

Comparison of Knowledge about Voluntary Blood Donation among the Medical and Non-medical Students of Universiti Malaysia Sabah

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ABSTRACT

The huge population of persuadable, active, healthy and young students is the potential as blood donors to meet safe blood donation. This study focused on the existing level of knowledge regarding voluntary blood donation among medical (Faculty of Medicine and Health Science) and nonmedical students with science background (Faculty of Engineering) at the Universiti Malaysia Sabah. Four hundred and fifty-five students consisting of medical (231) and nonmedical (224) were selected through stratified random sampling to participate in the study. Data was collected using validated structured questionnaire. Statistical analysis was performed by structural equation modelling using SPSS AMOS Graphics version 22 and SPSS version 16. The results showed a significant ($p < 0.05$) difference between the students of medical and nonmedical faculty in their knowledge about voluntary blood donation. The medical and nursing students are more aware about blood donation than the nonmedical students.

Keywords: voluntary blood donation, medical students, non-medical students.

INTRODUCTION

Availability of safe-blood and blood products is a critical component in improving health care.¹ The demand for blood and blood products in most countries continues to increase because of the rise in human lifespan expectancy and the implementation of new aggressive surgical and therapeutic methods requiring copious quantities of blood and blood products.² To meet up the ever increasing clinical requisite

for whole blood and blood derivatives, and to sustain self-sufficiency, continuous effort needs to be made.³

Regular blood donation by the voluntary donors can assure an adequate and reliable supply of blood. As the prevalence of blood-borne infections is lowest among this group, so they are considered to be the safest group of donors. World Health Assembly resolution (WHA 63.12) urges all member countries to develop their national blood systems depending on voluntary donation and work to achieve the goal of self-sufficiency.⁴

Compared to the international standards that, 5% of a country's population should be blood donors, it was found to be only 2.5% of Malaysians in 2014.⁵ The Malaysian National Blood Centre recognized that, most of the states faced the difficulty in getting blood donors. The problem even worsen during the festivals. Although blood donation activities were organized everywhere, minimal participation was recorded.⁶ Thus, there is a definite need for taking various initiatives to increase the awareness on blood donation among Malaysians.

The students are a huge proportion of persuadable, active, healthy and young population of a country. They are the potential source of blood donors to meet safe-blood requirements of the country.^{7, 8} To be able to utilize this invaluable source of safe-blood, it is relevant to have baseline data about their knowledge in respect of voluntary blood donation.⁹

There is a paucity of literature on the knowledge about voluntary blood donation among Malaysian students. Hamid et al. (2013) studied factors influencing blood donation among 18 – 50 years old age groups.⁶ Roshan et al. (2009) studied the response rate of Malaysian blood donors of different age groups with reactive screening test to transfusion medicine unit calls.¹⁰ The present study focuses on the existing level of knowledge about voluntary blood donation among medical (MD medicine and Diploma nursing of Faculty of Medicine and Health Sciences) and non-medical students from science background (BSc engineering students of Faculty of Engineering) at Universiti Malaysia Sabah.

RESEARCH METHODOLOGY

A cross-sectional study was conducted between July 2015 and June 2016 at Faculty of Medicine and Health Science (FMHS) and Faculty of Engineering (FKJ), Universiti Malaysia Sabah (UMS). Ethical permission [(JKEtika3/15(7))] was obtained from the ethical committee of UMS.

A total number of four hundred and fifty-five students (FMHS = 231 and FKJ = 224) who fulfilled the inclusion criteria (students of medical faculty, students of non-medical science faculty, age ranged from 18 – 22 years) were selected through stratified random sampling to participate in the study. For the objective, comparing knowledge of two diverse groups of students (two means), we required a sample size of 220 (n_1) for the FMHS students and a sample size of (n_2) for the FKJ students to detect the mean difference of 0.20 with a power of 0.85 (85%) and an alpha of 0.05. The mean difference of 0.20 was considered smallest significant difference to be detected. The SD of (the variable of interest) was estimated as 0.50. This calculation was done using ScalexMean version 1.0.2.¹¹

After obtaining informed consent from each participant, data was collected using standardized structured questionnaire. The questionnaire was constructed after review of the literature on similar studies. The framework was based on the World Health Organisation (WHO) manual Methodological guidelines for socio-cultural studies on issues related to blood donation 2005¹² and transfusion practice guidelines for clinical and laboratory personnel by National Blood Centre, Ministry of Health, Malaysia, 3rd edition, 2008.¹³ Briefly, the questionnaire consisted of five sections with 42 multiple choice questions regarding subject demographics, knowledge, attitude, experience and practice of blood donation.

Statistical analysis was performed by structural equation modelling using SPSS AMOS Graphics version 22¹⁴ and SPSS version 16¹⁵.

RESULTS

Among the participants, 310 were female, and 145 were male. Of the 50.77% participants from the students of FMHS, 40% were from different years of the MD Medical Course and 10% were from Diploma of Nursing. Of the rest 49.23% from Faculty of Engineering, with Electrical Engineering 14%, Computer Engineering 14%, Mechanical Engineering 8%, Chemical Engineering 8% and Civil Engineering 4%.

The medical students could answer more correctly compared to non-medical students in response to questions number 1 to 7 and the non-medical medical students could answer more correctly in response to question number 8 (Figure 1).

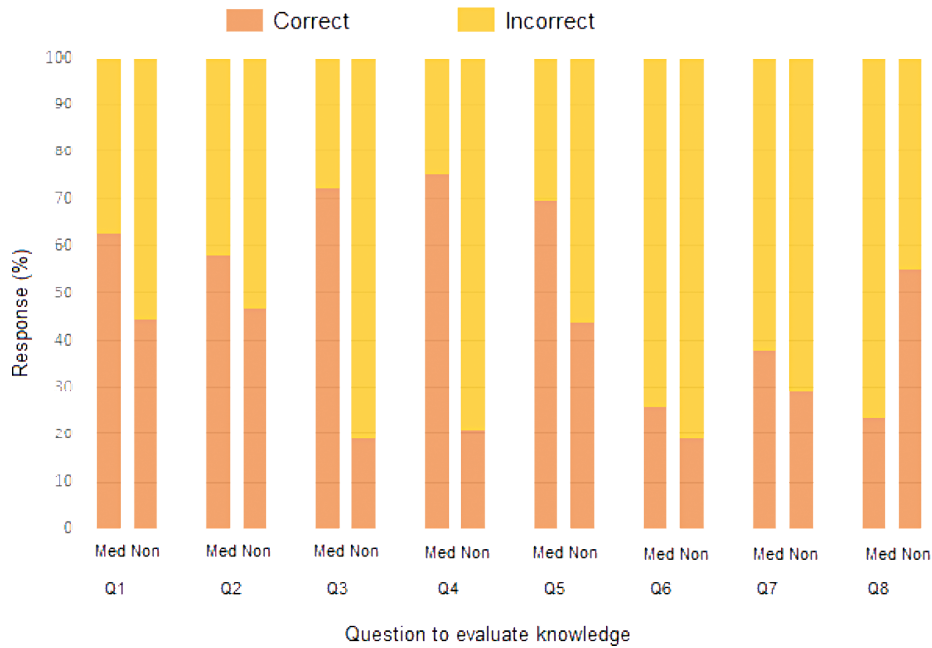


Figure 1 Distribution of responses of the medical and non-medical students in respect to questionnaire to evaluate their knowledge regarding voluntary blood donation ($n = 455$)

There were apparent differences between the medical and non-medical students with respect to knowledge regarding the lowest age, lowest body weight, lowest haemoglobin level and ideal blood pressure of a blood donor, the frequency of donating blood, criteria for not being eligible for donating blood and volume of blood collected during each blood donation (Table 1).

The sources for their information were their school, college, and universities (33% for non-medical students, 43% for medical students), followed by the internet (23% for non-medical students, 13% for medical students); while 5% non-medical students, 10% medical students knew from all possible sources (Figure 2).

Table 1 Comparison of knowledge about voluntary blood donation between the participants of different faculties ($n = 455$)

Item	Faculty	n	Mean	Mean difference	95% CI		t	df	p-value
			(\pm SD)		Lower	Upper			
The lowest age for donating blood (Q1)	Medical	231	1.62 (\pm .49)	0.18	.09	.27	3.93	451.61	<.001**
	Non-medical	224	1.44 (\pm .50)						
The lowest body weight of a blood donor (Q2)	Medical	231	1.58 (\pm .50)	0.11	.02	.20	2.39	452.20	0.017*
	Non-medical	224	1.47 (\pm .45)						
The lowest level of haemoglobin of a blood (Q3)	Medical	231	1.72 (\pm .45)	0.53	.45	.61	13.42	448.83	<.001**
	Non-medical	224	1.19 (\pm .40)						
The recommended blood pressure of blood donor (Q4)	Medical	231	1.75 (\pm .43)	0.54	.47	.62	13.80	452.69	<.001**
	Non-medical	224	1.21 (\pm .41)						
The frequency of donating blood (Q5)	Medical	231	1.70 (\pm .46)	0.26	.17	.35	5.77	447.86	<.001**
	Non-medical	224	1.44 (\pm .50)						
The volume of blood collected during each donation (Q6)	Medical	231	1.26 (\pm .44)	0.07	-.01	.14	1.73	450.33	0.084 ^{ns}
	Non-medical	224	1.19 (\pm .40)						
The duration of a blood donation process (Q7)	Medical	231	1.38 (\pm .49)	0.08	-.00	.17	1.95	452.53	0.052 ^{ns}
	Non-medical	224	1.30 (\pm .46)						
Criteria for not donating blood (Q8)	Medical	231	1.24 (\pm .43)	-0.31	-.40	-.22	-7.24	438.18	<.001**
	Non-medical	224	1.55 (\pm .50)						

*Significant at .05 level, **Significant at .001 level, ns = Non-significant at .05 level

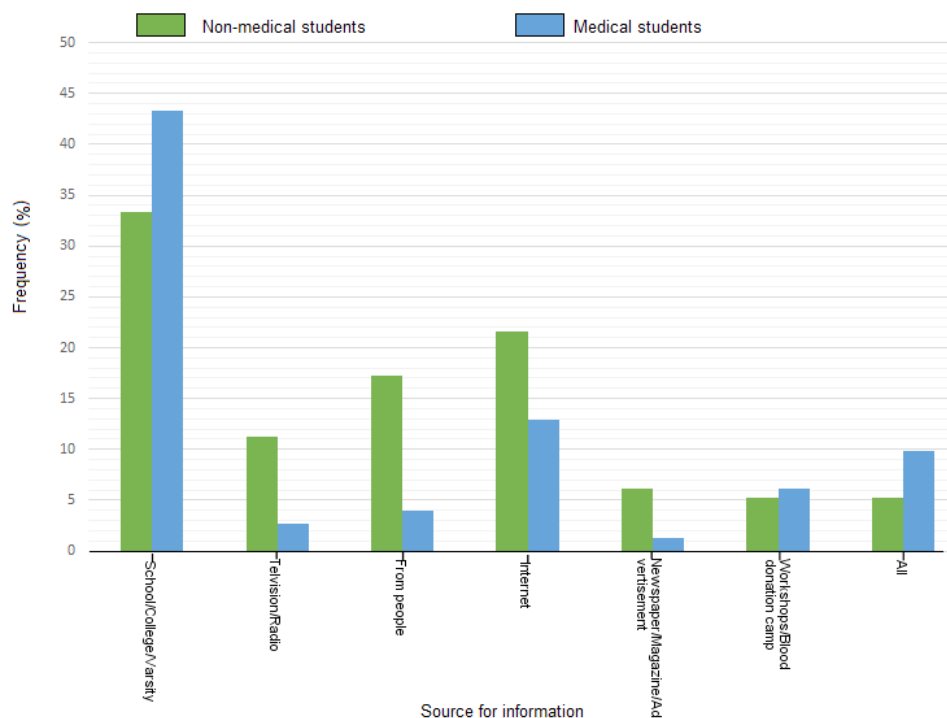


Figure 2 Sources for information about voluntary blood donation (n = 455)

DISCUSSION

Findings of the study show that the medical students had significantly ($p < 0.05$) more knowledge about knowledge regarding the lowest age, lowest body weight, lowest haemoglobin level and ideal blood pressure for a blood donor and the frequency of donating blood than the non-medical students. The non-medical students had significantly ($p < 0.05$) more knowledge about the criteria for not being eligible for donating blood than the medical students. There was no significant ($p > 0.05$) difference in knowledge regarding volume of blood collected during each blood donation and duration of blood donation process.

Kumari and Raina explored the knowledge, attitude and practices of the college students of Jammu, India regarding voluntary non-remunerated blood donation.⁸ Of the 1520 college students, 210 were blood donors.⁸ In this study 81.57 % of students were aware of voluntary blood donation; 62.5% of the students had awareness regarding spread and transmission of HIV/AIDS, and 76.68% of the

students had knowledge that blood donation has medical benefits.⁸

Sabu et al. conducted a cross-sectional study to determine the knowledge and attitude about blood donation among science students from different faculties in a University Campus of South India.⁷ Of 410 students, the overall knowledge on blood donation was good, but majority (62%) of students never donated blood. Knowledge level of health science students (53.1%) was the highest.⁷

Thus, the findings of this study correspond to those of Kumari and Raina (2015) and Sabu et al. (2011).

CONCLUSION

The medical and nursing students study blood in their curriculum. It is predictable that their knowledge would be more about blood donation than the non-medical students. Knowledge

about blood donation should not be confined to medical students only. Everyone should know his own blood group and some basic information about blood donation. Measures for increasing knowledge regarding blood donation should be considered for non-medical students. The measures might vary from talks on blood donation, poster exhibition, pamphlet distribution, organizing blood donation campaign on a regular basis under an organization. Since the study was confined to only two science-based faculties, this study should further be extended to all the faculties of Universiti Malaysia Sabah to get the complete scenario of the awareness and knowledge regarding voluntary blood donation. This would be a step towards attaining self-sufficiency in safe blood donor for Sabah.

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