



A Study to Evaluate Effectiveness of Structured Teaching Program on Knowledge Regarding Voluntary Blood Donation Among Degree College Students at Selected Colleges in Mysuru

Author details: Jithendra H Y¹, Shreyas Kumar G S², Sooraj B², Sushmitha S A², Touseef Bagban².

¹Assistant Professor, Department of Psychiatric Nursing, Government college of Nursing, MMC and RI, Mysuru, Karnataka, India

²Final year Basic BSc nursing students, Government college of Nursing, MMC and RI, Mysuru, Karnataka, India

Abstract

Background of the Study: Voluntary blood donation act as an important service in public health. It ensures safe, stable and continuous supply of blood and its other components, which are very essential for medical treatment including surgeries, care of trauma patients and in management of chronic diseases. Voluntary blood donors generally healthier individuals who improves the safety of blood supply and plays an essential role in emergency preparedness.

Objectives: The aim of this study was to assess effectiveness of structured teaching program on knowledge regarding voluntary blood donation among degree students.

Methods and Materials: A quantitative approach employing a one-group pretest-posttest pre-experimental design was utilized. A purposive sampling technique was employed to select 50 students from college of nursing, MMC & RI Mysuru as study samples. The research tools and structured teaching program were validated by 11 subject experts. The reliability of tools were established prior to the main study through pre testing. A structured teaching program was administered to 50 students after conducting the pre-test, and the post-test was carried out after 1 week. The collected data were analyzed using descriptive inferential statistics based on study objectives.

Result: Study findings state that half (50%) of the students' knowledge level was inadequate. Result showed as pretest mean% was 50.47% and post-test mean% was 65.94% with the enhancement of 15.68% and total 't' value is 12.42 that shows statistically significant ($p < 0.05$). Study says that structured teaching program is effective in enhancing knowledge of the students regarding voluntary blood donation.

Keywords: Voluntary blood donation, Blood donation, Knowledge on blood donation, degree college students.

INTRODUCTION

Blood is a vital component of human life,¹ and blood transfusion is an integral component of health care.² It helps in saving millions of lives every year in both regular and emergency situations.² It also improves the life expectancy and quality of life of patients with a variety of acute and chronic conditions.^{1,2}

According to World Health Organization blood donors categorized into 3 types, such as Voluntary blood donors (VBD), family/replacement blood donors and paid donors. VBD “refers to unpaid, non-remunerated blood donation”.³ A person who give blood, plasma and other blood components with his/her free will and receive no payment for it, either in cash or in any kind is considered as voluntary blood donor⁴. If a family or a friend donates blood, when it needed to their patient, this type donation is called as replacement donor.⁴ If a person donates blood in exchange of money or in any other form of payment is called as paid donor. Paid type of donor was banned in India from 1st January 1998.³

Voluntary blood donation refers to the act of donating blood willingly without any financial or material reward.⁵ It is also considered as the safest and most reliable source of blood because voluntary donors are less likely to transmit infections compared to replacement or paid donors. It also promotes altruism and social responsibility. Adequate voluntary blood donation helps to maintain sufficient reserves during emergencies, surgeries, and disasters. If a single pint of blood is donated means that can save up to 3 lives. Hence promoting voluntary blood donation has become a global public health priority.⁶

As replacement donors donate blood to their family/friends, they cannot meet community’s demand for blood. And blood given to such patients will not actually be replaced with needed blood group or quantity.⁴ Therefore, hospitals that are dependent on replacement donors are rarely able to maintain a sufficient stock of blood to meet the transfusion needs of all their patients, particularly during emergency situations or for regular transfusion, or to share their blood supplies with other hospitals.⁴

WHO data shows around 118.54 million blood donations are happening worldwide. Out of which 40% are collected in high-income countries, which are home to 16% of the world population.³ Based on samples of thousand people, the blood donation rate is 31.5 donations in high-income countries, about 16.4 donations in upper-middle-income countries, whereas 6.6 donations in lower-middle-income countries and 5.0 donations in low-income countries.³ Approximate annual blood collection in India increased from 12.6 million units in 2023 to around 14.6 million units in 2024. Voluntary blood donation accounted for 74.55% of total collections.⁷

Evidence indicates countries with 100% VBD have higher portion of constant blood donors. Further in some other countries also the amount of voluntary blood donations has increased over a period, this has been increasing the upward shift of regular blood donations. This data shows that voluntary blood donors are more likely to donate on a regular basis than any other types of donors.²

World Health Organizationspotlight on remarkable inconsistency among developing countriesin blood donation, which consisting 82% of global population, donate only 39% of the world's blood supply.³ Addressing this gap requires promoting voluntary blood donation.⁸ In a well-organized voluntary blood donor program, the need for blood in emergencies and disaster situations can usually be met through its established donor base, and regular donors are tending to be responsive to respond well to the emergency situations, because they have already expressed a commitment to voluntary blood donation.¹

MATERIAL AND METHODS

Researchapproach & design

A Quantitative research approach and one-group pre-test post-test Pre-Experimental Design was employed.

Setting:

Study conducted in government nursing college, MMC & RI, Mysuru.

Population

Study population consisted of 1st semester basic BSc (N) students of Government nursing college, MMC & RI, Mysuru.

Sampleandsamplesize

Studyconsistedof50 students of 1stsemesterbasicBScnursingof Government college of nursing MMC & RI, Mysuru.

Samplingtechnique

A Purposive sampling method was utilized to recruit samples.

Developmentofstructuredteachingprogram:

ThestepsfollowedfordevelopmentofStructuredTeachingprogram (STP)are:

- Preparation of 1st draft: Initially lesson plan for STP regarding voluntary blood donation (VBD) was prepared, after undergoing literature review and subject experts' suggestions.
- CriteriaChecklist developedtoevaluatetheSTP.
- Stating of objectives in behavioral terms as per the needs of learner
- Content selection:Thecontent regarding VBDchoosenby searching literature and in consultation with guide &experts.
- Obtaining opinion from experts about content validity of lesson plan for STP. The draft of lesson plan and STP were given to 11 subject experts.

- Final copy prepared after inculcating suggestions of experts.

Tool development:

Steps followed are.

- Review of literature.
- Blueprint preparation.
- Getting Guide, and subject experts' opinion.
- Establishment validity.

Description of Tools: It has two parts;

Part-I: Socio-demographic data:

It consists 12 items related to demographics of subjects such as age, gender, religion, educational status of father, educational status of mother, occupation of father, occupation of mother, type of family, family income, number of times blood donated in camps/hospital, number of times family members donated blood, worked in any of voluntary organization.

Part-II: Structured Knowledge Questionnaire, which assess knowledge regarding voluntary blood donation among 1st semester basic BSc(N) students of government college of nursing Mysuru. It consisted 38 items.

Consists five aspects;

ASPECT-I: General knowledge related to meaning and content of blood.

ASPECT-II: General knowledge related to blood donation and its practice in India. ASPECT-III: Knowledge regarding donor eligibility criteria.

ASPECT-IV: Knowledge regarding, who can and who cannot donate blood.

ASPECT-V: Knowledge regarding phases, procedure, post donation advises and benefits to donor.

Scoring:

For Knowledge based questions, each correct answer given as score of 'one' and for wrong answer 'zero' score. 38 is Maximum score and zero is minimum score.

Content validity:

The tools were validated from subject experts and incorporated their suggestions.

Data collection procedure:

(a) Permission from concerned authority

Obtained permission from Principal government college of nursing MMC&RI, Mysuru.

Data collection

Study was conducted from 18/01/2025 to 25/01/2025 at Mysuru.

(b) Pre-test (O1)

The investigators selected 50 students of 1st semester basic BSc nursing, Government college of nursing, Mysuru and carried out pre-test to assess knowledge regarding voluntary blood donation. Explained purposes and objectives of the study to participants and assured confidentiality. Obtained informed consent.

Administration of STP(X)

The STP regarding voluntary blood donation conducted on the same day of after pre-testing.

Post-test(O2)

After 1 week post-test conducted through utilizing Structured Knowledge Questionnaire. Approximately 60 minutes given to complete post-test.

Method for analyzing data

Descriptive and inferential statistics adopted to analyze data.

RESULT**Table1: Showing distribution of participants characteristics in frequency and percentage (N=50)**

Sl. No	Demographic variables	Categories	Frequency	Percentage
1	Age in year	18-20	50	100
		21-23	0	0
		>23	0	0
2	Gender	Male	11	22
		Female	39	78
3	Religion	Hindu	41	82
		Muslim	6	12
		Christian	2	4
4	Education of father	Primary	14	28
		High school	10	20
		PUC	9	18
		Graduate & above	11	22
		Illiterate	6	12
5	Education of mother	Primary	11	22
		High school	15	30
		PUC	13	26
		Graduate & above	4	8
		Illiterate	7	14

6	Type of family	Nuclear family	41	82
		Joint family	9	18
7	Number of times blood donated in camps/Hospital	No	49	98
		1	1	2
		2	0	0
		>2	0	0
8	Number of times family members donated	No	39	78
		1	7	14
		2	3	6
		>2	1	2
9	Worked in any of voluntary organization like	No	36	72
		NSS	7	14
		NGO	1	2
		NCC	3	6
		Rotary club	0	0
		other	3	6

Table 1 depicts all participants belonged to 18-20 years of age group, majority of subjects were female (78%), (82%) belong to Hindu religion & nuclear family, and 98% of respondents never donated blood.

Table2: Distribution of samples based on Pre-test knowledge level of 1st semester Basic BSc nursing students regarding voluntary blood donation (N=50)

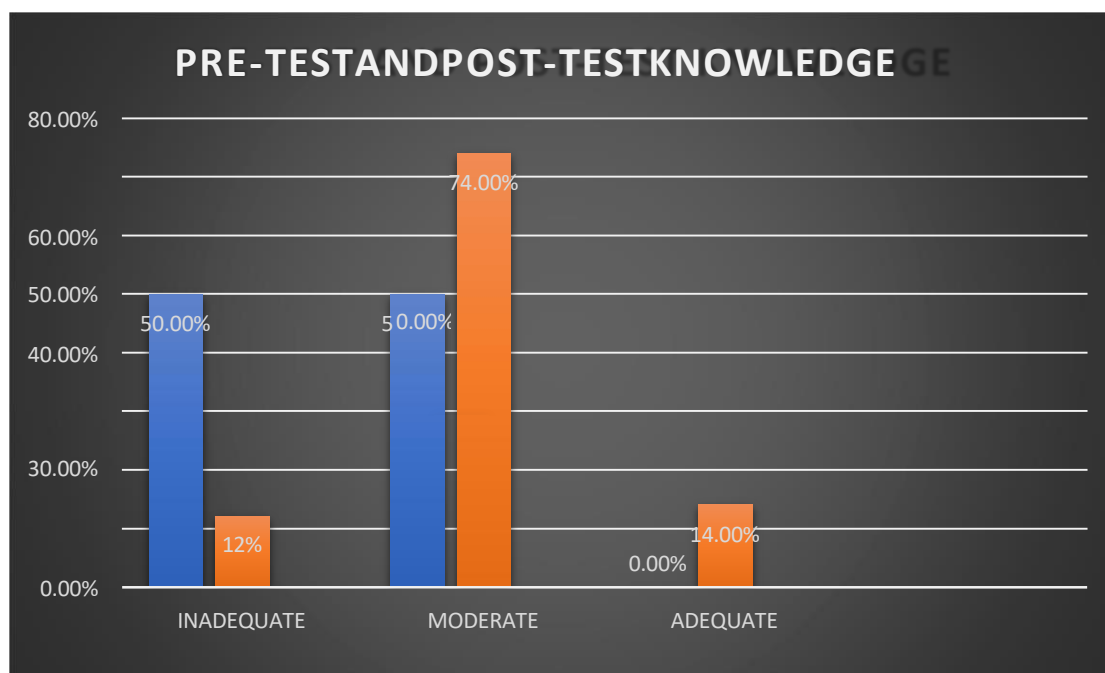
Pre-test knowledge level	Category	Frequency	Percentage
Inadequate	≤50%	25	50
Moderate	51- 75%	25	50
Adequate	>75%	0	0

Table 2 depicts that no respondents had adequate knowledge regarding voluntary blood donation during pre-test.

Table3: Distribution of samples as, Post-test knowledge level of 1st semester Basic BSc nursing students regarding voluntary blood donation (N=50)

Post-test knowledge level	Category	Frequency	Percentage
Inadequate	≤50%	6	12
Moderate	51 -75%	37	74
Adequate	>75%	7	14

Table 3 depicts, majority (74%) of samples had moderate level knowledge, 14% of samples achieved adequate level knowledge regarding VBD on post-test.



● Pre-test

■ Post-test

Figure 1: sample distribution based on pre-test post-test knowledge level regarding VBD.**Table 4: Effectiveness of STP on knowledge regarding VBD among students. (N=50)**

Tests	Range		Mean	Mean%	Standard Deviation (Sd)	Paired T Test Value <i>P</i> < 0.0001
	Maxi Mum	Mini Mum				
Pre-Test	27	9	19.18	50.47%	5.48	
Post Test	31	16	25.06	65.94%	5.75	(s)
Enhancement	0	1	5.96	15.68%	3.39	

Tableno. 5: aspectwisemeanandmean%ofpre-test, post- test, and enhancement knowledge scores of respondents. (N:50)

SL. NO .	KNOWLEDE ASPECTS	RESPONDANTS KNOWLEDGE						PAIRED ‘t’ TEST
		PRE TEST		POST TEST		ENHANCEMENT		
		Mean	Mean %	Mean	Mean %	Mean	Mean %	
1.	General knowledge related to meaning and content of blood.	3.86	77.2 %	4.7	94%	0.84	16.8%	8.04 P<0.001 df=49 (S)
2.	General knowledge related to blood donation and it’s practice in India.	2.4	48%	3.66	73.2%	1.26	25.2%	7.47 P<0.001 df=49 (S)
3.	Knowledge regarding donor eligibility criteria.	2.38	29.75 %	4.16	52%	1.78	22.25 %	6.82 P<0.001 df=49 (S)
4.	Knowledge regarding, who can and who cannot donate blood.	7.62	54.4 %	8.62	61.57 %	1	7.17%	4.06 P<0.001 df=49 (S)

5.	Knowledge regarding phases, procedure, postdonation advises and benefitsto donor.	2.92	48.6 %	3.92	65.33 %	1	16.73 %	6.28 P <0.001 df=49 (S)

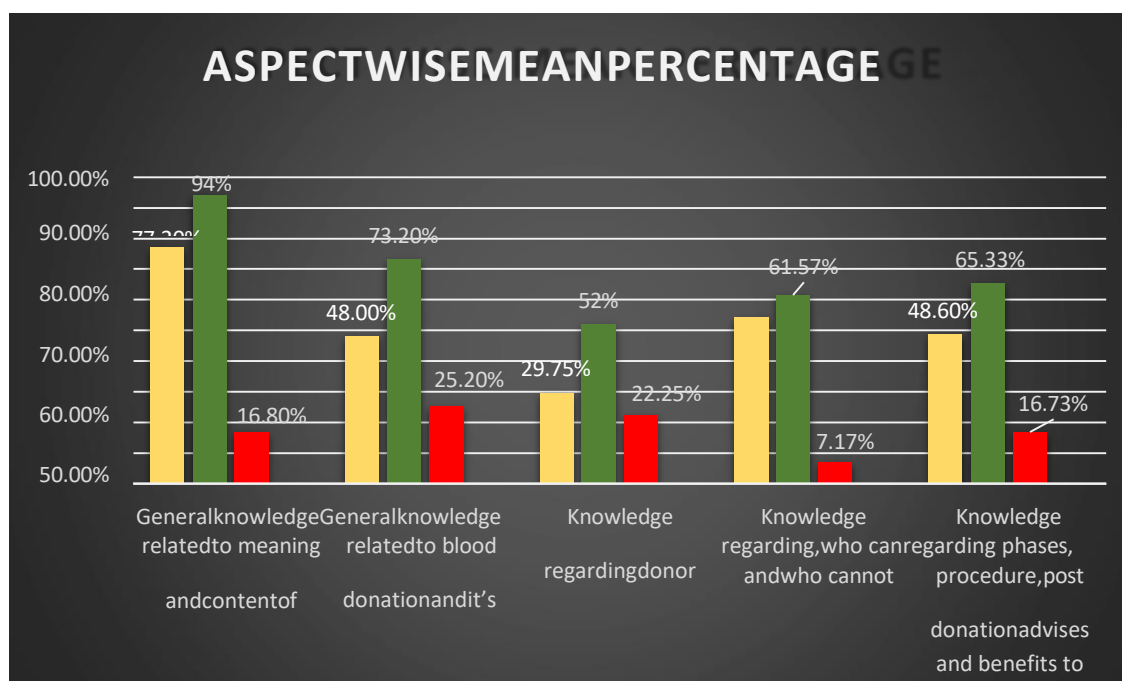


Table no.5 and figure no.3 show aspect wise mean pre-test & post-test knowledge of samples, highest enhancement (25.2 %) in mean % is obtained in aspect of “general knowledge related to blood donation and its practice in India”, followed by 22.25 % enhancement in the aspect of “knowledge regarding donor eligibility criteria”, and 16.8% enhancement in aspect of “general knowledge related to meaning and content of blood “ , 16.73 % enhancement in aspect of “knowledge regarding phases, procedure, post donation advises and benefit to donor”, 7.17% enhancement in aspect of “knowledge regarding, who can and who cannot donate blood”. Overall enhancement 15.68%.

DISCUSSION

This study assessed knowledge regarding voluntary blood donation among 1st semester Basic BSc nursing students. The findings are discussed with support from previous research studies. In this study, all participants belonged to 18-20 years of age group, majority of samples were female (78%), which is consistent with other nursing student population, and similar gender predominance has been reported in studies among healthcare students. Most students belonged to Hindu religion (82%), and large proportion had parents with basic to moderate educational status. Majority (82%) were belongs to nuclear family.

This study revealed that 98% of students had never donated blood, indicating very poor practice. This finding is differed from study done among medical students in Puducherry, where only 13.2% had ever donated blood.⁹ Similar another study among college students found that actual blood donation rates remain low due to fear, lack of opportunity, and misconception.^{9,10} Further, a study from North India reported that fear of weakness (19%) and fear of needle pain (27.4%) were major barriers to blood donation.¹¹

Pre-test results found that half (50%) of samples had inadequate knowledge and reaming 50% moderate knowledge, with none having adequate knowledge. This is supported by other studies, where a significant proportion had average to poor knowledge, and overall knowledge only 44.8%, indicating insufficient awareness among students.¹²

Study findings in the post-test showed improvement in moderate knowledge (74%), whereas adequate knowledge (14%) and inadequate knowledge respondents percentage reduced to 12% from 50%. Similar study conducted in Jammu & Kashmir reported that post-intervention, all student achieved adequate knowledge.

Overall pre-test mean knowledge scores of samples was 50.47%, post-test mean 65.94% with enhancement of score (15.68%) in mean knowledge. Paired t test value ($t: 12.42$) is $>$ the table value at 0.05 level of significance, which indicates there is a significance difference between pre-test post-test knowledge scores of samples. Hence the stated research hypothesis H1 is accepted.^{13,14}

Study says that, aspect wise mean pre-test post-test knowledge of respondents, had found as highest enhancement (25.2%) in mean% is obtained in aspect of "general knowledge related to blood donation and its practice in India", followed by 22.25% enhancement in the aspect of "knowledge regarding donor eligibility criteria", and 16.8% enhancement in aspect "general knowledge in meaning and content of blood", 16.73% enhancement in aspect "knowledge regarding phases, procedure, post donation advises and benefits to donor" and 7.17% enhancement in aspect "knowledge regarding, who can and who cannot donate blood". 15.68% overall enhancement. Paired t test done, result express there is a significant change in pre & post test scores of knowledge in all aspects. Similar findings found in other studies.¹⁴

Study found chi-square (χ^2) values with regard to respondents socio-demographic variables viz ; gender ($\chi^2 = 2.914$), religion ($\chi^2 = 1.886$), education father ($\chi^2 = 10.443$), educational of mother ($\chi^2 = 3.708$), fathers' occupation ($\chi^2 = 4.895$), mothers' occupation ($\chi^2 = 3.876$), type of family ($\chi^2 = 1.22$), family income ($\chi^2 = 1.166$), number of times blood donated in camps/hospital ($\chi^2 = 1.02$), number of times family members donated blood ($\chi^2 = 1.707$), worked in any voluntary organizations like ($\chi^2 = 1.921$) were less than table value at 0.05 level significance. Hence stated null hypothesis H_0 accepted and research hypothesis H_2 rejected. Result says that, there's no significant association amid pre-test knowledge scores of 1st semester basic B.Sc. (N) students with their chosen socio-demographic variables. Similar findings found in other studies.¹⁵

CONCLUSION

Study concluded that, majority of students had inadequate to moderate level of knowledge, and no one had adequate knowledge on voluntary blood donation in pre-test. Overall pre-test knowledge score of samples were average. Post-test score says significant improvement in knowledge that is moderate level knowledge (74%), whereas adequate level knowledge (14%) and inadequate level knowledge respondent's percentage reduced to 12% from 50%. This shows STP was effective in enhancing knowledge among 1st semester B. Sc (N) students. Hence, planning regular awareness program on blood donation and inclusion of nursing students in blood donation camp activities will improve the rate of voluntary blood donation percentage. So study concluded that continuous motivation and awareness programs are helpful in improving voluntary blood donation among nursing students.

This study limited to 50 students of 1st semester basic B.Sc (N) at college of nursing, MMC&RI, Mysuru. Further studies can be conducted on a large scale with control group.

Acknowledgement

We extend our heartfelt thanks to all those who stood with us in this journey.

Funding Source: None

Conflict of Interest: None

REFERENCES

1. World Health Organization. Towards 100% voluntary blood donation: A Global Framework for Action. Geneva: WHO;2010.
2. National Center for Biotechnology Information. Voluntary blood donation: foundation of a safe and sufficient blood supply- towards 100% voluntary blood donation. Bethesda: NCBI ;2025
3. World Health Organization. WHO Global database on blood safety and availability. Geneva:WHO;2025
4. National AIDS Control Organisation, Ministry of Health and Family Welfare, Government of India. Voluntary blood donation programme-an operational guideline. New Delhi:NACO;2007

5. Uma S, R Arun, P Arumugam. The knowledge, attitude and practice towards blood donation among voluntary blood donors in Chennai, India. *J Clin Diagn Res*. 2013 Jun;7(6):1043-6.
6. World Health Organization. WHO calls for increase in voluntary blood donors to save millions of lives. Geneva: WHO;2015
7. World Health Organization. India strengthens blood safety for universal access and quality-assured blood services. Geneva:WHO;2025
8. Singh AK, Shivhare A, Mohan Y, Bharati JK, Singh N. Retrospective analysis of whole blood donor demographics at a rural university in India. *Bioinformation*. 2025;21(5):952-956.
9. Kowsalya V, Vijayakumar R, Chidambaram R, Srikumar R, Reddy EP et al. A study on knowledge, attitude and practice regarding voluntary blood donation among medical students in Puducherry, India. *Pak J BioI Sci*. 2013;16(9):439-42.
10. Raghuwanshi B, Pehlajani NK, Sinha MK. Voluntary blood donation among students- a cross-sectional study on knowledge and practice vs. attitude. *J Clin Diagn Res*. 2016;10(10):EC18-EC22.
11. Mishra SK, Sachdev S, Marwaha N, Avasthi A. Study of knowledge and attitude among college-going students towards voluntary blood donation from north India. *J Blood Med*. 2016;7:19-26.
12. Kodli P. A study to assess the effectiveness of planned teaching programme on knowledge and attitude regarding blood donation among first year basic B.Sc nursing students at government college of nursing, BIMS, Belagavi. *International Journal of Advance Research in Nursing*. 2024;7(1):108-115.
13. Kulkarni S, Kamble A, Dhage K, Palwade K, Ghuge V, et. al. Effectiveness of planned teaching programme on knowledge regarding blood donation among degree students. *Asian Journal of Nursing Education and Research*. 2024;14(3):193-196.
14. Bhandari S, Nepal P, Pokharel B. Knowledge regarding blood donation among students of a college in western Nepal. *J Lumbini Med Coll*. 2020;8(2):201-205.
15. Aishwarya D, Rakshita M, sangeeta B, Somaling K, Vishal N, Lakshnavva Gondi, Jayashree Itti. A study to assess the effectiveness of planned teaching programme on knowledge regarding blood donation among the students in selected PU colleges of Bagalkot. *Sch J App Med Sci*. 2025;13(2):596-602.