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Research paper

Attitudes and practices of health science students regarding blood donation

Abdul-Monim Batiha[1]*, Mohammed ALBashtawy[2]

[1]Philadelphia University, Faculty of Nursing, Jordan
[2]Al-al-Bayt University, , Faculty of Nursing, Jordan
**Corresponding author E-mail:abatiha@gmail.com*

Abstract

Background: Blood is fundamental to saving lives and is considered to be the force that sustains our bodies.
Objective: To assess the attitudes and practices of health science students regarding blood donation.
Methods: A cross-sectional survey was employed to assess the attitudes and practices of health science students regarding blood donation. 453 students (56.7% male) from the four health faculties (Pharmacy, Genetic engineering, Nursing, and Hospital administration) were surveyed between May to July, 2013. Means, percentages, distribution and standard deviation were measured. Furthermore, a t-test was applied to evaluate the change among the means.
Results: Male students showed more positive attitude scores regarding blood donation (Mean, 3.91) than female students (Mean, 3.87).Only 66.0% had tested their blood group and a minority (11.3%) had donated blood during their life. Furthermore, a few of them (3.9%) experienced discomfort after donating blood, and the majority of them donated blood voluntarily (60.8%).
Conclusions: The outcomes of the current research revealed that the attitudes and practices of the health science students concerning blood donation needed to be enhanced. Therapeutic communication between healthcare professionals and donors should be improved.

Keywords: *Attitudes; Blood; Blood Donation; Blood Transfusion; Jordan.*

1. Introduction

Blood is fundamental to saving lives and is considered to be the force that sustains our bodies (WHO, 2013). One unit of blood donation can preserve around three patients' lives. Blood is composed of three different life-saving components: plasma, platelets and red blood cells. Blood cannot be manufactured; it can only come from altruistic donors (Zaller et al., 2005).
The choice to donate blood depends on many factors such as replacement, social behavior, pressure and altruism (Zaller et al., 2005; ALBashtawy et al., 2014). Raising awareness and developing a motivated attitude regarding blood donation are the chief concerns of all blood transfusion centers (Javadzadeh Shahshahani et al., 2006).
The necessity for blood transfusions is increasing day-to-day as a consequence of advancements in specialized medical care. It should be noted that worldwide, the number of deaths from road traffic accidents (RTA) has increased as a result of shortage of blood transfusion facilities near the accident site (Gupta, 2000, Bashayreh et al. 2015).). Blood transfusions are often necessary for dealing with injuries, RTA, burns, many types of surgeries, wars and emergency cases , as well as for sufferers undergoing treatment for cancer and other illnesses, such as sickle cell anemia and thalassemia (ALBashtawy et al., 2015; ALBashtawy & Aljezawi, 2015; Al-ghzawi et al., 2014; Mansi et al., 2013). In addition, with increasing numbers of elderly people, developments in health care therapy and procedures demanding blood transfusions, the needs for blood continues to increase (Gupta, 2000; Riley et al., 2007; Alhalaiqa et al., 2014). People living in developing countries (particularly in Africa) are at greater risk of anemia and also have a high chance of injuries and obstetric problems. Obstetric hemorrhage causes 25% of deaths during the postpartum period, which can cause rapid death in the deficiency of urgent blood transfusion. Obstetric complications generally are involved in 80% of maternal deaths arising from complications arising in pregnancy, childbirth and postpartum period (Park, 2005).
Colleges represent great potential sources for blood donations, most of them healthy, young, and easily utilized (Alshloul, Abdullah, & ALBashtawy, 2014; Khamaiseh & ALBashtawy, 2015). Unfortunately, at most universities students do not tend to donate blood. In order to help reduce blood shortages, progress must be made to improve blood donation rates in college age individuals (Vasquez, 2007; Ferguson et al., 2012; Batiha & ALBashtawy, 2013). The initial step to achieve our study objective is to conduct an inclusive search for most studies about assessing attitudes and practices of students regarding the act of blood donation. This information can help identify the weaknesses and strengths of blood donation in the community (Wiwanitkit, 2002; Schreiber et al., 2006; Batiha & ALBashtawy, 2013).
Therefore, this study was performed to assess attitudes and practices of health science students regarding donating blood. Without such information, effective planning and treatments cannot be implemented.

2. Material and methods

2.1. Design

A non-experimental, cross-sectional survey was used in this study.

2.2. Data collection

A validated questionnaire modified from Javadzadeh Shahshahani et al. (2006), Sabu et al. (2011), Batiha and ALBashtawy (2013) was used. The questionnaire required demographic information and consisted of the attitudes and practices of the health science students at Philadelphia University in Jordan.

Attitudes regarding blood donation were measured via seven questions with five Likert scale grades (strongly disagree 1, disagree 2, unsure 3, agree 4, and strongly agree 5); each item was categorized as a positive or negative attitude. Furthermore, a reverse score to negative attitude items during analysis was designated. The practices of the university students regarding blood donation were assessed with five questions on the nature of donation, donation frequency and one open question asking about their reasons for not giving blood.

In order to enhance the validity (face and content) of the questionnaire, three academic experts in nursing research reviewed the draft questionnaire. A pilot study was performed with 36 of health students to determine and evaluate structure, content, reliability and time allotment needed for the questionnaire. On the basis of the final suggestion, the final copy of the questionnaire was reformulated. Moreover, item homogeneity was calculated using Cronbach's alpha coefficient. The total reliability for all items within each subscale was good (0.81).

Data was collected from Philadelphia University health science students by the researchers with the help of two nursing staff. The response rate was 75.5% (n=453/600). The survey took place between May and July, 2015.

2.3. Sampling

G* power software (Faul, Erdfelder, Lang & Buchner, 2007) was used to identify the minimum sample size for this research, where confidence interval of 1.96, margin of error of 5% and 5% the prevalence of expected prevalence of positive attitude and practice among health science students. The minimal estimated sample size calculated was 385. However, to represent the actual number of health science students in the university, 600 students from four faculties (Pharmacy 290, Genetic engineering 172, Nursing 86, and Hospital administration 52) were invited to participate in the current study.

2.4. Ethical considerations

Ethical approval was acquired from the Ethical Committee of the Philadelphia University, Jordan. The study included an important note revealing that contribution in the study was completely voluntary, and that participants retained the right to withdraw from the study at any time. No hazard was involved in participating in the research study. Moreover, no recognition or identification was needed. Each student signed a consent form before he/she responded to the questions of the current survey.

2.5. Statistical analysis

The data collection and analysis was performed, computed, and analyzed using SPSS statistical program, version 17 (SPSS, Inc., Chicago, IL, USA). Means, distribution, and standard deviations were calculated and a t-test was used to compare the difference between two categories and significance was considered at $p < .05$.

3. Results

Table 1 reveals that the complete number of students from the four faculties was 453, from 600 students requested to participate in this study. Of them, more than half of participants were male (56.7%). The mean age for the students was 19.7 years, with a standard deviation of 3.5 years. Students were selected by a convenience sampling technique according to the student numbers in each college. The majority came from the faculties of Pharmacy, followed by Genetic Engineering, Nursing, and Hospital Administration. In general the health science students demonstrated a positive attitude towards blood donation (positive side of continuum) (Table 2); male students showed more positive attitude mean scores (3.91) than female students (3.87) (Table 3).

Table 4 reveals the practices and behaviors of the university students, showing that only 66.0% had tested their blood group, and that only a small minority (11.3%) had donated blood during their life. Among the 51 donors, only 19.6% of them had donated blood twice or more. Furthermore, a few of them (3.9%) experienced discomfort after donating blood, and the majority of them donated blood voluntarily (60.8%). Concerning the factors for not donating blood, Table 5 reveals that fear of infection and complications, fear of pain, followed by never having been asked to donate, were the major factors inhibiting the health science students from donation.

4. Discussion

This age group of university students is considered to have better and their participation in blood donation activities is considered crucial to meet the blood requirements of any community, because most of them are healthy, and active (Sabu et al., 2011). According to the World Health Organization (WHO) approximately 38% of documented voluntary blood donations worldwide are contributed by individuals under the age of 25. WHO also strongly encourage that countries focus on adolescents to achieve 100 percent voluntary unpaid blood donation (WHO, 2014). Given the general impetus towards the encouragement of young people participating in donating blood, it is to be expected that the sample should represent those most likely to donate blood, as they study biomedical and healthcare-related subjects and are more aware of, and involved in, the beneficial implications of blood donation.

Regarding the students' attitudes toward blood donation, the present study shows that male students had more positive attitude scores than females, but there is no statistical relationship between gender and positive attitudes toward the act of blood donation. These findings were similar to those of previous studies (Hossain et al., 1997; Sabu et al., 2011; Batiha, 2013). A high percentage of students mentioned that they always try to disseminate awareness about the importance of blood donation, representing a positive trend to be considered in practice in the near future. Moreover, many studies (Alam & Masalmeh, 2004; Sabu et al., 2011; Bashayreh et al., 2014) found that health education and motivational programs can bring a positive attitude toward gradually changing to voluntary blood donation.

Nearly 66% of the students in the current study had tested their blood to know the type. However, 88.7% of them had never donated blood during their lifetime. These results were consistent with the study by Shenga et al. (2008), but differed from others (Shaz et al., 2009; Sabu et al., 2011). This may be explained by the fact that women in developing countries, and Jordan is no exception, still worry that donating blood may lose iron stores from their bodies and raise the occurrence of anemia (Javadzadeh Shahshahani et al., 2006). Furthermore, many researchers stated that people in both developing and developed nations think that blood donation may cause a lot of health problems and sometimes can lead to human immunodeficiency disease (Jacobs & Berege, 1995; Olaiya et al., 2004; Zaller et al., 2005; Abu Obead, 2014; Batiha, 2014).

Table 1: Socio- Demographic Characteristics of the Health Science Students (N=453).

Variable	Number of participants	Percent	Mean (SD)
Gender			
Male	257	56.7	
Female	196	43.3	
Total	453	100.00	
Age by years			
18-19	142	31.3	19.7 (3.5)
20-21	151	33.3	
21-22	105	23.2	
>22	55	12.1	
University health faculties			
Pharmacy (n=438)	219	48.3	
Genetic engineering (n=260)	130	28.7	
Nursing (n=129)	65	14.3	
Hospital administration (n=78)	39	8.6	

Table 2: Attitudes of the Health Science Students

Items	Rating scale				
	Strongly disagree 1	Disagree 2	Unsure 3	Agree 4	Strongly agree 5
I always take permission from my parents/guardians before blood donation. (Negative attitude)	46 (10.2)	170(37.5)	11(2.4)	201(44.4)	25(5.5)
I will always provide correct information regarding my health status before donating blood. (Positive attitude)	73(16.1)	203(44.8)	69(15.2)	86(19.0)	22(4.9)
I will donate blood only to known persons. (Negative attitude)	39(8.6)	156(34.4)	8(1.8)	218(4.8)	32(7.1)
If I learn more about importance of blood donation. I will be more interested to donate blood. (Positive attitude)	90(19.9)	271(59.8)	17(3.8)	56(12.4)	19(4.2)
In emergency cases. I am willing to donate blood for anyone. (Positive attitude)	72(15.9)	295(65.1)	28(6.2)	44(9.7)	14(3.1)
I agree that money should be paid to donors. (Negative attitude)	1(0.3)	6(1.3)	24(5.3)	232(51.2)	190(41.9)
I always try to disseminate awareness about the importance of blood donation. (Positive attitude)	75(16.6)	300(66.2)	37(8.2)	16(3.5)	25(5.5)

Table 3: The Relationship between Attitude Scores and Gender of the Health Science Students

Positive attitudes scores			
Gender	Mean SD	Test value	P value
Male	3.91 1.10	t =1.106	0.290
Female	3.87 1.21		

Table 4: Blood Donation Practices of the Health Science Students (N=453)

Practices	Male N (%)	Female N (%)	Total N (%)
Tested his\her blood group			
Yes	168 (65.4)	131(66.8)	299 (66.0)
No	89 (34.6)	65 (33.2)	154 (34.0)
Donated blood			
Yes	32 (12.5)	19 (9.7)	51 (11.3)
No	225 (87.5)	177 (90.3)	402 (88.7)
Number of times donated blood (n=51)			
Once	15 (46.9)	9 (47.4)	24 (47.1)
Two	7 (21.9)	4 (21.1)	11 (21.6)
More than two	6 (18.6)	4 (21.1)	10 (19.6)
Whenever there is a requirement	3 (9.4)	2 (10.5)	5 (9.8)
Not able to remember	1 (3.1)	0 (0.0)	1 (2.0)
Nature of donation(n=51)			
Voluntary	19 (59.4)	12 (63.2)	31 (60.8)
To relative and friends (based on request)	10 (31.3)	6 (31.6)	16 (31.4)
Both	3 (9.4)	1 (5.3)	4 (7.8)
Experiencing any discomfort during and after donating blood(n=51)			
Yes	1 (3.1)	1 (5.3)	2 (3.9)
No	31 (96.9)	18 (94.7)	49 (96.1)

Table 5: Reasons for Not Donating the Blood among Health Science Students (N=402)

*Reasons	Number	Percent
Fear of infection and complication	250	62.2
Fear of pain	204	50.7
No one has ever asked me to donate	183	45.5
Never know about it	108	26.9
No one close to me has ever needed blood	87	21.6
Lack of time	23	5.7
Medically unfit	10	2.5
Parent, friends relatives told not to donate blood	8	2.0
Other reasons	12	3.0

*More than one response

In developing countries many factors, such as religious traditions, fear of hospitals, and misguided health beliefs are considered to be the major barriers to blood donation (Javadzadeh Shahshahani et al., 2006). In the current research, the major factors for not donating blood were 'fear of infection and complications', followed by 'fear of pain' and 'no-one has ever asked me to donate'. Sabu et al. (2011) discovered that the key element for not donating blood was being medically unhealthy. Javadzadeh Shahshahani et al. (2006) suggested, from their research, that the major factors for not donating blood were forgetfulness and lack of time. Several studies (Hossain et al., 1997; Wiwanitkit, 2002) regarded fear to be a minimal cause for not donating blood.

Voluntary blood donation in any community mainly depends on factors including level of awareness, norms and traditions, values, beliefs and attitudes (Javadzadeh Shahshahani et al., 2006; Batiha & ALBashtawy, 2013). Glynn et al. (2003) found that in developing countries, only 15% of blood came from voluntary donors. However, Gader et al. (2011) found that blood donation in Saudi Arabia has shifted from reliance on imported blood to that donated by members of the indigenous population, and 70% of indigenous blood is donated voluntarily. In Iran, Javadzadeh Shahshahani et al. (2006) found that 40% of donors had voluntarily donated. In America, Boulware et al. (2002) found that 60% of the participants mentioned that they had voluntarily donated blood. Albeit the proportion of those who had donated blood was relatively low in this study, 63.2% of donors had given blood voluntarily.

In developing countries, including Jordan, donor recruitment differs according to different areas within the country, and according to the level of awareness and attitudes (Aggarwal & Sharm, 2012). In most circumstances blood donation is still directed toward special persons on a case-by-case basis, such as friends and relatives (Wiwanitkit, 2000; Gader et al., 2003; Batiha & ALBashtawy, 2013).

The shortage of the blood supply remains a serious problem in developing countries, whereas in many developed countries (e.g. Western Europe), voluntary blood donation is readily available (Ahmed et al., 2007; Jacobs &Berege, 1995).

Proper preparing of the blood site and using good communication skills with the donors will decrease any possible harm and make the blood donation occasion a non-threatening and possibly enjoyable event (Aljezawi& ALBashtawy, 2015; Donor Recruitment International 2005; Batiha & ALBashtawy, 2013). The present research discovered that only 3.9% of the donors experienced discomfort during or after the process of blood donation. Javadzadeh Shahshahani et al. (2006) discovered that only a few donors (0.3%) mentioned that blood donation was dangerous for their health condition.

In 2000, the concept of World Health Day was 'Blood Saves Life. Safe blood starts with me' (WHO, 2013). Determining and celebrating the annual World Blood Donor Day (on 14 June) is predicted to increase attention on the need for voluntary blood donation (WHO, 2014), and motivate new college students to be donors. Spiritual clerics (e.g. imams and priests) can perform an essential role in teaching the public about the significance of blood donation (WHO, 2013).

5. Limitations

In the current study the use of a self-reported questionnaire may not reproduce or reflect the real and actual attitudes and practices of the students. Moreover, the current study was conducted in only one location: a private university.

6. Clinical relevance

This study was performed to evaluate the attitudes and practices of college students regarding blood donation. The identification of the students' attitudes and behavior will be beneficial in the development of clinical programs to enhance the blood donation process.

Health care providers and the nursing colleges have an important role to play in identifying college students' knowledge, attitudes and practices, as well as disseminating correct knowledge and positive attitudes and practices. Increasing the awareness of the college students regarding voluntary blood donation, and encouraging new students to be donors by applying appropriate health applications and campaigns by using health advertisements, slogans and suitable motivating media in different universities to educate different groups of people, with particular emphasis on college students. Moreover, they must endeavor to reduce misconceptions and false beliefs about blood donation in the community. Furthermore, nursing colleges and allied-health professionals have an essential role to coordinate with university administrators and deans of different faculties to implement new material in curriculums discussing the significance of blood donation and determining one day every year to celebrate blood donation.

7. Conclusion

The outcomes of the existing study revealed that the attitudes and practices of the health science students regarding blood donation need to be improved. The therapeutic and safety communication between healthcare professionals and actual or potential donors in blood donation campaigns should be improved. Healthcare professionals should also take all essential steps to construct more educational programs to encourage the general population to be voluntary donors. Discussion of blood donation topics in schools and university curriculums is crucial.

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Conflict of interest

The authors have no competing interests.

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