ORIGINAL ARTICLE

ASIAN JOURNAL OF MEDICAL SCIENCES

Knowledge, attitude and practice of blood donation among university students in Basrah, Iraq: A comparison between medical and non-medical students



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Submitted: 28-08-2018

Revised: 28-09-2018

Published: 01-11-2018

Access this article online

http://nepjol.info/index.php/AJMS

DOI: 10.3126/ajms.v9i6.20904

E-ISSN: 2091-0576

P-ISSN: 2467-9100

Website:

ABSTRACT

Background: Young students can play a fundamental role in blood donation to save lives of many people. Therefore, studying factors contributing to their knowledge, attitude and practice of blood donation is essential. Aims and Objectives: To evaluate the knowledge and attitude of Basrah University students about blood donation. Materials and Methods: This descriptive cross-sectional study involved students of two colleges in Basrah University. It was carried out during the period from January to April 2017. A non-probability purposive sampling method was used in selecting the participants for this study. Information on socio-demographic characteristics, knowledge and attitude towards blood donation were collected through a structured self-administered questionnaire. Results: A total of 422 students were targeted, of these 393 (93.1%) completed the questionnaire.Only 51 (13%) of total respondents had a history of blood donation, of those 64.7% donated only once. The most mentioned reasons behind not donating were; not being asked to donate (24.6%), inconsideration of donation (11.1%), and fear of drawing blood (8.8%). Adequate knowledge was detected in 66.7% and positive attitude in 68.7%. Students of College of Medicine were younger, more knowledgeable, and donate more than those of College of Administration and Economics. Conclusion: A substantial number of the university students had inadequate blood donation knowledge. Education programs and motivational campaigns should be enhanced.

Key words: Attitude; Basrah; Blood donation; Knowledge; University students

INTRODUCTION

Safe blood transfusion is an important component in improving health care and prevention of the spread of infectious diseases worldwide. Each year, millions of lives are saved through blood transfusion, yet the quality and safety of blood transfusion are still the interest especially in the developing countries.^{1,2}

The World Health Organization (WHO) estimates that blood donation by 1% of the total population is generally the minimum needed to meet a nation's most basic blood requirements.³

As most of the population is eligible for blood donation, abundant availability of blood is possible and expected. Yet, a permanent shortage of blood remains,⁴ because only a small proportion of eligible people donate in developed and even fewer in developing countries.⁵

Despite the fact that the need for safe blood is increasing at global level, only 1% donation rate is reported in 82 countries.⁶ The WHO recommends that countries should aim at securing 100% blood donation from young people and on non-remunerated voluntary basis.³

Availability of safe blood is an increasing need particularly for those who keep up serious traumas whether accidental



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or surgical in nature and those who are exposed to civil conflicts and military operations. In addition, some patients suffer severe anaemia due to various reasons and may need blood transfusion.⁷

Based on the literature review, it can be stated that both developed and developing countries have problems with the unpaid blood donation system.⁸

Young people are the most probable blood donors in every society and students compose a large portion of them.⁹

Increase in the level of awareness and positive attitude towards blood donation is the highest priority of all blood transfusion centers. The initial step for achieving this goal is to perform comprehensive studies measuring the current situation of awareness, knowledge, beliefs, and attitude of the population towards blood donation.¹⁰

Young, healthy and physically fit young students are potential sources for safe and high quality blood. In order to target this population, it is important to evaluate their knowledge and attitude towards blood donation. Medical students are being in the field of health care and supposed to be more aware about the role of blood in saving life of patients than non-medical students, but does this hypothesis make them differ in their knowledge and attitude toward voluntary blood donation. There are no published studies about the level of knowledge and factors affecting knowledge and attitude towards blood donation among university students in Basrah, Iraq. To fill this gap in information, this study was done to explore the knowledge and attitudes towards blood donation among university students in Basrah, Iraq and to compare the level of knowledge among medical and non-medical students.

MATRIALS AND METHODS

Study design and setting

This was a cross-sectional study conducted at two colleges in Basrah University Iraq for the period from January to April 2017.

Study population

The study population was students of both sexes from College of Medicine and College of Administration and Economy, Basrah University, which were selected purposefully to compare between medical and non-medical students knowledge.

Sample size and sampling

The sample size was calculated by single proportion formula. Due to lack of data on prevalence of adequate knowledge of blood donation among university students in Iraq, the sample size was calculated assuming prevalence rate of 50% for the sake of having maximum sample size, 95%confidence interval, and 5% margin of error.¹¹ The total sample size was 384. Considering 10% non-response rate, the final sample size was 422. The participants were selected by non-probability purposive sampling method. A total of 393 students (93.1%) completed the questionnaires.

Data collection

Data were collected using a special self-administered pretested structured questionnaire designed for the purpose of the study based on literature review^{7,9,12} and WHO guidelines for blood donation.¹³

Three expert community and family medicine consultants in the field of research methodology validated the questionnaire. It includes three parts; the first part enquires about socio-demographic characteristics. The second part deals with knowledge of blood donation, while the third part includes questions about attitude of the students towards blood donation. After an informed consent, the participants were briefed about the purpose of the study and how to fill the questionnaire. It was emphasized that participation in the study was voluntarily and all data collected were strictly confidential and would not be used for anything except for this study.

For assessment of the knowledge level, scoring was done for the seven knowledge related questions. One score was given for each correct answer, and zero score was given for incorrect or do not know answer. The total scoring of knowledge ranged between 0-7. The respondents whose scores were more than 50% of the total scores (i.e., \geq 4) were considered to have adequate knowledge, and those who scored <4 were classified as having inadequate knowledge.¹⁴

The attitude towards blood donation was assessed through ten questions with 'Agree' and 'Disagree' items. For each "Agree" answer, one score was given and zero score was given to "Disagree" answer. The participants with a total score equals to the 50th percentile (median) and more were labeled as having positive attitude. While those with scores of less than the 50th percentile were labeled as having negative attitude.¹⁵

The Ethical Research Committee of College of Medicine, Basrah University approved the study.

Statistical analysis

The data were analyzed using SPSS version 23 program (Statistical Package for Social Sciences; SPSS Inc., Chicago, IL, USA). Data were tabulated; frequencies and percentages were used for categorical data. The differences were determined by X^2 or Fisher's exact test where applicable. While means and standard deviations were used for analysis of continuous variables and the differences were measured using t-test. Binary logistic regression analysis was performed to identify the participants' characteristics that were independent determinants of their knowledge. P-value < 0.05 was considered as significant.

RESULTS

The study involved 393 individuals, 204 (51.9%) were medical students and 189 (48.1%) were from College of Administration and Economics. Of the study population, 39.7% were males and 60.3% were females. Their mean age was 21.6 ± 1.0 years. Out of 393 respondents, 342 (87%) were non-donors and only 51 (13%) were previous donors. Medical students were younger and their average knowledge and attitude scores were significantly higher than that of students of College of Administration and Economics. In addition, they donate blood slightly more frequent than their counterparts [Table 1].

Out of the 51 students who reported a history of blood donation, 33 (64.7%) donated once, 10 (19.6%) donate twice, and only 8 (15.7%) donated three times or more [Figure 1].

The majority of the students (74.5%) reported that moral satisfaction was the main cause of donation.

While the main cause of non-donation reported by the students was that, they were not being asked to donate (24.6%). Of the participants, 11.1% stated that they never thought about donating blood. Fear of drawing blood and health problems, form 8.8% and 8.2% of the reasons for non-donating respectively. There was no significant difference in causes of non-donation between the students of the two colleges (P=0.390) [Table 2].

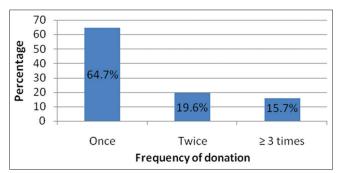


Figure 1: Distribution of frequency of blood donation among the participants

| Table 1: General characteristics of the study population | | | | | |
|--|-----------------------------|---|---------|--|--|
| Variable | College of medicine (n=204) | College of administration & economics (n=189) | P-value | | |
| Male, no. (%) | 59 (28.9%) | 97 (51.3%) | < 0.001 | | |
| Female, no. (%) | 145 (71.1%) | 92 (48.7%) | | | |
| Donors, no. (%) | 30 (14.7%) | 21 (11.1%) | 0.289 | | |
| Age, mean±SD | 21.3±1.0 | 22.0±1.8 | < 0.001 | | |
| Knowledge score, mean±SD | 4.62±1.48 | 3.79±1.45 | < 0.001 | | |
| Attitude score, mean±SD | 7.29±1.55 | 6.86±1.45 | 0.005 | | |

| Table 2: Causes of donation and non-donation | | | | | | |
|--|--------------------|-------------------|----------------------|--------------------------|--|--|
| Causes of donation | CM (n=30) No. (%) | CAE (n=21 No. (%) | Total (n=51) No. (%) | X ² ; P-value | | |
| Moral satisfaction | 22 (73.3) | 16 (76.2) | 38 (74.5) | | | |
| Relative's need | 1 (3.3) | 2 (9.5) | 3 (5.9) | FET=4.678 | | |
| As an experience | 1 (3.3) | 0 (0.0) | 1 (1.9) | P=0.473 | | |
| Being in a group of donors | 3 (10.0) | 0 (0.0) | 3 (5.9) | | | |
| Multiple reasons | 3 (10.0) | 3 (14.3) | 6 (11.8) | | | |
| Causes of non-donation | CM (n=174) No. (%) | CME(n=168)No. (%) | Total (n=342)No. (%) | X ² ; P-value | | |
| Never thought about blood donation | 22 (12.6) | 16 (9.5) | 38 (11.1) | X ² =11.653 | | |
| Were not being asked to donate | 44 (25.3) | 40 (23.8) | 84 (24.6) | P=0.390 | | |
| No enough time | 7 (4.0) | 4 (2.4) | 11 (3.2) | | | |
| Don't know how, when, where to donate | 7 (4.0) | 4 (2.4) | 11 (3.2) | | | |
| Fear of drawing blood | 11 (6.3) | 19 (11.3) | 30 (8.8) | | | |
| Fear of transmitted diseases | 5 (2.9) | 5 (3.0) | 10 (2.9) | | | |
| Fear of side effects | 10 (5.7) | 5 (3.0) | 15 (4.4) | | | |
| Fear of blood sight | 1 (0.6) | 3 (1.8) | 4 (1.2) | | | |
| Health issues | 16 (9.2) | 12 (7.1) | 28 (8.2) | | | |
| No specific cause | 22 (12.6) | 31 (18.5) | 53 (15.5) | | | |
| Multiple reasons | 29 (16.6) | 29 (17.2) | 58 (17.0) | | | |

CM=College of medicine, CAE=College of administration & economic, FET=Fischer exact test

Of the total participants, 66.7% showed an adequate knowledge (73.0% among medical students vs. 43.0% of the students of College of administration and Economic with a highly significant difference, P <0.001). There was no statistical association between gender, age and level of knowledge ($X^2 = 1.196$, P= 0.274 and $X^2 = 0.326$, P= 0.568 respectively).

Medical students showed significantly correct answers in most of the asked questions (4 out of 7 questions) than students of College of Administration and Economics. Students of both colleges showed low level of knowledge in items of blood volume that to be donated each time, the time interval between two successive donations, suitable age for blood donation, and minimum weight for blood donation [Table 3].

Positive attitude towards blood donation was observed among 68.7% of the studied students (74.0% among medical students and 63.0% among students of college of Administration and Economic with a significant difference, P=0.022). Most of the students of the two colleges reported that blood donation is a good habit and there is no need for incentives to those who donate blood. In addition, they intended to donate if there is an emergency or a need for blood donation [Table 4].

Binary logistic regression analysis was done to examine the independent predictors of knowledge. Type of college and history of blood donation were the only significant predictors of adequate knowledge with an OR, 2.51; 95% CI, 1.62-3.89; P <0.001 and OR, 3.48; 95% CI,1.50-8.05; P= 0.004 respectively.

DISCUSSION

The prevalence of blood donation among the studied students was 13%, which is in line with what was reported before where the rate of blood donation varied from 11% to 38% among students of various developing countries.¹⁶⁻¹⁸ The prevalence of blood donation among university students in Saudi Arabia was 19%,¹² and another study in Saudi Arabia showed a prevalence rate of 14.1%.¹⁹ In Nigeria (15%),²⁰ Iran, Kerman (24.6%),²¹ Ethiopia, Addis Ababa (23.4%),²² Greek (24%),²³ and Tanzania (29.9%).²⁴ Nevertheless, it is lower than that reported among university students in some countries. In USA, it was reported to be (56%),²⁵ Nepal (43%),²⁶ and Poland (30.2%).²⁷ Such differences in blood donation activities could be attributed to socio-cultural factors, differences in attitude and awareness, poor periodic sensitization for blood donation, or for reasons in organizing logistics.^{9,20}

The participants reported that moral responsibility or need of relatives or friends for blood were the reasons for blood donation. The need of receiving money or an incentive for blood donation is low in this study. Studies in different countries also concluded that people donate blood for humanity reasons.^{28,29}

Not being asked to donate, never thought about blood donation, health issue, fear of drawing blood, and fear

| Table 3: Proportion of respondents who correctly answered knowledge questions | | | | | | |
|---|-------------------|--------------------|--------------|---------|--|--|
| Item | CM (n=204)No. (%) | CAE (n=189)No. (%) | TotalNo. (%) | P-value | | |
| Blood volumethatdonated inevery blooddonation | 79 (38.7) | 19 (10.1) | 98 (24.9) | < 0.001 | | |
| The time interval between two successive donations | 80 (39.2) | 68 (35.9) | 148 (37.7) | 0.574 | | |
| Suitableagefor blooddonation | 121 (59.3) | 67 (35.4) | 188 (47.8) | < 0.001 | | |
| Minimum weight forblooddonation | 95 (46.6) | 68 (36.0) | 163 (41.5) | 0.033 | | |
| Should blood be tested before donation | 199 (97.5) | 183 (96.8) | 382 (97.2) | 0.764 | | |
| Do all surgical operations need blood transfusion | 172 (84.3) | 130 (68.8) | 302 (76.8) | < 0.001 | | |
| Could infections be transmitted by blood | 200 (98.0) | 179 (94.7) | 379 (96.4) | 0.102 | | |

CM=College of medicine, CAE=College of administration & economic

Table 4: Proportion of positive attitude of the students towards blood donation

| Variable | CM No. (%) | CAE No. (%) | Total No. (%) | P-value |
|---|------------|-------------|---------------|---------|
| Blooddonation is a good habit | 190 (93.1) | 132 (69.8) | 322 (81.9) | <0.001 |
| Thereis no need to give incentives tothose who donate | 185 (90.7) | 173 (91.5) | 358 (91.1) | 0.860 |
| Blood donation is safe | 114 (55.9) | 94 (49.7) | 208 (52.9) | 0.227 |
| I will tell if I have a medical issue before donation | 187 (91.7) | 162 (85.7) | 349 (88.8) | 0.078 |
| I will donate if friend needs blood | 182 (89.2) | 173 (91.5) | 355 (90.3) | 0.496 |
| I will donate if there is a campaign | 102 (50.0) | 123 (65.1) | 225 (57.3) | 0.003 |
| I will donate if there is an emergency situation | 183 (89.7) | 165 (87.3) | 348 (88.5) | 0.550 |
| I will accept blood donation | 181 (88.7) | 164 (86.8) | 345 (87.8) | 0.644 |
| Do you encouragerelatives to donate blood | 52 (25.5) | 44 (23.3) | 96 (24.4) | 0.640 |
| Blood donation does not lead to anemia | 112 (54.9) | 67 (35.4) | 179 (45.5) | <0.001 |

CM=College of medicine, CAE=College of administration & economic

of contracting infection were the main reasons for nondonating blood. A result, which is in agreement with that of other researches.^{30,31}

The overall prevalence of adequate knowledge among the participants in this study was 66.7%. It is comparable to that estimated for students in Nigeria (61%).²⁰It is higher than a rate reported for health science students in India which was $35.7\%^{32}$ but farther lower than the rate found among health science students of Addis Ababa University in Ethiopia which was $83.7\%^{22}$

The majority of the students lack adequate knowledge about the basic aspects of blood donation. Only 24.9% of them know correctly the blood volume that to be donated in every blood donation, 37.7% knew the time interval between two successive blood donation, and 47.8% answered correctly the question about the suitable age for blood donation. Other researchers reported similar results.^{21,33}However, their knowledge was good about other basic requirements of blood donation like testing blood before donation (97.2%) and about the transfusion transmitted diseases (96.4%).

The medical students showed better knowledge and practice of blood donation than students of College of Administration and Economic. A result, which is consistent with that reported in India,¹⁷and Nepal.²⁶ As medical students are being more educated and literate about the importance of saving human life, it is expected that they should be more knowledgeable on blood donation¹⁷ than non-medical students. Similar to the findings of other studies, no significant association was found between the level of knowledge and gender or age.^{16,17,34}

Positive attitude towards blood donation was observed among 68.7% of the participants in this study. It is higher than that reported among students in Pakistan (42%),³⁵ and Ambo University students in Ethiopia (47.4%).⁹ But it is greatly lower than reported among university students in Tanzania (93%).²⁴

This study had some limitations. First; the sampling was a purposive non-probability one and was limited to two colleges only, therefore precaution should be considered in generalizing the results to all university students in Basrah. Second, information was self-reported. Hence, reporting bias cannot be excluded.

CONCLUSION

Inadequate knowledge was prevalent among a substantial proportion of university students in Basrah, and there

was a significant disparity in knowledge between medical and non-medical students. Furthermore, despite the positive attitude towards blood donation, only 13% of them reported a history of blood donation. Educational programs and blood donation camps are necessary to motivate and increase awareness of university students towards voluntary blood donation rather than donating blood on need.

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JNA- Concept and design of the study, data analysis, manuscript drafting and critical revision of the manuscript; AQA- Concept of the study, data acquisition and analysis. All authors reviewed, and approved the final manuscript.

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Source of Support: Nil, Conflict of Interest: None declared.