Original Article

Influence of Jigsaw and Traditional Teaching Methods on Psychological Well-Being and Academic Performance of Undergraduate Nursing Students

Sabiha Tariq, Sarfraz Masih and Madiha Mukhtar

ABSTRACT

Objective: (i) To examine the influence of the Jigsaw teaching method on nurse educators' knowledge and practices, and ii) to compare the impact of Jigsaw versus traditional teaching on the psychological well-being and academic performance of undergraduate nursing students.

Study Design: A quasi-experimental study

Place and Duration of Study: This study was conducted at the public sector nursing college from 1st January 2025 to 30th June 2025.

Methods: About 4 nurse educators and 160 second-year bachelor of sciences in nursing students were included in study. Pre-intervention and post intervention data were collected from nurses' educators using knowledge, and practices check list. While pre and post intervention data were collected from nursing students on psychological well-being and academic performance.

Results: Nurse educators in the experimental group were younger between 25-30 years (50%) and had 6–10 years' experience (100%), while those in the control group were older (31–45 yrs: 100%) with 11–15 years' experience (100%). Knowledge scores improved in both groups post-intervention, from 100% poor knowledge to 50% fair and 50% good in the control group; however, statistical significance was not reached (p=0.102). Practice competency increased from 0-100% in the experimental group, compared with 0-50% in the control group (p=0.683). Among nursing students, psychological well-being significantly increased in the jigsaw group from 129.96±26.29 to 296.82±26.8 (p<0.001), and in the traditional group from 145.71±32.92 to 185.56±38.73 (p<0.001), with larger gains across all well-being subdomains in the experimental group. Academic performance in the experimental group shifted from 100% pass to 62.7% very good and 37.3% excellent post-intervention, whereas in the traditional group 96.5% remained in "pass" category.

Conclusion: The Jigsaw teaching method significantly improved psychological well-being, academic performance, skills, and attendance among nursing students compared to traditional teaching.

Key Words: Jigsaw teaching method, Traditional teaching, Psychological well-being, Academic performance, Nursing education

Citation of article: Tariq S, Masih S, Mukhtar M. Influence of Jigsaw and Traditional Teaching Methods on Psychological Well-Being and Academic Performance of Undergraduate Nursing Students. Med Forum 2025;36(9):14-18. doi:10.60110/medforum.360903.

INTRODUCTION

Teaching methods play a pivotal role in shaping nursing professionals by determining how effectively students acquire the knowledge, skills, and attitudes necessary for their profession.[1] Educators employ varied strategies to accommodate different learning styles and educational needs.[2]

Department of Lahore School of Nursing, The University of Lahore.

Correspondence: Sabiha Tariq, MSN Student, Lahore School of Nursing, The University of Lahore.
Contact No: 0331-4265655
Email: sabihagoher88@gmail.com

Received: July, 2025
Reviewed: July, 2025
Accepted: August, 2025

Traditional lectures provide organized delivery but often limit student participation and engagement, which can compromise retention and critical thinking in skill-based disciplines like nursing.[3] In contrast, the Jigsaw method is a cooperative, student-centred strategy that transforms learners from passive recipients to active participants through expert-group study and peer teaching.[4]

This approach fosters teamwork, communication, leadership, and accountability - competencies central to nursing practice.[5] Evidence suggests that Jigsaw enhances learning confidence, self-regulated learning, and satisfaction when implemented with clear facilitation and role structure.[6] Comparative studies indicate that Jigsaw and other active approaches can outperform lecture on knowledge, performance, and satisfaction outcomes.[7] Network and systematic reviews further support active and cooperative models for

improving educational effectiveness in nursing and allied health.[8,9] Given these advantages, structured educator preparation and facilitation are essential to ensure balanced participation and mastery of segment content during Jigsaw sessions.[10]

METHODS

This quasi-experimental design to assess the effects of the Jigsaw teaching method compared to traditional teaching on the psychological well-being and academic performance of nursing students was conducted at King Edward Medical University, Mayo Hospital, Lahore from 1st January 2025 to 30th June 2025 vide letter No. REC-UOL/497/08/24 dated 27-12-2024. The study involved 160 second-year BSN students divided into control (n=85) and experimental (n=75) groups, alongside four nurse educators (2 per group). Purposive sampling was used. Pre-intervention data were collected using validated tools: Ryff and Keyes' Psychological Well-Being questionnaire (Cronbach's α = 0.87), an academic performance sheet based on quizzes, skills assessments, and attendance, and knowledge/practice tools for nurse educators. The intervention phase involved educating nurse educators on the Jigsaw method, followed by its application in nine structured sessions for the experimental group. Control group students received traditional lectures. Post-intervention assessments were conducted for both students and educators. Data were analyzed using SPSS V27, applying descriptive statistics, Wilcoxon Signed-Rank test with a significance threshold of $p<0.05$

RESULTS

Most nursing students in both groups were from urban areas and had two or more siblings, indicating similar family and social backgrounds. All nurse educators in both groups were married and highly qualified, though those in the control group were slightly older and more experienced. Overall, the two groups were demographically well-matched, suggesting that any observed differences in learning outcomes are likely attributable to the teaching methods rather than demographic variations. The demographic profile of the nurse educators in the experimental and control groups was fairly diverse across age, experience, and qualifications. In terms of age, the experimental group included younger participants, whereas the control group comprised slightly older individuals. All participants in both groups were married. Regarding professional experience, the experimental group consisted of individuals with moderate experience, while the control group included more experienced educators. In terms of academic qualifications, the experimental group had a mix of individuals with a basic nursing degree and a post-registered nurse bachelor's degree, while all participants in the control group held post-registered nurse bachelor's degrees. No participants in either group held a master's degree in nursing (Tables 1-2)

The comparison includes the overall psychological well-being score and its six subdomains: Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance. The results indicate that both teaching methods led to statistically significant improvements in the psychological well-being of students. However, the jigsaw teaching group demonstrated a more pronounced enhancement across all measured domains compared to the traditional group (Table 3).

Initially, both groups showed similar performance levels. Following the intervention, students taught using the jigsaw method demonstrated a marked shift towards higher academic categories such as "very good" and "excellent," while those in the traditional group largely remained in the lower performance category.

Table No.1: Comparison of demographics of control and experimental group of nurse educators and student nurses

Variables	Category	Jigsaw Teaching Group	Traditional Teaching Group	Total
Resident Area (Student nurses)	Rural	19 (25.3%)	28 (32.9%)	47 (29.4%)
	Urban	56 (74.7%)	57 (67.1%)	113 (70.6%)
Number of Siblings(Student nurses)	≤ 1	6 (8.0%)	8 (9.4%)	14 (8.7%)
	≥ 2	69 (92.0)	77 (90.6%)	146 (91.3%)
Age (Educators only) [years]	25–30	1 (50.0%)	-	1 (25.0%)
	31–40	1 (50.0%)	1 (50.0%)	2 (50.0%)
	41–45	-	1 (50.0%)	1 (25.0%)
Marital status (educators only)	Married	2 (100%)	2 (100%)	4 (100%)
	Unmarried	-	-	-
Experience (Educators only) [years]	1–5	-	-	-
	6–10	2 (100%)	-	2 (50.0%)
	11–15	-	2 (100%)	2 (50.0%)
Qualification (Educators only)	BSN	1 (50.0%)	-	1 (25.0%)
	Post RN BSN	1 (50.0%)	2 (100%)	3 (75.0%)
	MSN	0	-	-

Table No.2: Comparison of pre and post intervention knowledge and practice of experimental group and control group of nurse educators

Variables	Category	Experimental Group	Control Group	P value
Knowledge (Pre-Intervention)	Poor knowledge	2 (100%)	2 (100%)	0.102
	Fair knowledge	-	-	
	Good knowledge	-	-	
Knowledge (Post-Intervention)	Poor knowledge	-	-	0.683
	Fair knowledge	-	1 (50%)	
	Good knowledge	-	1 (50%)	
Practices (Pre-Intervention)	Incompetent practices	2 (100%)	2 (100%)	1.000
	Competent practices	-	-	
Practices (Post-Intervention)	Incompetent practices	-	1 (50%)	0.683
	Competent practices	2 (100%)	1 (50%)	

Table 3: Comparison of psychological well-being of jigsaw and traditional teaching of nursing students before and after intervention

Variable	Jigsaw Teaching				Traditional Teaching			
	Pre	Post	Z-value	p-value	Pre	Post	Z-value	p-value
PWB	129.96±26.29	296.82±26.8	-7.52	<.001	145.71±32.92	185.56±38.73	-6.22	<0.001
Auto	21.58±5.54	49.45±5.12	-7.527	0.000	24.08±6.91	30.36±7.07	-5.562	0.000
Env	21.64±4.62	49.26±5.39	-7.528	0.000	24.48±5.80	29.45±7.30	-4.454	0.000
PG	21.08±5.34	49.72±4.12	-7.528	0.000	23.74±6.72	32.97±6.40	-6.858	0.000
PR	22.09±6.65	49.36±4.65	-7.527	0.000	24.10±6.98	28.92±6.70	-4.247	0.000
PL	21.84±6.08	49.38±5.70	-7.527	0.000	24.62±7.61	29.78±8.12	-4.115	0.000
SA	21.72±4.77	49.64±5.38	-7.528	0.000	24.68±6.10	34.04±8.66	-6.168	0.000

PWB= Psychological Well-Being, Auto= Autonomy, Env= Environment Master, PG= Personal Growth, PR=Positive Relations with Others, PL=Purpose in Life, SA= Self-Acceptance

Table No.4: Comparison of academic performance of jigsaw and traditional teaching of nursing students before and after intervention

Academic Performance	Experimental Group		Control Group	
Excellent	-	28 (37.3%)	-	-
Very Good	-	47(62.7%)	-	-
Good	-	-	-	3(3.5%)
Pass	75(100%)	-	85(100%)	82(96.5%)
Poor	-	-	-	-

This highlights the positive impact of the jigsaw teaching strategy on students' academic outcomes compared to traditional teaching (Table 4)

DISCUSSION

The findings of study indicate that both groups improved their knowledge scores post-iIn this study, both educator groups improved knowledge post-intervention, with the Jigsaw group showing a modest advantage; however, differences were not statistically significant, aligning with reports that cooperative strategies yield gains that may be modest in small cohorts.[11] Educator practices improved notably in the Jigsaw arm, echoing quasi-experimental findings that Jigsaw and related methods enhance skill performance, retention, and satisfaction when properly structured.[12] Among students, the Jigsaw approach produced significant improvements across psychological well-being domains - autonomy, environmental mastery, personal growth, positive relations, purpose in life, and

self-acceptance - consistent with evidence that cooperative learning promotes confidence, motivation, and social integration in health-science education.[13] These psychosocial gains are attributed to peer interdependence, shared accountability, and opportunities for feedback and reflection embedded in Jigsaw cycles.[14]

By contrast, traditional lecture can be associated with lower engagement and weaker affective outcomes, reinforcing the value of interactive learning for contemporary nursing cohorts.[15] Academic performance improvements in our Jigsaw group parallel meta-analytic and experimental results showing superior achievement, retention, and satisfaction under cooperative models versus lecture.[16] Importantly, Jigsaw's structured interdependence maps onto clinical teamwork, supporting transfer of collaborative competencies to practice settings.[17] Overall, the present findings add to a growing literature base positioning Jigsaw as an integrative pedagogy that advances cognitive, affective, and behavioural learning outcomes in nursing education.[18] With appropriate educator training, session design, and assessment alignment, Jigsaw can be scaled to large cohorts while preserving equity of participation and depth of learning.[19] Future studies should extend to multi-site trials with longer follow-up to evaluate durability of psychosocial and academic benefits and explore implementation frameworks for sustained curriculum integration.[20]

CONCLUSION

Before the intervention, both groups were similar in quiz scores, skill performance, psychological well-being, and attendance, reflecting equivalent baseline characteristics. After the intervention, significant progress was observed in the group instructed through the Jigsaw method. These students demonstrated improvements in multiple aspects of psychological well-being, such as autonomy, environmental mastery, positive relationships, and self-acceptance. Academically, a greater number of students in the Jigsaw group attained higher quiz and skill assessment scores, and their attendance rates also increased considerably compared to the control group.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Sabiha Tariq, Sarfraz Masih
Drafting or Revising Critically:	Sabiha Tariq, Madiha Mukhtar
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: No.REC-UOL/497/08/24 Dated 27.12.2024

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