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ORIGINAL RESEARCH ARTICLE

A Study to Assess the Knowledge and Attitude regarding Voluntary Blood Donation among College Going Male Students, a Quasi-experimental Study

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ABSTRACT

Introduction: Voluntary blood donation in developing countries like India is constrained by misconception, fear, and widespread myths regarding blood donation.(1) Donated blood is an essential component in the management of many diseases. It is the main lifesaving for an individual with loss of large volumes of blood from accidents, hemorrhages or surgery.(2) Blood and its product demands is increasing, which can be ensured by increasing awareness and interest in blood donation in different groups of people. Youth is one of those groups. Misconception and low levels of awareness lead to unsatisfactory voluntary blood donation practices among them. The aim is to assess the knowledge and attitude of college students towards voluntary blood.

Material and Methods: After prior permission from the College Authority, all the students who were present on the day of the study and who acknowledged their consent for participation were enrolled in the study. A pre-tested, semi-open-ended questionnaire was used as a study tool first as a pre-test to check their prior knowledge and attitude, followed by a health talk. Then, the same questionnaire was used to check their improvement of knowledge about blood donation.

Results: As per the Wilcoxon rank test there is a significant improvement in the knowledge of study participants after health talk; out of a total 105 male students, 102 show positive rank (W+).

Conclusion: Health education regarding voluntary blood donation is effective in improving the knowledge and attitude of youth. This will further improve the situation of voluntary blood donation by youth.

Keywords: Voluntary blood donation, College students, Knowledge assessment, Attitude evaluation, Quasi-experimental study.

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INTRODUCTION

Safe blood is critical for proper medical care and its access is an important factor in preventing the spread of infectious diseases at a global level. Transfusion of blood and its related products is still one of the major medical interventions utilized in the treatment of serious conditions such as trauma, surgery and chemotherapy.[1] The theme of World Health Day in 2000 was "Blood saves life, Safe blood starts with me." it also stressed on the need for voluntary blood donation by healthy people.[2] Right now, blood donations worldwide total about 118.54 million. About 40% of these are gathered in wealthy nations, which house sixteen percent of the global populace.[3] The focus was on encouraging 100% non-remunerated, voluntary blood donation from donors of low-risk populations so as to decrease the risk of spreading transfusion-associated infections. The first step for attaining it is to perform comprehensive studies about awareness of the population toward blood donation to gauge the present situation, beliefs, and both positive and negative attitudes of the population toward blood donation.[2] Despite significant progress in the field of clinical sciences, recruitment of safe blood donors and maintaining a sufficient supply of safe blood remains a challenge. The best and safest method of blood donation is voluntary non-remunerated donation. In India, 50 to 60% of the population falls between 18 and 65 years of age. Still, we have a blood crisis because the day-to-day number of patients increases more than blood donors.[4]

Compared to 2004, 7.70 million blood donation incensements were noticed from voluntary unpaid donors 2011. However, the majority of countries still collect more than 50% of their blood supply from replacement or paid donors.[5] As per the World Health Organization (WHO), there seems to be a 3 shortfall of 3 to 4 million units of blood annually in India. This gap in led by the demand and supply of blood and its component, can only create awareness amongst the masses for voluntary blood donation. Misconceptions, fears, ignorance and widespread myths regarding blood donation constrain voluntary blood donations in developing countries like India.[6]

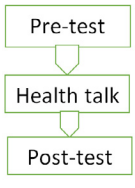
Knowledge, attitude, and practice (KAP) studies are commonly used tools to investigate various aspects

of human behavior. By assessing what people know (knowledge), how they feel about it (attitude), and what they actually do based on their knowledge and attitude (practice), the investigator is better able to appreciate the outlook of the people regarding behavior and suggest relevant remedial measures. KAP studies have been frequently used to explore the domain of voluntary blood donation.[2]

Nevertheless, not much research has been done in this area to evaluate college-bound students' KAPs about blood donation. Blood donation knowledge and eligibility are not gender-specific. But the setup of our study happened to be a boy's college. Hence, this study was conducted to assess the knowledge gaps, attitudes, and blood donation practices of boys' students and motivate them toward becoming regular, voluntary blood donors. The aim is to assess the knowledge and attitude of college students towards voluntary blood donation, to impart health education on voluntary blood donation to study participants and to assess the effect of health education in improving the intent of blood donation.

MATERIALS AND METHODS

Students of non-medical origin of Khandelwal College of Management Science and Technology who gave verbal consent for participation in the study were completely enumerated for the study. The study took place in a classroom setting as per the prior permission from the college's principal. It was a quasi-experimental study; a pre-test was followed by a health talk and then the same respondents were evaluated to know the impact of the talk, which was assessed by a post-test. The study's data has all been treated with confidentiality and won't be connected in any manner to the participants.



A pre-tested, semi-open-ended questionnaire was used as study tool. The questionnaire consists of two sections. Section A was designed to gather the socio-demographic profile of the participants, such as age, education level, caste, religion, occupation and education of the mother and father, and residence. Section B planned to know about college-going non-medical students' knowledge attitude and practice.

Sample Size Determination

The sample size (N) was based on a previous study[4] that concluded that 94.4% of the population considered blood donation important, calculated as follows:

$$N = \frac{z^2 pq}{d^2}$$

where N is the minimum sample size; z denotes the level of confidence according to the normal standard distribution that corresponds to the 95% confidence interval (z = 1.96); p stands for the prevalence rate of the population considered blood donation important (94.4%) ; q = (1 – p); and d pertains to the desired degree of accuracy or tolerated margin of error (5%). Substituting these values into the equation, the following equation is derived:

$N= (1.96)^2 \times 94.4 \times 5.6 / (5)^2 = 81$

Therefore, N is 81.
Taking 10% more for non-respondents the final minimum sample size came out to be 90.
As one of the objectives of the study was to impart health education about voluntary blood donation, therefore all the boys' students present on the day of the study who gave their consent for participation were enumerated in the study. Thus, a total of 105 students participated in the study.

Data Analysis

Data was entered and analyzed using MS Excel (2020) and SPSS (ver. 20)

Ethical Clearance

The **s**tudy started after getting ethical clearance from the Institute Ethical Committee.

RESULTS

A total of 105 college-going boys participated in the study, of which 27 (25.7%) were from rural areas and 78 (74.3%) were from urban areas. The age range between 17 to 23 years, the mean age being 19.29 ± 1.03 years.

Knowledge

The knowledge about blood donation was assessed by a questionnaire assessing general knowledge about blood group, criteria and minimum requirements for blood donation. Knowledge about donor selection and time gap between two blood donations is also assessed. The responses of participating students about their knowledge on blood donation is summarized in Table 1. There is a comparative increase in affirmative responses after giving educational talk on blood donation.

Knowledge of their own blood groups 64 (60.9%) participants were aware of their blood groups. Only 41 (39.0%) students were unaware of their blood groups. The

Table 1: Knowledge about blood donation

	Correct response	
Questions	*Pre-test*	*Post-test*
Do you know your blood group?	64 (61%)	
Minimum to Maximum age for blood donation?	14 (13.3%)	92 (87.6%)
Minimum weight required for blood donation?	20 (19%)	99 (94.3%)
Minimum haemoglobin required for blood donation?	24 (22.9%)	101 (96.2%)
Can a diabetic and B.P patients donate blood?	7 (6.7%)	82 (78.1%)
How much blood is taken at the time of donating blood?	51 (48.6%)	102 (97.1%)
What should be the minimum time between two blood donations?	42 (40%)	96 (91.4%)
How long does it take to donate blood?	40 (38.1%)	101 (96.2%)
Should blood donation be taken from professional blood donors?	42 (40%)	88 (83.8%)
Universal donor?	56 (53.3%)	100 (95.2%)
Universal receiver?	47 (44.8)	93 (88.6%)
Overall knowledge	37 (35.2%)	95.4 (90.4%)

most common blood group reported was B + ve (20%), B-ve (3.8%), A+ve (7.6%), A-ve (2.9%), AB+ve (7.61%), AB-ve (1.9%), O+ve (16.19%), O-ve (.9%). The distribution of the blood groups as reported by the students, is summarized in Figure 1.

Only 10.5% of the study participants have donated blood until the point where the study began; the bulk of the participants have not donated blood.

Students participating in the study changed their attitudes about blood donation. Earlier, before the health talk only 18.1% felt that blood donation should be done regularly, which improved in post-test, i.e., 68.6% felt that donating blood regularly. Participants' views about blood donation are summarized in Figure 2.

Willingness about blood donation in the future is enhanced after health talk has cleared myths about blood donation. In the post-test 90.4% of participants agreed to donate blood in the future out of which 84.76% believe that blood donation is to be done for anybody in need. A comparative attitude about blood donation in the future is shown in Figures 3 and 4.

Almost 29% of the participants weren't asked to donate blood until the study was conducted. About 25% refused to donate blood because they are afraid of needles and about 25% of participating students' families didn't allow them to donate blood. The reasons are summarized in Figure 5.

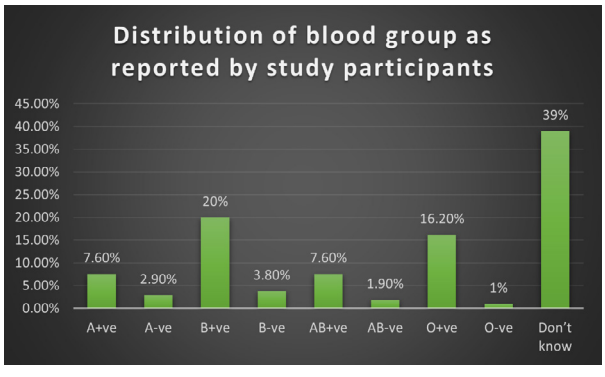


Figure 1: Distribution of blood among study participants

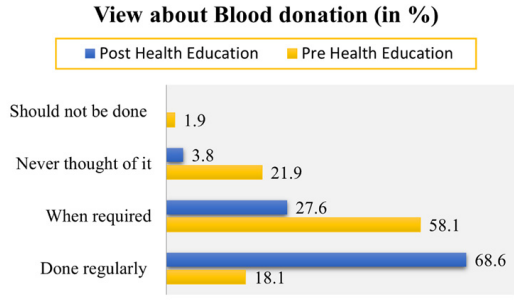


Figure 2: View about blood donation

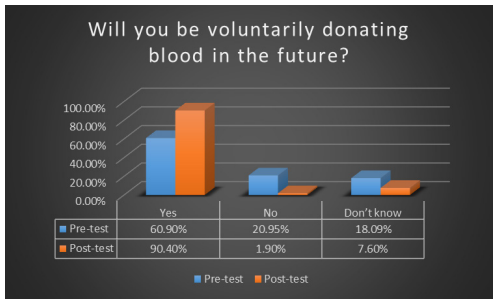


Figure 3: Willingness for blood donation in future (pre and post-test)

An overall improvement in knowledge attitude and practice after health education and its impact is drawn out by the Wilcoxon signed ranks test in Table 2. Out of a total of 105 male students, 102 show a positive rank (W+).

DISCUSSION

This study has attempted to evaluate the level and factors associated with young college-going adults' knowledge, attitude, and practice on blood donation. Of the total number of study participants, 39 (37%) had adequate knowledge regarding blood donation. Our study yielded better results than a study conducted in northwest Ethiopia that looked into blood donors' attitudes and knowledge as well as any barriers to blood donation.[5]

Table 2: Result of Wilcoxon signed ranks test

		Ranks		
		N	*Mean rank*	*Sum of ranks*
Post knowledge score ~ Pre Knowledge score	Negative ranks	2[a]	3.00	6.00
	Positive ranks	102[b]	53.47	5454.00
	Ties	1[c]		
	Total	105		
Test statistics				
			Post - pre	
Z			-8.861	
Asymp. Sig. (2-tailed)			.000	

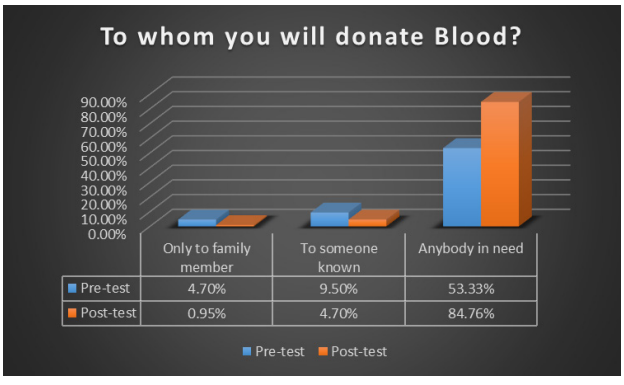


Figure 4: If yes to whom you will donate blood (pre and post test)

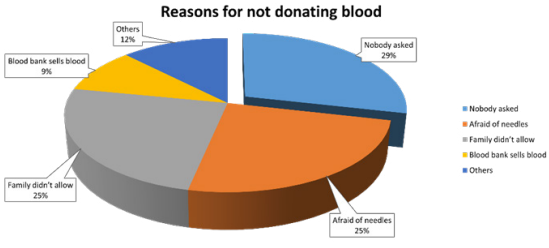


Figure 5: Reasons for not donating blood

In studies regarding blood donation, the behavior of an individual is important. Broadly, social behaviors have frequently been explained by two theories: "The theory of reasoned action" and its extension, "The theory of planned behavior."[7] The former proposes that most behaviors are under willing control and are determined by the attitude toward the action, while the latter proposes that the person who does not have complete control over their behavior or that their behavior is not totally their decision could be influenced by others. Indeed, the consistent information that we gathered by conducting different studies on beliefs, attitudes, and motivations that affect the behavior of blood donors is that donors have highly positive attitudes and beliefs toward blood donation. The significance and application of such information is vital not only for those running blood donation banks but also for those who have donated blood before to get them to continue donating blood regularly and hopefully keep this as a habit. The information is equally important for motivating non-donors in the hope that their beliefs and attitudes could be influenced and modified and, in this way, they could be motivated and moved to start donating blood.[8]

Undoubtedly, the problems surrounding donor recruitment differ in different countries and rural or urban areas within the same country. Blood donation is determined by cultural, social, educational and other factors. Thus, in developed countries where the donors are voluntary and unpaid, a decline in blood supply is a main concern, while in most developing countries, where a shortage of blood is still a serious problem, blood donation is still predominantly involuntary in which relatives, friends and workmates of patients give a significant contribution, leaving a small proportion to voluntary unpaid donors.[9] In both situations, there is a need to analyse donor behaviour and attitude to ensure that the blood supply is sustained by recruiting new donors and retaining those who have donated voluntary donors.

The findings of our study are very similar to a study that is earlier conducted in Delhi, where they had only 10% of voluntary donors.[10] However, this proportion is relatively low when compared with studies among students from Nepal (43%) and, the USA (56%) for blood donation.

In the current study, willingness to donate blood in future is enhanced after health talk clears up myths about blood donation. In the post-test 91% of participants agreed to donate blood in the future out of which 84% believe that blood donation is to be done for anybody in need. These results are similar to those of Devi *et al*., a study conducted to assess the KAP of medical students regarding blood donation and reported the proportion of students with adequate knowledge as 33.1%.[5] However, a high proportion of students (89.8%) were reported to have expressed their intent to donate blood in the future. Similarly, in a study conducted in Pondicherry by Bharadwaj *et al*., incomplete knowledge about blood donation was reported among undergraduate medical students.[11] To close the information gap, dispel myths, and inspire medical students to regularly donate voluntary blood, arrange regular continuing medical education sessions and lectures on the subject.[5]

Awareness of one's blood group is important because in times of emergency, quick blood arrangements can be made for self and others. In this study, 60% of students were aware of their blood groups. Similarly, a high level of awareness regarding blood groups has been reported

by Nwabueze *et al*.[12] Agravat *et al*.[13] According to the students, the reasons for this high level of awareness regarding their own blood were that they were required to fill this information in their school health cards. Also, an experiment in physiology in medical college pertains to this. This finding re-emphasizes the role that teaching institutions can play in imparting knowledge and building positive attitudes for voluntary blood donation.

The most common blood group reported was B+ve (20%), B-ve (3.8%), A+ve (7.6%), A-ve (2.9%), AB+ve (7.61%), AB-ve (1.9%), O+ve (16.19%), O-ve (.9%). Our findings are in agreement with a study by Giri *et al*., in Maharashtra[14] and Chandra and Gupta *et al*.[15] in North India.

The above finding suggests the need to motivate students for blood donation and to get themselves registered with the blood bank so that they can be contacted for donation in times of emergency and shortage of blood, especially the rare blood groups.

In this study, the socio-demographic factors of the 18 to 25 years of age were significantly associated with blood donation practice. This indicated targeting our intervention to older adults would increase the rate of blood donation practice and generate a future pool of regular donors. Furthermore, using younger adults as an advocate for blood donation campaigns and engaging them in community awareness creation and risk reduction intervention would improve voluntary blood donation.

CONCLUSION

The level of knowledge, attitude, and practice of willing donors are low in the study setting. Knowledge and attitude levels are independent and significant predictors of blood donation. In order to educate the population about blood donation and improve their attitude towards it, comprehensive health information is needed on eligibility criteria for donating blood, health benefits and risks of donating blood, the volume of blood donated, the number of patients benefiting from a single unit of blood donated and importance of blood in saving lives, improving health and wellbeing of the community. The most common reasons people fail to donate blood are inaccessibility of the service, unreasonable fear and misunderstanding. Government and related stakeholders aiming to improve health services should make blood bank services more accessible; healthcare providers at all levels should clear misconceptions with appropriate health information and organize a well-planned campaign in approaching potential blood donors.

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