IMPACT OF COVID-19 LOCKDOWNS ON CLINICAL SKILLS AND MENTAL HEALTH OF NURSING UNDERGRADUATES IN SINDH, PAKISTAN

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ABSTRACT

Introduction: The COVID-19 pandemic severely disrupted global healthcare systems and profoundly affected nursing education. In Sindh, Pakistan, lockdowns and institutional closures restricted clinical placements, limiting opportunities for nursing students to gain practical skills. This study explores the impact of the pandemic on clinical learning, psychological stress, and perceived competence among nursing undergraduates across two nursing institutions in Sindh.

Methodology: A descriptive cross-sectional study was conducted between 1st September 2022 and 25th November 2022, involving 266 nursing students selected through multistage cluster sampling. Data were collected using a structured questionnaire assessing clinical exposure, emotional well-being, and perceived competence. Statistical analysis included chi-square tests and Principal Component Analysis (PCA), with a 95% confidence level and 5% margin of error.

Results: Among participants, 67.7% were aged 21–25, and 95.9% were unmarried. Overall, 73.3% reported that cancelled or suspended clinical placements adversely impacted their learning. Significant associations were found between clinical disruption and

gender, marital status, and residence (p < 0.05), with female and hostel-based students more affected. PCA identified two key stress dimensions: personal stressors (e.g., fear of infection, family risk) and systemic barriers (e.g., lack of PPE, inadequate clinical guidance). Only 36.8% felt confident in independently managing patients.

Conclusion: The pandemic led to significant clinical learning gaps and emotional distress among nursing students. The findings emphasize the urgent need for high-fidelity simulation, mentorship, and integrated mental health support within nursing curricula. Strengthening disaster preparedness in academic institutions is vital to ensure future readiness and student well-being.

INTRODUCTION

The COVID-19 pandemic has exerted an unprecedented impact on health systems and education worldwide, challenging the foundations of professional training in medicine, dentistry, and nursing. Among these, nursing education has been particularly vulnerable due to its inherent dependence on clinical exposure and hands-on skill development.[1] When governments implemented lockdowns and social distancing policies to curb viral transmission, nursing programs across the globe were compelled to rapidly transition from in-person to online learning.[2] While this shift preserved theoretical instruction, it simultaneously led to widespread suspension or reduction of clinical placements, depriving students of essential opportunities to engage in patient assessment, procedural practice, and direct care decision-making.[3]

These disruptions have raised serious concerns regarding the competency and preparedness of nursing graduates entering the workforce. Evidence from various countries suggests that nursing students experienced significant declines in clinical confidence and practical skills acquisition during the pandemic, potentially undermining their ability to deliver safe, high-quality patient care.[4] Furthermore, the abrupt changes in educational delivery, compounded by fears of infection and uncertainties about academic progression, have adversely affected the psychological well-being of nursing students. Reports from diverse settings highlight elevated levels of anxiety, stress, and depressive symptoms, emphasizing the dual burden imposed by the pandemic on both professional development and mental health.[5],[6] In low- and middle-income countries such as Pakistan, the impact of these educational disruptions has been even more pronounced due to longstanding systemic challenges. Limited digital infrastructure, frequent electricity outages, and uneven internet connectivity have hindered the effectiveness of online learning, particularly in rural and under-resourced regions.[7] In Sindh province, where public sector nursing colleges serve a large proportion of students, these challenges were compounded by an already overburdened healthcare system grappling with high infection rates among frontline workers.[8] Consequently, clinical rotations were either suspended entirely or drastically shortened, depriving students of the critical experiential learning needed to develop competence in patient care, communication, and teamwork.

At the same time, the absence of in-person mentorship and peer interaction during lockdowns likely exacerbated psychological distress among nursing undergraduates. Emerging studies from Pakistan have reported that nursing students faced heightened levels of anxiety, stress, and a pervasive sense of being inadequately prepared to assume clinical roles.[9],[10]

However, despite these concerning trends, there remains a paucity of empirical data specifically exploring how the COVID-19 lockdowns simultaneously affected both clinical skill development and mental health among nursing students in Sindh.

Addressing this gap is crucial, as understanding the extent and nature of these impacts can inform targeted interventions to strengthen nursing curricula, enhance student support systems, and ensure the resilience of nursing education in the face of future public health emergencies. Therefore, this study aimed to assess the effects of COVID-19 lockdowns on the clinical skills acquisition and psychological well-being of undergraduate nursing students in Sindh, Pakistan. The findings may contribute to the global discourse on safeguarding healthcare education during crises and provide evidence-based recommendations for building more robust and adaptable nursing education frameworks

Objectives
1. To determine the effects of COVID-19 lockdowns on the clinical skill development of nursing undergraduates enrolled in public sector universities in Sindh, Pakistan.
2. To examine the relationship between demographic variables (such as age, gender, marital status, and place of residence) and the impacts of COVID-19 on nursing students' clinical competence and mental health.
3. To identify the primary factors that influenced clinical placement learning and contributed to stress or anxiety among nursing undergraduates during the COVID-19 pandemic

METHODS AND MATERIALS
Study Design, Setting, and Duration

This descriptive cross-sectional study was conducted in accordance with the STROBE guidelines. The research was carried out at two public-sector nursing colleges in Sindh, Pakistan: the People's School of Nursing (PNS) at Liaquat University of Medical & Health Sciences (LUMHS), Jamshoro, and the Begum Bilqees Sultana Institute of Nursing (BBSION) at Peoples University of Medical & Health Sciences (PUMHS), Shaheed Benazirabad. Data collection took place over a three-month period, from September 1, 2022 to November 29, 2022, following ethical approval from the respective institutional Research Ethics Committees. Written informed consent was obtained from all participants prior to data collection.

Population and Sample Size

The target population consisted of approximately 450 nursing undergraduates enrolled in the 2nd to 7th semesters at PNS and BBSION. The required sample size was estimated using the standard prevalence formula:

Sample size was obtained by using formula for prevalence:

$$n = t^2 \times p(1-p)/m^2$$

Where Z = 1.96 (95% confidence), p = 0.21 (prevalence estimate), m = 0.05 (margin of error). This yielded n = 242, which was increased by 10% to account for potential non-response, resulting in a final sample size of **266 participants**.

Sampling Technique

Cluster sampling was employed due to logistical considerations and student distribution across institutions. Two nursing colleges were randomly selected from the five public-sector institutions in Sindh. Within each selected college, participants were randomly chosen across semesters using proportional allocation. The breakdown was:
- Semesters 2 & 3: 100 students
- Semesters 4 & 5: 80 students
- Semesters 6 & 7: 86 students

Inclusion and Exclusion Criteria
Inclusion criteria: Students in 2nd–7th semesters at PNS or BBSION who provided informed consent.
Exclusion criteria: First-semester students, those in 8th semester, faculty or administrative staff, and students who declined participation.
Data Collection Instrument: A self-administered questionnaire, adapted and validated from previous research, was used. It had been piloted with a Cronbach's alpha of 0.80, ensuring reliability. Sections included socio-demographic data, assessments of clinical skills, problem-based learning, clinical rotations, clinical environment perceptions, and anxiety levels.
Study Variables
Socio-demographic variables: Age, gender, marital status, place of residence, and semester level.
Primary outcomes:
Clinical skills: Assessed through self-reported competency in common nursing tasks.
Mental health: Measured via validated anxiety scales.
Educational experience: Evaluated through experiences with clinical placement, problem-based learning, and the clinical environment.
Data Collection Procedure
　　　The principal researcher collected data personally to reduce sampling bias. After obtaining written consent, students completed questionnaires assessing: clinical skills impact, stress and anxiety scales, ethical beliefs regarding pandemic clinical obligations, perceived infection risk, willingness to return to clinical rotations, and preparedness for clinical safety. Data collection occurred from 1st September 2025 to 29th November 2022.
Data Analysis Procedures
　　　Data were entered and analyzed using **SPSS v.26**. Descriptive statistics (means, standard deviations, frequencies) summarized the sample. Chi-square tests assessed associations between demographic variables and outcomes (significance at $p < 0.05$). Principal factor analysis identified key patterns influencing clinical skill acquisition and anxiety. The cluster sampling design effect was accounted for in analysis.
Ethical Considerations
　　　Approval was obtained from the Research Ethics Committees of LUMHS and PUMHS. Informed consent was acquired from all participants. Confidentiality was assured, with data stored securely and de-identified for analysis.
RESULTS
Table 1. Descriptive Characteristics of Nursing Students (N = 266)

A total of 266 undergraduate nursing students from two randomly selected public- sector institutions in Sindh participated in the study. The majority were female (75.2%), unmarried (95.9%), and resided in hostel accommodations (66.9%). Of the total sample, 52.3% were enrolled at the People's Nursing School (PNS), LUMHS Jamshoro, and 47.3% at Begum Bilqees Sultana Institute of Nursing (BBSION), PUMHS Shaheed Benazirabad. Most respondents were in their second or third year of study (Table 1).

Variable	Category	Frequency (%)
Gender	Female	75.2%
	Male	24.8%
Marital Status	Unmarried	95.9%
	Married	4.1%
Residence	Hosteller	66.9%

	Day Scholar	33.1%
Institution	PNS, LUMHS Jamshoro	52.3%
	BBSION, PUMHS Shaheed Benazirabad	47.7%
Year of Study	Year 1	28.2%
	Year 2	43.2%
	Year 3	28.6%

Table 2. COVID-19 Impact on Clinical Learning, Exposure, and Preferences (N = 266)
This table presents nursing students' perceptions of safety in clinical placements, the key factors disrupting clinical learning during the pandemic, preferred educational strategies, and clinical exposure trends. It includes data on satisfaction with ward safety, reaction to rotation cuts, and assigned clinical areas.

Variable	Category	Frequency (%)
Satisfaction with Ward Safety	Not at all	27.8%
	Somewhat	42.9%
	Extremely	29.3%
Factors Affecting Clinical Skills	Closure of university	29.3%
	Limited clinical access	19.5%
	Internet issues	15.7%
	Anxiety	16.1%
	Lack of PPE	4.9%
	Inadequate staffing	3.7%
	Lack of awareness	4.9%
	Lack of group interaction	5.6%
Preferred Educational Strategy	Lecture on COVID-19	38.7%
	Problem-based learning	22.9%
	Lecture on clinical topics	21.1%
	Online courses	7.1%
	Telehealth participation	4.5%
	Research participation	3.4%
	Peer teaching	2.3%
Reaction to Rotation Cuts	Appropriate response	35.0%
	Preferred continuation	15.4%
	Felt relieved	13.9%
	No reaction	16.2%
	Neutral	12.4%
	Embarrassed	6.0%
	Felt disrespected	1.1%

Clinical Area Assigned	General Ward	28.6%
	No ward assigned	44.0%
	Emergency	8.3%
	ICU	3.8%
	OR	1.5%
	Urology/Diabetic Ward	1.2%
Part of COVID Team	Yes	15.4%
	No	84.6%

Table 3. Emotional Wellbeing and Perceived Competence During COVID-19 (N = 266)
This table summarizes nursing students' psychological responses, stress levels, sleep patterns, and self-perceived clinical competence during the COVID-19 pandemic. It includes data on COVID-related anxiety, confidence in clinical preparedness, and perception of long-term educational impact.

Variable	Category	Frequency (%)
COVID-related Worries	Yes	80.5%
Academic Stress	Extremely	34.6%
	Somewhat	53.8%
	Not at all	11.7%
Sleep Trouble	Some	66.5%
	Extreme	8.3%
	None	25.2%
Felt Rested	Not at all	17.7%
	Somewhat	73.3%
	Fully rested	9.0%
Anxiety Past 2 Weeks	Extremely	26.7%
	Somewhat	58.6%
	Not at all	14.7%
Prepared to Handle Patients	Agree	38.3%
	Strongly Agree	20.7%
	Disagree	27.1%
	Strongly Disagree	13.9%
COVID Affected Clinical Competence	Agree	44.4%
	Strongly Agree	30.8%
Online Classes Helpful	Agree	38.0%
	Strongly Agree	19.2%
Pandemic Had Lasting Impact	Agree	37.2%
	Strongly Agree	31.6%

Inferential Analysis Results

Table 4. Association Between Demographics and Clinical Disruptions

This table presents the relationship between student demographics (gender, marital status, and residence) and the impact of COVID-19 lockdowns on clinical learning. Significant associations were found, especially among female, unmarried, and hosteller students ($p < 0.05$).

Variable	Yes (%)	No (%)	p-value
Gender (Male)	47 (17.6)	19 (7.1)	0.02
Gender (Female)	148 (55.6)	52 (19.5)	
Marital Status (Married)	10 (3.8)	1 (0.4)	0.001
Marital Status (Unmarried)	185 (69.5)	70 (26.3)	
Residence (Hosteller)	135 (50.8)	43 (16.2)	0.001
Residence (Day Scholar)	60 (22.6)	28 (10.5)	

Table 5. Gender-Based Associations with COVID-19 Clinical Exposure and Demographics (N = 266)

This table analyzes gender-wise differences in COVID-19-related participation, marital status, and residence. A statistically significant association was observed for managing COVID-19 cases ($p = 0.04$), while marital and residential differences were not statistically significant.

Variable	Gender	Category 1	Category 2	Total	p-value
Managing COVID-19 Cases	Male	5 (7.6%)	61 (92.4%)	66	0.04*
	Female	36 (18.0%)	164 (82.0%)	200	
Marital Status	Male	2 (3.0%) Married	64 (97.0%) Unmarried	66	0.60
	Female	9 (4.5%) Married	191 (95.5%) Unmarried	200	
Area of Residence	Male	38 (57.6%) Hosteller	28 (42.4%) Day Scholar	66	0.063*
	Female	140 (70.0%) Hosteller	60 (30.0%) Day Scholar	200	

Table 6. Principal Component Analysis of Stress and Clinical Learning Disruption Factors During COVID-19

Principal component analysis identified two underlying dimensions of disruption: personal stressors and systemic challenges. Factor loadings ≥ 0.60 are marked with an asterisk (*), indicating significant contribution to the respective component.

Item	Component 1 (Personal Stressors)	Component 2 (Systemic Challenges)
Experience of worries related to COVID-19	0.803*	-0.033
Feeling worry on being exposed to clinical or school-related activities	0.625*	0.224
Uneasiness about personal emotional strength at this time	0.212	-0.015
Concern that ward is not sufficiently prepared for the pandemic	0.065	0.787*
Worry about inadequate availability of PPE in hospital	0.115	0.767*
Worry about well-being of family/friends diagnosed with COVID-19	0.741*	0.090
Worry that testing for COVID-19 has been inadequate	0.499	0.291
Worry about asymptomatic individuals exposing others in community	0.710*	-0.085

DISCUSSION

   This study looked at how the COVID-19 pandemic affected clinical training, mental health, and learning experiences of nursing students in two public colleges in Sindh, Pakistan. We found that many students faced serious interruptions in their clinical learning, high levels of stress and worry, and felt less confident about taking care of patients. Differences were also seen based on gender, marital status, and whether students lived in hostels. When we analyzed patterns of stress, we found two main types: personal fears and problems related to how the system was run.

   Almost half of the students said they did not have any clinical placement during the pandemic, and only a small number had experience caring for suspected COVID-19 patients. This matches what has been reported in studies from Turkey[13] and countries in Africa[10], where the pandemic led to hospitals closing their doors to students. Students were unsure how to feel about missing these rotations. Some were relieved because they worried about catching the

virus, while others felt disappointed about losing hands-on learning. Similar mixed feelings were reported in studies from India and the UK[15].

The pandemic also had a strong impact on mental health. More than 80% of students said they often worried about COVID-19, over a third felt extreme academic stress, and many had trouble sleeping. Only about a third of the students felt ready to care for patients on their own. These results are similar to studies from Europe and the Middle East, which also found high stress and poor sleep among health students during this period[14,17].

Gender differences stood out in this study. Female students faced more disruptions and were also more likely to be given tasks involving COVID-19 patients. This supports global findings that nursing, being mostly made up of women, often places them on the frontline[18]. The factor analysis helped show that stress came from two places: fears about catching the virus or spreading it to family, and worries about problems in hospitals such as not having enough protective gear. Other researchers have also pointed out these combined personal and system challenges during the pandemic[19,20].

These findings show why nursing schools need to make changes. Learning should not stop during emergencies. Colleges should use modern teaching tools like simulation labs and online case-based training so that students can keep building their skills. Mental health support must also be part of nursing programs. Help like counseling, stress workshops, and mentoring can protect students' wellbeing. It is also important that female students and those living in hostels get the same chances for clinical learning. Teaching about infection control and protective gear should start early so students feel safe and ready. Strong teamwork between nursing schools, hospitals, and government offices is needed to make sure plans for future health emergencies keep students' needs at the center.

CONCLUSION

This study revealed that nursing students in Sindh, Pakistan, faced significant challenges during the COVID-19 pandemic. Their clinical education was severely disrupted, many experienced elevated levels of stress and anxiety, and overall, they felt less prepared to care for patients. These adverse effects were particularly pronounced among female students and those residing in hostels.

The findings underscore the critical need for nursing schools to develop comprehensive crisis-response strategies to prevent educational setbacks and safeguard students' mental health. Specifically, the integration of high-fidelity simulation, structured mentorship programs, and robust mental health services into nursing curricula is urgently required. Moreover, strengthening disaster-preparedness protocols within academic institutions is essential to bolster future readiness and support student well-being

RECOMMENDATIONS

Nursing programs should include simulation and online clinical exercises to keep learning going even when hospital placements are not possible. Colleges must also set up mental health support like counseling and stress management activities. It is important to make sure that all students, no matter their gender or where they live, have equal chances to learn in clinics. Early lessons on handling outbreaks, using protective equipment, and staying safe should be added to the curriculum. Lastly, stronger partnerships among nursing schools, hospitals, and health authorities can help build systems that protect both students' training and their wellbeing during future health emergencies.

REFERENCES

1. Zia Ullah Z, Khanum S, Naz N, Din ZUD. Challenges and Opportunities During COVID-19 Pandemic in Online Nursing Education: Students' and Teachers' Perspective at Institute of Nursing Sciences, Khyber Medical University, Peshawar. *Rehman Journal of Health Sciences*. 2022;4(2):105–113.
2. Punjwani SK. COVID-19 Pandemic and E-learning in Nursing Education. *Annals of Jinnah Sindh Medical University*. 2021;7(2):48–49.
3. Farid B, Zafar M, Rasheed K, Arshad H. Challenges Faced by Nursing Students in Online Education During the COVID-19 Pandemic. *Biol Clin Sci Res J*. 2024;2024(1):755.
4. Shaikh F, Vadsaria F, Vadsaria K. COVID-19 and Nursing Education: Challenges and Prospects. *Asia Pac J Public Health*. 2022;34(5).
5. Sultana N, Ali ASH, Shifa NS. Impacts of COVID-19 Pandemic on Undergraduate Nursing Students: A Descriptive Cross-Sectional Study. *Asia Pacific Journal of Nursing Research*. 2024;5(4):22–30
6. Ulenaers D, Grosemans J, Schrooten W, Bergs J. Clinical placement experience of nursing students during the COVID-19 pandemic: A cross-sectional study. *Nurse Educ Today*. 2021;99:104746.
7. Hopkins, Z., Diaz, O., Kaprive, J. F., Carlisle, R., Moreno, C., Bommareddy, K., Sheikh, N., Frost, Z., Akhtar, A., & Secrest, A. M. (2023). Methods Reporting Quality and its Association with Methods Section Length: A Cross-sectional Assessment of STROBE and CONSORT Reporting Adherence in Top-cited Dermatology Journals. *The Journal of clinical and aesthetic dermatology*, *16*(7), 54–62.
8. Aslan H, Pekince H. Nursing students' views on the COVID-19 pandemic and their perceived stress levels. *Perspect Psychiatr Care*. 2021;57(2):695–701.
9. World Health Organization. *Gender and Health Workforce*. WHO; 2021.
10. Achora S, Kamanyire JK. COVID-19 pandemic and the mitigation strategies: The role of nurses and midwives in Africa. *Int J Nurs Sci*. 2020;7(4):432–438.
11. Labrague LJ, Ballad CA. Lockdown fatigue among college students during the COVID-19 pandemic: Predictive role of personal resilience, coping behaviors, and health. *Perspect Psychiatr Care*. 2021;57(4):1905–1912.
12. Galle F, Sabella EA, Ferracuti S, et al. Anxiety and coping strategies among nursing students during the COVID-19 pandemic: A cross-sectional study. *BMJ Open*. 2021;11:e051811.
13. Giusti EM, Pedroli E, D'Aniello GE, et al. The psychological impact of the COVID-19 outbreak on health professionals: A cross-sectional study. *Front Psychol*. 2020;11:1684.
14. Kackin O, Ciydem E, Aci OS, Kutlu FY. Experiences and psychosocial problems of nurses caring for patients diagnosed with COVID-19 in Turkey: A qualitative study. *Int J Soc Psychiatry*. 2021;67(2):158–167.
15. Swift A, Banks L, Baleswaran A, et al. COVID-19 and student nurses: A view from England. *J Clin Nurs*. 2020;29(17-18):3111–3114.
16. Sharma D, Bhaskar S. Addressing the COVID-19 burden on medical education and training: The role of telemedicine and tele-education during and beyond the pandemic. *Front Public Health*. 2020;8:589669.
17. Masha'al D, Rababa M, Shahrour G. Distance learning-related stress among undergraduate nursing students during the COVID-19 pandemic. *J Psychosoc Nurs Ment Health Serv*. 2022;60(3):34–41.
18. Sundler AJ, Hallström IK, Gellerstedt L, et al. Nursing students' experiences of disrupted clinical placements during COVID-19: A scoping review. *Int J Nurs Stud Adv*. 2022;4:100068.

19. Al-Hanawi MK, Mwale ML, Kamninga TM. Psychological distress among female nursing students during the COVID-19 pandemic in Saudi Arabia. *J Multidiscip Healthc*. 2022;15:1023–1035.
20. Ruiz-Fernández MD, Ramos-Pichardo JD, Ibáñez-Masero O, et al. Compassion fatigue, burnout, compassion satisfaction and perceived stress in healthcare professionals during the COVID-19 health crisis in Spain. *J Clin Nurs*. 2020;29(21-22):4321–4330.
21. Zhang Y, Wang C, Pan W, et al. Stress, burnout, and coping strategies of frontline nurses during the COVID-19 epidemic in Wuhan and Shanghai, China. *Front Psychiatry*. 2020;11:565520.