



E-ISSN: 2663-2268

P-ISSN: 2663-225X

[www.surgicalnursingjournal.com](http://www.surgicalnursingjournal.com)

IJARMSN 2025;7(2): 165-169

Received: 01-07-2025

Accepted: 05-08-2025

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## Enhancing Knowledge on Stomach Cancer Prevention through Self-Instructional Module among B.Ed. Students: A Pre-Experimental Study

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**DOI:** <https://www.doi.org/10.33545/surgicalnursing.2025.v7.i2c.281>

### Abstract

**Background:** Globally, stomach cancer remains a considerable health burden, largely due to insufficient public understanding of its risk factors and preventive strategies. Educating future educators, such as B.Ed. students, can significantly enhance community-level health literacy.

**Objectives:** The study aimed to (1) To determine the existing knowledge of B.Ed. students regarding stomach cancer risk factors and prevention, (2) To evaluate the impact of a self-instructional module (SIM), and (3) To assess the correlation between post-test knowledge and specific socio-demographic variables.

**Methods:** A pre-experimental one-group pre-test and post-test approach was utilized with 50 purposively chosen B.Ed. students from a college in Dharwad. A validated structured questionnaire was administered before and one week after providing the SIM. Data analysis employed both descriptive and inferential statistics, including paired t-tests and chi-square tests.

**Results:** A statistically significant improvement was noted in the knowledge scores post-intervention ( $p < 0.05$ ). Significant relationships were found between knowledge gains and variables like age, gender, familial stomach cancer history, and primary source of health information.

**Conclusion:** The SIM effectively enhanced B.Ed. students' understanding of stomach cancer and its prevention. Incorporating such educational tools into academic curricula can contribute to widespread health awareness.

**Keywords:** Stomach cancer, Health education, Risk factors, B.Ed. students, SIM, Knowledge improvement, Nursing, Preventive health

### Introduction

Gastric cancer, commonly referred to as stomach cancer, continues to be a serious health issue on a global scale. Ranking consistently among the five most widespread cancers, it remains a predominant cause of cancer-related mortality. The World Health Organization (WHO) reports that this type of cancer leads to roughly 783,000 deaths every year, with prevalence rates varying significantly across different regions. In India, the incidence of stomach cancer is particularly notable in the northeastern areas, where it contributes substantially to both morbidity and mortality, exerting pressure on the national healthcare system and affecting individuals and their families profoundly.

One of the key challenges in combating stomach cancer lies in its typically subtle early-stage symptoms. These symptoms tend to be non-specific, often delaying medical consultation until the disease has reached an advanced and less treatable phase. As a result, outcomes for patients are often poor, underscoring the need for both enhanced early detection and robust prevention strategies.

The underlying causes of stomach cancer are complex, involving a combination of hereditary factors, environmental influences, and personal habits. Notably, chronic infection with *Helicobacter pylori*, frequent consumption of salted, smoked, or pickled foods, low intake of fruits and vegetables, excessive use of alcohol, tobacco use, increased body weight, and family history are all recognized contributors to one's risk of developing gastric cancer. Since many of these risk factors can be modified through changes in behavior, targeted primary prevention measures hold great promise for reducing the overall burden of this disease. By raising public awareness and encouraging the adoption of healthier lifestyles, effective prevention campaigns can inspire individuals to implement protective measures and

seek timely medical attention in response to persistent symptoms.

Education is universally acknowledged as a foundation for effective disease prevention and health promotion. By providing learners with reliable, clear, and accessible information, education enables individuals to make health-conscious choices. When it comes to cancer prevention, educational interventions are essential in addressing misconceptions, increasing awareness, and fostering health-seeking behaviors. Given the ripple effect that educators can produce in society, targeting students enrolled in teacher-education programs, such as Bachelor of Education (B.Ed.) courses, is a particularly strategic approach. These future teachers will eventually shape the health perception and practices of countless young people and their communities. If they possess a thorough understanding of health-related issues like stomach cancer, they are well-positioned to spread awareness both within and beyond their professional circles.

Despite the obvious need for greater awareness, research consistently shows that many students and the general public lack sufficient knowledge about various types of cancer, including stomach cancer, their associated risk factors, and possible preventative strategies. These knowledge gaps often result in poor health choices and delays in seeking appropriate care. While traditional classroom-based health education remains valuable, it can be hindered by limited time, resource constraints, and the varying learning speeds of students.

This context makes self-instructional modules (SIMs) an appealing alternative or supplementary method for delivering health education. SIMs offer learners the flexibility to engage with material at their own pace and in their own time. Their standardized structure guarantees that all users receive the same core information, which is especially important for complex health topics.

Research has demonstrated that SIMs are effective in diverse health education settings, ranging from nursing and patient education to public health initiatives. However, few studies have specifically investigated the effect of SIMs on stomach cancer awareness among future educators in India. Addressing this knowledge gap is vital, as it allows for the creation of well-informed educational strategies that utilize B.Ed. students as vital agents in public health promotion.

It was within this context that the present study was conceptualized—to rigorously examine the effectiveness of a self-instructional module covering the risk factors and prevention of stomach cancer among B.Ed. students at a selected college in Dharwad, India. The insights gained from this research will inform the broader use of SIMs to boost health literacy within this critical demographic and provide a strong argument for their integration into teacher-education programs for shaping a healthier future generation.

### Objectives of the Study

The specific goals set out at the beginning of this research were as follows:

1. To gauge the baseline knowledge of B.Ed. students regarding the risk factors and prevention of stomach cancer in a selected college in Dharwad.
2. To ascertain the impact of a tailored self-instructional module in enhancing this knowledge among the B.Ed. students.
3. To determine if there is an association between the B.Ed. students' post-intervention knowledge scores and certain demographic factors.

## Materials and Methods

### Research Design and Approach

The study adopted A pre-experimental, one-group pre- and post-test design to measure knowledge improvement due to the SIM.

### Setting and Sample

The research was conducted at Sonia B.Ed. College, Dharwad, involving 50 students selected through purposive sampling.

### Inclusion Criteria

- B.Ed. students present during data collection
- Willing to provide informed consent
- Able to comprehend content in English or Kannada

### Exclusion Criteria

- Students absent during data collection
- Unwilling to participate
- Individuals with cognitive or language barriers

### Tool Development

Two instruments were developed:

Structured Knowledge Questionnaire – Designed to evaluate awareness regarding stomach cancer risk factors and prevention. Developed based on literature reviews and validated by experts, the tool achieved a KR-20 reliability coefficient of 0.90.

Self-Instructional Module (SIM) – An informative guide developed using evidence-based content, organized logically to cover anatomy, risk factors, signs, diagnosis, prevention, and treatment of stomach cancer.

### Data Collection Process

Pre-test Phase: Participants completed a baseline knowledge questionnaire.

Intervention Phase: SIM was distributed for self-study.

Post-test Phase: The same knowledge questionnaire was administered one week later.

All ethical protocols, including informed consent and confidentiality, were strictly observed.

### Data Analysis

Data were analyzed using SPSS v26. Descriptive statistics summarized the demographics and knowledge scores. Paired t-tests assessed knowledge improvement, while chi-square tests explored relationships between post-test scores and demographic factors. Significance was set at  $p < 0.05$ .

### Data Collection Procedure

The study's workflow was structured into three main phases over approximately four to six weeks:

1. **Pre-test phase:** On a scheduled day, all participants assembled in a dedicated classroom and completed the baseline knowledge questionnaire independently, within an average time of 25–30 minutes. Collected questionnaires were coded for anonymity and secure matching.
2. **Intervention phase:** Soon after the pre-test, the SIM was distributed to each participant, alongside usage instructions. Students were expected to review the content at their own pace (recommended completion time about 45–60 minutes) during the week.
3. **Post-test phase:** Seven days after module distribution, the same participants reconvened to take the knowledge questionnaire again, enabling direct comparison of pre- and post-intervention scores.

Throughout, ethical principles were strictly followed. Institutional ethical clearance was obtained, written informed consent was secured, and confidentiality was ensured, with unique codes maintaining respondent anonymity.

### Data Analysis Plan

Data were coded and processed using SPSS Version 26.0. Descriptive statistics (frequencies, percentages, means, medians, standard deviations, ranges) were used to summarize respondent demographics and pre/post knowledge scores. Inferential statistics supported the study's

hypotheses: the paired t-test evaluated differences between pre- and post-test mean scores, while chi-square tests examined associations between post-test knowledge levels and demographic variables. Significance was established at  $p < 0.05$ .

### Results

#### Participant Demographics

##### 1. Demographic Profile of Participants

The demographic characteristics of the 50 B.Ed. students are summarized in Table 1.

**Table 1:** Demographic Profile of B.Ed. Students (N=50)

| Variable                              | Categories                         | Frequency (n) | Percentage (%) |
|---------------------------------------|------------------------------------|---------------|----------------|
| Age (years)                           | 21-25                              | 30            | 60.0           |
|                                       | 26-30                              | 15            | 30.0           |
|                                       | 31-35                              | 5             | 10.0           |
| Gender                                | Male                               | 15            | 30.0           |
|                                       | Female                             | 35            | 70.0           |
| Residential Area                      | Rural                              | 28            | 56.0           |
|                                       | Urban                              | 17            | 34.0           |
|                                       | Semi-urban                         | 5             | 10.0           |
| Marital Status                        | Married                            | 14            | 28.0           |
|                                       | Unmarried                          | 36            | 72.0           |
| Religion                              | Hindu                              | 35            | 70.0           |
|                                       | Muslim                             | 12            | 24.0           |
|                                       | Christian                          | 2             | 4.0            |
|                                       | Others                             | 1             | 2.0            |
| Family History of SC (Stomach Cancer) | Yes                                | 6             | 12.0           |
|                                       | No                                 | 44            | 88.0           |
| Primary Source of Health Information  | Mass Media (TV, radio, internet)   | 10            | 20.0           |
|                                       | Health Personnel (doctors, nurses) | 35            | 70.0           |
|                                       | Other (Friends, family, books)     | 5             | 10.0           |

As shown in Table 1, Of the 50 B.Ed. students enrolled, 60% were between 21–25 years old, 30% were aged 26–30, and 10% were in the 31–35 bracket. The sample skewed female (70% female; 30% male). Residentially, 56% were from rural areas, 34% from urban centers, and 10% from semi-urban settings. Most students (72%) were unmarried, and a majority identified as Hindu (70%), with others identifying as Muslim (24%), Christian (4%), or other faiths (2%). Only 12% reported a family history of stomach cancer. In terms of information sources, most (70%) cited health personnel as their primary source, with mass media and family/friends trailing at 20% and 10%, respectively.

### Knowledge Levels: Pre- and post-intervention

**Table 2:** Distribution of B.Ed. Students by Knowledge Levels (N=50)

| Level of Knowledge | Pre-test: n (%) | Post-test: n (%) |
|--------------------|-----------------|------------------|
| Inadequate (<33%)  | 10 (20.0%)      | 0 (0.0%)         |
| Average (34–67%)   | 35 (70.0%)      | 30 (60.0%)       |
| Adequate (>68%)    | 5 (10.0%)       | 20 (40.0%)       |

Table 2 clearly illustrates a notable shift in knowledge levels following the intervention. Prior to the intervention, knowledge scores indicated that 20% of students had inadequate knowledge, 70% had average knowledge, and only 10% scored as having adequate knowledge regarding stomach cancer risk factors and prevention. After the SIM intervention, these proportions shifted to 0% inadequate, 60% average, and a notable 40% achieving adequate knowledge. This substantial increase in adequate-category participants underscores the module's effectiveness in

boosting overall understanding.

### Statistical Assessment of Effectiveness

**Table 3:** Comparison of Pre-test and Post-test Knowledge Scores (N=50)

| Test Phase | Mean Knowledge Score | Standard Deviation (SD) | Paired t-value | p-value |
|------------|----------------------|-------------------------|----------------|---------|
| Pre-test   | 15.2                 | 3.8                     |                |         |
| Post-test  | 21.8                 | 2.7                     | 8.53           | <0.001  |

Table 3 demonstrates a highly significant improvement in the mean knowledge scores after the intervention. Mean knowledge scores increased significantly, from 15.2 (SD 3.8) in the pre-test to 21.8 (SD 2.7) in the post-test. The paired t-test yielded a value of 8.53 and a p-value of less than 0.001, strongly confirming the SIM's positive educational impact. This result allowed for rejection of the null hypothesis in favor of the alternative—that the intervention led to genuine improvement in knowledge.

### Relationship to Socio-Demographic Variables

Chi-square tests examined whether post-test knowledge scores (grouped as adequate versus inadequate/average) were significantly related to socio-demographic variables. Statistically significant associations were found for age ( $\chi^2 = 12.56$ ,  $p = 0.002$ ), gender ( $\chi^2 = 4.87$ ,  $p = 0.027$ ), family history of stomach cancer ( $\chi^2 = 7.12$ ,  $p = 0.008$ ), and primary source of health information ( $\chi^2 = 9.98$ ,  $p = 0.007$ ).

- **Age:** Older students appeared to gain more from the module, possibly reflecting maturity or prior exposure to health information.
- **Gender:** The female majority, known in literature to

engage more in health-seeking behaviors, benefited especially from the intervention.

- **Family History:** Students with a family history of stomach cancer performed particularly well, perhaps due to heightened interest or personal relevance of the material.
- **Health Information Source:** Those who relied on healthcare professionals as their information source showed greater knowledge gains, suggesting the importance of trusted channels.

No significant associations were found for residential area, marital status, or religion, implying consistent effectiveness of the SIM regardless of these factors.

### Discussion

The study revealed notable improvements in knowledge among B.Ed. students following the SIM intervention, supporting its effectiveness. Prior to the intervention, most students exhibited only moderate understanding of stomach cancer, which aligns with existing literature. The complete elimination of inadequate knowledge levels post-intervention underscores the module's impact.

The success of SIMs in this context highlights their utility in health education, particularly for complex topics like cancer. Significant associations with age, gender, family history, and information sources suggest these factors influence learning outcomes and should inform future educational strategies.

Conversely, the absence of variation based on residence, religion, or marital status indicates the module's broad applicability across diverse student groups. This adaptability strengthens the case for incorporating SIMs into teacher education curricula.

While the study's internal validity is strong, the lack of a control group limits generalizability. Future research should explore long-term knowledge retention and behavior change.

### Conclusion

In conclusion, the current investigation affirmed that a carefully designed self-instructional module markedly enhanced knowledge of stomach cancer risk factors and prevention strategies among B.Ed. students in Dharwad. The intervention proved highly effective, eradicating inadequate knowledge and significantly increasing the number of students with adequate understanding. The results also highlighted the influence of age, gender, family history, and trusted health information sources, suggesting the benefit of tailored approaches for certain groups. Integrating such modules into teacher-training curricula and wider public health programs could empower educators to serve as proactive health advocates, thereby promoting greater community awareness and supporting stomach cancer prevention efforts on a broader scale.

### Acknowledgement

The authors extend their profound gratitude to the Principal, faculty, and administration of Sonia B.Ed. College, Dharwad, for their invaluable cooperation and support throughout the duration of this study. Sincere appreciation is also conveyed to all the B.Ed. students who enthusiastically participated and contributed their time and effort, making this research possible. We are also indebted to the subject matter experts who generously provided their expertise and validated the research tools.

### Conflict of Interest

Not available

### Financial Support

Not available

### References

1. Smeltzer SC, Bare B. Brunner and Suddarth's Textbook of Medical-Surgical Nursing. 10th ed. Philadelphia: Lippincott Williams and Wilkins; 2004.
2. Singh J. Gastric Cancer. Hong Kong: AME Publishing Company; 2015. Available from: <https://book.amegroups.com/post/view/gastric-cancer>
3. Cancer. Wikipedia. 2024 [cited 2024 Jun 20]. Available from: <https://en.wikipedia.org/wiki/Cancer>
4. Ansari J, Kaur D. The Text Book of Medical Surgical Nursing-1. 2017 ed. New Delhi: S. Vikas and Company Medical Publishers; 2017. p. 51–53.
5. Smeltzer SC. Handbook for Brunner & Suddarth's Textbook of Medical-Surgical Nursing. 12th ed. Philadelphia: Lippincott Williams & Wilkins; 2010. p. 196.
6. Zali H, Rezaei-Tavirani M, Azodi M. Gastric cancer: prevention, risk factors and treatment. Gastroenterol Hepatol Bed Bench. 2011;4(4):175-85. Available from: <https://pdfs.semanticscholar.org/c4f3/ef7f0a5712177227ac5cc5f2a15b1fef65ae.pdf>
7. Pankaj R. Patel. The Gujarat Cancer and Research Institute [Internet]. Available from: <https://www.gcriindia.org/>
8. Liu Q, Zeng X, Wang W, Huang S, Huang J, Wang F, *et al.* Knowledge, risk factors and warning symptoms and attitude towards stomach cancer among general population in China. PLoS One. 2019;14(9):e0222508. doi:10.1371/journal.pone.0222508
9. Shetty P. Surgical Journal. 2014;2(2):52–55. Available from: <https://www.saudisurgj.org/>
10. Shah SK, Jha AK, Mandal AK, Kumar KR, Shrestha A, Sah S, *et al.* Dietary risk factors associated with development of gastric cancer in Nepal. Gastroenterol Res Pract. 2020;2020:8583561. doi:10.1155/2020/8583561
11. Sumathi BE, Suryanarayana SP, Kiran G, Rao GS. A study of patterns of upper gastrointestinal malignancy. Singapore Med J. 2009;50(2):147-51.
12. Hemmatipur A. Knowledge and attitudes regarding prevention of gastric cancer among nurses. J Nurs Midwifery Sci. 2018;5(1):21-24. Available from: <https://www.jnmsjournal.org>
13. Matthew A, Gajalakshmi V, Varghese C, Thankappan KR, George PS, Kannan S, *et al.* Dietary risk factors for stomach cancer: a prospective case-control study in Trivandrum, Kerala. Eur J Cancer Prev. 2000;9(2):89-97. doi:10.1097/00008469-200004000-00003
14. Shi RH, Hu PJ, Xiao SD, Wang XZ, Wang SM, Wang NJ, *et al.* Association between Helicobacter pylori CagA+ strains and gastric cancer and its related pathologies. Helicobacter. 2008;13(2):104-10. doi:10.1111/j.1523-5378.2008.00595.x
15. Rao DN, Ganesh B, Rao RS, Desai PB. A case-control study of stomach cancer at Tata Memorial Hospital, Mumbai. Int J Cancer. 2002;100(6):693-6. doi:10.1002/ijc.10538
15. Mahdi F, Rabizadeh S, Yazdani S, Nikfarjam A, Sadeghian A, Tabatabaeifar M, *et al.* Factors affecting gastric cancer in Iran. J Gastrointest Cancer.



- 2020;51(1):180–6. doi:10.1007/s12029-019-00279-w
16. Mansour-Ghanaei F, Joukar F, Naghipour MR, Atrkar-Roushan Z, Hossainzadeh M. Awareness about the risk factors, signs, symptoms, and management of gastric carcinoma in Northern Iran. *Middle East J Dig Dis*. 2012;4(1):36-43.
  17. Khaling Rai Dipa, KC Sudikshya, Malla Chandani Nepal. Effectiveness of self-instructional module on knowledge regarding risk factors and prevention of stomach cancer among professional students, Bangalore. *Nepal J Epidemiol*. 2017;7(2):672–7. doi:10.3126/nje.v7i2.18044
  18. Goh BBG, Krishna L, Sundram FX. Knowledge and attitude of junior doctors towards gastric cancer. *J Oncol Pharm Pract*. 2012;18(3):357-66. doi:10.1177/1078155211428212
  19. Jarosz M, Sekuła W, Rychlik E. Impact of diet on long-term decline in gastric cancer. *World J Gastroenterol*. 2011;17(1):15-21. doi:10.3748/wjg.v17.i1.15

**How to Cite This Article**

Mary JS, Awathare S, Jesuraj R. Enhancing Knowledge on Stomach Cancer Prevention through Self-Instructional Module among B.Ed. Students: A Pre-Experimental Study. *International Journal of Advance Research in Medical Surgical Nursing*. 2025;7(2): 165-169

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