

## Study of the Effectiveness of Basic Life Support Training among Nursing Officers at Government Teaching Hospital

Dr Kamala G R<sup>1</sup>, Dr Suresh U Kadli<sup>2</sup>, Dr Bhagyashree K Bhuyar<sup>3</sup>, Dr Devaraja G N<sup>4</sup>,

Dr Hanumantharaya G H<sup>5</sup>

<sup>1</sup>Department of Anaesthesiology, District Hospital, Chitradurga, Karnataka, India

<sup>2</sup>Associate Professor, Department of Surgery, HIMS, Haveri, Karnataka, India

<sup>3</sup>Assistant Professor, Department of Biochemistry, KIMS, Koppal, Karnataka, India

<sup>4</sup>Department of General Medicine, District Hospital, Chitradurga, Karnataka, India

<sup>5</sup>Department of Orthopaedics, District Hospital, Chitradurga, Karnataka, India

### Corresponding Author:

Dr. Hanumantharaya GH

**Abstract:** This study is to assess the effectiveness of Basic Life Support (BLS) training provided to nursing officers at a government teaching hospital. The study was conducted among nursing officers who had no prior experience with BLS knowledge. A study was carried out at government teaching hospital, Chitradurga from January 2024 to March 2024. The participants' knowledge and practices were evaluated using a structured knowledge questionnaire. The study consisted of a pre-test and post-test to assess knowledge regarding BLS on the first day. Then practice sessions for three groups per day from the 2nd to the 5th day were given. Another post-test for knowledge was conducted on the 7th day. The results showed that the mean score for knowledge in the first post-test (16.12) was higher than the mean score in the pre-test (6.24). Similarly, the mean score in the second post-test (17.65) was higher than the mean score in the pre-test. The mean score for practice in the post-test (18.10) was higher than the mean score in the pre-test (7.14). **Conclusion;** BLS training program effectively enhanced the knowledge and practices of the nursing officers.

**Keywords:** Basic Life Support, BLS, Nursing Officers, knowledge test, practice test

**Introduction:** Basic life support (BLS) is crucial for saving lives after cardiac arrest. BLS key elements include prompt recognition of sudden cardiac arrest, activation of the emergency response system, early chest compressions and breaths, and quick defibrillation using an automated external defibrillator.<sup>1,2</sup> Basic life support (BLS) is one of the most fundamental

components of emergency medical interventions and is defined as “ensuring an open airway and supporting circulation without any equipment in cases of cardio-respiratory arrest until providing advanced life support.” The aim of basic life support is to maintain a distribution of oxygen-rich blood through vital organs, especially the brain and heart, through a temporary artificial circulation until normal cardiac activity and breathing are restored.<sup>3,4,5</sup> Terzi et al. pointed out that BLS was considered amongst the duties of all healthcare team members to possess BLS knowledge and skills.<sup>6</sup> Nursing officers play vital role in in-hospital cardiac arrests, initiating BLS before advanced cardiac life support is administered. It is essential for all healthcare team members, including nursing officers, to have BLS knowledge and skills. Regular BLS training programs should be conducted, following updated guidelines, to ensure progress in knowledge.<sup>5,6</sup> This study aims to assess the effectiveness of BLS training for nursing officers at a Government teaching hospital.

**Materials and Methods :** A quasi-experimental design involving pre-test and post-test evaluations was utilized to assess the efficacy of BLS training among nursing officers at Government teaching Hospital at Chitradurga, Karnataka from January 2024 to March 2024. The study included 80 nursing officers’ who were divided into 10 groups of 8 individuals each through simple random sampling. Only those nursing officers who volunteered to participate were included in the study, while those who declined were excluded. Prior to the commencement of the study, ethical approval was obtained from the committee. Written informed consent was acquired from all participants before the initiation of the study, which involved the administration of 20 structured knowledge questionnaires to evaluate their understanding of BLS. The pre-test assessment of knowledge was conducted before the BLS training for all groups, followed by a 2-hour teaching session involving lectures, discussions, audio-visual aids, and demonstrations. Subsequently, a post-test assessment of knowledge was carried out on the first day following the teaching session. The assessment consisted of a structured questionnaire with 20 multiple-choice questions, each scored with 1 mark for a correct answer and 0 for an incorrect answer, which had been validated by experts. Between the 2nd and 5th days, pre-tests of BLS practices were conducted using 20 observation checklists, with practice sessions provided to 3 groups per day. These practice sessions, involving adult and infant manikins, were followed by post-tests on the same day. Finally, on the 7th day, a second post-test of knowledge was conducted for all groups.

The study's outcomes were evaluated through a structured knowledge questionnaire consisting of 20 multiple choice questions, with each correct answer receiving 1 mark and each incorrect answer receiving 0 marks. This questionnaire was validated by experts and administered both before and immediately after the teaching sessions. Additionally, on days 2-5, a pre-test on Basic Life Support (BLS) practices was conducted using 20 observation checklists. Practice sessions were held for 3 groups daily between the 2nd and 5th days, with a 2-hour session focusing on adult and infant manikins. Following these practice sessions, a post-test was administered on the same day. On the 7th day, a second post-test on knowledge was conducted for all groups.

In terms of data analysis, the collected data was analyzed based on the study's objectives using descriptive and inferential statistics. Calculations were performed using Microsoft Excel and the Statistical Package for Social Science (SPSS version 20) Program. Various statistical measures such as frequency distribution, mean, mean difference, standard deviation of difference, and p-value were utilized to determine statistical significance. Regarding the sample characteristics, frequency and percentage were computed to describe the sample.

**Results:** Age of all nursing officers is in the range from 22-50 years. The majority of participants (77.50 %) were female, while 22.50% were male. A significant portion of the subjects (87.50 %) did not possess prior knowledge of Basic Life Support. Only 12.50 % of the subjects had practical exposure to BLS and had witnessed it in the ICU. The mean score for the first post-test knowledge (16.12) was higher than the mean score for the pre-test knowledge (6.24). Furthermore, the mean score for the second post-test knowledge (17.65) was also higher than the pre-test knowledge mean (6.24) as depicted in Table 2. The mean score for practice in the post-test (18.10) was higher than the mean score in the pre-test (7.14) as shown in table-3. These results suggest that the training program effectively enhanced the nursing officer's knowledge of BLS. The difference in knowledge and practice test between pre and post-training on BLS was statistically significant ( $p < 0.05$ ).

**Table-1: Distribution of nursing officers according to Sample Characteristics (n-80)**

| Sample characteristics | Frequency | Percentage |
|------------------------|-----------|------------|
| <b>Age</b>             |           |            |
| <30                    | 20        | 25.00      |
| 30-40                  | 36        | 45.00      |
| >40                    | 24        | 30.00      |

|  |    |       |
|--|----|-------|
| <b>Gender</b>                              |    |       |
| Male                                       | 18 | 22.50 |
| Female                                     | 62 | 77.50 |
| <b>Working place</b>                       |    |       |
| ICU  | 11 | 13.75 |
| NICU/PICU                                  | 12 | 15.00 |
| Wards                                      | 37 | 46.25 |
| OT   | 20 | 25.00 |
| <b>Years of experience</b>                 |    |       |
| < 1  | 10 | 12.50 |
| 1-5  | 15 | 18.75 |
| 5-10                                       | 34 | 42.50 |
| >10  | 21 | 26.25 |
| <b>Previous experience in BLS training</b> |    |       |
| Yes  | 10 | 12.50 |
| No   | 70 | 87.50 |

**Table 2: Showing Mean, Standard Deviation of Knowledge Score Before and After BLS Training among nursing officers (n-80)**

| Area        | Mean  | SD   | P value |
|-------------|-------|------|---------|
| Pre-test    | 6.24  | 2.25 | -       |
| Post-test 1 | 16.12 | 6.98 | <0.01   |
| Post-test 2 | 17.65 | 6.19 | <0.01   |

**Table 3: Mean, Standard Deviation of Pre test to Post test of Practice Scores of nursing officers (n-80)**

| Area      | Mean  | SD   | P value |
|-----------|-------|------|---------|
| Pre-test  | 7.14  | 2.33 | -       |
| Post-test | 18.10 | 7.74 | <0.01*  |

\*compared with the pretest

**Discussion:** The present study examined the knowledge and practices of Basic Life Support (BLS) among nursing officers before and after undergoing a training program. The results indicated a

significant enhancement in the knowledge of nursing officers following the BLS training program, enabling them to identify various life-threatening emergencies and administer Cardio pulmonary resuscitation in a safe, prompt, and efficient manner. Our study revealed that the average knowledge score in the post-test (17.65) was notably higher than that in the pre-test (6.24). Similarly, the average practice score in the post-test for BLS (18.10) exceeded that in the pre-test (7.14). Our study outcomes were compared with those of other standard research works.

Celik et al.<sup>7</sup> found that 58.1% of nurses in an emergency department considered themselves to be inadequate in BLS. Ratha Kabina et al.<sup>8</sup> conducted a quasi-experimental study assessing the efficacy of a Planned Teaching Programme on Basic Life Support at a Nursing College, reporting a higher Post-test Mean (13.4) compared to the Pre-test Mean. Goswami R et al.<sup>9</sup> demonstrated a significant increase in knowledge from pre-training to post-training, with a statistically significant difference in CPR knowledge between pre and post-training ( $p < 0.05$ ). Another study<sup>10</sup> conducted in a tertiary care hospital among medical, dental, and nursing students emphasized the necessity of incorporating BLS training at all educational levels due to below-average awareness among students. Asmita Chaudhary et al.<sup>11</sup> conducted a BLS study among medical and paramedical officers, revealing that only 3 out of 117 participants scored 80-90% in the pretest, while 70% of candidates scored above 80% in the post-workshop assessment. Nursing officers are still expected to learn resuscitation skills in the hospital setting, where there is opportunity to correct poor techniques. Adequate BLS training remains deficient among nursing officers, with busy hospital schedules and limited resources serving as obstacles. Despite these challenges, nursing officers are still expected to acquire resuscitation skills within the hospital environment, where opportunities for improvement exist.<sup>12</sup>

Nursing officers usually encounter cardiac arrest cases in government hospital settings at an early stage, underscoring the importance of possessing adequate knowledge and skills in Basic Life Support (BLS). Our findings suggest that the existing knowledge of nursing officers regarding BLS was inadequate; however, the BLS training implemented in our study proved to be effective within our hospital. It is recommended that BLS training be compulsory for all nursing officers, regardless of their specific roles within the hospital. Furthermore, training sessions should be conducted periodically to ensure that knowledge and skills remain current and up-to-date.

Conflict of interest: Nil

Source of income: None

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