



ASSESSING LEVEL OF KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) AMONG HEALTH CARE WORKERS (HCWS) TOWARDS BLOOD DONATION IN A TERTIARY CARE HOSPITAL OF NORTH INDIA: A CROSS-SECTIONAL STUDY

Immunohematology

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ABSTRACT

Introduction: Healthcare workers provide medical health care and fulfil their roles as first contact with the community. Therefore it is pertinent that they should also understand the role of voluntary blood donation, the acceptance and deferral criteria for blood donation and be capable of actively motivating potential blood donors in the general public for voluntary non-remunerated regular blood donation. Only a healthcare worker who is himself convinced regarding voluntary blood donation and blood safety can take the lead and team up with the Blood Centre so as to maintain adequate and safe blood inventory. Hence in a Medical College Hospital, it is imperative to understand the knowledge, attitude and practice (KAP) of health care workers towards blood donation practices. **Aims and Objectives:** To assess the level of knowledge, attitude and practice among Health care workers towards blood donation in a Tertiary Care Hospital, Dr. Rajendra Prasad Government Medical College Kangra at Tanda, Himachal Pradesh. **Material and Methods:** The study was a hospital-based cross-sectional study among health care workers of Dr Rajendra Prasad Government Medical College Hospital Kangra at Tanda, Himachal Pradesh, during January-February 2023. **Results:** Mean score for knowledge (out of 20) was 13.7 $\pm$ 2.5 and for attitude (out of 10) was 8.5 $\pm$ 1.5. Only 61.7% and 58.8% of the study participants had good knowledge and attitude respectively towards blood donation. Only 41.2% had actually donated blood and only 26.5 % were repeat donors. 86.3% were willing to include their name and contact number in the Blood Centre Emergency Donor panel. **Conclusion:** There is a need for ongoing motivational activities and educational programs to encourage voluntary blood donations even among healthcare workers and the general public.

KEYWORDS

Awareness, attitude, donor motivation, Healthcare workers, knowledge, practice, voluntary blood donation.

INTRODUCTION

Voluntary blood donors are the cornerstone of a safe and adequate supply of blood and blood components. Safe and effective blood transfusion is vital in improving healthcare delivery and preventing the spread of blood-borne diseases worldwide⁽¹⁾.

As per National Blood Policy, India should have achieved 100% voluntary blood donation (VBD) by December 2005, which has not been achieved yet⁽²⁾. This is because of lack of awareness about VBD in the society, especially in rural areas. At the national level, to meet the shortage of safe blood, the World health organization (WHO) recommends that 3-5% of the population donate blood annually. But, in India, 8 million units of blood are required annually, out of which only one third is obtained from voluntary blood donors⁽³⁾.

The people's need for blood is increasing daily due to increasing population and advancements in medical sciences⁽⁴⁾. Blood transfusion has become a crucial component in the management of patients presenting with accident injuries, surgical conditions, malignancies, pregnancy complications and other medical conditions. There is a considerable shortage of blood, even in large metropolises, with the supply being less than 50% of the requirement⁽⁵⁾. Blood shortages in various facilities are caused by donor unsuitability, negative attitudes and a lack of education. This is also related to people's reluctance to donate blood. People fear developing a complication as a result of donating blood⁽⁶⁾. Blood donation is the only means by which blood can be stored and made available for use. To remove ignorance, fear and misconceptions of the general public and raise awareness about the nobility of voluntary blood donation, VBD is promoted under safe blood programs in India and 1st October is celebrated as National Voluntary Blood Donation Day⁽⁵⁾.

Blood scarcity is frequently encountered in health-care settings and is attributable to an imbalance between the increasing demand for safe blood and blood products on the one hand and failure to organize regular blood supply due to misconceptions, perceived harms and risks, and lack of motivation among potential donors⁽⁷⁾. Healthcare workers (HCW) provide medical health care and fulfil their roles as first contact with the community. They can serve as a readily available pool of voluntary blood donors as well as motivators for the attached medical college hospitals and help tide away some of the scarcity of blood and blood components. Therefore, it is pertinent that they

understand the role of voluntary blood donation, the acceptance and deferral criteria for blood donation and be capable of actively motivating potential blood donors in the general public for voluntary non-remunerated regular blood donation. Only a HCW who is himself convinced regarding VBD and blood safety can then possibly take the lead and convince others to donate. Sound knowledge of the subject can help tackle the various myths and beliefs of the general public in this regard.

There is a paucity of published literature regarding assessment of the level of knowledge, attitude and practice among healthcare workers towards blood donation. Dr Rajendra Prasad Government Medical College (Dr RPGMC) Kangra at Tanda, Himachal Pradesh, is one of the largest public sector tertiary health care institutions of Himachal Pradesh, and various categories of health care workers are providing their services in the institution. HCWs of the institution can play an important role in motivation activities for voluntary blood donation so as to curb the problem of blood scarcity in the institution. Thus, this study was planned to determine the level of knowledge, attitude and practice (KAP) among Health Care Workers (HCWs) towards blood donation. The resultant findings from the current study may help in providing valuable inputs for strengthening the VBD drive.

MATERIAL AND METHODS

The study was a hospital-based cross-sectional study among health care workers of Dr Rajendra Prasad Government Medical College (Dr RPGMC) Hospital Kangra at Tanda, Himachal Pradesh during January-February 2023. The participants from different departments of the medical college were briefed about the aim and objective of the study and were assured regarding the confidentiality of personal data. The pre-tested questionnaire, which included questions regarding blood donation, beliefs and myths regarding blood donation, eligibility criteria for donation and questions to assess their attitude and practice of blood donation was used as a tool to collect the data from the health care workers after written consent.

Data Collection tool: A semi-structured questionnaire was designed after reviewing relevant literature and was used to collect the required information. The questionnaire had a variable for:

1. Socio-demographic details.
2. Knowledge (20 questions), Attitude (10 questions), Practice (11 questions) about blood donation (total 41 questions).

Each question carried one mark and those who scored less than the 50th percentile were categorized as having poor knowledge/attitude. In contrast, those who scored 50th percentile or more were categorized as having a good knowledge/attitude towards blood donation.

Category	Knowledge score (out of 20)	Attitude score (out of 10)
Poor	<14	<9
Good	≥ 14	≥ 9

Data Analysis

Data collected was coded and then was entered in Microsoft-excel spreadsheet and was analyzed using SPSS version 24. Categorical data was analyzed and presented using frequencies and percentages and Quantitative data was analyzed and presented using mean and standard deviation. The association between the independent variables (socio-demographic variables) and the level of Knowledge and Attitude was assessed using the Chi-square test and p-values less than 0.05 were considered as significant.

Ethical Consideration

The study was initiated with prior approval from Institutional Ethics Committee (IEC) Dr RPGMC Tanda.

RESULTS

Demographics and age-wise distribution: Out of the total 102 Health care workers 67 (65.7%) were female and 35 (34.3%) were male. Out of the total, 52 (51%) were medical interns. The age range was between 21 and 52 years and the mean age was 27.7 years. 86.3% had an experience of less than one year in service. 54.9% of the participants belonged to surgical departments and 45.1% from medical departments. Only 27.5% were married in the study population (Table 1).

Table 1: Distribution Of Study Participants Based On The Socio-Demographic Characteristics.

Demographic characteristic		Total Responders N (%)
Age group (years)	upto 30	81 (79.4)
	31-45	19 (18.6)
	≥ 46	2 (2.0)
Gender	Male	35 (34.3)
	Female	67 (65.7)
Job experience	upto 1 year	88 (86.3)
	more than 1 year	14 (13.7)
Department	Medical	46 (45.1)
	Surgical	56 (54.9)
HCW category	Intern	52 (51.0)
	Resident doctor	9 (8.8)
	Staff nurse	31 (30.4)
	Others	10 (9.8)
Marital status	Married	28 (27.5)
	Unmarried	74 (72.5)

Knowledge And Attitude

The mean score for knowledge (out of 20) was 13.7 ± 2.5 and for attitude (out of 10) was 8.5 ± 1.5 (Table 3). Only 61.7% and 58.8% of the study participants had good knowledge and attitude, respectively, towards blood donation (Figure 1). Only 10.8% and 9.8% of the study participants correctly answered the maximum age and ideal haemoglobin levels for blood donation, respectively. 57.8% thought that blood donation takes more than 10 minutes. 69.6% believed that it was necessary to rest for a long time after donation (Table 3). 99% believed that one should tell the true health status to the doctor before blood donation, 92.2% would encourage others also for blood donation and 60.8% accepted that they could be exposed to infection during blood donation (table 4). Knowledge score was found to be significantly associated with duration of experience (p value=0.04) and attitude score with department (p value=0.04) (Table 5).

Table 2: Score Obtained Among The Study Participants.

Characteristic	Mean score	Standard deviation
Knowledge	13.7	2.5
Attitude	8.5	1.5



Figure 1: Level Of Knowledge And Attitude Among The Study

Participants.

Table 3: Distribution Of Study Participants Based On Answers To Knowledge Regarding Blood Donation.

S no.	Knowledge questions	Correct,N (%)	Incorrect,N (%)
1	Do you think blood donation benefits the general health of the blood donor ?	74(72.5)	28(27.5)
2	What is the minimum time interval between two blood donations?	63(61.8)	39(38.2)
3	What is the minimum age of donation	95(93.1)	7(6.9)
4	What is the maximum age of donation	11(10.8)	91(89.2)
5	What is the minimum weight for blood donation	31(30.4)	71(69.9)
6	What is the ideal haemoglobin for blood donation	10(9.8)	92(90.2)
7	Should the donor have eaten in the previous 4 hours before blood donation	94(92.2)	8(7.8)
8	Do you think donor should have slept well on the previous night before donation	89(87.3)	13(12.7)
9	Should the doctor be informed of your medical condition if any ,before donation	101(99)	1(1)
10	Can a person who is a drug addict donate blood	84(82.4)	18(17.6)
11	Can a person donate blood if he catches a cold or has fever or is taking any medications	74(72.5)	28(27.5)
12	Can a person who has HIV/AIDS donate blood	94(92.2)	8(7.8)
13	Can women donate blood	98(96.1)	4(3.9)
14	Actual blood donation takes less than 10 minutes	43(42.2)	59(57.8)
15	Do you think donated blood is tested for any transfusion transmitted diseases	95(93.1)	7(6.9)
16	Is it necessary to rest for a long time after donation	31(30.4)	71(69.6)
17	Is it necessary to keep oneself well hydrated after blood donation	95(93.1)	7(6.9)
18	Should a blood donor avoid driving on a long route post donation	73(71.6)	29(28.4)
19	Should a blood donor abstain from heavy physical work on the day post donation	73(71.6)	29(28.4)
20	Can a person donate regularly 3-4 times a year	86(84.3)	16(15.7)

Table 4: Distribution Of Study Participants Based On Answers To Attitude Towards Blood Donation.

II	Attitude	Correct,N (%)	Incorrect,N (%)
1	Should blood be donated only in emergency	90(88.2)	12(11.8)
2	Will you donate to unknown person if you are asked	87(85.3)	15(14.7)
3	Will you ask for a monetary compensation for blood donation	87(85.3)	15(14.7)
4	Will you discuss with your friends and your family about blood donation	92(90.2)	10(9.8)
5	Will you encourage others for blood donation	94(92.2)	8(7.8)
6	Do you have a plan to become a regular blood donor (3-4 times a year)	65(63.7)	37(36.3)
7	Will you tell your true health status to doctors before donation?	101(99)	1(1)
8	Would you go for a blood donation when there is acute shortage of blood in blood bank	99(97.1)	3(2.9)
9	Is there a threat to be exposed to infection/ harm during donation?	62(60.8)	40(39.2)
10	Will you come for voluntary blood donation again	88(86.3)	14(13.7)

Table 5: Association Between Socio-demographic Variables And Knowledge-attitude Score Towards Blood Donation.

Demographic characteristic		Knowledge N(%)		X ² (pvalue)	Attitude N(%)		X ² (pvalue)
		Good	Poor		Good	Poor	
Age group (years)	upto 30	49(48.1)	32(31.3)	0.52 (0.76)	49(48.1)	32(31.3)	2.9 (0.23)
	31(45)	13(12.7)	6(5.8)		11(10.7)	8(7.8)	
	>=46	1(0.9)	1(0.9)		0(0.0)	2(1.9)	
Gender	Male	20(19.6)	15(14.7)	0.48 (0.47)	18(17.6)	17(16.6)	1.2 (0.27)
	Female	43(42.1)	24(23.5)		42(41.1)	25(24.5)	
Job experience	upto 1 year	28(27.4)	18(17.6)	0.02 (0.86)	22(21.5)	24(23.5)	4.18 (0.04)
	more than 1 year	35(34.3)	21(20.5)		38(21.5)	18(17.6)	
Department	Medical	51(50.0)	37(36.2)	3.94 (0.04)	51(50.0)	37(36.2)	0.2 (0.65)
	Surgical	12(11.7)	2(1.9)		9(8.8)	5(4.9)	
HCW category	Intern	32(31.3)	20(19.6)	2.84 (0.41)	28(27.4)	24(23.5)	2.6 (0.45)
	Resident doctor	4(3.9)	5(4.9)		7(6.8)	2(1.9)	
	Staff nurse	22(21.5)	9(8.8)		20(19.6)	11(10.7)	
	Others	5(4.9)	5(4.9)		5(4.9)	5(4.9)	
Marital status	Married	20(19.6)	8(7.7)	1.5 (0.22)	18(17.6)	10(9.6)	0.47 (0.49)
	Unmarried	43(42.4)	31(30.3)		42(41.2)	32(31.3)	

Practice

58.8% of the study participants had never donated blood in the past, 14.7% were first-time donors and 26.5% were repeat donors. Out of never donors, 13% were not aware about blood donation, 61% had health issues like anaemia, hypothyroidism etc., 3.7% never visited any camp, 1.9% had fear related to blood donation, 16.7% had no requirement in family/friends and hence didn't feel the need to donate blood and 3.7% had no time for blood donation. 39.9% donated in a camp and 40.1% in a blood centre. The majority (81.2%) have encouraged less than 10 people for blood donation whereas 18.8% have encouraged more than 10 people to donate blood. 89.5% of the study participants have admitted that they encouraged voluntary blood donation drives as it is a noble act to save and help many needy people. 86.3% gave willingness for their name and contact number to be included in Blood Centre Emergency Donor panel.

DISCUSSION

Voluntary unpaid blood donation is a humanitarian act towards the sick by the healthy. Healthcare workers can serve as the best example to take the lead in this noble cause. Hence, in a Medical College Hospital, it is imperative to understand the KAP of healthcare workers towards Blood donation practices.

In our study, a majority (79.4%) of the HCWs were of age less than 30 years and 86.3% had work experience of upto 1 year only. The main reason for this was the higher participation of Interns and Junior Residents (JRs) in the study. Many other studies have been conducted among medical students of this age group in India (Aslami A N et al, Javaeed A et al, Chauhan R et al, Yerpude P N et al⁽⁵⁾) and outside India (Rizwan F A et al⁽⁸⁾).

In our study, 65.7% of HCWs were females and 34.3% were males, which is comparable to the study done by Chauhan R et al in which 56.5% females and 43.4% male medical students participated. The high proportion of females may be attributed to high participation of staff nurses (30.4%) in our study. The mean knowledge score of participants in their study was 74.4%. In contrast, in our study it was 61.7% which may be attributed to the fact that their study was conducted only among medical students while our study included others like staff nurses, pharmacists, technicians and medical interns. Whereas, in a study conducted by Aslami A N et al⁽⁴⁾ in 1st and 2nd year medical students of Kollam district of Kerala, only 35% had adequate knowledge. In another study by Malako D et al⁽⁹⁾ done among 218 healthcare workers in Ethiopia, 82.6% had good knowledge, but only 58.7% were found to have a good attitude. A lower knowledge regarding blood donation among our study population in comparison to the study by Malako D et al⁽⁹⁾ could be that it is generally assumed that the provision of blood is the duty and responsibility of the Blood Centre solely and that blood donors are a separate category of people who can be called up for blood donation as and when needed rather than understanding that every healthy person of the population is a potential blood donor and can donate blood.

Knowledge regarding primary facts such as permissible age, especially maximum age up to which blood can be donated (10.8%), haemoglobin level required for blood donation (9.8%), minimum weight for blood donation (30.4%) and time interval between two donations (61.8%) was inadequate among the HCW in our study which is a major drawback for VBD motivation drive in our institution. Also myths regarding a need for long hours of resting post donation (30.4%), belief that time taken for a blood donation is much more than 8-10 minutes (42.2%) can contribute to discouragement of blood donors for blood donation. Also, 58.8% of our study population had a good attitude toward blood donation, comparable with the study of

Malako D et al⁽⁹⁾ (58.7%). Attitude of the participants for willingness to donate blood in case of shortage of blood in Blood Centre (97.1%), the intention to encourage others for blood donation (92.2%) and willingness to discuss with friends and family about blood donation (90.2%) was very encouraging. However, 36.3% had no intention of becoming regular donors and 60.8% feared that they could be exposed to infection during blood donation. This reflected the dilemma donors face when deciding to donate blood.

In the study by Malako et al⁽⁹⁾, knowledge and attitude levels of the participants were not found to be significantly associated with socio-demographic parameters; but only sex of the participants had shown a statistically significant association with blood donation practices where males were more likely to donate blood than females (AOR = 2.59 (1.22–5.49)). In a study by Javaeed A et al⁽¹⁾ overall knowledge was higher among female students (p = 0.019). In a study by Rizwan F A et al⁽⁸⁾ there was no statistically significant difference observed between female and male students except in 1st year medical students the attitude was better in males (30.1%) compared to females (12%). In our study also, no statistically significant association was found with socio-demographic parameters, except for job experience (p value=0.04) for knowledge and department of posting (p value=0.04) for attitude.

With regard to the practice of blood donation, only 41.2% of participants had donated blood at the time of our study and only 26.5% had donated more than once. This showed a big gap in knowledge and practice and also attitude and practice. However, this was much higher than in the study by Malako et al⁽⁹⁾ where only 21.6% of the respondents were found to practice blood donation in their lifetime, whereas only 10% actually donated blood in the study conducted by Aslami A N et al⁽⁴⁾ 22.9% and 12.8% in the studies by Chauhan R et al⁽⁷⁾ and Yerpude P N et al⁽⁵⁾ respectively.

In our study the most common reason for not donating blood was health issues like anaemia, hypothyroidism etc. Considering our study population of health care workers, it would be expected that they are in better health condition than the general population to engage in blood donation activities. Female participants had poorer practice towards blood donation than males, the most common reason being lower haemoglobin levels. Contrary to this, in a study by Aslami A N et al⁽⁴⁾ the most common reason for not donating blood was having no opportunity and in a study by Yerpude P N et al⁽⁵⁾ 29.27% of participants never thought about donating blood, and 25.61% participants reasoned fear of sickness or complications.

Also an alarming 81.2% had either not encouraged others to donate blood or had done so for less than 10 persons in their whole life and career. Only 18.8% had actually encouraged and motivated more than 10 persons for blood donation. In contrast, it would have been expected to be much higher as the study was conducted among HCWs and medical interns who are attending to patient care on a daily basis and understand the significance of blood and the need to maintain sufficient blood stocks in the institutional blood centre.

Strengths and Limitations

Our study was a novel study as it has been conducted among various categories of Health Care Workers (HCWs). There is a paucity of published literature on the assessment of knowledge, attitude and practice among HCWs towards blood donation in the past under similar settings. The study had certain limitations also. The study was a single-centred study, with a small sample size and unequal distribution of study population based on gender and nature of work and department. So the study findings may not be generalized countrywide.

CONCLUSION

In our study, knowledge was satisfactory, although a better knowledge could have been expected in this study population. Although there was a positive attitude towards blood donation, only 41.2% of participants had donated blood, with only 26.5% being repeat donors. Practices of motivating others for blood donation was very poor. Recruitment and retention of voluntary, non-remunerated blood donors pose major challenges to transfusion services throughout the world. There is a need for ongoing motivational activities and educational programs to encourage voluntary blood donations even among healthcare workers in addition to the general public. A targeted approach for improving knowledge, attitude and practice of blood donation can go a long way in donor recruitment and retention activities. Also, such ongoing

educational programs can help to create a pool of blood donation motivators within the hospital. Regular training of the health care workers to facilitate updated knowledge regarding blood donation, doing away with myths and fears and working out motivational schemes to increase the donation drive can help achieve the goal of 100% voluntary blood donations.

REFERENCES

1. Javaeed A, Kousar R, Farooq A et al. Knowledge, Attitude and Practice of Blood Donation Among Undergraduate Medical Students in Azad Kashmir. *Cureus* 2020 ;12(4):7733.
2. Kumari S et al. Knowledge, attitude and practices (KAP) regarding voluntary non-remunerated blood donation (VNRBD) among the students of colleges of Jammu, India. *Int J Community Med Public Health* 2015 ;2(1):45-50.
3. Sahoo DP et al. A study of knowledge, attitude and practice of voluntary blood donation among interns of a municipal medical college. *Int J Community Med Public Health* 2017 ;4(4):1166-1170.
4. Aslami AN, Jobby A, Simon S et al. Assessment of Knowledge, Attitude and Practice (KAP) of Blood Donation among MBBS Students of a Medical College in Kollam, Kerala. *Journal of Evolution of Medical and Dental Sciences* 2015; 4(35): 6086-6095.
5. Yerpude PN , Jogdand KS. A Cross-Sectional Study on Knowledge, Attitude and Practice on Blood Donation among Medical Students of South India. *Int J Med Health Sci* 2013 ;2(4):382-385.
6. Fauzi R, Jamaludin NS, Ahmed NF et al. Knowledge, Attitude and Practice (KAP) Towards Blood Donation among E-pij Degree Nursing Students. *The Malaysian Journal of Nursing* 2022 ;13(3) :47-52.
7. Chauhan R, Kumar R, Thakur S. A study to assess the knowledge, attitude, and practices about blood donation among medical students of a medical college in North India. *J Family Med Prim Care* 2018;7:693-7.
8. Rizwan FA, Al-Amri RO, Al-Harhi AA et al. Saudi J Health Sci. Knowledge, attitude and blood donation practices among medical students of Taif University, Saudi Arabia 2022 ;11:68-73.
9. Malako D, Yoseph F, Bekele ML. Assessment of knowledge, attitude and practice and associated factors of blood donation among health care workers in Ethiopia: a cross-sectional study. *BMC Hematology* 2019;19:10.