Efficacy of Communication Skill Training on Knowledge and Skill of Nursing Students in Conveying Diagnosis to Patients with Cancer: A Pilot Study Approach

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Abstract

Introduction Procuring communication skills that enable nurses to be effective yet person-centeredness is increasingly a hallmark of quality cancer care. The growing importance of patient outcomes and experiences in health care may mean that communication skill training is finally getting the attention it so clearly deserves.

Objectives The main objectives of the study were to assess the efficacy of communication skill training on knowledge and skills of nursing students in conveying diagnosis to patients with cancer.

Materials and Methods Quasi-experimental pretest–posttest with control group research design was adopted for the study. A total of 32 third-year BSc nursing students (intervention group, 16; control group, 16) were selected by nonprobability purposive sampling technique from two selected colleges at Mangaluru. Baseline proforma, self-administered knowledge questionnaire, and breaking bad news assessment schedule were used for data collection. Tools were validated by 11 subject experts. Communication skill training was provided for 8 hours (2 hours of theory and 6 hours of skill training on conveying diagnosis). A blinding method was adopted to assess the skill of the students that enable to avoid subjectivity.

Results The mean age of participants in the intervention group was 20.56 and of participants in the control group was 20.94. All participants (100%) of both the intervention and control groups were females. The results showed there was a significant difference found in knowledge scores ($t = 8.52$, $p = 0.000$) between the intervention and control groups after the intervention. There was a significant improvement found in conveying diagnosis skills among students between the intervention and control groups in different time periods. There was a slight positive correlation found between pretest knowledge scores and eliciting concerns domain of conveying diagnosis skill ($r = 0.57$, $p = 0.023$).

Conclusion The study results revealed that communication skill training session was very effective for improving the knowledge and skills of students, and it enables them in providing quality care to patients with cancer through effective communication.

Keywords
- efficacy
- communication skill training
- nursing students
- conveying diagnosis
- patients with cancer

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Introduction

The quality of nurse–patient interaction is enhanced through effective communication, which also has a significant impact on the patient's perceptions toward the effectiveness of treatments.[1] For nurses, communicating with cancer patients is a recognized challenge and a persistent problem, with emphasis placed on having difficult conversations.[2] Staff nurses are expected to take on this significant responsibility given the regular contact they have with patients. It is well known that patients with cancer have a significant need for knowledge and emotional support, and that need can only be met through efficient communication.[3]

Many cancer patients have been receiving long-term curative or palliative cancer care for many years due to early detection and advancements in medical treatment.[4] They often have physical symptoms and distress throughout their cancer trajectory, either as a result of the illness itself or as a result of the anticancer treatment.[5] However, the results reveal that ~50% of those with newly diagnosed cancer and those with recurring cancer do not receive enough psychosocial assistance and exhibit a considerable level of distress.[6]

As a chronic disease, cancer patients face many psychosocial problems and often lack adequate support due to ineffective nurse and patient communication. Nurse shortages and their impact on patient care are well-documented global problems. A literature review on factors influencing the provision of psychosocial care to cancer patients shows that the provision of psychosocial support for routine cancer care in the health care system has not been thoroughly explored.[7]

Understanding emotional feelings and responding to them empathically are fundamental communication skills. Patients' emotional reactions to medical information may make it more difficult for them to understand their illness.[8] Everything we do in cancer care is based on how well we communicate with our patients and their families. The patient, their carers, and our health care systems are all adversely influenced by poor communication.[9] Many medical professionals, including nurses, believe that they lack the necessary training to carry out tough conversations,[10] such as those about explaining surgical risks,[11] communicating a diagnosis or prognosis,[12] and discussing available treatment.[9] The majority of health care systems suggest that poor communication is still one of the major causes of complaint.[13] Health care professionals frequently have the challenging task of conveying bad news to their patients, families, and care providers. In a survey of 250 patients at an oncology facility in Scotland, 91 and 94% of patients wanted to know the possibility that their disease will be cured and the potential negative effects of treatment.[14]

The process of conveying bad news to a patient or their caretakers is a challenging task. Communicating bad news is more challenging when the patient is young, the health care providers and patients have a long-standing relationship, or when the patient has expressed strong expectation for a positive outcome.[15] Unfavorable news is always bad news, regardless of how it is delivered. Nonetheless, the manner in which information is conveyed can significantly affect both the patient and the practitioner. The patient's wellness, quality of life, and capacity to get in touch with a doctor later on will all suffer if it is done wrong. There are efficient ways to train these competencies, which medical professionals and other health care providers must acquire.[16] Effective communication is necessary to provide patient-centered, high-quality cancer care,[17] and communication skills can be improved through training and practice.[8] Hence, the researcher felt the need to evaluate the effectiveness of communication skill training in gaining knowledge and improving skill of nursing students in conveying diagnosis (breaking bad news) to patients with cancer.

Materials and Methods

Quasi-experimental pretest and posttest with control group design was adopted for the study. The study was conducted in two selected colleges of nursing at Mangaluru. A total of 32 third-year BSc nursing students were selected using nonprobability purposive sampling technique.

Inclusion Criteria

- Nursing students who were studying in third-year BSc nursing and willing to participate in the study.
- Nursing students who had clinical postings in selected medical college hospital, Mangaluru

Exclusion Criteria

- Nursing students who were studying in third-year BSc nursing and attended any communication skill training program or seminar other than classroom teaching.

A baseline proforma, a self-administered knowledge questionnaire on conveying diagnosis consisting of 30 questions, and a breaking bad news assessment schedule (standardized rating scale developed by Miller et al[18]) consisting of 23 statements were adopted to collect data from the participants. The split-half method using Pearson's correlation coefficient and Spearman's prophecy formula was used to test the reliability of the self-administered knowledge questionnaire and r value was 0.78. The reliability of breaking bad news assessment scale was assessed using Cronbach α and *r* value obtained was 0.93.

A basic communication skill module (developed by a researcher) and the SPIKES[19] model were used to train nursing students in gaining knowledge and improving skill in conveying diagnosis to patients with cancer. Data collection tools and training modules were validated by subject experts, and the researcher modified the knowledge questionnaire based on the experts' suggestions. The content validity index (S-VI/Ave) was 0.92. A total of 8 hours of communication skill training on conveying diagnosis (2 hours of theory and 6 hours of practical sessions) were provided for the intervention group. To prevent subjectivity, a blinding method was adopted to assess the effectiveness of a training program on conveying diagnosis skills. Using a skill training module, the researcher trained the personnel to

assess the communication (conveying diagnosis) skill. Role playing, video-based learning, and lecture-discussion were the approaches used to train the evaluator. The trained evaluator observed the interaction of study participants with a simulated patient and placed score marks in the score sheets.

The study was conducted at two selected colleges of nursing in Mangaluru, and data were collected as planned. Lottery method was used to allot the participants into the intervention and control groups. Formal administrative permissions were obtained from the heads of the institutions. Self-introduction and the establishment of rapport were done by the researcher. An explanation of the importance of the study was given to the participants. A written informed consent was obtained from the students for their willingness to participate in the study and participant information sheet was provided to them. The questionnaires were administered to the study participants on a selected date. A pretest was conducted to assess the knowledge and skills of the undergraduate students. A demographic proforma, a self-administered knowledge questionnaire on conveying diagnosis, and a breaking bad news assessment schedule were used in the pretest. Following this, 8 hours of communication skill training on conveying diagnosis (2 hours of theory and 8 hours of practical sessions) were implemented for the intervention group. Two hours of theory sessions regarding basic communication skills and conveying diagnosis using the SPIKES model were given to the study participants. A total of 6 hours of practice sessions were provided. During the practice sessions, role plays were adopted and pre- and postbriefing sessions were also conducted. Lecture, group discussion, video-based learning, and role play were adopted as teaching methods to train students. A simulated patient was used to assess the communication skills (conveying diagnosis) of the nursing students. The control group did not receive any interventions during the data collection period. After exposure to this training program, posttests for skill assessments were conducted after 1 week and 2 weeks for both the intervention and control groups. Knowledge assessment was done only after 1 week of training sessions.

Ethical Considerations

Prior to the data collection, approval was obtained from the scientific review board and the institutional ethics committee. The emphasis was placed on the voluntariness of participation. After the researchers had further explained the project, written informed consent was obtained before any data were collected. Participants' inquiries were welcomed.

Statistical Analysis

Descriptive and inferential statistics were used in data analysis. Baseline data were presented as frequency and percentage. The knowledge scores were expressed as range, mean, and standard deviations (SDs). Paired and unpaired *t*-tests were adopted to interpret the difference in knowledge scores within and between groups. Repeated two-factor analysis of variance (ANOVA) and post hoc analysis were used to determine the difference between pretest and posttest skill scores in repeated intervals for both knowledge and skill assessments. The Pearson correlation coefficient was used to correlate the knowledge and skills of conveying diagnosis among students. The level of significance was set at $p < 0.05$.

Results

►**Table 1** depicts that the mean age of students in the intervention group was 20.56 (SD, 0.814) and in the control group was 20.94 (SD, 1.12). Majority (68.8%) of the students did not have any significant one affected with cancer and 31% of them had relatives with cancer in the intervention group, whereas in the control group 50% of them had significant one affected with cancer.

The data in ►**Table 2** show that there was a significant difference between pretest (mean ± SD =14.19 ± 2.46) and posttest knowledge scores (mean ± SD = 24.19 ± 2.26) within the intervention group ($t = 17.11$, $p = 0.000$), whereas in the control group there was no significant differences found between pretest and posttest scores ($t = 1.14$, $p = 0.27$). There was a significant difference found in all knowledge domains (impact of cancer: $t = 4.96$, $p = 0.000$; communication skill: $t = 7.68$, $p = 0.000$; overall knowledge scores: $t = 8.52$, $p = 0.000$) between intervention and control group after the training program. The *p*-value showed that there was a highly significant improvement in posttest knowledge of participants in the intervention group.

The data in ►**Table 3** reveal the difference in mean and SD of skill scores in both intervention and control group before and after the intervention. Two-factor repeated ANOVA showed that there were differences in conveying diagnosis skill scores within the intervention group (overall score: $t = 809.00$, $p = 0.000$) as well as between groups (overall score: $t = 359.25$, $p = 0.000$) and highly significant at 0.05 level of significance.

The data in ►**Table 4** show post hoc test (Bonferroni) was applied to test the significant difference in mean scores of pretests, posttest 1, and posttest 2 in the intervention and control groups. The findings revealed that significant differences were found in skill scores of pretests, posttest 1, and posttest 2 within and between groups ($p = 0.000$) at $p < 0.05$, whereas no significant differences were found in mean of posttest 1 and posttest 2 skill scores of the intervention group (within group, $p = 0.94$) at $p < 0.05$. Hence, the communication

Research design schematic representation

Group	Pretest	Intervention/ treatment	Posttest	
			I	II
Intervention	O1	X	O2	O3
Control	O1	–	O2	O3

Note: O1: pretest assessment; O2 and O3: posttest assessments (after 1 week and 2 weeks); X: communication (conveying diagnosis) skill training program; –: no intervention.

Table 1 Comparison of knowledge scores within and between intervention and control groups ($n = 16 + 16$)

	Baseline characteristics	Intervention group			Control group		
		f	%	Mean (SD)	f	%	Mean (SD)
1	Age in years						
	20–21 22–23 ≥24			20.56 (0.81)			20.94 (1.12)
2	Gender						
	Female	16	100		16	100	
3	Place of residence						
	Hostel	16	100		15	93.75	
	Day scholar	–	–		1	6.25	
4	Do you have significant one diagnosed with cancer?						
	Yes	5	31.25		8	50	
	No	11	68.75		8	50	
5	Relation with a significant one diagnosed with cancer						
	Parent	–			1	12.50	
	Grandparent	1	20		2	25	
	Uncle/aunt/other relative	4	80		4	50	
	Friends	–	–		1	12.50	
6	Have you ever felt difficulty in conveying information on illness or treatment to patients with cancer?						
	Yes	7	43.75		7	43.75	
	No	9	56.25		9	56.25	

Abbreviations: f, frequency; SD, standard deviation.
Note: $n = 32$ (intervention group: 16; control group: 16).

Table 2 Frequency, percentage, mean, and standard deviation of baseline characteristics of students ($n = 16 + 16$)

Knowledge domains	Group	Time	Mean ± SD	Mean difference	SE	Within group comparison			Between group comparison		
						t	df	*p*	*t*	df	*p*
Impact of cancer	Int	Pre	3.63 ± 1.20	2.56	0.36	7.26	15	0.000	4.96	30	0.000
		Post	6.19 ± 0.75								
	Con	Pre	4.00 ± 1.32	0.31	0.29	1.09	15	0.289			
		Post	4.31 ± 1.25								
Communication skill	Int	Pre	10.56 ± 1.97	7.44	0.55	13.59	15	0.000	7.68	30	0.000
		Post	18.00 ± 2.19								
	Con	Pre	10.75 ± 2.67	0.69	0.69	1.00	15	0.333			
		Post	11.44 ± 2.25								
Overall	Int	Pre	14.19 ± 2.46	10.00	0.59	17.11	15	0.000	8.52	30	0.000
		Post	24.19 ± 2.26								
	Con	Pre	14.75 ± 3.61	1.00	0.88	1.14	15	0.274			
		Post	15.75 ± 2.98								

Abbreviations: Con, control group; df, degree of freedom; Int, intervention group; SD, standard deviation; SE, standard error.
Note: *t*, independent *t*-test or paired *t*-test. Maximum possible knowledge score: 30; maximum obtained score: 27. $p < 0.05$ significance.

Table 3 Comparison of communication skill (conveying diagnosis) scores within and between groups with two-factor repeated-measures ANOVA ($n = 16 + 16$)

Conveying diagnosis skill domains	Time	Intervention (mean ± SD)	Control (mean ± SD)	Within-group F	*p*	Partial eta squared	Between-group F	*p*	Partial eta squared
Settings	Pretest	3.69 ± 0.70	4.75 ± 1.48	434.60	0.000	0.94	413.27	0.000	0.93
	Posttest 1	13.56 ± 0.81	4.38 ± 0.89						
	Posttest 2	13.06 ± 0.57	4.31 ± 1.14						
Breaking diagnosis	Pretest	5.38 ± 0.62	6.31 ± 1.85	499.64	0.000	0.94	265.88	0.000	0.90
	Posttest 1	19.31 ± 1.89	6.06 ± 1.73						
	Posttest 2	18.69 ± 2.18	5.75 ± 1.18						
Eliciting concerns	Pretest	3.38 ± 0.69	3.38 ± 0.62	184.56	0.000	0.86	194.30	0.000	0.87
	Posttest 1	10.06 ± 1.73	3.38 ± 0.62						
	Posttest 2	9.69 ± 1.58	3.50 ± 0.63						
Information giving	Pretest	6.25 ± 1.53	6.69 ± 2.27	211.06	0.000	0.88	94.66	0.000	0.76
	Posttest 1	15.44 ± 1.71	6.75 ± 1.77						
	Posttest 2	15.56 ± 1.93	6.50 ± 1.97						
General considerations	Pretest	12.19 ± 2.04	9.88 ± 2.36	336.99	0.000	0.92	293.06	0.000	0.91
	Posttest 1	28.19 ± 3.23	10.25 ± 1.69						
	Posttest 2	27.50 ± 2.83	9.81 ± 1.76						
Overall	Pretest	30.88 ± 3.58	31.00 ± 7.29	809.00	0.000	0.96	359.25	0.000	0.92
	Posttest 1	86.69 ± 6.97	30.56 ± 5.49						
	Posttest 2	84.38 ± 6.96	30.13 ± 5.08						

Abbreviation: SD, standard deviation.
Note: Maximum possible score: 115; maximum obtained score: 96. F = two-factor repeated ANOVA value. $p < 0.05$ significance.

skill training was very effective in improving the skills of nursing students.

►**Table 5** shows the correlation between pretest knowledge and skill scores. The results showed that there was a slight negative correlation between pretest knowledge scores and settings, one of the domains of conveying diagnosis skill ($r = -0.58$, $p = 0.018$), whereas there was a slight positive correlation between pretest knowledge scores and eliciting concern domain ($r = 0.57$, $p = 0.023$) in the intervention group, at $p < 0.05$. No correlation was found between pretest knowledge scores and conveying diagnosis skill domains in control group.

Discussion

The results of the current study showed that students' mean ages in the intervention group and the control group were 20.56 (SD, 0.81) and 20.94 (SD, 1.12), respectively. In both the intervention and control groups, all 32 participants (100%) were female. Similar findings were made by Gorniewicz et al in another study, which discovered that a student group consisting of 12 girls and 16 males had an average age of 25.40 years.[20]

The result of the present study showed that there was a significant difference in all knowledge domains (impact of cancer: $t = 4.96$, $p = 0.000$; communication skill: $t = 7.68$, $p = 0.000$; overall knowledge scores: $t = 8.52$, $p = 0.000$) between the intervention and control groups after the training program. A communication skill training program helped in gaining knowledge on conveying diagnoses. A cross-sectional descriptive study was done at Bushehr University of Medical Sciences to assess the knowledge of nursing students on the delivery of bad news to patients and their companions. The findings showed that nursing students were knowledgeable about breaking bad news to patients on a moderate to high level.[21] According to these findings, which are consistent with another descriptive study by Mohamed and Abou-Abdou, just 25% of staff nurses had a sufficient level of knowledge on the processes involved in giving bad news, while 75% had an unsatisfactory level of knowledge.[22]

In the current study, more than average percentage of participants in both the intervention and control groups (56.25%, 9 participants) reported having difficulty in conveying information on illness or treatment to patients with cancer. Similar findings were found in a study by Konstantis and Exiara, which found that although 26 (44.07%) doctors thought discussing the prognosis was the most challenging assignment, 21 (35.59%) doctors said communicating the diagnosis was the most challenging portion. A majority of doctors (45, 76.27%) said they did not inform all cancer patients of bad news in the same way.[23]

Table 4 Comparison of conveying diagnosis skill scores within and between the groups (post hoc analysis; $n = 16 + 16$)

Communication skill (conveying diagnosis) domains	Time	Group	Mean difference	SE	Post hoc analysis	
					Within the group	Between the group
					(Bonferroni *p*-value)	
Settings	Pretest–posttest 1	Int	9.88	0.26	0.000**	0.000**
		Con	0.38	0.30	0.464	
	Pretest–posttest 2	Int	9.38	0.20	0.000**	0.000**
		Con	0.44	0.30	0.337	
	Posttest 1–posttest 2	Int	0.50	0.16	0.013*	0.199
		Con	0.06	0.28	1.000	
Breaking diagnosis	Pretest–posttest 1	Int	13.94	0.41	0.000**	0.000**
		Con	0.25	0.25	0.666	
	Pretest–posttest 2	Int	13.31	0.51	0.000**	0.000**
		Con	0.56	0.24	0.068	
	Posttest 1–posttest 2	Int	0.63	0.33	0.151	0.436
		Con	0.31	0.20	0.272	
Eliciting concerns	Pretest–posttest 1	Int	6.69	0.45	0.000**	0.000**
		Con	0.00	0.09	1.000	
	Pretest–posttest 2	Int	6.31	0.36	0.000**	0.000**
		Con	0.13	0.13	0.666	
	Posttest 1–posttest 2	Int	0.38	0.30	0.464	0.164
		Con	0.13	0.16	0.864	
Information giving	Pretest–posttest 1	Int	9.19	0.42	0.000**	0.000**
		Con	0.06	0.43	1.000	
	Pretest–posttest 2	Int	9.31	0.46	0.000**	0.000**
		Con	0.19	0.28	1.000	
	Posttest 1–posttest 2	Int	0.13	0.16	0.864	0.348
		Con	0.25	0.35	0.966	
General considerations	Pretest–posttest 1	Int	16.00	0.68	0.000**	0.000**
		Con	0.38	0.39	0.693	
	Pretest–posttest 2	Int	15.31	0.73	0.000**	0.000**
		Con	0.06	0.31	1.000	
	Posttest 1–posttest 2	Int	0.69	0.41	0.221	0.630
		Con	0.44	0.29	0.300	
Overall	Pretest–posttest 1	Int	55.81	1.25	0.000**	0.000**
		Con	0.44	0.92	1.000	
	Pretest–posttest 2	Int	53.50	1.53	0.000**	0.000**
		Con	0.88	0.97	0.767	
	Posttest 1–posttest 2	Int	2.31	0.94	0.053	0.154
		Con	0.44	0.81	1.000	

Abbreviations: Con, control group; Int, intervention group; SE, standard error of difference.
*$p < 0.05$ significance.
**Very highly significant.

The present study found significant differences in conveying diagnosis skill scores of students in different point of time both within and between groups ($p = 0.000$) at $p < 0.05$, whereas no significant differences were found in mean of posttest 1 and posttest 2 skill scores of the intervention group (within group, $p = 0.94$) at $p < 0.05$. In a related study, Fujimori et al found that in comparison to the control group, the performance scores of the intervention group who

Table 5 Correlation between pretest knowledge and skills on conveying diagnosis of students ($n = 16 + 16$)

Knowledge	Conveying diagnosis skill domains	Intervention group		Control group	
		r	*p*	*r*	*p*
Overall knowledge score	Settings	−0.58	0.018*	−0.01	0.963
	Breaking news	0.48	0.062	−0.17	0.536
	Eliciting concerns	0.57	0.023*	0.02	0.956
	Information giving	0.27	0.310	0.10	0.702
	General considerations	−0.07	0.785	0.04	0.874
	Overall	0.14	0.606	0.00	0.993

Note: *r*, Pearson correlation coefficient. $p < 0.05$ significance.

underwent communication skill training had significantly increased in terms of their ability in giving information ($p = 0.001$), establishing a supportive environment ($p = 0.002$), and providing emotional support ($p = 0.011$). When patients saw oncologists after completing the training program, they were noticeably less depressed than when they visited oncologists in the control group ($p = 0.027$). Yet, this program had no influence on patients' satisfaction of how well oncologists interacted with them.[24]

These results were in accordance with a randomized controlled study conducted by Gorniewicz et al to evaluate the effectiveness of brief breaking bad news communication module. Communication skills of the intervention group participants significantly improved. Follow-up performance scores of the intervention group participants improved significantly regarding breaking bad news (colon cancer, $p = 0.007$, $r = -0.47$; breast cancer, $p = 0.003$, $r = -0.53$), attention to patient responses after breaking bad news (colon cancer, $p < 0.001$, $r = -0.74$; breast cancer, $p = 0.001$, $r = -0.65$), and addressing feelings (breast cancer, $p = 0.006$, $r = -0.48$).[20]

Limitations of the Study

Low number of male student nurses and smaller sample size were the limitations of the present study.

Conclusion

The communication skill training program is an effective method of improving conveying diagnosis (breaking bad news) skills among undergraduate nursing students. Implementation of training programs or modules could lead to improve communication skills and quality of patient care.

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Statement by All Authors
All authors have read the manuscript and accepted that the requirements for the authorship have been met and believe that the manuscript represents honest work.

Authors' Contributions
All researchers contributed to conception and design, acquisition of data or analysis, interpretation of data drafting, and revising of the paper and agreed to be responsible for all the aspects of this work.

- V. P. C: Contributed to conception, design, acquisition of data or analysis, interpretation of data, drafting, and revising of paper. Manuscript prepared and shared to all researchers for their suggestions and modifications. Suggestions and modifications incorporated in the manuscript.
- P. N.: Contributed to design (methodology), data analysis, interpretation of data, drafting, and revising of research paper.
- A.: Contributed to design (methodology), data analysis, interpretation of data, drafting, and revising of research paper.

Statement of Institutional Review Board Approval and/or Statement of Conforming to the Declaration of Helsinki
Approval from the Scientific Review Board of Yenepoya Nursing College and Institutional Ethics Committee, Yenepoya (Deemed to be University), was obtained.

Conflict of Interest
None.

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