

Knowledge, attitude and practice towards blood donation among health sciences students of Universiti Kebangsaan Malaysia

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ABSTRACT

Background: Increased demand and low blood supply have been a critical issue in many countries, including Malaysia. This issue occurs due to a lack of awareness towards the importance of blood donation. Therefore, this study aims to evaluate the level of knowledge, attitude and practice towards blood donation among undergraduate students of the Faculty of Health Sciences (FSK), Universiti Kebangsaan Malaysia (UKM), Kuala Lumpur. **Methods:** This cross-sectional study was conducted on undergraduate students of the Faculty of Health Sciences (FSK), Universiti Kebangsaan Malaysia (UKM), Kuala Lumpur, which is comprised of 9 programmes: Biomedical Science, Optometry, Nutrition Science, Dietetics, Audiology, Speech Science, Physiotherapy, Occupational Therapy and Environmental Health. The respondents were recruited by a stratified random sampling technique with an informed consent. Questionnaire that consisted of four sections, namely: (A) sociodemographic characteristics, (B) knowledge on blood donation, (C) attitude towards blood donation and (D) practice of blood donation were distributed and a total of 274 responses were obtained for further evaluation. The significance values were set as $P < 0.05$. **Results:** Our research findings showed that the majority of students had a good level of knowledge (99.6%) and attitude (95.3%) about blood donation but most of them demonstrated a poor practice (59.1%). As for genders, female students had a better level of knowledge and attitude than males, but male students committed better practice towards blood donation than females. However, there were no significant differences between gender and programme of study as the respondents shared a similar background in health-related courses. **Conclusion:** A majority of the students had a good level of knowledge and attitude, but they are poor in practice. More campaigns need to be conducted to create awareness on the importance of blood donation.

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INTRODUCTION

Blood transfusion is one of the most significant elements in health services, as millions of lives can be saved by blood transfusion. Blood donors are considered as vital contributors to patients' health and survival. They play an important role in saving the lives of patients in conditions such as pregnancy, childbirth, trauma, cancers, or medical haemoglobinopathies conditions such as thalassemia. According to the World Health Organization (WHO), it is recommended that blood collection be at least from 1% of the country's population to meet the minimum requirement for blood demand. However, the average donation rate is 15 times lower in developing countries than in developed countries. Globally, 42% of collected blood came from high-income countries, which accommodate 16% of the world's population (World Health Organization, 2019). Furthermore, countries with an average higher income demonstrated a nine-fold higher donation rate compared to lower income countries. A large proportion of voluntary donors in many developing countries are amongst replacement donors and paid donors (World Health Organization, 2017).

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Currently, the most challenging issue in many countries is to maintain the blood supply and demand based on the national requirement. This is due to the high demand of blood from having a large population (Wooi Seong et al., 2014). Recruiting new blood donors and maintaining them as donors, remain a major challenge in healthcare worldwide. Therefore, voluntary blood donors are vital to meet the country's blood supply demand as blood donation is the only way to obtain blood (World Health Organization, 2017). With the increase in blood demand, the inability to recruit voluntary blood donors imposes a major threat to transfusion services (Finck et al., 2016; Wooi Seong et al., 2014). Thus, there is an urgency to elucidate the factors that lead to this issue among the younger generations such as university students. It is important to approach the younger generations as they are considered vital for current and future blood supply (Amatya, 2013). This is because young adults are amongst the healthiest, active, dynamic and resourceful demographics in a population, hence university students should be exposed to and encouraged to become regular voluntary blood donors (Manikandan et al., 2013). Therefore, with the right approach and strategies, factors that lead to the lack of blood donation by the younger generations can be identified. The findings can then be used to improve awareness campaigns in order to motivate the younger generations to donate blood (Melku et al., 2018).

METHODOLOGY

This cross-sectional study was conducted on undergraduate students of the Faculty of Health Sciences (FSK), Universiti Kebangsaan Malaysia (UKM), Kuala Lumpur, which involved students from nine programmes: Biomedical Science, Optometry, Nutrition Science, Dietetics, Audiology, Speech Science, Physiotherapy, Occupational Therapy and Environmental Health.

A well-structured questionnaire consisting of four sections, namely: (A) sociodemographic characteristics, (B) knowledge on blood donation, (C) attitude towards blood donation and (D) practice of blood donation was adopted as shown in Table 1. This questionnaire has been validated and pretested with an 82% repeatability rate (Elnajeh et al., 2017).

population formula, considering a confidence level of 95% and a margin of error of 5%.

STATISTICAL ANALYSIS

IBM SPSS Statistics Version 25 was used to analyse the collected data in determining the knowledge, attitude, and practice towards blood donation among Faculty of Health Sciences students in UKM, Kuala Lumpur. The data was found to be normally distributed, thus the data analysis proceeded was proceed with Two Way ANOVA for continuous data and Chi Square for categorical data. For all the statistical analyses, the significance values were set as $P < 0.05$.

RESULTS

The majority of 274 respondents were female students from the Biomedical Science Programme as shown in Table 2. I Table 3, 37.59% of the students belong to the blood group O, followed by A (27.74%), B (21.90%) and AB (6.20 %).

Most of them demonstrated a good knowledge (99.6%) and attitude (95.3%) toward blood donation as shown in Table 4. However, more than half of the students (59.1%) demonstrated poor practice towards blood donation.

There was no significant difference between gender and programme of study for both level of knowledge and attitude (Table 5). The Occupational Therapy programme (9.35 ± 0.272) had the highest level of knowledge while the Physiotherapy programme had the lowest (8.667 ± 0.279). Meanwhile, the Dietetics programme had the highest level for attitude (5.539 ± 0.215), while the Physiotherapy programme scored the lowest (5.000 ± 0.254). Similar to the results for knowledge and attitude, there was no significant difference between gender and programme of study for the level of practice. The Biomedical Science programme (33%) had the highest level of practice whilst the Physiotherapy programme had the lowest (4%).

Table 6 shows that the overwhelming contributing reason given by respondents who had donated blood was voluntary (97.3%), while the small remainder were eager to know about their screening status.

Table 1: Blood Donation awareness questionnaire

Section	Content	Number of Questions	Scoring
A	Sociodemographic Characteristics	6	
B	Knowledge of Blood Donation	10	6 – 10: Good knowledge
C	Attitude towards Blood Donation	6	4 – 6: Positive attitude
D	Practice of Blood Donation	1	Yes: Good practice or No: Not good practice

For Section A, the answers given were either yes or no, with a score of 1 given to the correct answers and a score of 0 for the wrong answers.

For section B, a score of 6-10 indicated good knowledge. As for attitude towards blood donation, a score of 4-6 indicated a positive attitude.

Respondents were measured by 'Yes' and 'No' which reflected a good or poor attitude towards blood donation.

The study complies with Declaration of Helsinki with ethic approval number: JEP-2018-062 A written consent form was prepared and given to the students with the questionnaire. The inclusion factor of this study was students from the Faculty of Health Sciences (FSK) in UKM Kuala Lumpur, aged between 19 to 25 years. Meanwhile the exclusion factor was foreign students. In addition, the Forensic Science Programme and was excluded as they are based in UKM Bangi and not in UKM Kuala Lumpur. Students of the Radiotherapy Programme were also excluded from this study as they were having their attachment at the time of the study. A total of 283 copies of the questionnaires were distributed to the FSK students. However, only 274 responses were accepted for analysis because nine of the responses had to be excluded due to inclusion and exclusion factors. The respondents were recruited by a stratified random sampling technique and sample size was calculated by using a known

DISCUSSION

Malaysia is not spared from a chronic blood shortage due to its increasing population and demand, despite the increasing total numbers of donors (Mat Noh et al., 2019; Wooi Seong et al., 2014). In reality, the majority of blood donors in Malaysia are repeat donors. The donation rate is still considered low, which is 2% of the population compared to the 3.5%–5.0% reported in developed countries (Bernama, 2015). Even though blood donation programmes and awareness have been carried out, the problem remains. Thus, studies to investigate about this alarming matter are needed. To get a better understanding of this problem, knowledge, and attitude and practice (KAP) based studies could serve as a good platform to measure the level of awareness among the population. There are not many studies that have been conducted to

Table 2: Distribution of students according to programme of study and genders (n=274)

Programme of study	n	Gender	
		Male	Female
		n (%)	n (%)
Audiology	20	6 (30%)	14 (70%)
Biomedical Science	77	19 (24.7%)	58 (73.4%)
Dietetics	21	2 (9.5%)	19 (90.5%)
Environmental Health	26	4 (15.4%)	22 (84.6%)
Nutrition Science	34	2 (5.9%)	32 (94.1%)
Occupational Therapy	19	4 (21.1%)	15 (78.9%)
Optometry	38	4 (10.5%)	34 (89.5%)
Physiotherapy	12	6 (50%)	6 (50%)
Speech Science	27	2 (7.4%)	25 (92.6%)

Table 3: Distribution of blood groups

Blood group	n	Percentage (%)
A	76	27.7%
B	60	21.9%
AB	17	6.2%
O	103	37.6%

Table 4: Students' knowledge, attitude, and practice about blood donation

Level (Scoring)	n	Percentage (%)
Knowledge		
Good knowledge (6 – 10)	273	99.6%
Poor knowledge (0 – 5)	1	0.4%
Attitude		
Positive attitude (4 – 6)	261	95.3%
Negative attitude (0 – 3)	13	4.7%
Practice		
Good Practice (Yes)	112	40.9%
Poor Practice (No)	162	59.1%

investigate this matter, especially among university students.

Our study demonstrated a very high (99.6%) level of good knowledge about blood donation, which is the highest compared to other studies such as those conducted in the Management and Science University, MSU (97.1%) (Elnajeh et al., 2017), University of South India (42.7%) (Sabu et al., 2011) and Ambo University, Ethiopia (40.4%) (Nigatu et al., 2014). Moreover, a previous study on medical undergraduate students in Karachi reported more female students had good knowledge compared to male students (Ahmed et al., 2014). However, studies done in Ambo University (Nigatu et al., 2014) and King Abdul Aziz Medical City (Alfouzan, 2014) showed that males had better knowledge compared to females.

In our study, no significant difference was found among gender and programme of study. This may be due to the background of the study population, where all of the students were from the same faculty that consists of health related courses, hence the basic knowledge about blood donation is the same for all of the respondents. However, female students exhibited a better attitude score than male students and this result is in agreement with a past study that found more females (60.5%) than males had a positive attitude towards blood donation (Alfouzan, 2014). Almost all respondents (95.3%) scored a positive attitude towards blood donation. This is comparable to a study conducted in University of South Indian here 87.3% of the respondents showed a positive attitude towards blood donation. However, our study contradicts a research conducted in Arsi University, Ethiopia that found less than half (46.7%) of their Health Sciences students had a positive attitude towards blood donation (Gebresilase et al., 2017).

Our study showed that UKM Health Sciences students demonstrated the highest percentage of blood donors (40.9%) in comparison to students from the University of Gondar, Ethiopia (12.5%)

(Melku et al., 2018) and Samara University Ethiopia (24.5%) (Tadesse et al., 2017). This difference may be due to the fact that UKM has yearly blood donation campaigns inside its campus since 2017. Thus, the students have an easier access and opportunity to donate their blood. Besides that, the UKM Health Sciences students reside in a hostel which is located close to the National Blood Centre (PDN), Malaysia. This also serves as another good venue for them to donate their blood. We suggest that greater accessibility to blood donations programmes or centres do contribute to a greater practice towards blood donation. Moreover, real exposure of the students to the hospital environment might contribute to a better knowledge and attitude among Health Science students. However, we found no significant difference among gender and study programme, probably because the students shared the same health-related courses that influenced their practice towards blood donation.

Our study found that male students were more likely to donate blood and this is a common phenomenon according to a study done on medical students of Jabalpur, Central India (Verma et al., 2018). It was reported that the reasons behind a poor practice by female students include being medically unfit to donate, not approached to donate and the fear of needles. Other studies found similar reasons, including the students having never thought of donating blood (Sabu et al., 2011; Verma et al., 2018).

Most of the previous studies suggested high levels of knowledge and attitude do not serve as a good indicator for a promising blood donation practice in the community. Our study agrees with this conclusion, where despite of good levels of knowledge and attitude, more than half (59.1%) of the UKM Health Sciences students have never donated blood. Similar findings were reported among students of Management and Science University (MSU), Malaysia (Elnajeh et al., 2017) and elsewhere in the world at the University of Ilorin, Nigeria (Salaudeen et al., 2017) and Samara University, Ethiopia (Tadesse et al., 2017). All of these studies suggested that despite a good knowledge and attitude among their students towards blood donation, only a small percentage actually have donated blood (Salaudeen et al., 2011; Tadesse et al., 2017).

This study was conducted to analyse the knowledge, attitude and practices towards blood donation among students according to gender and programme of study. However, there are few limitations such as the unequal number of male and female students in the study. The ratio of female respondents to male respondents was five to one and thus, the result might be biased. In addition, having all of the respondents coming from the same background of study, which was Health Sciences, may have biased their awareness towards blood donation. Other than that, we found that the time given was very limited to collect and analyse the data of our survey. Therefore, we recommend that further studies should be done with equal proportion of both genders and the respondents should be divided into Health Sciences and non-Health Sciences background to overcome the inherent biases. The period of research could also be prolonged.

CONCLUSION

The findings suggested that students of the Faculty of Health Sciences, UKM have a good level of knowledge and attitude but exhibit poor practice in blood donation. There was no significant difference between knowledge, attitude and practice towards blood donation according to gender and programme of study. It is suggested that more campaigns need to be conducted in the future with the main objective to increase their blood donating practice. We conclude that having good levels of knowledge and attitude is not necessarily a good indicator of good blood donation practice.

DISCLOSURES

The authors declare that there is no conflict of interest.

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Table 5: Comparison of knowledge, attitude, and practice of blood donation according to genders and programmes of study

Variables	Knowledge	Attitude	Practice	
	Scoring (Mean ± Standard Deviation)	Scoring (Mean ± Standard Deviation)	Good (n (%))	Poor (n (%))
Knowledge				
Gender				
Male	8.973 ± 0.174	5.008 ± 0.159	25 (52)	23 (48)
Female	9.011 ± 0.078	5.35 ± 0.071	87 (38)	139 (62)
Programmes of Study				
Audiology	8.976 ± 0.236	5.06 ± 0.215	8 (7.1)	12 (7.4)
Biomedical Science	9.025 ± 0.128	5.363 ± 0.116	38 (33.9)	39 (24.1)
Dietetics	8.671 ± 0.359	5.539 ± 0.215	6 (5.4)	15 (9.3)
Environmental Health	9.205 ± 0.263	5.034 ± 0.239	7 (6.3)	19 (11.7)
Nutrition Science	9.344 ± 0.352	5.156 ± 0.321	15 (13.4)	19 (11.7)
Occupational Therapy	9.35 ± 0.272	5.233 ± 0.247	10 (8.9)	9 (5.6)
Optometry	8.86 ± 0.256	5.206 ± 0.232	13 (11.6)	25 (15.4)
Physiotherapy	8.667 ± 0.279	5.000 ± 0.254	4 (3.6)	8 (4.9)
Speech Science	8.83 ± 0.355	5.020 ± 0.323	11 (9.8)	16 (9.9)

Table 6: Students' practice of blood donation

Donated before	Reason	n	Percentage (%)
Yes	A friend or relative needed blood	0	0
	Voluntary	109	39.8
	Remuneration (rewarded with money)	0	0
	To know your screening result	3	1.1
No	Not approached to donate	32	11.7
	Unfit to donate	100	36.5
	Donate for friends or relatives in future	2	0.7
	Fear of needles	27	9.9
	Fear of knowing health status	1	0.4
	Donate blood may be sold	0	0

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