confidence and competency levels in performing nursing procedures.

**Conclusion:** The study concluded that nursing and midwifery students were dissatisfied with their clinical education during the COVID-19 pandemic, which led to poor self-confidence in performing nursing procedures. The study group recommended repeating the clinical practicum, incorporating extensive laboratory and hospital courses, and implementing a one-year internship for newly graduated nurses and midwives to address the training gap and enhance self-confidence in clinical procedures.

## Keywords

clinical nursing practicum, competence, COVID-19, Jordan, midwifery, self-confidence

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## Introduction

The coronavirus pandemic during 2020–2021 affected most people's daily life activities worldwide. Governments throughout the world acted differently to fight the disease spread. Some of these actions were massive lockdowns and movement control orders. Conversely, other governments did not close schools or colleges (Hale et al., 2022). Students' academic success and educational programs were negatively affected due to lockdowns, including nursing

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and midwifery students' practicum training (Gadi et al., 2022). Many functioning organizations, including schools and universities, were subjected to government-imposed lockdowns (Cerna et al., 2020). The COVID-19 pandemic also affected research processes which presented a range of problems for clinical and surgical trainees. Science and clinical trial research unrelated to COVID-19 came to a standstill due to lockdown policies and the closing of several university research facilities (Sohrabi et al., 2021).

In Jordan, university lockdowns started on March 15, 2020, and extended throughout the 2020/2021 academic calendar which ends in June (GardaWorld, 2020). Nursing and midwifery students resumed their face-to-face practicum training for one month only (September 2020) in hospitals and nursing laboratories inside the academic faculties of nursing at Jordanian universities. After one month, face-to-face education stopped due to the massive spread of positive coronavirus cases. During that time, all universities immediately converted all face-to-face classes into online courses during and after the COVID-19 pandemic, including Al-al-Bayt University, which began using Skype, Moodle, and Google Classroom to offer live lectures broadcasted by scholars (Abdelgeleel et al., 2021; Khraisat et al., 2020a). However, studies have also been unable to prove whether the alternative teaching approach will yield improved learning outcomes in self-competence results (Khraisat et al., 2020b). For those unfamiliar with the nuances of virtual learning, this challenge was quite difficult (Singh & Haynes, 2020). Many clinical instructors and students expressed their dissatisfaction with the clinical practicum because students could not perform procedures, and clinical instructors' presentations were limited to online learning.

Many governmental and private universities offer bachelor's degrees in nursing in Jordan. As in the bachelor's degree nursing education, the midwifery specialization is a parallel specialization taught in some Jordanian universities, through which a person is awarded a bachelor's degree in midwifery after studying for four years. In addition to the bachelor's degree, 12 nursing colleges provide two-year nursing and midwifery diploma programs. Every year, approximately 1,100–1,300 nurses graduate from bachelor and diploma programs in nursing and midwifery. Nursing students typically begin their clinical practicum in academic nursing faculty laboratories during their first year. A demonstration by clinical teachers and a return demonstration by the students are included in the clinical practicum. During the clinical practicum, role-playing, and video-watching are also used. In the second year, students begin their clinical practicum in hospitals under the direct supervision of clinical instructors. In the third and fourth years of undergraduate nursing education in Jordan, the clinical practicum focuses on more specialized, intensive, and prolonged hospital-based clinical training to master nursing competencies. During the lockdowns, all these academic programs were discontinued,

only online schooling was implemented, and no clinical practicum was offered.

## Literature Review

Regarding the importance of clinical practicum for nurses, face-to-face patient interactions are needed for teaching caring activities, which promote the didactics of caring behaviors through emotional intelligence, which was a major challenge for nursing academics during pandemic lockdowns (Hussien et al., 2020; Tabudlo & Torres, 2021). Moreover, nursing students must be offered the opportunity to put their care skills to the test in a real-world environment (Persaud & Thornton, 2018). In view of the pandemic's shortcomings in teaching and practicing caring, administrators and nurse educators had to make a deliberate attempt to implement learning experiences that cultivate caring habits (Tabudlo & Torres, 2021).

The effects of the lockdowns and the discontinued face-to-face clinical practicum had negative consequences on nursing and midwifery students at many levels. For instance, their personal competence and self-confidence have declined due to a lack of experience in conducting many primary nursing procedures (Konrad et al., 2021). Personal competence is described as the ability to maintain self-control over reactive emotions and impulsive thoughts, foster and direct emotional impulses toward desired outcomes, and align and collaborate with others in a community or organization to accomplish mutual goals (Khraisat et al., 2015). Another negative effect of the lockdowns was concerning the key role of the clinical mentor, as the students revealed conflicting feelings about their clinical teachers who worked as nurses and shared with them their knowledge, skills, and experience. Moreover, the increased theory-practice gap, the greater ambivalent emotions, and ethical challenges, the lack of social connectedness, and the lack of opportunities for teamwork which helps to formulate their professional identity were among the lockdowns' negative consequences on the nursing clinical practicum (Dziurka et al., 2022).

In prelicensure nursing education and nursing practice, self-confidence is an essential practice factor (Perry, 2011). Self-confidence is a reflection of a person's attitude toward their skills and abilities. It denotes that the individual has a healthy self-image, accepts and trusts himself or herself, and feels in control of his or her life while taking into account the perceived strengths and flaws of the individual (Lubbers & Rossman, 2017). A lack of self-confidence can quickly jeopardize a nurse's capacity to function autonomously and competently. Nursing standards of conduct demand that practitioners have faith in their skills and abilities. In addition, given COVID-19's continuing effect on conventional teaching, achieving competence can necessitate more self-directed instruction, remote case studies, or the use

of alternative training methods, such as simulation (Arrighi et al., 2021).

The clinical learning environment (CLE) includes all the training and learning experiences that nursing students undergo during their clinical practicum, which usually starts in nursing laboratories with learning fundamentals of nursing and through hospital training with different nursing modules (e.g., medical-surgical nursing, maternity, pediatrics, mental health nursing, and community health nursing). A considerable amount of evidence suggests that CLE is highly effective in familiarizing students with professional evaluation and decision-making, as well as stimulating their critical thought, in encouraging them to understand the ramifications of their mistakes; it is also effective in introducing them to different sociocultural, biological, psychological, and emotional facets of patient care in their development and advancement of clinical skills, in achieving learning outcomes/objectives and in connecting theory to reality (Alatawi et al., 2020).

Students' assessments of the clinical environment and supervision were mirrored in their evaluations of clinical learning subdimensions; the process of supervision was indicated to be a significant determinant (Graham et al., 2016). Furthermore, nursing students benefited from preceptorship because it improved their professional skills (Aboshaiqah & Qasim, 2018). All students were in online education (i.e., no clinical / hospital/ community time) during the study time, except for the third and fourth year who enrolled for one month in clinical and hospital training. The option of nursing students going to the nearest hospital to perform the clinical practicum was available for nursing and midwifery students in Jordan in the third and fourth year of study, and this option was reinforced by some universities during the COVID-19 lockdown period. Moreover, this training was facilitated through the presence of preceptors and clinical instructors at the education departments of most hospitals who had agreements with the faculties of nursing in the universities to organize students' clinical training and offer some supervision to the nursing students in the hospitals.

Adopting the "Social Exchange Theory" as a theoretical framework to study the impact of the COVID-19 lockdown on the clinical practicum of undergraduate nursing and midwifery students yielded valuable insights into their experiences and interactions during this difficult period. The Social Exchange Theory, formulated by sociologists and psychologists, centers on the interpersonal relationships among individuals and highlights the reciprocal exchange of resources, advantages, and disadvantages within these connections (Cook et al., 2013; Cook & Emerson, 1987).

Researchers utilized the social exchange theory to comprehend how the COVID-19 lockdown affected clinical practicum. They examined how students' perceptions of the advantages and disadvantages of their clinical encounters were shaped by the limitations imposed by the lockdown measures. This facilitated an examination of the variables

that could potentially influence their drive, contentment, and involvement in the therapeutic environment.

The theory suggests that individuals engage in social exchanges to maximize rewards and minimize costs. Undergraduate nursing and midwifery students had the opportunity to evaluate the advantages they derive from their clinical practicum, which may include acquiring practical experience, honing clinical skills, and fostering professional connections. Concurrently, they recognized the drawbacks linked to the lockdown, such as restricted patient engagement, decreased exposure to varied clinical situations, and heightened stress and worry caused by the epidemic.

Researchers might utilize the social exchange theory to examine how the perceived benefits and costs impact students' overall satisfaction with their clinical practicum experience. One can investigate the factors that may influence students' evaluations, such as the caliber of virtual learning and alternative clinical activities offered during the lockdown, the assistance provided by clinical instructors and peers, and the feeling of being part of the healthcare team despite the limitations.

At the time of the research conduction, there was a scarcity of research addressing the impact of the COVID-19-related lockdown and curfew on nursing students' training and clinical practicum globally, and none of them was carried out in Jordan which represented a gap in the literature concerning the issue and might hinder the endeavors to mitigate any negative consequences of the lockdown on the nursing students' clinical practicum and their competence. Therefore, it was imperative to study the effect of the COVID-19-associated lockdown on the nursing and midwifery students' practicum training in Jordan. For that, the purpose of the current descriptive study was to assess the effects of the lockdowns on the nursing and midwifery students' practicum training in Jordan.

## Methods

### Study Design

A descriptive cross-sectional study was conducted to determine and evaluate the latest clinical practicum for nursing and midwifery students during the Jordanian lockdown.

### Research Question

What is the effect of the COVID-19 pandemic on the clinical practicum of undergraduate nursing and midwifery students in Jordan?

### Sample, Sampling, and Setting

The survey was sent to most Jordanian nursing and midwifery students through universities, nursing faculties, and social networks in Jordan. A convenient sample of 1,025

individuals was recruited from bachelor nursing and midwifery students in different academic years with a survey response rate of 41%. This sample was selected from 10 universities in Jordan, constituting all universities that offer the Bachelor of Nursing or midwifery educational program. The sample size was calculated according to the targeted undergraduate nursing and midwifery students at private and governmental Jordanian universities at a 99.9% level of confidence, with 5% confidence limits, a 50% anticipated frequency, and a design effect value of 1.0. The high confidence level was assigned only for the sample size estimation to ensure that the sample represents the target population of nursing and midwifery students perfectly. Using the open-source OpenEpi version 3.01 software program (Dean et al., 2013), the required sample size was determined to be 1,022 subjects; however, the recruited sample was 1,025. Based on the recruited sample students, the sample was representative of the bachelor's nursing and midwifery students in Jordan, also the sample was a convenience sample that is relatively homogenous with respect to ethnicity and geographic location.

### Inclusion Criteria

The study included any student who was enrolled in a Bachelor of Nursing or midwifery program at any academic year in one of the Jordanian universities and accepted to participate in the study.

### Instruments and Data Collection

Data were collected in September 2021 using a survey that was filled out and submitted automatically using Google Forms. English is the formal teaching language for all undergraduate nursing and midwifery programs at all universities in Jordan; therefore, the distributed questionnaire was an English-based survey for all Jordanian and international students. The platform received the answers automatically. The participants were given the option to choose only one answer for every question in the survey, also, as per the questionnaire instructions on the cover page, every participant had only one opportunity to participate in the study. This was also guaranteed through the collection of participants' university email addresses and through selecting the "one response-only" choice in the Google Forms options. To assure participants' confidentiality, the participants' official email addresses didn't include the students' names or any personal information.

In addition to demographic data, participants' educational institution, nationality, type of program enrolled, and gender were all gathered. A 13-item survey was developed and validated by this study's researchers—all are nursing-content educators and education specialists. The reliability of the survey was also determined using Cronbach's alpha coefficient test (Cronbach's  $\alpha = 0.84$ ). A pilot study was carried out on 102 participants (representing 10% of the estimated

sample size required) before conducting the main investigation to test the clarity of the survey and the feasibility of this study. The questions were not modified significantly; however, the responses of the pilot study were not included in the present study to assure the accuracy of the findings, as the piloting aimed only to test the feasibility and clarity of the questionnaire, and a few amendments were carried out accordingly.

The survey collected data about the respondents' demographics and other items to check the existing students' views and opinions about the current clinical practicum activities that were used during the lockdown. Self-confidence and competency in conducting nursing procedures were checked. In addition, a recommendation about the current situation was collected and analyzed. The survey was divided into (1) demographic data, (2) three questions about clinical practicum, and (3) 10 statements on a 5-point Likert scale identifying self-confidence and competence.

The survey questions about clinical practicum were as follows:

1. *What was the type of clinical practicum you received from the nursing educators during the lockdown?* The options were (a) typical theory explanation, (b) interactive discussion between the educators and you, (c) videos from the internet (YouTube), (d) videos by the educator, and (e) interactive videos that the educators explain and do the procedure live using online teaching.
2. *What was the practicum training you did as a student during the lockdowns and stopped face-to-face education?* The options were (a) I didn't do any clinical practicum, (b) watching videos only, (c) I went to the nearest governmental outpatient department and performed a clinical practicum by myself, (d) I went to the nearest hospital and performed the clinical practicum by myself, and (e) I applied some practicum on my family members.
3. *How were the clinical practicum modules assessed by the nursing educators?* The options were (a) a theoretical online exam only, (b) record a video for me while performing the nursing procedure and upload it to the platform, (c) live online performing the procedure in front of the nursing educator, (d) doing only assignments and case study reports and upload it to the platform, and (e) I performed the procedure in front of the nursing educator inside the school of nursing.

The 10 items identifying self-confidence and competency were on a 5-point Likert scale (from strongly disagree to strongly agree; five options), as shown in Table 1. The 10 questions were constructed by the researchers based on a review of the literature available, then validated using content validity and tested for reliability before embarking on data collection (Brown & Crookes, 2016; Durham & Alden, 2008; Fukada, 2018). The Cronbach's alpha

**Table 1.** Self-Confidence and Competency Survey Items Results.

Survey items (Likert scale)	Weight of the responses				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
When face-to-face education was replaced with online education, the clinical practicum was generally affected	85%	8%	3%	3%	1%
I feel I am competent to perform the nursing procedure effectively once I graduate from the university/faculty	5%	11%	17%	40%	27%
I feel I am weak/need to do repractice regarding the clinical nursing procedures	64%	15%	9%	7%	5%
I feel I can perform the clinical nursing procedures theoretically only	16%	40%	23%	17%	4%
I feel the clinical education during the lockdown was enough	2%	5%	9%	50%	34%
I feel I can perform the clinical nursing procedures relying only on the online education	2%	7%	11%	45%	35%
I feel total incompetence in performing the clinical nursing procedures	46%	28%	15%	9%	2%
I feel I need to do total repractice	57%	23%	11%	7%	2%
One of the problems I faced during online education was the lack of availability of the internet and lack of availability of laptop/ PC	52%	27%	12%	6%	3%
I suggest having an extra year of training after graduation	55%	17%	11%	11%	6%

coefficient for the Likert scale was accepted at 0.84. The mean of the total score of the participants was used with a minimum score of 10 and a maximum score of 50, and for the study purpose, the mean of the total scores of the students was calculated and compared across their level of study or academic year.

To ensure accurate responses by the participants, clear instructions were given on the survey cover page, and participants were informed about the presence of positively and negatively worded questions in the questionnaire. The researchers also validated the positive/negative responses of the participants to ensure that the participants did not choose one extreme response constantly for all questions (e.g., strongly agree) without recognizing that there were positively and negatively worded questions in the questionnaire.

### Ethical Considerations

Regarding the ethical considerations of the current study, the research proposal was submitted to the Ethics Research Committee at Al-Hussein Bin Talal University in Jordan and was approved before commencing the data collection (IRB approval number AICAMS-346/RN/2018-21 on May 16, 2021). The electronic survey required the approval of the participants on the terms and conditions of being a part of the study as a consent form before starting to fill up the questionnaire. Participation was voluntary and all information of the study participants was kept confidential throughout the study by leaving them anonymous and allocating codes for the surveys. All ethical principles regarding medical research involving human subjects, in accordance with the Declaration of Helsinki, were followed (World Medical Association, 2018).

**Table 2.** Demographic Data (N= 1,025).

Demographic	n	%	
Gender	Male	238	23
	Female	787	77
The year of study	First year	337	33
	Second year	301	29
	Third year	229	22
	Fourth year	158	16
Type of university	Governmental	909	89
	Private	116	11
Nationality	Jordanian	985	96
	International	40	4
Program	Nursing	873	85
	Midwifery	152	15

### Statistical Analysis

Descriptive analyses, involving frequency and percentage calculations as well as mean and standard deviation computations, along with inferential statistics, including analysis of variance (ANOVA) and linear regression, were conducted using the Statistical Package for the Social Sciences (SPSS) version 25 software program (IBM Corp, Released 2017).

## Results

### Sample Characteristics

A total of 1,025 respondents (787 [77%] female and 238 [23%] male) were employed for the survey, among which 985 (96%) were of Jordanian nationality, and 40 (4%) were international students. Nursing students accounted for 873 (85%), whereas only 152 (15%) were midwifery students.

Moreover, 909 (89%) were from governmental universities, and 116 (11%) were from private universities. In addition, 337 (33%) were Year 1 students, 301 (29%) were Year 2 students, 229 (22%) were Year 3 students, and 158 (16%) were Year 4 students (Table 2).

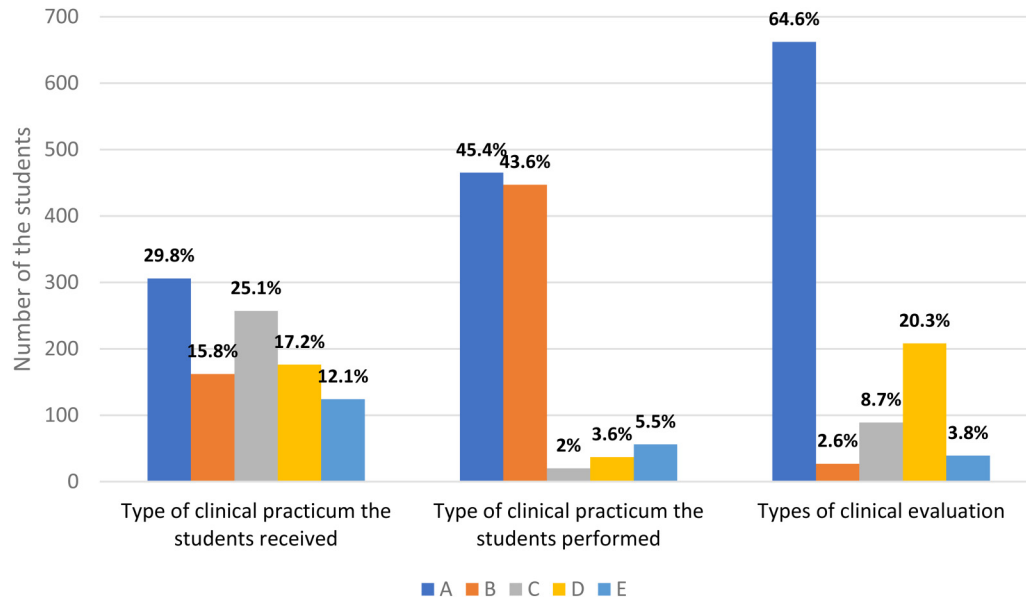
### Research Question Results

The results showed that 29.8% ( $n = 306$ ) of the students received only a typical theoretical explanation, and 15.8% ( $n = 162$ ) of the students performed an interactive discussion with the educator. Moreover, 25.1% ( $n = 257$ ) of the students watched only videos from the internet (YouTube), 17.2% ( $n = 176$ ) of the students received a video from the nursing educator, and 12.1% ( $n = 124$ ) attended an interactive online video by the nursing instructor explaining the nursing procedure (Figure 1).

When asked about the clinical practicum they performed during the lockdown, about 45.4% ( $n = 465$ ) of the students did not do any clinical practicum, and 43.6% ( $n = 447$ ) of the students watched videos only. Moreover, 2% ( $n = 20$ ) of the students went to the nearest OPD clinic in their neighborhood and practiced there, 3.6% ( $n = 37$ ) of the students went to the nearest hospital and performed their clinical practicum, and 5.5% ( $n = 56$ ) of the students practiced some of the clinical practicum on some family members (Figure 1).

When asked about the assessment/exam that the nursing educator performed to assess the clinical practicum modules during the lockdown, a written online exam evaluated about 64.6% ( $n = 662$ ) of the students, and 2.6% ( $n = 27$ ) of the students recorded a video for themselves performing a clinical nursing procedure and uploaded it to the education platform for evaluation. About 8.7% ( $n = 89$ ) of the students performed the clinical practicum assessment live online, and the nursing educators evaluated them immediately. Around 20.3% ( $n = 208$ ) of the students did only assignments and case studies and uploaded them to the educational platform, while only 3.8% ( $n = 39$ ) of the students performed the clinical practicum exam physically inside the faculty (Figure 1).

Table 1 showed that 85% ( $n = 867$ ) of the students strongly believed that clinical practicum was affected by the lockdown, and only 1% ( $n = 10$ ) strongly disagreed with it. About 40% ( $n = 408$ ) of the students felt incompetent to some extent in conducting nursing procedures, whereas 5% ( $n = 51$ ) strongly felt competent. Around 64% ( $n = 653$ ) of the students strongly felt weak and needed to re-practice, whereas 5% ( $n = 51$ ) strongly disagreed with it. About 40% ( $n = 410$ ) of the students believed that they could perform clinical nursing procedures only theoretically, whereas 4% ( $n = 41$ ) strongly disagreed with that and deeply believed



**Figure 1.** Clinical practicum survey questions ( $N = 1,025$ ). 1. Type of clinical practicum the student received. (a) Typical theory explanation, (b) interactive discussion between the educators and you, (c) videos from the internet—YouTube, (d) videos by the educator, and (e) interactive videos that the educators explain and do the procedure live using online teaching. 2. Type of clinical practicum the students performed. (a) I didn't do any clinical practicum, (b) watching videos only, (c) I went to the nearest governmental outpatient department and performed a clinical practicum by myself, (d) I went to the nearest hospital and performed the clinical practicum by myself, and (e) I applied some practicum on my family members. 3. Type of clinical evaluation. (a) A theoretical online exam only, (b) record a video for me while performing the nursing procedure and upload it to the platform, (c) live online performing the procedure in front of the nursing educator, (d) doing only assignments and case study reports and upload it to the platform, and (e) I perform the procedure in front the nursing educator inside the faculty.

that they could perform clinical nursing procedures theoretically and practically.

Moreover, 50% ( $n = 512$ ) of the students felt that clinical education during the lockdown was not enough, whereas 2% ( $n = 21$ ) disagreed and strongly believed that clinical education during the lockdown was enough. About 45% ( $n = 459$ ) of the students believed that they could not perform clinical nursing procedures relying solely on online education, whereas 2% ( $n = 21$ ) strongly believed that they could depend on it. About 46% ( $n = 469$ ) strongly felt total incompetence in performing clinical nursing procedures in general, whereas 2% ( $n = 20$ ) strongly felt competent in that concern. Furthermore, 57% ( $n = 584$ ) of the students strongly thought that they needed to re-practice for all the clinical practicum modules they missed due to the lockdowns, whereas only 2% ( $n = 21$ ) strongly disagreed. In addition, 52% ( $n = 532$ ) of the students reported that they strongly faced difficulties with internet connections and laptops/ PCs, whereas 3% ( $n = 31$ ) strongly reported that they did not encounter such

issues. Finally, 55% ( $n = 563$ ) of the students strongly agreed to have an extra one-year clinical practicum after graduation, whereas 6% ( $n = 62$ ) strongly disagreed with that opinion (Table 1).

The findings revealed a significant difference in the mean scale of self-confidence and competency among the participants based on their academic level, as determined by the ANOVA test ( $p = 0.000$ ). Table 3 illustrates that students in the fourth year had the highest mean score of self-confidence and competency in clinical procedures ( $M \pm SD = 26.21 \pm 7.25$ ), followed by students in the first year, third year, and then students in the second year ( $M \pm SD = 23.21 \pm 7.48$ ,  $23.15 \pm 6.96$ ,  $21.69 \pm 7.77$ , respectively). Furthermore, the mean score of first-year students was higher than that of second-year and third-year students.

To detect significant differences in participants' mean scores of self-confidence and competency based on their academic level, the Scheffe post hoc test in Table 4 revealed that fourth-year students had significantly higher mean scores in self-confidence and competency compared to nursing and midwifery students in other academic levels (i.e., first year, second year, and third year).

Through the utilization of linear regression analysis, the results presented in Table 5 underscore that the academic year of the students emerges as the sole significant independent predictor influencing the self-confidence and competency of participants in clinical procedures ( $p = 0.004$ ). Notably, this finding stands out amid various sociodemographic characteristics, including Gender, University type, nationality, and program, where no statistically significant relationships were observed.

**Table 3.** Comparison of Mean Score of Participants' Self-Confidence and Competency Scale Per Their Academic Year.

Year of study	Self-confidence and competency		ANOVA
	Mean	Standard deviation	
First year	23.21	7.48	$F = 5.539$ $Sig = 0.000$
Second year	21.69	7.77	
Third year	23.15	6.96	
Fourth year	26.21	7.25	
Total	23.93	7.33	

**Table 4.** Discrepancy in Mean Score of Students' Self-Confidence and Competency Scale Based on Their Academic Year.

Dependent variable: Self-confidence & competence						
Scheffe						
(I) Year of study	(J) Year of Study	Mean difference (I-J)	Std. error	Sig.	95% confidence interval	
					Lower bound	Upper bound
First year	Second year	1.52388	0.64971	0.24	-0.4808	3.5286
	Third year	0.06544	0.56722	1	-1.6847	1.8156
	Fourth year	-2.59816*	0.81413	0.038	-5.1101	-0.0862
Second year	First year	-1.52388	0.64971	0.24	-3.5286	0.4808
	Third year	-1.45844	0.68186	0.334	-3.5623	0.6454
	Fourth year	-4.12204*	0.89778	0	-6.8921	-1.352
Third year	First year	-0.06544	0.56722	1	-1.8156	1.6847
	Second year	1.45844	0.68186	0.334	-0.6454	3.5623
	Fourth year	-2.66361*	0.84001	0.04	-5.2554	-0.0718
Fourth year	First year	2.59816*	0.81413	0.038	0.0862	5.1101
	Second year	4.12204*	0.89778	0	1.352	6.8921
	Third year	2.66361*	0.84001	0.04	0.0718	5.2554

\*The mean difference is significant at the 0.05 level.

**Table 5.** Linear Regression of the Self-Confidence and Competency of Participants and Their Sociodemographic Data.

Coefficients <sup>a</sup>		Unstandardized coefficients		Standardized coefficients		
Model		B	Std. error	Beta	t	Sig.
I	(Constant)	22.557	.327		68.878	.000
	Gender	1.446	.552	.028	1.821	.096
	Year of study	.481	.167	.087	2.889	.004**
	Type of university	-1.428	.651	-.019	-1.292	.187
	Nationality	-1.480	1.199	-.012	-.401	.389
	Program	-1.397	.262	-.016	-.813	.239

<sup>a</sup>Dependent Variable: Self-confidence and Competency.

\*\*Significant at <0.01 level.

## Discussion

This survey aimed to evaluate and examine the effects of a round one-and-a-half-year COVID-19 pandemic partial lockdown on nursing and midwifery students' clinical practicum in Jordan. The survey was sent to nursing and midwifery students across Jordan. It asked them about their clinical practicum during the lockdown and their views and attitudes about how they felt about face-to-face clinical education being replaced by online education.

The survey also aimed to evaluate the students' self-confidence in conducting clinical nursing procedures and their competency in performing them. Lack of face-to-face clinical education and absence of physical performance in clinical nursing procedures had affected the students. This phenomenon may lead to future problems when these future nursing graduates start their careers in hospitals/clinics. These results were congruent with the findings of a recent study conducted in South Korea on nursing students which found that clinical training and self-directed clinical practicum had a significant effect on improving the nursing students' self-confidence and satisfaction with the clinical practicum (Park & Cho, 2022). Additionally, a study conducted in Vietnam found that newly graduated nurses who had taken part in the conventional clinical training program had significantly higher levels of competence and experienced a noticeably greater increase in competency scores than those who had not (Horii et al., 2021).

Nursing competency refers to nurses' ability to use critical reasoning and accurate clinical experience to deliver nursing services that meet clients' needs. The nursing competency system comprises four capabilities: identifying needs, delivering treatment, collaborating, and facilitating decision-making (Fukada, 2018). The ability to execute specific core skills and the assessment by demonstrating those skills have been affected by the lockdown. Students could not attend nursing educators' clinical demonstrations nor perform a redemonstration in front of nursing educators because of the lockdown.

The dilemma that was faced by nursing educators and the Jordanian Ministry of Higher Education was how to decrease

students' physical interaction or being in the same place (as a precautionary safety measure for social distancing during the COVID-19 pandemic), and how could these students demonstrate what they learned to reach competency in performing clinical nursing procedures and then later relying on these nurses to be competent and reliable ones in hospital settings. In view of the COVID-19 pandemic, nurse educators should use competency tools to enculturate care skills and caring activities (Tabudlo & Torres, 2021). Moreover, nursing educators need to improve their attempts to foster caring habits through their undergraduate studies and help frontline nurses during the COVID-19 pandemic (Loke et al., 2015), and nurse educators must be armed with evidence (Nashwan et al., 2020).

The results of this study indicated that 46% of students strongly believed that they were incompetent in conducting clinical nursing procedures, and 64% of students strongly thought that they were weak and needed to repractice; these results are worrying, and effective measures must be taken to resolve the issue. In this study, approximately 57% of students strongly reported the need to repeat the entire year of clinical practicum, and 55% of them strongly agreed to have an extra year of clinical practice after graduation, which does not exist as mandatory for graduate nurses in Jordan.

Some researchers have recently proposed using a three-dimensional simulation in a virtual learning environment (Khraisat et al., 2020a). Others have advocated using virtual learning environment simulations (Wild et al., 2020). Others have welcomed the inclusion of a blended teaching system of asynchronous and synchronous modes of education (Moorhouse, 2020), with the synchronous using learning management systems, and the asynchronous using videoconferencing software. The adoption of mobile learning laboratories or MobLeLabs, which are smart apps designed to be an instructional platform for students during a pandemic, was facilitated by smartphones' availability (Lellis-Santos & Abdulkader, 2020). Others have proposed that videoconferencing and phone calls can be used as examples of information and communication technology in health-care (Schweickert & Rutledge, 2014). Virtual reality



simulations have also been suggested as a way to enhance advanced nursing education (Jenson & Forsyth, 2012). However, no academic preparation in Jordan was available for such huge changes in education and the replacement of face-to-face education with online education. In Jordan, during the time of the pandemic, teachers only used online platforms, such as ZOOM® and Microsoft TeamViewer, and educators tended to teach theoretical modules using the same PowerPoint presentation and verbal explanation for clinical nursing procedures.

In the current study, one of the online education problems faced the nursing students during the pandemic was the lack of availability of the Internet, computers, and communication technology. In a recent study, the internet was the most significant barrier to online learning as reported by a study that was conducted on medical specialty students in Egypt during the COVID-19 lockdown. The medical specialty students who had internet connections scored significantly higher in both perception and experience compared to those who did not (Abdelgeleel et al., 2021).

Additionally, in a previous Jordanian study that was conducted to examine the situation of distance E-learning among medical students during their clinical years and to identify potential challenges, limitations, and satisfaction, the internet streaming quality and network coverage were the main issues that most students identified. Lack of technology, internet access difficulties, and poor internet quality were examples of barriers that affected both learners and faculty members (Al-Balas et al., 2020). Moreover, the internet barrier was listed as one of the most typical barriers to online learning in a study from the Philippines that sought to identify and describe the hurdles to online learning from the perspective of medical students during the COVID-19 pandemic. These were some of the obstacles related to the following: technological, which pertains to hardware, software, and internet connectivity (Baticulon et al., 2021).

During the COVID-19 pandemic lockdown and concerning self-confidence in conducting clinical nursing procedures, nursing education has changed from a hospital-based teaching paradigm, which stresses daily familiarity with activities and procedures, to simulation-based learning, which encourages students to learn objectively and use facts carefully. Nursing students can be professional, confident, knowledgeable, and satisfied by applying nursing experience and skills to challenging circumstances in a structured learning atmosphere using clinical simulations (Mohamed & Mohamed, 2020). In this study, given that all preparation and teaching were online, 56% of the students reported that they could perform clinical nursing procedures theoretically only (know how to perform but cannot perform it physically), given that all their training was performed theoretically. About 80% of participants claimed they could not perform clinical nursing procedures depending solely on online education. Conversely, other studies have suggested incorporating immersive health training and other adaptive automated

learning approaches as an instructional technique that can be shifted to include appropriate technologies in the nursing curricula for finding new alternate learning strategies for nursing and non-nursing specialties practicum classes, beginning in the first year and continuing into the final year (Mohamed & Mohamed, 2020).

The current study found that the academic year of the participants was found to be a significant independent predictor of their self-confidence level in performing nursing procedures, and the level was significantly the highest for the fourth-year students. This may be related to the exposure to more clinical skills and training year after year which may have increased the students' level of self-confidence. First-year students were exposed to the basics of nursing science, laboratory training, and simulation-based training which may have reflected their high self-confidence level concerning nursing procedures.

There was little agreement in the literature about this point although several studies have revealed how nursing students' levels of confidence change during their academic careers (Alharbi & Alharbi, 2022; Makarem et al., 2019; Post University Blog, 2022; Twidwell et al., 2022). Sasat et al. (2002) for example analyzed several facets of nursing student self-confidence over the course of three years and found no correlation between self-confidence and year of study in the nursing program under consideration.

According to many research works, self-confidence was found to be high at the beginning of nursing program education but declined with each passing year of study (Edwards et al., 2010; Randle, 2003). Moreover, one of the research projects found that fourth-year students had the lowest level of self-confidence with no significant difference from other academic levels (Kukulu et al., 2013). Because nursing is a humanistic profession requiring the establishment of positive interpersonal relations, and due to the stress that students encounter during their clinical practicum experiences, especially traumatic clinical experiences, academicians expect nursing students to have high levels of self-confidence.

### *Implications for Practice*

The research findings suggested that the COVID-19 pandemic has significantly affected the clinical practicum of undergraduate nursing and midwifery students in Jordan. Therefore, the following implications for practice could be drawn from the study:

*Addressing the impact of lockdowns:* The study highlighted that the lockdowns had a significant impact on the clinical practicum of students. Therefore, it is essential to develop strategies to mitigate the effects of lockdowns, such as providing alternative learning opportunities, increasing the use of simulation-based learning, and increasing the availability of clinical placements.

*Enhancing self-confidence and competence:* The study showed that a significant proportion of students felt incompetent or weak in conducting nursing procedures. Therefore, it is important to focus on enhancing students' self-confidence and competence in clinical procedures through increased clinical hands-on practice, feedback, and support.

*Improving online education:* The study showed that a significant number of students felt that online education was not sufficient for learning clinical nursing procedures. Therefore, it is important to improve the quality of online education and develop innovative strategies to provide effective online learning that complements hands-on clinical practice.

*Considering an extended clinical practicum:* The study showed that more than half of the students agreed to have an extra one-year clinical practicum after graduation. Therefore, it is important to consider the feasibility of an extended clinical practicum to provide students with more opportunities for hands-on practice and enhance their self-confidence and competence.

*Addressing academic-level differences:* The study highlighted that there was a significant difference in self-confidence and competence among students based on their academic level. Therefore, it is important to address these differences through targeted interventions, such as providing additional support for students at lower academic levels and developing tailored learning opportunities for students at higher academic levels.

### Limitations

This study collected only students' responses. Further studies should collect quantitative and qualitative data from nursing and clinical educators, deans, and members of nursing and midwifery programs. The findings of the current study can be generalized to universities in Jordan, but not other universities in other countries as the situation in Jordan, the nursing curriculum, and clinical practicum are different from that of other countries. Moreover, the nursing and midwifery students' clinical training challenges, their responses to the challenges, and the student's experiences during the COVID-19 pandemic in the neighboring countries may also be different. Additionally, the study researchers recommend for future studies to validate the researchers-designed measurement tool used in the current study in different perspectives or contexts.

### Conclusion

Jordanian nursing and midwifery students were dissatisfied with the clinical education provided during the COVID-19 pandemic. They expressed a lack of self-confidence in performing clinical nursing procedures and had doubts about their ability to become competent nurses to work in the hospitals and clinical field. The academic year of the participants was found to be a significant independent predictor of their

self-confidence level in performing nursing procedures, and the level was the highest among the fourth-year students. The study group recommended the clinical practicum's repetition and including extensive courses inside nursing laboratories and hospital settings. The students also recommended one-year internship training for newly graduated nurses and midwives to overcome the clinical training gap and to improve their self-confidence in performing nursing procedures.

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### Authors' Contribution

MAS is the corresponding author of the study and conceived and designed the study. ABA performed data collection, drafted the paper, and reviewed the manuscript. RMA performed the statistical analyses and editing of the manuscript. FAA reviewed and proof-read the final version of the manuscript. All authors provided input regarding the manuscript and approved the final version.

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