

Knowledge and practice of blood donation: a comparison between medical and non-medical Nepalese students

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ABSTRACT

College students form a large and important group of population eligible for blood donation. Studies report that students do not donate much, and medical students' blood donation rate is less as compared to non-medical students. To assess and compare the knowledge, attitude, and practice of blood donation among medical and non-medical Nepalese students. A cross-sectional descriptive study using structured self-administered questionnaire was conducted in students of medical (MBBS) and non-medical programs of different colleges of Nepal. Total 456 students, 177 non-medical and 279 medical, participated; 28.5% students were donors. More medical students donated blood, more often, and were more knowledgeable in all aspects of blood and blood donation related knowledge (*p* values 0.01 or less). In both groups, proportionately more boys donated than girls. Common reasons for not donating included no request, medically unfit, no information about blood collection services, fear of weakness, and fear related to venepuncture. Moral satisfaction was the commonest reason to donate. Among Nepalese students, medical students donate more and are more knowledgeable than non-medical students. Lack of information and lack of direct requests are important causes of fewer donors in the non-medical group and girls.

Keywords: Blood donation, knowledge, medical, non-medical, practice, students.

INTRODUCTION

Blood transfusion saves millions of lives each year worldwide, permits complex medical and surgical interventions, and improves the life expectancy and life quality in patients with a variety of acute and chronic conditions. Therefore, blood transfusion is considered an indispensable component of health care.

As a result of advances in clinical sciences and global increase in population, the need for blood is growing day by day. About 92 million blood donations are collected annually worldwide for the purpose of transfusion.¹ The World Health Organization (WHO) estimates that blood donation by 1% of the population (donation by 10 people per 1000) is generally the minimum needed to meet a nation's most basic requirements for blood.² The WHO also advocates for 100% non-remunerated voluntary blood donation (VBD) as the first line of defense against transmission of diseases through the transfusion route. Most of the population is eligible for blood donation, yet only a small percentage of eligible population donates in developed countries and even fewer in the developing countries.³ Developed countries with well-structured

health systems and blood transfusion services based on VBD are generally able to meet the demand for blood and blood products.² However, the average donation rate is 15 times lower in developing countries; globally more

than 70 countries had a blood donation rate of less than 1% in 2006.⁴ In Nepal, total annual collection for the fiscal year 2012-13 was reported to be 189,123 units.⁵ However, the donation rate of the general population and whether this quantity of blood collection fulfils the demands to facilitate basic needs and advanced clinical care for patients of the country is not clear.

In the developing countries, the hesitation among people to donate blood is accounted to misconceptions related to fears of physical harm in the process of donating blood. The perceptions toward VBD could be influenced to a large extent by socio-demographic variables of knowledge among general population.⁶ Major factors deterring an individual from donation are safety worries and inadequate knowledge about donor eligibility.⁷ According to WHO, 38% of the reported VBD are under the age of 25 years and WHO insists the countries to focus on young people to achieve 100% non-remunerated voluntary blood donation. Thus, college students form a major bulk of current and potential donors and understanding the various factors contributing to knowledge, attitude, and practice of VBD among college students are important.

Different rates of blood donation have been reported for different countries and groups of eligible population. Among the Saudi general population, 58.2% had donated;

Table-1: Comparison of different characteristic of students

Variables	Non-medical	Medical	Total
Total number of students	177 (38.8 %)	279 (61.2 %)	456 (100%)
Males	73 (41.2%)	134 (48%)	207 (45.4%)
Females	104 (58.8%)	145 (52%)	249 (54.6%)
Mean age years**	20.46±1.48	20.02±1.49	20.19±1.5
Total number of donors***	32 (18%)	98 (35.1%)	130 (28.5%)
Male donors	23	73	96 (73.85%)
Female donors	9	25	34 (26.15%)
Mean age, years at first donation (not significant)	19.44±1.318	18.93±1.378	19.05±1.376
Average frequency of blood donations (times)***	0.24	0.74	0.55
Participated in organizing donation camp (not significant)	38 (21.5%)	73 (26.2%)	111 (24.3%)

in a North-Western Chinese city, 27.6% were donors; among a group of health care support staff of a tertiary care hospital in the Indian city of Gujarat, 39% had donated.^{7,9} Among college students, 38% of health science students in a South Indian university campus donated but only 11% among the Thai university students.^{10,11} As being in the field of health care and clinical practice, medical students have definite role in patient care. However, many studies have reported a lower donation rate among medical students than their non-medical counterparts.¹²⁻¹⁴ We had made a preliminary observation that about 18% of the Nepalese college students have donated blood. However, the rate of blood donation among Nepalese medical students is not documented to our knowledge. Also, level of knowledge of medical and non-medical students have not been assessed and compared.

This study assesses and compares the level of knowledge among medical and non-medical students regarding blood functions and blood donation.

MATERIALS AND METHODS

A cross sectional study was conducted in various colleges of Nepal – Nepal Medical College, Chitwan School of Medical Sciences, Jaya Devkota Multiple Campus, and Namuna College of Fashion Technology. Bachelor level students of age 18 years and above were enrolled. Students' knowledge, attitude, and practice of blood donation and related aspects were assessed by using a pre-tested structured questionnaire, prepared in English language, and based on WHO guidelines and national norms for blood donation practice.^{15,16} The questionnaire consisted of two pages, and could be filled in about 15-20 minutes. Students were explained of nature of the study and submission of the filled up questionnaire was regarded as consent to participate in the study. Confidentiality was maintained as personal identification did not appear anywhere in the questionnaire sheet; participants were free to respond to questions of their convenience only.

Recording, tabulation, and analyses of data were done

by using Microsoft Excel 2007 and SPSS 11.5 for Windows programs. Comparisons between medical and non-medical groups were done by T-test, setting level of significance at p value 0.05.

RESULTS

Total 456 students participated in the study; 45.4% were males (n=207) and 54.6% were females (n=249). While mean age of the students was 20.19 years (±1.5), medical students were younger than non-medical students among the participants (table-1).

A total of 31 true-false questions were asked to evaluate the knowledge of students regarding different aspects of blood and blood donation (table-2). Overall, students gave about 14 correct responses. Medical students gave more correct answers in each category as well as in total than non-medical students. While all medical students knew their blood groups, 30.5% of non-medical students (n=54) did not know their blood groups.

Table-2: Comparison of knowledge regarding blood and blood donation among students

Evaluation related to	No of questions	Mean score of students		
		Non-medical	Medical	All
General knowledge about blood***	5	1.94	4.19	3.32
Donor eligibility criteria***	5	2.19	3.12	2.76
Conditions when an eligible donor should not donate***	8	2.97	3.58	3.34
Long-term risk to donors***	6	1.43	2.32	1.97
Practice of blood donation***	7	1.97	3.42	2.85
Total of averages***	31	10.5	16.63	14.25

Further, students were asked to list different functions of blood in the body, reasons for need of blood transfusion, and diseases transmitted through blood transfusion. Of the total 177 non-medical students, most (n=98) could not state any function of blood, most (n=106) could not give any reason for transfusion, and most could state only one disease transmitted by transfusion. Of the total 279 medical students, most (n=170) listed 2 functions of blood, most (n=138) gave two reasons for blood transfusion, and most (n=196) listed two diseases. In both student groups, the most frequently listed functions of blood were oxygen transport, nutrition transport, and immune function; reasons for blood transfusion were hemorrhage in traffic accidents, anemia of pregnancy, and surgery; and transfusion-related diseases were HIV-AIDS, hepatitis, and malaria.

Most students of either group (146 non-medical and 269 medical students) felt that blood donation is a noble act and every eligible person should donate. However, only 63 of non-medical and 131 of medical students would like to be regular donors. Rate of donation among all students was 28.5% (n=130). Proportionately, more medical students had donated than non-medical students; more boys had donated than girls in either group. Medical students donated at an earlier age than non-medical students, and also more frequently (table-1).

There were differences between the student groups regarding reasons for not donating as well as for donating (table-3). Not being approached for donation, fear of weakness due to donation, medically unfit, and fear of events related to venepuncture were common causes

Table-3 Comparison of reasons for not donating and donating among students

Reasons for not donating	Non-medical	Medical
Medically unfit to donate	29	67
No request to donate	47	15
No time to donate	14	29
Have no information about where, when, how to donate	19	13
Parents do not allow	15	19
Fear of weakness after blood donation	40	49
Fear related to venepuncture	28	43
Fear of contracting disease	11	12
Fear of adverse effects	8	14
Other reasons	7	13
Reasons for donating	Non-medical	Medical
Moral satisfaction	23	76
Blood needed for someone you know	1	14
As an experience	4	12
Other reasons	4	5

for not donating among non-medical students. Among medical students, most frequent reasons for not donating were being medically unfit to donate, fear of weakness due to blood withdrawal, fear of venepuncture related events, and having no time to donate. Moral satisfaction or humanity was the commonest reason for donation; medical students also donated frequently for need by someone they closely know and as an experience. Few students cited multiple reasons for not-donating or donating.

About one third of the donors experienced some adverse effects: 11 of the non-medical donors and 36 of the medical student donors. Dizziness, pain at needle site, weakness, and fainting were the common adverse effects. Most of the adverse effects were regarded as mild to moderate by all donors while none of the effects were considered to be serious to turn the students away from donating again in future.

DISCUSSION

College students form a large and important portion of the general population eligible for blood donation. Recruiting college students for blood donation and retaining their blood donation behavior would go a long way to meet the nation's demand of blood supplies for patients. Although the rate of donation among students is not available, an earlier study has reported that the mean age of donors in Nepal is 29.1±7.5 years,¹⁷ suggesting that college students are not the largest group of donors in Nepal. Level of knowledge and attitude play important roles in determining the blood donation behavior of general population as well as students.^{6,7} Medical students, being directly related to patient care, have additional responsibility as role models to encourage others towards voluntary blood donation practices. A comparative study of knowledge, attitude, and practice of blood donation among Nepalese college students is not available. Most studies from neighboring countries have reported a lower rate of blood donation among medical students as compared to non-medical students.¹²⁻¹⁴

Of the total 456 participants, 279 were medical students (MBBS program) and 177 were non-medical students (business science, arts, and fashion designing programs). This study found that in comparison to non-medical students, more medical students donated, donated more often, and were more knowledgeable. The differences just seem to be expected because medical students are inherently in more and closer contact with the appropriate environment and opportunities. Knowing that medical courses are similar in other countries, Nepalese medical students have better knowledge and practice. Rate of blood donation by non-medical students are comparable to that of other countries. However, male propensity

among donors was observed in both categories; the finding is similar among the general donor population Nepal.⁵ It remains to be explored if this disparity is accounted by the taboo of females as the 'weaker sex' or the limited opportunities and freedom for the females in the society.

Most students, of either category donated mainly for humanitarian or moral causes while medical students also donated frequently when someone they personally know needed transfusion. Reasons for not donating are fairly different in the two categories, the most common reasons being fear of venepuncture-related events among non-medical students and medically unfit among medical students. This finding suggests the different approaches required of the blood donation awareness programs to recruit medical or non-medical students.

Finally, it may be concluded that many young healthy eligible donors are not donating as a result of lack of awareness, direct approaches, and information of blood collection services. This is a setback to the national health care. We recommend informative awareness programs and medical with non-medical students' interactions to involve more of non-medical students in general and female students in particular to improve the national blood donation status.

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