

ORIGINAL ARTICLE

TO ASSESS THE KNOWLEDGE AND DETERMINANTS ASSOCIATED WITH BLOOD DONOR AT NATIONAL MEDICAL COLLEGE & TEACHING HOSPITAL, BIRGUNJ

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**ABSTRACT****Introduction:** In clinical practice, the two most crucial systems of blood grouping are ABO and Rh. There exist four primary blood types, namely A, B, AB and O. World Health Organization advocates for the compulsory screening of all blood donations prior to usage, with HIV, hepatitis B and C, as well as syphilis being mandatory. The aim of the study is to assess the knowledge and determinants associated with blood donors at National Medical College & Teaching Hospital, Birgunj.**Methods:** Proposal was reviewed by the Institutional Review Committee of National Medical College and approved on 9th July 2023. (Ref. F-NMC/662/079-080). A descriptive cross-sectional study was done in the blood donation programs organized in the premises of National Medical College. Sampling method used was census.**Results:** Of the total participants, 41.3 % were overweight followed by 39.1 % who showed the normal weight and 7.6 % of the people were found to be underweight. The upper middle-class group accounted for 71.7 % of the total respondents, knowledge about how frequently a person can donate the blood were in 38(41.31%), the volume of blood collected in one pint at the time of donation was 33(35.86%), time taken nearly 5-8 minutes were 64 (69.56%). Among the donors 17(18.47%) had donated for first time in their life similarly for second time and more than three times were 38(41.31%), 38(41.31%), 26(28.26%) and 11(11.95%), respectively.**Conclusions:** The overall level of knowledge was satisfactory. Male participants had more practice regarding blood donation rather than females. Community shall be benefited by similar set up as made by health workers, blood bank and hospital.**Keywords:** Blood banks, Blood donors, Cross-sectional studies, Economic**INTRODUCTION**

World blood donor campaign slogan is "Give blood, give plasma, share life, share often" celebrated on 14th June.¹ There exist over 300 human blood groups, but only a minority of them lead to clinically significant transfusion reactions. In clinical practice, the two most crucial systems are ABO and Rh. The prevention of ABO-incompatible red cell transfusions is paramount as it can often result in fatality.² There exist four primary blood types, namely A, B, AB and O.³

Every patient is entitled to respectful treatment; with staff displaying sensitivity towards their unique requirements and taking into account their values, beliefs, and cultural heritage. Patients may feel anxious about the potential risks of blood transfusions.⁴ World Health Organization

advocates for the compulsory screening of all blood donations prior to usage, with HIV, hepatitis B and C, as well as syphilis being mandatory.⁵ Low-and-middle income countries face a shortage of safe blood, due to lack of voluntary no remunerated blood donors.⁶

Recruiting voluntary blood donors is a major challenge for blood transfusion services. Strict selection criteria are necessary to ensure the safety of the blood supply, but they can also reduce the number of eligible donors.⁷ A typical blood donation is 470 ml, about 8% of an adult's blood volume. The body replaces blood volume in 24-48 hours and red blood cells in 10-12 weeks.⁸

Our community is facing scarcity of blood supply, we can access information regarding their knowledge and

associated factors on blood donation status so that we can bridge between community and health workers. The aim of the study was to assess the knowledge and determinants associated with blood donors at a tertiary care center in mid Nepal. The study also determines the knowledge about the blood donations and the blood donation patterns.

MATERIALS AND METHODS

A descriptive cross sectional study was done on 29th September 2023 as the blood donation program was organized in the premises of National Medical College. Sampling method used was census.

Inclusion criteria

- Participants with the age between 18-60 years.
- Participants willing for participation for the study.
- Participants those participated on 29th September 2023 in NMC premises.

Exclusion Criteria

- Participants below and above age of 18 -60 years.
- Participants with or with the history of Blood Related Conditions, Cardiovascular/Lung Related Conditions, Diabetes, Cirrhosis of the Liver; Immune Deficiency Disorder etc
- Participants before and beyond the 29th September 2023
- Pregnant or lactating mothers
- Menstruating females

The technique and tools were Interview, questionnaire, sphygmomanometer, weighing machine, measuring tape, stadiometer and thermometer. Questionnaire was made after reviewing the literature of Nepal Red Cross Society⁹ and others.

Donors were selected through Donor registration, Pre-donation information, Completion of donor questionnaire, Donor interview and pre-donation counseling, Donor health and risk assessment an informed consent.¹⁰

The data was analyzed in statistical package for social science 28.

RESULTS

The number of total participants who came for blood donation was 116. Out of 116 total respondents 92 were part of the survey.

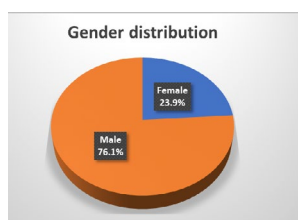


Figure 1: Gender distribution of blood donors

The number of total participants who came for blood donation was 116. Among them 92 were selected for the study with their consent in which the females represented 23.9% of total participation and 76.1% were the male participants.

Table 1: Age group distribution

Age group	Frequency	Percent
<20	13	14.1
20-29	30	32.6
30-39	32	34.8
40-49	13	14.1
<50	4	4.3
Total	92	100.0

Out of the total respondents, majority of the participants i.e., 34.8% lies in the age group of 30-39 followed by the age group 20-29 (32.6%). An similar situation can be noticed between the two-age group i.e., <20 and 40-49 where the donor's percentage was static at 14.1.

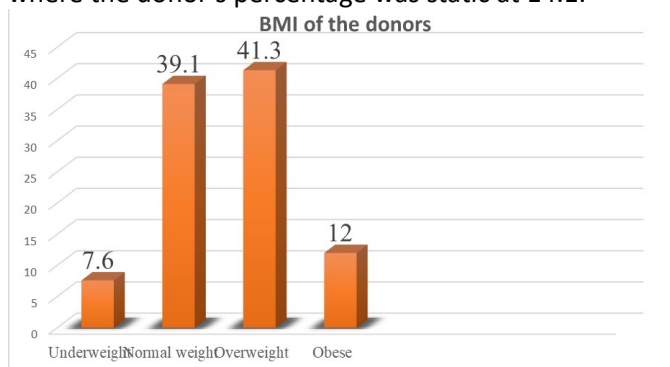


Figure 2: Body Mass Index of blood donors

The Bar chart above indicates the Body mass index of the respondents who participated in the blood donation program, it was calculated by the standard formula given by: weight (in kg)/height (in m²). The results showed that 41.3 % of the participants were overweight followed by 39.1 % who showed the normal weight. Similarly, 12 % of them were found to be obese and only 7.6 % of the people were found to be underweight.

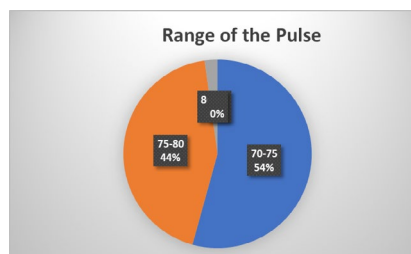


Figure 3: Range of pulse

Before the blood donation, pulse rate of each of the donors was examined. More than half of the respondents exhibited the pulse rate between 70-75 range followed by 75-80 range which shows 44 % and only 2 % of them shows fast pulse rate of 80-85 %.

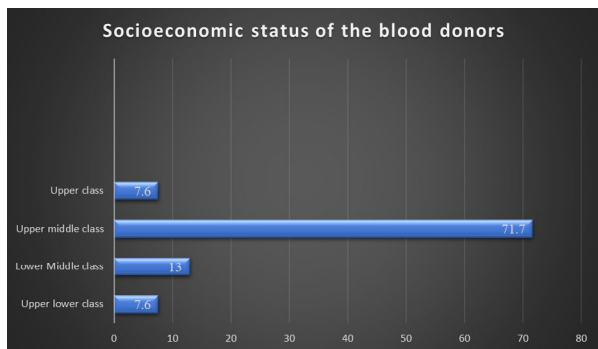


Figure 4: Socioeconomic status of the blood donors

Socioeconomic status of the blood donors was identified using Kuppuswami scale, where the respondents were divided into different classes depending upon the score obtained from education, occupation and income. Based on the score obtained, majority of the people were from the upper middle-class group which accounted 71.7 % of the total respondents. 13% of them belongs to lower middle-class group followed by upper class and upper lower class which has 7.6 percent.

Table 2: General Knowledge about blood donation

S.N.	Information	Percentage (%)
A	Knowledge of own blood group	77.17
B	How frequently can a person donate blood	41.31
C	Volume of blood collected during each blood donation	35.86
D	Approximate time taken for blood donation	69.56
E	Universal donor: O negative	22.28
F	Universal recipient: AB positive	28.26

More than three-fourth i.e., 77.17 % of the people were known to the blood group they belong to. Less than half of the people i.e., 41.31 % of the people said that they can donate blood frequently as 4-5 times. Only 35.86% of them said the right amount of volume of blood collected during the blood donation. In the further process, nearly seventy percentage i.e., 69.56% of them said the actual real time taken for the blood donation. Very small portion of the people said the Universal donor and Universal recipient blood group which was 22.28% and 28.26 % respectively.

Table 3: Knowledge regarding criteria for blood donor

S.N.	Information	Percentage (%)
A	Age: (18-55 years)	51.08
B	Hemoglobin	25
C	Body weight for (Boys 50Kg/ Girl 45Kg)	28.26
D	Treated for rabies/hepatitis B	13.04

E	Treated for malaria	29.34
F	Women should not be pregnant / lactating	41.31
G	Women should not be menstruating	25
H	Free from diabetes and heart disease	79.34

Survey also asked the participated respondent about the different criteria required for the blood donor: More than half the people i.e., 51.08% were acquainted of the age group for the blood donation. One fourth i.e., 25% of them said the accurate haemoglobin required. Only 28.26 % of them reveal that the minimum weight for the blood donation programme for boys and girls are 50 kg and 45 kg respectively. Only 13.04 % were aware of the fact that, only after a year time the people will be able to donate the blood if they had suffered from the disease like rabies and Hepatitis B. Only 29 .34 % of them said that the person treated with Malaria can donate blood only after three years. 41.31 % and 25 % of them said that women who pregnant/lactating and women who are menstruating should not donate blood respectively. Approximately 80 % (79.34%) said that the person free from diabetes and heart diseases can donate blood.

Knowledge regarding transfusion transmissible infections

- a. Can person be infected by receiving blood transfusion: 90(97.82%)
- b. Transfusion – transmission disease (HIV/Hepatitis B/ Hepatitis C): 87(94.56%)

When asked about the knowledge regarding the transmissible infections, more than Ninety percentage i.e., 97.82 % of them believed that person can infected by receiving blood during the donation.

Pattern of blood donation

- 1st time = 17(18.47%)
- 2nd times = 38(41.31%)
- 3rd times = 26(28.26%)
- >3 times = 11(11.95%)

Among the donors 18.47% had donated for first time in their life, similarly 41.31% of them had donated for the second time and 28.36 % of them had donated for the third time and only 11.95% of them donated blood more than three times in their lifetime.

One participant suffered from the syphilis remaining did not had suffered from disease like hypertension, had gone any major surgeries, heart disease, lung disease, kidney disease, sexually transmitted disease and HIV/AIDS.

100% were supported that blood saves lives as positive

impact where as for the negative impact they felt that the causes might be dizziness, worries regarding decrease in blood volume and weakness.

DISCUSSION

World Health Organization has guidelines regarding blood donation as they assist blood transfusion services and strengthened the national system for blood donor selection.¹¹ Nepal Red Cross Society (NRCS) has blood transfusion service center which was established in 1966. Initially it was for resident of Kathmandu. In Nepal it consists of 108 transfusion centers and it makes safe blood transfusion for 24 hours availability to the needy.¹²

American Red Cross says in US blood transfusion is required for every two seconds by someone in US. Blood shortages have delayed in critical blood transfusion. It takes 500 calories for our body in one blood donation, says Dr Vossoughi says.¹³ At the time of blood donation the health of the donor should be in good health and free from the transmissible infections by blood.¹⁴ In our study 41.3% were overweight, in the normal range were 39.1% and 12% were obese and 7.6% were under weight. Individual should think about the dietary pattern to stay healthy.

Occupation is the only factor significantly associated with blood donation practice; health professionals had almost two-fold donation practice than non-health professionals.¹⁵ This study shows the similarity and we have expressed by Kappuswami scale as based on the score obtained from Kuppuswami scale, majority of the people were from the upper middle-class group which accounted 71.7 % of the total respondents.13% of them belongs to lower middle-class group followed by upper class and upper lower class which has 7.6 percentage.

Dr Anup Bastola dermatologist at Sukraraj Tropical Infectious Disease says “It is better for such persons to know that they shouldn’t donate blood. In such cases, after donation of blood — antibody detection requires three months to detect the infection”. Transfusion of infected blood two patients were tested positive for HIV. Main reason behind is due to transfusion of untested of donated blood.

230,000 pints of blood collected, 0.03 % (69 pints) was detected HIV/AIDS infected, 0.33 % (759 pints) was infected with hepatitis B, 0.23 % (529 pints) hepatitis C and 0.41 % (942 pints) contained syphilis was shown by NRCS blood transfusion service.¹⁶ In our study one person was detected syphilis rest did not suffered from disease sexually transmitted disease, hepatitis and HIV/AIDS, which reflects the low percentage as compared with NRCS .

The study was conducted in Wolaita Sodo University Teaching and Referral Hospital (WSUTRH), Wolaita Sodo, Ethiopia to assess the knowledge, attitude and practice (KAP) and associated factors of blood donation among health care workers 57.8% reported that voluntary donor is the best source of blood donation. Our report people who came for the volunteer donation was 100%. In our and their study males were the more for the blood donation practice which shows the similarity.¹⁷ Though the in the difference of the continent even in our study we found similarity of 100% voluntary blood donation.

More than three-fourths of respondents, 77.5% itemized that HIV, HBV, and HCV can be transmitted through blood donation whereas 17 (7.8%) of the respondents listed that syphilis, malaria, and CMV can be transmitted through blood transfusion¹⁷. We found 90(97.82%) and infected transfusion of blood from disease like HIV/ Hepatitis B/ Hepatitis C can be transmitted were known to 87(94.56%). Study was done on similar topic among medical students in Kollam, Kerala 45% of the respondents answered it correctly which shows the difference.¹⁸ This might because we have taken beyond the health workers.

64.2% did know how often an individual donates blood and 35.8% did not know the interval of blood donation. 10.6%, 24.8% and 66.1% did not know who should donate blood, the volume of blood collected during each donation and the duration of donation process respectively.¹⁷

Study says the interval of blood donation to be 38(41.31%) regarding volume of blood collected 33(35.86%) knew the correct amount to be collected and the total time taken for the donation process to be 64 (69.56%). Comparatively it seems our study awareness is better than Wolaita Sodo, Ethiopia. A study was conducted in Myanmar among university and college students 52.5% did not know the minimum interval between two successive blood donations.¹⁹

CONCLUSION

The overall level of knowledge was satisfactory. Males’ participants had more practice regarding blood donation rather than females. Community shall be benefited by similar set up as made by health workers, blood bank and hospital. Studies must be done at community level regarding knowledge attitude and practice regarding blood donation. Further studies should be conducted on the KAP of blood donation from the general public angle so that the service be scaled up as per the increasing demand.

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