A Study to Assess the Effectiveness of Structured Teaching Programme Regarding Blood Donation and Blood Transfusion on Knowledge Among B.Sc. Nursing 2nd Year Student of Selected Nursing College Bhilai, Durg

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Abstract: **Human blood is an essential component of human life which is universally recognized as the most precious element that sustains life and there are no substitutes to blood as yet. Blood donation refers to the process of collecting, testing, preparing, and storing blood and blood Components. A blood donation truly is a "gift of life" that a healthy individual can give to others in their community who are sick or injured. We have one life let us make our life more meaningful by donating blood. Blood donation is the mother of all donations. It directly gives life in another human being. It is not only saves one individual but also the entire family of the individual. The first documented human blood transfusion took place in 1818 and today packed red blood cells (PRBC) infusion are a corner stone therapy in modern critical care practice. Blood transfusion is the transfusion of the whole blood or its components such as blood cells or plasma from one person to another person. In 2016, the Ministry of Health and Family Welfare reported a donation of 10.9 million units against a requirement of 12 million units. 12.7 million Units were donated in 2020, lower than projected due to the COVID-19 pandemic. Every year India requires about five Crore units of blood, out of which only 2.5 Crore units of blood are available. The incidence of red cell transfusion was 42.88 units per 1000 population per year in both men and women and varied from 12.08 units per 1000 population per year in those less than 41 years old to 245.24 units per 1000 population per year in the group aged more than 65. The** *Objectives:* **To assess the pretest and post-test knowledge regarding blood donation among B.Sc. nursing 2nd year student. To assess the pre-test and post-test knowledge regarding blood transfusion among B.Sc. nursing 2nd year student. To determine the effectiveness of structured teaching programme regarding blood donation on post-test knowledge among B.Sc. nursing 2nd year student. To determine the effectiveness of structured teaching programme regarding blood transfusion on post-test knowledge among B.Sc. nursing 2nd year student. To find association between pretest knowledge regarding blood donation and selected demographic variables among B.Sc. nursing 2nd year student. To find association between pretest knowledge regarding blood transfusion and selected demographic variables among B.Sc. nursing 2nd year student.** *Material and Methods:* **The research approach used was an experimental approach, and the research design of the study was pre-experimental one group pre-test, post-test research design. The non-probability convenient sampling techniques was used to select 60 nursing students from P.G. College of Nursing Bhilai, Durg (C.G). The variables under the study are independent and dependent variables. Independent variables is structured teaching programme regarding blood donation and blood transfusion and dependent variables is knowledge of nursing student regarding blood donation and blood transfusion. A self-structured questionnaire was prepared to assess knowledge regarding blood donation and blood transfusion. Reliability of the tool was 0.98. The data obtained were analyzed and interpreted in terms of objective and hypothesis. Descriptive and inferential statistics were used for data analysis, the level of significance was at 0.05.** *Results:* **Major findings of these studies are out of 60 sample, in relation overall analysis related to pre-test and post-test knowledge score regarding blood donation among B.Sc. nursing second year students. In post-test, majority 52 (86.66%) subjects had excellent knowledge, 8(13.33%) had very good knowledge and none had poor and average knowledge regarding blood donation. Analysis related to pre-test and post-test knowledge score regarding blood transfusion among B.Sc. Nursing second year students. In Post-test, majority of subjects 43 (71.67%) had excellent knowledge, 17(28.33%) had good knowledge.**

Keywords: **knowledge of blood donation and blood transfusion, nursing student, structured teaching programme.**

1. Introduction

Human blood is an essential element of human life and there are no other substitutes. Blood donation is important for not only saving people lives but also for the pursuit of a better social and living environment, and voluntary blood donation is of great social importance. Blood donation refers to the process of collecting, testing, preparing, and storing blood and blood Components. A blood donation truly is a "gift of life" that a healthy individual can give to others in their community who

are sick or injured. Blood donation is the mother of all donations. Blood transfusion are often needed for trauma victims, due to accidents and burns, heart surgery, organ transplantation, patient receiving treatment for cancer and other diseases, such as sickle cell anemia and thalassemia. Blood is also required in large quantity and in a short time during natural - disasters. Moreover, with an ageing population, and advances in medical treatment and procedures - requiring blood transfusions, the demand for blood continues to increase." In 2005, the World Health Assembly adopted 14 June as World Blood Donor Day, to thank blood donors across the world, encourage more people to donate blood and raise awareness about the need for safe blood and blood products. Every year India requires about five Crore units of blood, out of which only 2.5 Crore units of blood are available. The incidence of red cell transfusion was 42.88 units per 1000 population per year in both men and women and varied from 12.08 units per 1000 population per year in those less than 41 years old to 245.24 units per 1000 population per year in the group aged more than 65. Blood transfusion consists of administration of blood, or more frequently of its diverse cellular or plasmatic components to patients. According to WHO, an estimated 38 percentage of reported voluntary blood donations are contributed by people under the age of 25. WHO also insist countries to focus on young people to achieve 100 per cent voluntary unpaid blood donation. Young students are healthly, active, dynamic and receptive and constitute a greater proportion of population. They have to be encouraged, inspired and motivated to donate blood voluntarily. Hence, there is a need for organizing awareness generation activities regarding blood donation for the nursing students, so they improve their knowledge and are relieved of unnecessary fears and negative attitudes.

2. Material and Method

Pre experimental one group pre-test post-test research design was utilized to assess the effectiveness of structured teaching programme on knowledge regarding blood donation and blood transfusion among B.Sc. Nursing 2nd year student Bhilai, (C.G.). Where subjects were selected non probability purposive sampling technique. An extensive review of literature was undertaken in various related concepts. The study adopted "Ludwig von Bertalanffy" modified system model. Target population was B.Sc. Nursing 2nd year students. Convinient sampling techniques was used to obtain 60 samples. The tool was self-structured questionnaires for assess the knowledge. The tool was validated by experts. The pilot study was conducted from 28/09/2021 to 4/10/2021 at shri Shankaracharya College of nursing Bhilai, Durg. The reliability co- efficient was calculated using Karl – Pearson correlation coefficient, the Reliability of knowledge questionnaire was found in pre- test knowledge on blood donation was found to be ($r = 0.74$), and blood transfusion ($r = 0.75$) and for post -test knowledge on blood donation ($r = 0.98$) and blood transfusion was ($r = 0.82$), so the tool was found to be highly reliable for data collection. The main study was conducted in the month of November 2021.Data for main study was collected from the P.G. College of nursing Bhilai, Durg. (C.G). the data obtained

were analyzed and interpreted in terms of objective and hypothesis. Descriptive and inferential statistics were used for data analysis the level of significance was <0.001.

3. Results

1) Overall and area wise analysis of pre –test and post –test knowledge regarding blood donation among B.Sc. Nursing second year students

Overall analysis of pre and posttest knowledge score regarding blood donation out of 60 B.Sc. Nursing student, majority 52 (86.66%) subjects had excellent knowledge, 8(13.33%) had very good knowledge. In the assessment of area wise analysis of knowledge score majority of students improve their knowledge about area of general concepts mean score 11.82 and mean % 90.92. In the area of eligible criteria of blood donation mean score 4.08 and mean % 81.6. In the area of benefits of blood donation the mean score 3.82 and mean % 76.4. In the area of contraindication mean score 2.4 and mean % 80. In the area of steps of procedure mean score 6.42 and mean % 80.25. In the area of complication mean score 1.4 and mean % 70. In the area of General instruction of blood collection and storage of donor blood after donating blood mean score 3.5 and mean % 87.5.

2) Overall and area wise analysis of pre-test and post-test knowledge regarding blood transfusion among B.Sc. Nursing second year students

Overall analysis of pre and posttest knowledge score regarding blood donation out of 60 B.Sc. Nursing student, majority of subjects 43 (71.67%) had excellent knowledge, 17(28 33%) had good knowledge. In the assessment of area wise analysis of knowledge score majority of students improve their knowledge about area of area of introduction mean score 4.72and mean % 94.4. In the area of component of blood transfusion mean score 7.82 and mean % 86.89. In the area of nursing responsibility after receiving blood from the blood bank mean score 7.23and mean % 80.33. In the area of steps of procedure mean score 5.95 and mean % 85. In the area of complication and its nursing management mean score 8.2and mean % 82.

3) Effectiveness of structured teaching programme regarding blood donation and blood transfusion

- In relation to analysis of effectiveness of structured teaching programme on knowledge regarding blood donation of nursing students that increase the knowledge score as calculated "t" value 23.07 is greater than the table value 3.47 at p <0.001 level of significance, the data signifies that the structured teaching program was very effective in term of gain in knowledge regarding blood donation.
- In relation to analysis of effectiveness of structured teaching programme on knowledge regarding blood transfusion of nursing students that increase the knowledge score as calculated "t" value 24.77 was greater than the table value 3.47 at p <0.001 level of significance, the data signifies that the structured teaching program was very effective in term of gain in knowledge regarding blood transfusion.

4) Association between sociodemographic variables of knowledge

- In relation to analysis of association between pretest knowledge score regarding blood donation of nursing students, that there is significant association between educations of father. As the calculated chi square value is 8.07 which is higher than the table value i.e., 7.82 at the degree of freedom (2) so, the H3 hypothesis that there is significant association between pretest knowledge score with selected sociodemographic variables i.e., Related to fathers' education only is accepted with regards to knowledge of students.

- In relation to analysis of association between pretest knowledge score regarding blood donation of nursing students, that there is significant association between history of blood donation .As the calculated chi square value is 5.91 which is higher than the table value 3.84 at the degree of freedom (1) so, the H4 hypothesis that there is significant association between pretest knowledge score with selected sociodemographic variables related to history of blood donation only is accepted with regards to knowledge of students.
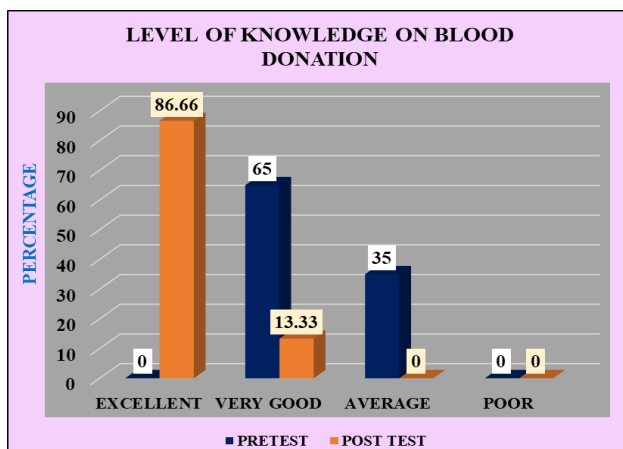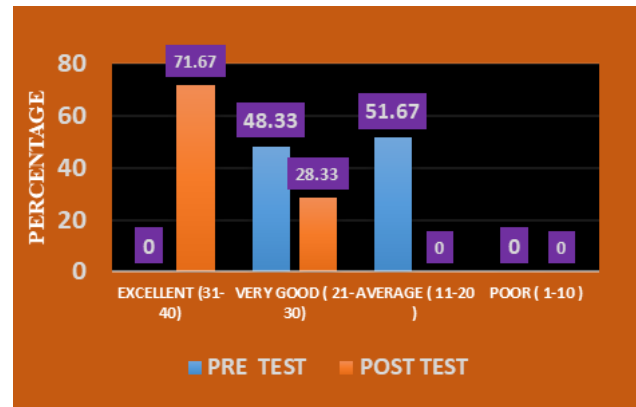

Fig. 2. Overall knowledge on blood transfusion

4. Discussion

In present study overall analysis of pre-test and post-test knowledge score of blood donation out of 60 nursing students in pre-test majority score majority 39 (65%) subjects had very good knowledge, 21(35%) had moderate knowledge and none had poor and excellent knowledge regarding blood donation.

In post –test, majority 52 (86.66%) subjects had excellent knowledge, 8(13.33%) had very good knowledge and none had poor and average knowledge regarding blood donation. It is concluded that after administration of STP, maximum knowledge score was improved regarding blood donation.

The above findings is supported by the study of Elizabeth Varghese et al. (2019). The study was on to assess the knowledge regarding blood donation among nursing student . Mean score of knowledge regarding blood donation among undergraduate students was 7.41 with 2.17 standard deviation that shows average knowledge. The study concluded that majority of nurses had average knowledge.

Overall analysis of pre-test and post-test knowledge score of blood transfusion, in pre-test majority score of subjects 31 (51.67%) had moderate knowledge, 29(48.33%) had good knowledge. Post-test, majority of subjects 43 (71.67%) had excellent knowledge, 17(28 33%) had good knowledge. It is concluded that after administration of STP, maximum knowledge score was improved regarding blood transfusion.

The above finding is supported by the study of Uzma Iqbal et al. (2021). The study was on assessment of knowledge

Fig. 1. Overall knowledge on blood donation

Table 1
Analysis of overall pre-test and post-test knowledge regarding blood donation among B.Sc. nursing second year students

Level of Knowledge	Pre-Test		Post -Test	
	Frequency (f)	Percentage (%)	Frequency (%)	Percentage (%)
Excellent (31-40)	0	0	52	86.66
Very good (21-30)	39	65	8	13.33
Average (11-20)	21	35	0	0
Poor (1-10)	0	0	0	0
Total	**60**	**100**	**60**	**100**

Table 2
Analysis of overall pre-test and post-test knowledge regarding blood transfusion among B.Sc. Nursing second year students

Level of Knowledge	Pre-Test		Post -Test	
	Frequency (f)	Percentage (%)	Frequency (%)	Percentage (%)
Excellent (31-40)	0	0	43	71.67
Very good (21-30)	29	48.33	17	28.33
Average (11-20)	31	51.67	0	0
Poor (1-10)	0	0	0	0
Total	**60**	**100**	**60**	**100**

regarding Blood Transfusion among staff nurses. The study revealed that most of the staff nurses i.e. (53.3%) had fair knowledge, (41.7%) had poor knowledge, and only (5%) of staff nurses had good knowledge regarding blood transfusion. The (Mean±S.D) knowledge score of the staff nurses was (23.516 ±4.59). The study concluded that majority of staff nurses had fair knowledge.

5. Conclusion

On the basis of finding of the study, following conclusion was drawn:

- After intervention in posttest all students in post-test, majority 52 (86.66%) subjects had excellent knowledge, 8 (13.33%) had very good knowledge and none had poor and average knowledge regarding blood donation.
- In Post-test, majority of subjects 43(71.67%) had excellent knowledge, 17(28 33%) had good knowledge regarding blood transfusion.
- This study was done to evaluate the effectiveness of structured teaching programme on knowledge reading blood donation and blood transfusion among nursing students. The result of this study showed that structured teaching programme was effective in improving knowledge among nursing students.
- Calculated "t" value 23.07 is greater than the table value 3.47 at p <0.001 level of significance, the data signifies that the structured teaching program was very effective in term of gain in knowledge regarding blood donation.
- Calculated "t" value 24.77 was greater than the table value

3.47 at p <0.001 level of significance, the data signifies that the structured teaching program was very effective in term of gain in knowledge regarding blood transfusion.
- There is significant association between pretest knowledge score regarding blood donation with selected sociodemographic variables related to fathers' education.
- There is significant association between pretest knowledge score with selected sociodemographic variables related to history of blood transfusion.

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