
**KNOWLEDGE AND PRACTICE REGARDING MNEMONIC
STRATEGIES AMONG FIRST-YEAR AND FINAL-YEAR B.SC.
NURSING STUDENTS: A COMPARATIVE STUDY**

J. Pavithra¹

1. Assistant Professor, SECON, Bangarpet, Kolar District, Karnataka

Corresponding Author: J. Pavithra

Assistant Professor, SECON, Bangarpet, Kolar District, Karnataka

E-mail: - pavithrajgi@gmail.com

Article Information:

Type of Article: Original Article

Received On: 06.08.2026

Accepted On: 14.08.2026

Published On: 20.08.2026

Abstract

Background

Nursing education involves the acquisition and retention of a large volume of theoretical and practical information. Students are expected to remember terminology, disease processes, assessment findings, nursing procedures, pharmacological information, and sequences of care. Mnemonic strategies are memory-support techniques that assist learners in encoding, organizing, retaining, and retrieving information. They may include acronyms, rhymes, songs, images, associations, organized notes, and other memory aids. In nursing education, such strategies may be particularly useful because students frequently encounter complex information that must be recalled accurately during examinations and clinical practice. The present study compared knowledge and practice regarding mnemonic strategies among first-year and final-year B.Sc. Nursing students and examined the relationship between knowledge and practice.

Aim

The study aimed to assess and compare the knowledge and practice regarding mnemonics among first-year and final-year B.Sc. Nursing students and to provide an information booklet on mnemonic strategies.

Methods

A quantitative evaluative research approach was adopted. The study included 80 B.Sc. Nursing students, comprising 40 first-year and 40 final-year students, selected from selected nursing

colleges at Kolar using non-probability purposive sampling. Data were collected using a Structured Knowledge Questionnaire (SKQ) and Structured Practice Questionnaire (SPQ). The questionnaire assessed knowledge related to the definition and introduction of mnemonics, memory processes and types of memory, factors influencing memory, and methods for improving memory through mnemonic techniques. Practice was assessed using a structured practice instrument. An information booklet regarding mnemonic strategies was developed and provided following data collection. Descriptive statistics, comparative *t* testing, Pearson correlation, and chi-square analysis were used.

Results

Among first-year students, 35 (87.5%) demonstrated poor knowledge and 5 (12.5%) demonstrated average knowledge; none demonstrated good knowledge. Among final-year students, 31 (77.5%) had poor knowledge and 9 (22.5%) had average knowledge. The mean knowledge score was 12.25 ± 3.74 among first-year students and 13.68 ± 3.067 among final-year students, with a mean difference of 1.42 and $t = 1.863$. Practice was comparatively better. Favorable practice was observed among 31 (77.5%) first-year and 33 (82.5%) final-year students. The mean practice score was 32.13 ± 6.313 for first-year students and 37.25 ± 5.465 for final-year students, with a mean difference of 5.1 and $t = 3.863$. Pearson correlation for the combined sample was $r = 0.042$, $p = 0.711$, indicating no significant relationship between overall knowledge and practice. Correlations were also nonsignificant among first-year ($r = 0.026$, $p = 0.874$) and final-year ($r = 0.145$, $p = 0.371$) students.

Conclusion

The study demonstrated that knowledge regarding mnemonics was predominantly poor in both academic groups, whereas practice was predominantly favorable. Final-year students had higher mean knowledge and practice scores than first-year students. The absence of a significant correlation between knowledge and practice suggests that familiarity with mnemonic concepts alone may not determine their practical use. Structured educational strategies, repeated exposure, and integration of mnemonic techniques into nursing teaching may therefore be useful.

Keywords: Mnemonics; Memory; Knowledge; Practice; Nursing Students; B.Sc. Nursing; Memory Strategies; Information Booklet.

1. Introduction

Memory is an essential cognitive process through which information is encoded, stored, retained, and subsequently retrieved when required. Nursing students are expected to acquire extensive information within a relatively limited period and apply that information accurately in academic and clinical settings. The nursing curriculum includes anatomy, physiology, pharmacology, medical-surgical nursing, community health nursing, mental health nursing, maternal and child health nursing, and numerous clinical procedures. Effective memory strategies can therefore support students in organizing and recalling important information.

Memory is commonly described in terms of sensory, short-term or working, and long-term memory. Information that is appropriately encoded and associated with previously acquired knowledge is more likely to be retained and retrieved. Mnemonics are memory aids designed to facilitate the recall of information that may otherwise be difficult to remember. They can

involve acronyms, rhymes, songs, images, associations, structured notes, spelling devices, and connections between new and existing knowledge. The uploaded study specifically identifies several forms of mnemonic strategies, including music, name, expression, model, ode, note organization, image, connection, and spelling mnemonics.

Mnemonics have particular relevance to nursing because students need to remember sequences and groups of information. For example, SAMPLE can assist in remembering important components of patient history, while ADPIE represents assessment, diagnosis, planning, implementation, and evaluation in the nursing process. Such techniques may make learning more organized and accessible.

The source study indicates that mnemonic techniques may help students recall information and potentially make learning more engaging. It also emphasizes the relevance of memory aids to complex nursing curricula. However, the extent to which nursing students possess adequate knowledge and actually use mnemonic strategies may vary according to their academic experience and exposure.

The present comparative study was therefore undertaken among first-year and final-year B.Sc. Nursing students. The study focused on their knowledge and practice regarding mnemonics and examined whether academic level was associated with differences in these outcomes.

2. Methodology

Research Approach and Design

A quantitative evaluative research approach was adopted to assess knowledge and practice regarding mnemonic strategies among B.Sc. Nursing students. The study used a comparative design involving first-year and final-year students.

Study Setting

The study was conducted among students in selected nursing colleges at Kolar, Karnataka. Permission was obtained from the concerned authorities before commencement of data collection. The original study identifies Kolar as the study area and does not provide sufficient information to identify the individual participating colleges in the presented manuscript data.

Population and Sample

The study population comprised B.Sc. Nursing students. The total sample consisted of **80 students**, including:

- 40 first-year B.Sc. Nursing students
- 40 final-year B.Sc. Nursing students

The source confirms that 80 students were selected, with 40 participants from each academic group.

Sampling Technique

Non-probability purposive sampling was used. Students who met the inclusion criteria and

were willing to participate were recruited.

Inclusion Criteria

Students were eligible if they:

1. Were studying in the first or final year of the B.Sc. Nursing programme.
2. Were willing to participate.
3. Were available during the period of data collection.

Exclusion Criteria

Students who were not cooperative or unwilling to participate were excluded.

Study Variables

The principal study variables were:

- Knowledge regarding mnemonics
- Practice regarding mnemonics

Selected demographic variables included age, gender, religion, type of family, area of residence, parents' marital status, caretaker, educational status and occupation of parents, family monthly income, previous knowledge regarding mnemonics, and source of information.

Data Collection Instruments

Structured Knowledge Questionnaire

A Structured Knowledge Questionnaire (SKQ) was used to assess knowledge regarding mnemonic strategies. The knowledge questionnaire contained **33 items** and covered four broad domains:

1. Introduction and definition of mnemonics
2. Memory processes and types of memory
3. Factors influencing memory
4. Tips for improving memory and types of mnemonics

The maximum knowledge score was 33.

Structured Practice Questionnaire

A Structured Practice Questionnaire (SPQ) was used to assess students' practice regarding mnemonic strategies. The maximum practice score reported in the study was 56.

Information Booklet

An information booklet on mnemonics was developed as an educational resource. It included information concerning memory and mnemonic strategies. The booklet was provided after data collection, allowing participants to receive educational material without influencing their initial

assessment.

Data Collection Procedure

Prior permission was obtained from the concerned authorities. The purpose of the study was explained to eligible students and informed consent was obtained. Data collection was conducted during the morning session for first-year students and during the afternoon session for final-year students. Participants completed the Structured Knowledge Questionnaire and Structured Practice Questionnaire. After completion, the information booklet was distributed. Confidentiality of participant information was maintained.

Statistical Analysis

Descriptive statistics including frequency, percentage, mean, median, and standard deviation were used. Comparative analysis between academic groups was performed using a *t* test. Pearson's correlation coefficient was used to determine the relationship between knowledge and practice scores. Chi-square analysis was used to examine associations between knowledge/practice categories and selected demographic variables.

The original study reports use of descriptive and inferential statistics and chi-square analysis for demographic associations.

Ethical Considerations

Formal permission was obtained from the concerned college authorities. Participants provided informed consent, and confidentiality was maintained throughout the study. The study was self-funded, with no external financial support reported.

3. Results

3.1 Demographic Characteristics

The first-year group was predominantly aged 18–19 years, with 33 (82.5%) students in this age category, whereas 22 (55.0%) final-year students were aged 22–25 years. First-year students were predominantly male (65.0%), whereas final-year students were predominantly female (80.0%).

Most students in both groups belonged to nuclear families (75.0%). Rural residence was most common among first-year students (60.0%), while urban residence was most common among final-year students (42.5%). Previous knowledge regarding mnemonics was reported by 60.0% of first-year and 77.5% of final-year students.

Table 1. Selected demographic characteristics of participants

Variable	First Year n (%)	Final Year n (%)
Age 18–19 years	33 (82.5)	2 (5.0)
Age 20–21 years	7 (17.5)	16 (40.0)
Age 22–25 years	0 (0.0)	22 (55.0)
Male	26 (65.0)	8 (20.0)
Female	14 (35.0)	32 (80.0)

Nuclear family	30 (75.0)	30 (75.0)
Joint family	10 (25.0)	10 (25.0)
Previous knowledge – Yes	24 (60.0)	31 (77.5)
Previous knowledge – No	16 (40.0)	9 (22.5)

3.2 Knowledge Regarding Mnemonics

Among first-year students, 35 (87.5%) had poor knowledge and 5 (12.5%) had average knowledge. None had good knowledge. Among final-year students, 31 (77.5%) had poor knowledge and 9 (22.5%) had average knowledge. No final-year student demonstrated good knowledge.

Table 2. Knowledge level regarding mnemonics

Knowledge Level	First Year n (%)	Final Year n (%)
Poor	35 (87.5)	31 (77.5)
Average	5 (12.5)	9 (22.5)
Good	0 (0.0)	0 (0.0)
Total	40 (100)	40 (100)

The results indicate that although final-year students demonstrated a modestly better distribution, poor knowledge remained predominant in both groups.

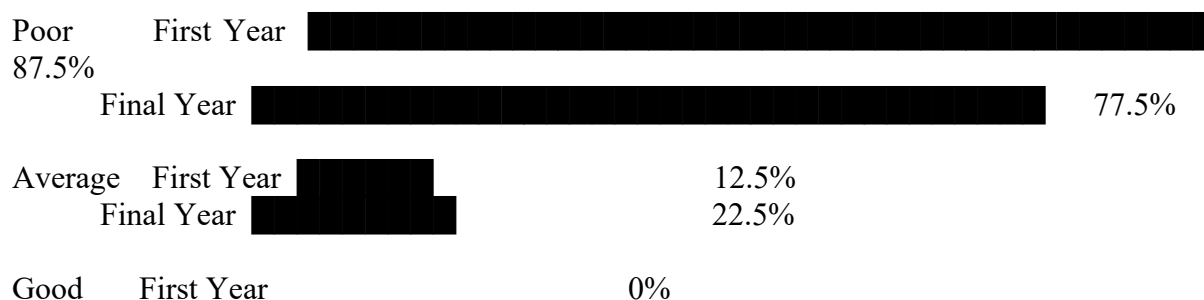
3.3 Practice Regarding Mnemonics

Practice scores were comparatively better than knowledge scores. Among first-year students, 31 (77.5%) demonstrated favorable practice, 8 (20.0%) demonstrated unfavorable practice, and 1 (2.5%) demonstrated most favorable practice. Among final-year students, 33 (82.5%) had favorable practice, 5 (12.5%) had most favorable practice, and 2 (5.0%) had unfavorable practice.

Table 3. Practice level regarding mnemonics

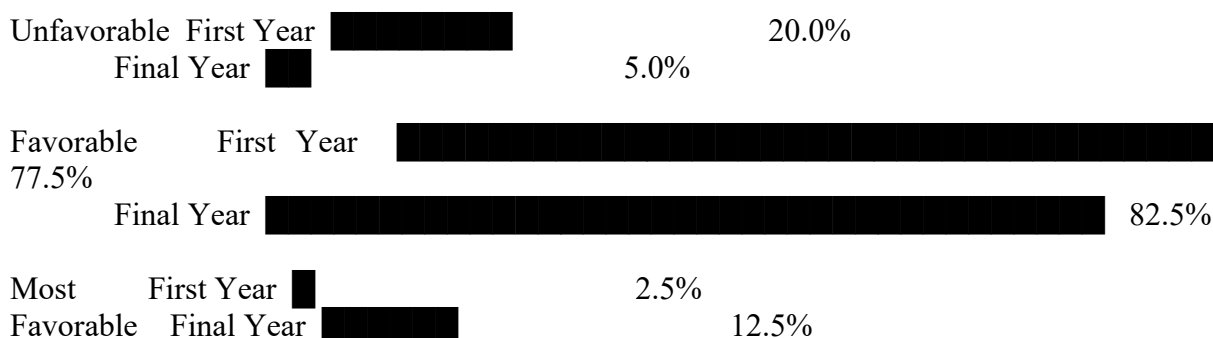
Practice Level	First Year n (%)	Final Year n (%)
Unfavorable	8 (20.0)	2 (5.0)
Favorable	31 (77.5)	33 (82.5)
Most favorable	1 (2.5)	5 (12.5)
Total	40 (100)	40 (100)

Figure 1. Knowledge level of first-year and final-year students



Final Year 0%

Figure 2. Practice level of first-year and final-year students



3.4 Comparison of Mean Knowledge and Practice Scores

The mean knowledge score among first-year students was 12.25 ± 3.74 , compared with 13.68 ± 3.067 among final-year students. The mean difference was 1.42 and the reported t value was 1.863.

The mean practice score was 32.13 ± 6.313 among first-year students and 37.25 ± 5.465 among final-year students. The mean difference was 5.1 and the reported t value was 3.863.

Table 4. Comparison of knowledge and practice scores

Variable	First Year Mean $\pm$ SD	Final Year Mean $\pm$ SD	Mean Difference	t value
Knowledge	12.25 ± 3.74	13.68 ± 3.067	1.42	1.863
Practice	32.13 ± 6.313	37.25 ± 5.465	5.10	3.863

Figure 3. Mean knowledge and practice scores



3.5 Area-Wise Knowledge and Practice

Among first-year students, the highest knowledge mean percentage was observed for introduction and definition of mnemonics (43.33%), followed by memory processes and types of memory (37.25%), factors influencing memory (36.60%), and tips to improve memory/types of mnemonics (34.46%). Overall knowledge was 30.62%, while practice was 57.37%.

Among final-year students, the highest knowledge mean percentage was observed for factors influencing memory (47.16%), followed by tips to improve memory/types of mnemonics (44.46%), introduction and definition (39.16%), and memory processes and types of memory (34.12%). Overall knowledge was 34.20%, while practice was 66.51%.

Table 5. Area-wise mean percentage scores.

Domain	First Year (%)	Final Year (%)
Introduction and definition	43.33	39.16
Memory process and types	37.25	34.12
Factors influencing memory	36.60	47.16
Tips/types of mnemonics	34.46	44.46
Overall knowledge	30.62	34.20
Practice	57.37	66.51

3.6 Correlation Between Knowledge and Practice

For the combined sample of 80 students, the Pearson correlation coefficient between knowledge and practice was $r = 0.042$ with $p = 0.711$, indicating no statistically significant relationship.

Among first-year students, $r = 0.026$ and $p = 0.874$. Among final-year students, $r = 0.145$ and $p = 0.371$. Thus, knowledge scores did not demonstrate a significant linear relationship with practice scores in either academic group.

Table 6. Correlation between knowledge and practice

Group	Knowledge Mean $\pm$ SD	Practice Mean $\pm$ SD	Pearson's r	p value	Interpretation
First + Final Year	12.96 $\pm$ 3.473	34.68 $\pm$ 6.404	0.042	0.711	Not significant
First Year	12.25 $\pm$ 3.74	32.13 $\pm$ 6.313	0.026	0.874	Not significant
Final Year	13.68 $\pm$ 3.067	37.25 $\pm$ 5.465	0.145	0.371	Not significant

3.7 Association with Demographic Variables

The source reports associations between knowledge/practice and selected demographic characteristics. Among first-year students, associations were reported for several demographic variables, including age, religion, area of residence, parental marital status, caretaker, parental education and occupation, previous knowledge, and source of information. Among final-year students, reported associations included age, gender, religion, type of family, area of residence, parental education and occupation, family income, and source of information.

For practice among final-year students, religion demonstrated a reported significant association, with $\chi^2 = 10.189$ and $p = 0.017$, whereas gender, area of residence, marital status, caretaker, family income, and several other variables had nonsignificant reported p values.

4. Discussion

The present study assessed and compared knowledge and practice regarding mnemonic strategies among 80 B.Sc. Nursing students. The principal finding was that knowledge was predominantly poor in both academic groups. Eighty-seven-point-five percent of first-year students and 77.5% of final-year students had poor knowledge. Although final-year students demonstrated a lower proportion of poor knowledge and a higher proportion of average knowledge, no participant in either group achieved a good knowledge classification.

The finding suggests that progression through the nursing programme does not necessarily ensure formal understanding of mnemonic strategies. Students may encounter mnemonic devices informally during their education without receiving systematic instruction concerning the principles, types, and appropriate application of these strategies. The source itself emphasizes the potential value of mnemonic devices for recalling complex academic information and for supporting nursing students in remembering sequences and groups of information.

In contrast to knowledge, practice was relatively favorable. More than three-fourths of first-year students (77.5%) and final-year students (82.5%) demonstrated favorable practice. The final-year group also had a higher proportion of most favorable practice (12.5%) than the first-year group (2.5%). This difference may reflect greater exposure to academic and clinical content, repeated encounters with information requiring recall, and greater familiarity with practical applications of memory aids.

The mean knowledge score increased from 12.25 in the first-year group to 13.68 in the final-year group. Similarly, the mean practice score increased from 32.13 to 37.25. Thus, the direction of the findings favors final-year students for both outcomes. Nevertheless, the correlation analysis demonstrated no significant relationship between knowledge and practice. The combined sample produced $r = 0.042$, $p = 0.711$, while the first- and final-year analyses also remained nonsignificant.

This finding is important because knowing about a memory technique does not necessarily mean that a student will use it consistently. Practice may be influenced by motivation, learning style, previous experience, classroom teaching methods, perceived usefulness, workload, and opportunities to apply mnemonic strategies. Therefore, nursing educators may need to move beyond explaining mnemonic techniques and provide opportunities for students to construct, practice, evaluate, and repeatedly use them.

The study also showed differences in sources of information. Among first-year students, television/internet was a prominent source, whereas newspapers/magazines were the major reported source among final-year students. A substantial proportion of first-year students reported no source of information. These findings highlight an opportunity for nursing educators to incorporate reliable mnemonic resources into formal teaching rather than leaving students dependent on informal sources.

Overall, the findings support the educational relevance of mnemonic strategies in nursing education. However, because the study used purposive sampling and a relatively small sample from selected nursing colleges, the findings should be interpreted cautiously. Larger multicentric studies using probability sampling and validated instruments would strengthen the evidence.

5. Conclusion

The comparative study demonstrated that knowledge regarding mnemonic strategies was predominantly poor among both first-year and final-year B.Sc. Nursing students, whereas practice was predominantly favorable. Final-year students had higher mean knowledge and practice scores than first-year students. The overall mean knowledge score was 12.96 ± 3.473 and the overall practice score was 34.68 ± 6.404 . Despite the difference in mean scores, knowledge and practice were not significantly correlated in the overall sample, with $r = 0.042$ and $p = 0.711$.

The findings indicate a need to strengthen formal teaching regarding mnemonic strategies within nursing education. Mnemonics may be integrated into classroom teaching, clinical conferences, revision sessions, demonstrations, and self-directed learning. Faculty can encourage students to create and apply meaningful acronyms, associations, images, rhymes, and structured memory aids for appropriate nursing content. The information booklet developed for the study may serve as a supplementary educational resource.

Future research should evaluate structured mnemonic teaching through experimental or quasi-experimental designs, use larger samples from multiple institutions, and assess retention of learning over time. Such interventions may help determine whether systematic training in mnemonic strategies can improve academic learning, recall, and clinical application among nursing students.

6. Recommendations

1. Nursing faculty may incorporate mnemonic strategies into routine classroom teaching.
2. Information booklets and other structured learning resources may be provided to nursing students.
3. Students may be encouraged to develop their own meaningful mnemonic devices for difficult concepts.
4. Workshops on memory enhancement and learning strategies may be organized for nursing students.
5. Mnemonics may be incorporated into revision sessions before university examinations.
6. Future studies may use larger samples and probability sampling.
7. Experimental studies may be conducted to assess the effectiveness of structured mnemonic teaching.
8. Long-term retention and application of mnemonic strategies should be evaluated in future research.

7. Declarations

Ethical approval: Permission was obtained from the concerned authorities, informed consent was obtained from participants, and confidentiality was maintained.

Funding: The study was self-funded by the investigator, with no external financial support.

Conflict of interest: The author reported no conflict of interest related to the study.

Data availability: Data are contained within the original study material.

8. References

1. Sherwood L. *Human Physiology: From Cells to Systems*. Cengage Learning; 2015. p.157–162. ISBN: 978-1-305-44551-2.
2. McLeod SA. Stages of memory: encoding, storage and retrieval. *Simply Psychology*. 2013 Aug 5.
3. Burr S. Unforgettable statistics about human memory. Southtree. Available from: source cited in the original manuscript.
4. Chi MTH, Lewis MW, et al. Self-explanations: How students study and use examples in learning to solve problems. *Cognitive Science*. 2013;8:145–182.
5. Facts on Memory. Southtree. Available from: source cited in the original manuscript.
6. Brodwin E, Gould S. The ages you are the smartest at everything throughout your life. *Business Insider*. 2017 Jul 31.
7. Zelano C, et al. Nasal respiration entrains human limbic oscillations and modulates cognitive function. *Journal of Neuroscience*. 2016;36(49):12448.
8. Mocko M, Lesser LM, et al. Assessing effectiveness of mnemonics for tertiary students in a hybrid introductory statistics course. *Journal of Statistics Education*. 2017;25(1). doi:10.1080/10691898.2017.1294879.
9. Mnemonics. *LiteraryTerms.net*. Available from: source cited in the original manuscript.
10. Patten BM. The history of memory arts. *Neurology*. 1990;40(2):346–352. doi:10.1212/WNL.40.2.346.