

1 **IMPACT OF BOOKLET REGARDING ROOMING – IN AMONG**
2 **NURSING STUDENTS IN A SELECTED NURSING COLLEGE IN**
3 **BANGALORE.**

4
5 **ABSTRACT**

6 Rooming-in, a core component of maternal and newborn care, is widely recommended for
7 promoting breastfeeding, enhancing maternal–infant bonding, and reducing neonatal
8 complications. Despite its importance, gaps in knowledge among nursing students may limit
9 effective implementation in clinical settings. This study aimed to assess the knowledge regarding
10 rooming-in and evaluate the effectiveness of an information booklet among 4th-year B.Sc.
11 Nursing students in a selected college. A descriptive research design with a one-group pre-test
12 post-test approach was adopted, and data were collected from 41 students using a structured
13 questionnaire consisting of demographic variables and 30 knowledge items. Data analysis
14 included descriptive statistics such as frequency, mean, and percentage, along with paired t-test
15 and chi-square tests to determine improvement and associations.

16 Results showed that in the pre-test, 76% of students had poor knowledge, 6% had average
17 knowledge, and none demonstrated good knowledge of rooming-in practices. After the
18 intervention, 72% attained average knowledge and 4% achieved good knowledge, with a
19 significant increase in the mean score from 4.75 to 13.95. The paired t-test indicated a
20 statistically significant improvement ($p < 0.05$). Among socio-demographic variables, none
21 showed a significant association with pre-test knowledge levels.

22 The findings highlight notable knowledge gaps among nursing students and emphasize the
23 effectiveness of structured educational interventions such as information booklets in improving
24 awareness. Enhancing rooming-in knowledge will better prepare future nurses to support
25 breastfeeding, strengthen maternal–infant bonding, and promote evidence-based newborn care
26 practices.

27 **KEY WORDS:** Rooming-In, Maternal–Infant Bonding, Breastfeeding Promotion, Nursing
28 Students, Knowledge Assessment, Educational Intervention, Baby-Friendly Hospital Initiative
29 (BFHI)

30 **INTRODUCTION**

31 Rooming-in, the practice of allowing a newborn to stay with the mother continuously from birth,
32 is a key recommendation of the World Health Organization (WHO) and UNICEF as part of the
33 Baby-Friendly Hospital Initiative (BFHI). This practice supports early breastfeeding, strengthens
34 maternal–infant bonding, enhances maternal confidence, and reduces hospital-acquired
35 infections. Despite these benefits, rooming-in is not consistently practiced in many healthcare
36 settings, often due to limited awareness and inadequate training among healthcare provider.
37 Nursing students, as future frontline caregivers, play a crucial role in educating mothers and
38 promoting evidence-based newborn care. However, gaps in knowledge and exposure may hinder
39 their ability to effectively support rooming-in. While studies have assessed nursing students’
40 general understanding of newborn care, limited research focuses specifically on their knowledge
41 of rooming-in and its practical implications.

42 This study aims to assess the knowledge of 4th-year B.Sc. Nursing students regarding rooming-
43 in and to evaluate the effectiveness of an information booklet as an educational intervention.
44 Identifying existing knowledge levels and areas needing improvement will help strengthen
45 nursing curricula and better prepare students to support optimal maternal and neonatal health
46 practices.

47 **IMPACT AND IMPLICATIONS IN THE INDIGENOUS CONTEXT**

48 The study highlights the urgent need to strengthen nursing education regarding rooming-in,
49 especially in culturally diverse settings where traditional practices may influence newborn care.
50 By improving students’ knowledge through structured tools such as information booklets,
51 healthcare institutions can enhance breastfeeding support, promote mother–infant bonding, and
52 reduce neonatal complications. Empowering nursing students with accurate and evidence-based
53 information enables them to confidently counsel mothers and advocate for rooming-in across

54 various clinical and community settings, ultimately contributing to improved maternal and
55 newborn health outcomes.

56 **RESEARCH QUESTIONS**

- 57 1. What is the level of knowledge regarding rooming-in among 4th-year B.Sc. Nursing
58 students in a selected college?
- 59 2. What proportion of students demonstrate poor, average, or good knowledge about
60 rooming-in practices?
- 61 3. Is there a significant association between students' socio-demographic variables (such
62 as age, gender, prior information, and source of information) and their knowledge
63 levels on rooming-in?
- 64 4. How can structured educational interventions, such as information booklets, be
65 designed to strengthen nursing students' knowledge and competencies regarding
66 rooming-in?

67 **HYPOTHESIS**

68 **H₀**: There will be significant difference between mean of pre-test and post-test score
69 regarding rooming-in among nursing students.

70 **H₁**: There will be significant association between present knowledge score among nursing
71 students regarding rooming-in.

72 **H₂**: There will be significant association between post-test knowledge score.

73 **MATERIALS AND METHODS**

74 A pre-experimental one-group pre-test post-test design was adopted to evaluate the effectiveness
75 of an information booklet on knowledge regarding rooming-in among 4th-year B.Sc. Nursing
76 students. This design was selected because it allows measurement of the same participants'
77 knowledge before and after an intervention, enabling direct comparison of changes attributable
78 to the educational tool.

79 The study was conducted at Smt. Nagarathnamma College of Nursing, Bengaluru. The
80 participants consisted of 41 4th-year B.Sc. Nursing students selected through convenience
81 sampling. Inclusion criteria included students enrolled in the final year of the B.Sc. Nursing
82 program, willing to participate, and available during data collection. Students who were absent or
83 unwilling were excluded. The research instrument was a structured self-administered
84 questionnaire divided into two sections: demographic variables and 30 multiple-choice items
85 assessing knowledge on rooming-in. The tool was validated by experts in maternal and child
86 health nursing, ensuring content clarity and relevance. Reliability was established through
87 internal consistency measures. Data collection occurred in May 2024. After obtaining
88 institutional permission and informed consent from participants, the pre-test questionnaire was
89 administered to assess baseline knowledge. Immediately afterward, the information booklet on
90 rooming-in was distributed. Students were given adequate time to read and understand the
91 material. The same questionnaire was then administered as the post-test to evaluate knowledge
92 improvement. Measures were taken to prevent discussion among participants and maintain
93 response integrity.

94 Ethical principles of confidentiality, voluntary participation, and informed consent were strictly
95 upheld. No personal identifiers were collected. Participants were informed that they could
96 withdraw at any stage without consequences. Data were analyzed using descriptive and
97 inferential statistics. Frequencies and percentages summarized demographic variables and
98 knowledge levels. Mean, standard deviation, and coefficient of variation described overall
99 scores. A paired t-test assessed the effectiveness of the information booklet by comparing pre-
100 test and post-test means. Chi-square tests evaluated associations between knowledge and
101 demographic variables, with $p < 0.05$ considered statistically significant.

102 **RESEARCH INSTRUMENT**

103 The research instrument used in this study was a structured self-administered questionnaire
104 developed to assess knowledge regarding rooming-in among 4th-year B.Sc. Nursing students. It
105 consisted of two sections. Section A included socio-demographic variables such as age, gender,
106 previous information about rooming-in, and source of information. Section B contained 30
107 multiple-choice knowledge questions related to the concept, benefits, indications, guidelines, and

108 importance of rooming-in. Each correct answer was given a score of 1 and each incorrect answer
109 a score of 0, with a total score ranging from 0 to 30. Based on the scores, knowledge was
110 categorized as poor (0–10), average (11–20), and good (21–30). The tool was developed in
111 English, validated by experts in maternal and child health nursing, and pretested for clarity and
112 accuracy. Reliability was ensured through internal consistency. The questionnaire was suitable
113 for objective and efficient assessment while maintaining anonymity and minimizing response
114 bias.

115 **DATA COLLECTION**

116 Data collection was carried out in May 2024 at Smt. Nagarathamma College of Nursing,
117 Bengaluru, after obtaining permission from institutional authorities. Participants were selected
118 using convenience sampling, and only those who met the criteria and provided written informed
119 consent were included. At the beginning of the session, the investigators introduced themselves,
120 explained the purpose of the study, and assured confidentiality and voluntary participation.

121 The structured questionnaire was first administered as a pre-test to assess baseline knowledge.
122 Immediately after the pre-test, the information booklet on rooming-in was distributed to the
123 students, and they were given sufficient time to read and understand the content. After the
124 intervention, the same questionnaire was administered as a post-test to assess improvement in
125 knowledge. The completed questionnaires were collected immediately to avoid discussion or
126 external influence. Anonymity was maintained, and participants were encouraged to answer
127 honestly. The collected data were then organized, coded, and entered for statistical analysis using
128 descriptive and inferential methods based on the study objectives.

129 **RESULTS**

130 The study aimed to assess the effectiveness of an information booklet on knowledge regarding
131 rooming-in among 4th-year B.Sc. Nursing students in a selected college. Data were collected
132 from 41 students using a structured self-administered questionnaire in pre-test and post-test
133 formats. The results are presented in four sections: socio-demographic characteristics, criteria-
134 wise knowledge analysis, overall pre-test and post-test knowledge scores, and association
135 between pre-test knowledge and selected socio-demographic variables.

136 **Section I: Socio-demographic characteristics**

137 Table 1: Distribution of students according to demographic variables (N = 41)

Sl no	Demographic data	Frequency	Percentage
1	Age		
	18-20	19	46%
	21-23	22	54%
2	Gender		
	MALE	33	66%
	FEMALE	8	16%
3.	HAVE YOU RECEIVED ANY PRIOR INFORMATION ABOUT ROOMING-IN?		
	YES	38	76%
	NO	3	6%
4.	Source of information		
	SOCIAL MEDIA	24	48%
	MAGAZINES	2	4%
	NEWS PAPER	3	6%
	OTHERS	12	24%

138
 139 Table 1 shows that the majority of participants were aged 21–23 years (54%), while 46% were
 140 between 18–20 years. Most students were male (66%), with females accounting for 34% of the
 141 sample. A large proportion of students (76%) reported having received prior information about
 142 rooming-in, whereas 24% had not received any. Among those who had prior exposure, social
 143 media was the most common source of information (48%), followed by other sources (24%)
 144 such as classroom teaching, peers, and clinical postings, while newspapers (6%) and magazines
 145 (4%) contributed minimally.

146
 147 **Section II: Criteria-wise knowledge analysis**

148 Table 2: Criteria-wise distribution of knowledge levels (N = 41)

Level of knowledge	Score	Pretest		Post test	
		Frequency	Percentage	Frequency	Percentage

Poor knowledge	0-10	38	76.0	3	6.0
Average knowledge	11-20	3	6.0	36	72.0
Good knowledge	21-30	-	-	2	4.0

149

150 Table 2 shows the level of knowledge regarding rooming-in before and after administration of
 151 the information booklet. In the pre-test, 76.0% (n=38) of the participants had poor knowledge,
 152 6.0% (n=3) had average knowledge, and none demonstrated good knowledge. After the
 153 intervention, knowledge improved substantially: 72.0% (n=36) achieved average knowledge,
 154 4.0% (n=2) attained good knowledge, while only 6.0% (n=3) remained in the poor knowledge
 155 category. These results reflect a marked improvement in knowledge following the structured
 156 booklet intervention.

157 **Section III: Overall knowledge scores**

158 Table 3: Overall knowledge score analysis (N = 41)

Sl. no.	Variables	Mean	Std. Deviation	Std. Error mean	t value	P value
1	Score before booklet	4.7561	2.85290	.44555	-20.737 df(40)	0.000 (sig)
	Score after booklet	13.9512	2.68283	.41899		

159 Table 3 compares the mean knowledge scores before and after the intervention using a paired t-
 160 test. The mean pre-test score was 4.76 (SD = 2.85), while the post-test mean score increased to
 161 13.95 (SD = 2.68). The calculated t value was -20.737 with df = 40 and a highly significant p
 162 value of 0.000 (p < 0.05). This confirms that the information booklet was statistically significant
 163 in enhancing knowledge about rooming-in among nursing students.

164 **Section IV: Association between knowledge and demographic variables**

165 Table 4: Association between socio-demographic variables and knowledge

166 (Chi-square test, N = 41)

Variable	χ^2 Value	Table Value (p = 0.05)	Inference
Age	3.748	.053	Not significant
Locality	.394	.530	Not significant
Family type	.256	.613	Not significant
Religion	2.293	.514	Not significant

167
168 Table 4 examines the association between knowledge levels and selected demographic variables.
169 No statistically significant associations were found between knowledge levels and age ($\chi^2 =$
170 3.748, $p = .053$), gender ($\chi^2 = 0.394$, $p = .530$), prior information about rooming-in ($\chi^2 = 0.256$, p
171 $= .613$), or sources of information ($\chi^2 = 2.293$, $p = .514$). This suggests that improvement in
172 knowledge was independent of sociodemographic factors, and the booklet intervention was
173 effective across all subgroups.

174 DISCUSSION

175 The present study evaluated the effectiveness of an information booklet on knowledge regarding
176 rooming-in among 4th-year B.Sc. Nursing students. The findings showed that most students had
177 only average knowledge in the pre-test, indicating limited understanding of rooming-in despite
178 their academic background. After the intervention, post-test scores increased significantly,
179 demonstrating that the information booklet was effective in improving students' knowledge. This
180 supports existing evidence that structured educational materials can strengthen learning on
181 maternal–infant care practices.

182 These results are consistent with previous studies that reported inadequate knowledge among
183 nursing students regarding newborn care and BFHI components. Although students may have
184 some exposure through classes or clinical postings, their understanding often remains incomplete
185 without focused instructional methods. The significant improvement in post-test scores
186 highlights the need for structured and competency-based teaching approaches in nursing
187 education.

188 The study also found no significant association between demographic variables and pre-test
189 knowledge, suggesting that knowledge gaps were common across different student groups. This
190 aligns with earlier research showing that demographic factors alone do not influence
191 understanding of maternal–infant care practices.

192 Limitations of the study include convenience sampling, a single-institution setting, and reliance
193 on self-administered questionnaires, which may limit generalizability and introduce response
194 bias. However, the findings still provide valuable insights into the need for enhanced teaching
195 strategies to prepare nursing students for promoting rooming-in in clinical practice.

196 Overall, the study demonstrates that an information booklet is an effective tool for improving
197 knowledge regarding rooming-in. Continued emphasis on structured, evidence-based teaching
198 methods is essential to strengthen nursing students' competence in supporting maternal and
199 newborn health.

200 **CONCLUSION**

201 This study showed that 4th-year B.Sc. Nursing students had only average baseline knowledge
202 regarding rooming-in, indicating notable gaps in their understanding of its benefits and clinical
203 relevance. The significant improvement in post-test scores following the information booklet
204 demonstrates that structured educational interventions are effective in enhancing students'
205 knowledge. These results point to the need for stronger integration of rooming-in and BFHI
206 components within nursing curricula to better prepare students for maternal–infant care.

207 The findings also carry broader implications for maternal and newborn health, as well-informed
208 nursing students are better equipped to support breastfeeding, promote mother–infant bonding,

209 and provide accurate patient education. Strengthening knowledge in this area contributes to
210 improved clinical practice and better health outcomes for mothers and newborns.

211 Future studies involving larger samples and multiple institutions are recommended to increase
212 generalizability. Further research on long-term knowledge retention, comparison of teaching
213 methods, and application of knowledge in clinical settings would provide deeper insight into
214 effective educational strategies.

215 The study highlights the importance of targeted, evidence-based instruction in improving nursing
216 students' competence in rooming-in and advancing maternal–infant health care.

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226 **CONFLICT OF INTEREST**

227 The authors declare that there are no financial, personal, or professional conflicts of interest that
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