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RESEARCH ARTICLE

KNOWLEDGE, ATTITUDE, AND PRACTICE OF MEDICAL STUDENTS ON BLOOD DONATION: A COMPARISON BETWEEN TWO MEDICAL COLLEGES OF NEPAL

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ABSTRACT

Background: College students form a large, healthy, and active population of potential blood donors; their recruitment and retention would immensely help meet the demand of safe blood. The knowledge and practice of blood donation among students are reportedly diverse. In Nepal, medical students donate more and are more knowledgeable than non-medical, students but there could be differences between medical students of different colleges.

Methods: A cross-sectional comparative study and using self-administered questionnaire was conducted in the students of two randomly chosen private medical colleges of Nepal – Nepal Medical College (NMC) of Kathmandu and Chitwan Medical College (CMC) of Chitwan.

Results: Total 279 students, 106 in CMC and 173 in NMC, participated. Students of CMC were older (mean age 21.16±1.353 vs 19.32±1.094 of NMC), more knowledgeable (average knowledge score 55.2% vs 52.6% of NMC), donated more (50.9% donated vs 25.4% of NMC), participated more in organizing blood camps (37.7% vs 19.1% of NMC), and also donated more often. More boys donated; CMC consisted of 60% boys, the sex ratio reversed in NMC. Donation practice had significant correlations with gender (male propensity) and older age but not with knowledge.

Conclusion: Significant differences exist in the knowledge and practice of blood donation among students of different medical colleges. Organizing blood donation camps routinely in colleges would encourage more students; especially younger, girls, and those having difficulty with time and information.

INTRODUCTION

Blood is an essential component of life and there are no substitutes to it. Blood transfusion is considered an indispensible 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. The WHO estimates that blood donation by 1% of the total population (i.e., donation by 10 people per 1000) is generally the minimum needed to meet a nation's most basic blood requirements (Fordham and Dhingra, 2010). The WHO also advocates for 100% non-remunerated voluntary blood donation (VBD) as the first line of defense against disease transmission through blood transfusion route. As most of the population is eligible for blood donation, abundant availability of blood is feasible and expected. Yet, there remains a permanent shortage of blood (Sojka, 2003) because only a small percentage of eligible people donates in developed countries and even fewer in developing countries (Riley *et al.,* 2007; WHO, 2011). Globally, 82 countries had a donation rate of less than 1% in 2008 (WHO, 2011) and in Nepal, total annual blood collection for the fiscal year 2012-13 was reported to be 189,123 units (Sharma, 2013). The WHO insists the countries to focus on young people to achieve 100% non-remunerated VBD and reports that, currently, 38% of the volunteer blood donors are under the age of 25 years (Fordham and Dhingra, 2010). Apparently, college students form a major bulk of current and potential blood donors. Different studies have assessed the practice of blood donation by college students and diverse data have been reported. The rate of blood donation varied from 11% to 38% in students of various programs (Wiwanitkit, 2002; Sabu *et al*., 2011; Siddiqui *et al.,* 2012) but quite low among the medical students, varying from less than 1% to 15.2% (Siddiqui *et al*., 2012; Bharatwaj *et al.,* 2012; Devi *et al.,* 2012). Various factors have been linked to the practice of blood donation – degree of knowledge, socio-economic attributes, fear of adverse effects related to blood removal, and fear of venepuncture. While the gender distribution among donors is almost equal in most of the European countries (Bani and Giussani, 2010), male predominance is seen in developing countries including Nepal (Benedict *et al*., 2012; Gorkhali *et al*., 2012). A high degree of knowledge does not necessarily translate into better donation practice (Wiwanitkit, 2002). Our preliminary study among college students in Kathmandu showed that knowledge and practice of blood donation was better among medical than non-medical students (Amatya *et al.,* 2012). Donation rate of non-medical students was 18.1% with 68.8% of the donors having donated only once; among the MBBS students, about 45.5% had donated and the average frequency of donation among donors was two times. Also, our unpublished data suggested that medical students from different colleges do not make a uniform group in knowledge and practice of blood donation. By virtue of their study and training, medical students have important roles in the blood transfusion services of the country. This cross-sectional study attempts to compare the knowledge, attitude, and practice of blood donation among students of two different medical colleges of Nepal and is first of its kind. The study

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could reveal the true nature of knowledge and practices prevalent in medical students of Nepal and also explore the differences in students of different colleges. Appropriate strategies could then be designed to improve blood donation practices of the medical students.

MATERIALS AND METHODS

Two private medical colleges in Nepal, one in the capital city Kathmandu and the other outside of Kathmandu, were randomly selected – Nepal Medical College (NMC) from Kathmandu and Chitwan Medical College (CMC) from Chitwan. Students of the MBBS program of these colleges were assessed for their knowledge and practice regarding blood donation and related aspects by using a pre-tested, structured questionnaire. The questionnaire was prepared referring to the WHO guidelines and Nepalese national practice norms (WHO, 2012; Nepal Red Cross Society brochure). The questionnaire consisted of over 40 questions related to knowledge, attitude, and practice of blood donation - contained in two pages and could be filled up in 20 minutes. The study protocol was explained to the students and submission of the filled-up questionnaire was regarded as voluntary consent to participate in the study. Participants' confidentiality was maintained as personal identification did not appear anywhere in the questionnaire and the data analysis process. Participants were free to respond to only questions of their convenience. The study was approved by the Ethical Review Committee of the Nepal Medical College. Data recording, tabulation, analysis, and graphs were done by using the programs Microsoft Excel 2007 and SPSS 11.5 for Windows. Student responses of the two colleges were compared by t-test and a p value of 0.05 or less was considered significant.

RESULTS

Total 279 students participated, 106 from CMC, Chitwan and 173 from NMC, Kathmandu. Students of NMC were significantly younger and percentage of donors was also less as compared to CMC (Table 1). In Chitwan, over 60% students were males while the ratio reversed in NMC. Students' knowledge regarding general information about blood and blood donation, donor eligibility criteria, and conditions when an otherwise eligible donor may not donate were comparable (Figure 1). However, NMC students were less informed

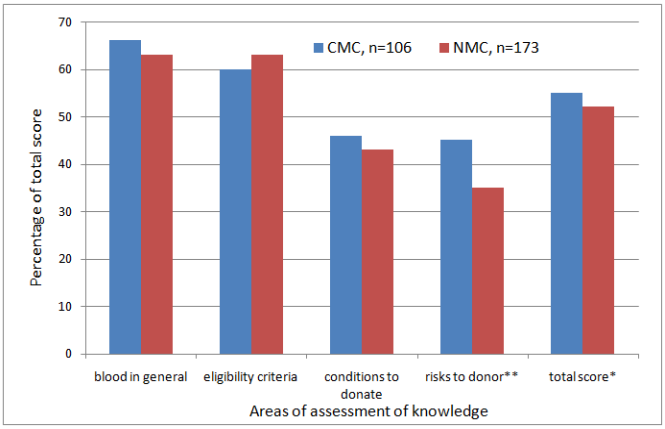

Fig. 1. Comparison of mean scores in knowledge, as % of sub-total score

regarding risks to the donor associated with blood donation. Also, in the total number of correct responses, CMC students' score was more than that of NMC students. When asked of different functions of blood in the body, the list included, beginning from the most frequently mentioned, oxygen and gas transport, transport of metabolites and hormones, defense mechanism of body, and heat distribution within the body. Average numbers of blood functions given were 1.8 and 1.9 respectively by students of CMC and NMC. Similarly, CMC students listed about 2.1 reasons for blood transfusion compared to 2.0 conditions listed by NMC students. The reasons for need of blood transfusion, in both groups, were hemorrhage in road accidents, surgery, anemia as in iron deficiency, pregnancy related anemia, and hemoglobin disorders. The number and types of diseases transmissible by blood transfusion were also similar in the two student groups. Average 2 diseases were listed; the diseases were HIV infection, hepatitis, malaria, and syphilis. Regarding practice of blood donation, about half of the students in CMC had donated while only one fourth of NMC students had donated before (Table 2). As compared to NMC, students of CMC had donated more times. Mean age of CMC students at the first donation was more, and more of them had participated in organizing blood donation camps. In both groups, about one-third of donors experienced adverse effects, mostly mild.

Table 1. General comparison of CMC and NMC student groups

Variable	CMC, Chitwan		NMC, Kathmandu		P value
	No	%	No	%	
Number	106	100	173	100	
Male	64	60.4	70	40.5	Sex distribution p value =
Female	42	39.6	103	59.5	0.001
Donors***	54	50.9	44	25.4	0.000
Participated in organizing camp***	40	37.7	33	19.1	0.001
Mean age*** (years ± SD)	21.16±1.353		19.32±1.094		0.000

Table 2. Comparison of donors of CMC and NMC

Variables	CMC, n=106		NMC, n=173		P value
	No	%	No	%	
Number of donors***	54	50.9	44	25.4	0.000
Participated in camp***	40	37.7	33	19.1	0.001
Donate blood by planning	42	77.8	37	84.1	0.575
Experienced adverse effects	21	38.9	15	34.1	0.436
Types of adverse effects (of total experiences) –					
- Remarkable pain	3	5.6	6	13.6	
- Fainting	2	3.7	3	6.8	Some donors experienced more than one
- Dizziness	14	25.9	7	15.9	adverse effect
- Prolonged bleeding from needle site	1	1.9	2	2.3	
- Marked weakness	5	9.3	3	6.8	
- Others	2	3.7	0	0.0	
Adverse effects were regarded as -					
- Mild	20	95.2	10	66.7	Of total donors experiencing adverse effects
- Moderate	1	4.8	4	26.7	
- Severe	0	0.0	1	6.6	
Mean age (years±SD) at first donation***	19.35 (± 1.33)		18.43 (± 1.283)		0.001
Average times of donation***	1.25 (±1.679)		0.43 (±0.843)		0.000

Table 3. Reasons for donation or non-donation among students

		CMC		NMC	
		No	%	No	%
Number of donors		54		44	
Reasons for donation	Moral satisfaction	41	75.9	35	79.5
	Blood needed for someone I personally know	9	16.7	5	11.4
	As an experience (adventure)	3	5.6	2	4.5
	Being in a group of donors (peer)	8	14.8	4	9.1
Number of non-donors		52		129	
Reasons for not donating	Medically unfit to donate	20	38.5	48	37.2
	Nobody has requested me to donate	7	13.5	8	6.2
	Could not manage time to donate	7	13.5	22	17.1
	Parents / guardians do not allow	8	15.4	11	8.5
	Do not where, when, and how to donate	5	9.6	8	6.2
	Fear of weakness due to blood withdrawal	16	30.8	33	25.6
	Fear related to venepuncture	16	30.8	27	20.9
	Fear of contracting disease	0	0.0	12	9.3
	Fear of adverse effects	1	1.9	13	10.1
	Others	3	5.8	9	7.0

Table 4. Correlations between various characteristics of students

	CMC vs NMC	Past donor	No. of donations	Knowledge score	Adverse effects	Gender distribution	Mean age of student	Mean age at first donation
CMC vs NMC		0.000 ***	0.000 ***	0.044 *	0.437	0.001 ***	0.000 ***	0.001 ***
Past donor	0.000 ***		0.000 ***	0.179	0.434	0.000 ***	0.000 ***	
No. of donations	0.000 ***	0.000 ***		0.163	0.318	0.000 ***	0.000 ***	0.018 **
Knowledge score	0.044 *	0.179	0.163		0.192	0.947	0.357	0.505
Adverse effects	0.437	0.434	0.318	0.192		0.698	0.689	0.750
Gender distribution	0.001 ***	0.000 ***	0.000 ***	0.947	0.698		0.000 ***	0.228
Mean age of student	0.000 ***	0.000 ***	0.000 ***	0.357	0.689	0.000 ***		0.000 ***
Mean age at first donation	0.001 ***		0.018 **	0.505	0.750	0.228	0.000 ***	

Majority of students planned ahead for donation and taking plenty of fluids was the most common preparation by donors (Table 3). Students of both colleges had variety of reasons for donating as well as not donating. In each group, about half of the total number of students felt that a general health check is necessary ahead of blood donation. About 80% students of each group thought that plenty of fluids should be consumed after donation. In CMC, about 52% of the students intended to become regular donors in future whereas 44% students of NMC intended for regular donation in future. The study correlated knowledge and practice of blood donation with different variables (Table 4). The practice of blood donation had very highly significant correlations with gender distribution (male propensity), age (more at older age), and participation in organizing blood camps. Level of knowledge had no significant correlation with practice of blood donation. Occurrence of adverse effects seemed independent of other factors considered.

DISCUSSION

Maintaining an adequate supply of safe blood is a challenge for health planners in the face of increasing demand and shortage of supply. College students form a large and healthy group of the general population eligible for blood donation. Recruiting and retaining college students for blood donation would go a long way to meet the nation's demand of blood supplies. Studies assessing students' knowledge and practice of blood donation have reported that knowledge is usually incomplete, college students do not donate more than general population, and knowledge does not correlate with practice of blood donation (Wiwanitkit, 2002; Sabu *et al.,* 2011; Siddiqui *et al.,* 2012; Bharatwaj *et al.,* 2012; Devi *et al.,* 2012). Medical students, looked upon as the role models for good practice of blood donation and social responsibility, also are reported to have inferior practice of blood donation than non-medical students and general population (Wiwanitkit, 2002; Siddiqui *et al.,* 2012; Bharatwaj *et al.,* 2012). Our own preliminary study in Nepalese college students revealed that medical students are better in knowledge as well as practice (Amatya *et al.,* 2012). The observation prompted us for this study to explore if the practice of blood donation is indeed better in Nepalese medical students and whether it is positively correlated with knowledge. Two medical colleges were randomly chosen for the cross-sectional, questionnaire-based, comparative study. The participant population of the two colleges differed significantly in number, gender distribution, and mean age. The difference in mean age was probably because in CMC, fewer of the young or newcomer students liked to participate in the study. While level of knowledge was comparable in many aspects, overall knowledge was better in CMC students. Regarding blood donation practice, CMC students had more rate and frequency but donated in older age than NMC students. The practice of blood donation had significant correlations with male propensity and age, but not with level of knowledge. The average total score in knowledge was less than 60% and markedly less regarding risks to donor and conditions when an otherwise eligible donor would need to avoid donation. Most students were also ignorant of the maximum age for donation. This could caution to the possibility that many students and people of their contact avoided blood donation even though they could donate. Because the commonest causes for avoiding donation were fear related to venepuncture and hemodynamic adverse effects, proper information and reassurance would positively motivate many students. Another common reason for not donating – being medically unfit – was mostly because of younger age and less weight which is obviously more in the young population. Blood donation camps, regularly organized within colleges and institutes, generate an

encouraging environment for donation. As suggested by the responses that students also donate following other donors, a mix of past donors and new students could be helpful. Organizing such camps jointly by medical and other colleges could be very helpful to attract non-medical students who have a lower rate of blood donation. Also, accommodating a few days at regular intervals in the academic calendar of the colleges for blood donation might facilitate students who could not donate because of time constraints and lack of information of blood collection facilities. The data showed significant differences in the rate of blood donation between the two colleges, but this may actually be not so significant. Our previous study showed that the rate and frequency of blood donation increases with older population and males donate more than females among college students as well as the general population (Gorkhali *et al.,* 2012; Amatya *et al.,* 2012). Almost all students regard blood donation as a noble act of humanity, but only about half the students expressed their will to become regular donors in future. This indicates a lack of motivation which could be positively modified to improve the rate of donation among students. It is concluded that Nepalese medical students are better in knowledge and practice than non-medical students but significant differences seem to exist in the medical students of different colleges. This cross-sectional study, using a close-ended questionnaire approach, could make limited analytic comparisons. Availability of appropriate opportunities, better information, feeling of more social responsibility, and other motivational factors could play roles in deciding or modulating students' behavior and practice. We recommend future studies to adapt face-to-face interview approach to explore and establish factors in students' blood donation behavior, especially female students. The incidence of adverse effects, occurring in about one-third of the donors were mostly related to hemodynamic changes for which appropriate physical preparations are recommended. Further, efforts are necessary to motivate students towards regular VBD than donating at random and only when a need for blood transfusion presented.

REFERENCES

Amatya M, Prajapati R, Yadav SR (2012). Knowledge and practice of blood donation: a comparison between medical and non-medical Nepalese students. Nep Med Coll J, 14(4): in press.

Bani M, Giussani B (2010). Gender differences in giving blood: a review of the literature. Blood Transfus, 8:278-287. DOI: 10.2450/2010.0156-09.

Benedict N, Usimenahon A, Alexander NI, Isi A (2012). Knowledge, attitude and practice of voluntary blood donation among physicians in a tertiary health facility of a developing country. J Blood Disord Transfus, 3:117. http://dx.doi.org/10.4272/2155-9864.1000117.

Bharatwaj RS, Vijaya K, Rajaram P (2012). A descriptive study of knowledge, attitude and practice with regard to voluntary blood donation among medical undergraduate students in Pondicherry, India. Journal Clinical and Diagnostic Research, May (Suppl-2);6(4):602-604.

Blood donation information brochure. Nepal Red Cross Society, Central Blood Transfusion Services.

Devi HS, Laishram J, Shantibala K, Elangbam V (2012). Knowledge, attitude and practice (KAP) of blood safety and donation. Indian Medical Gazette – January.

Fordham J, Dhingra N (2010). Towards 100% voluntary blood donation: a global framework for action. WHO, Geneva.

Gorkhali B, Amatya M, Dewan P (2012). Young and novice donors are more susceptible to hemodynamic adverse effects during blood donation. Int J Pharmaceutical Biol Archives, 3(5):1095-99. http://www.ijpba.info/ijpba/index.php/ijpba/article/view/826/557.

Riley W, Schwei M, McCullough J (2007). the United States' potential blood donor pool: estimating prevalence of donor-exclusion factors on the pool of potential donors. Transfusion, 47:1180-1188. DOI:10.1111/j.1537-2995.2007.01252.x.

Sabu KM, Remya A, Binu VS, Vivek R (2011). Knowledge, attitude and practice on blood donation among health science students in a university campus, South India. Online J Health Allied Scs,10(2):6. http://www.ojhas.org/issue38/2011-2-6.htm.

Sharma B (2013). Data show blood donors on the rise. The Himalayan Times – national daily, July 28; p3.

Siddiqui UF, Yasmeen A, Hina N, Alam SN (2012). Who donates more; medical or non-medical students. Journal of the Dow University of Health Sciences Karachi, 6(1):17-21.

Sojka BN (2003). The blood-donation experience: perceived physical, psychological and social impact of blood donation on the donor. Vox Sang, 84:120-128.

WHO (2012). Blood donor selection: guidelines on assessing donor suitability for blood donation. WHO, Geneva.

WHO Blood Safety (2011). Key global fact and figures in 2011. Fact Sheet N°279 / June.

Wiwanitkit V (2002). Knowledge about blood donation among a sample of Thai university students. Vox Sanguinis, 83:97-99.

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