# **Original Research Article**

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# Barriers that prevent health science students from donating blood in an African setting

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### **ABSTRACT**

**Background:** Developing countries face significant challenges in collecting sufficient blood to meet the demands from patients. A healthy, active and willing big population of students can be potential pool for blood donors to meet the safe blood requirements for a country. The aim of this study was conducted to find barriers to blood donation in health science students in the University of Namibia.

**Methods:** A descriptive cross sectional study carried out at Faculty of Health Sciences University of Namibia (UNAM), Windhoek where students were recruited for the study. A pre-tested questionnaire was handed out to faculty of health sciences students chosen by systematic random sampling and data was analyzed using statistical package for social sciences version 21 (IBM Corporation, USA).

**Results:** Out of the 311 students who were recruited in this study nursing students were the majority (166), followed by medicine (72), radiology (38) and pharmacy (32). Seventy two percent of the students (224) had never donated blood while only 28% donated blood on a regular basis. Variety of reasons advanced by students as to why they were not likely to donate blood were fear of needles 21.5%; % lack of information about blood donation 14.8%; underweight 13.2%; were not interested 10% and 8.7% gave medical reasons. The study showed that blood donation is associated with gender, field of study and age.

**Conclusions:** Increasing awareness of the importance of blood donation is the most important strategy to increase the number of blood donors. Health programs need to target behavior change using diverse approaches including the use of current blood donors and student leaders as change agents.

Keywords: Africa setting, Barriers, Blood donation, Health science students

# INTRODUCTION

Blood is universally recognized as the most precious element that sustains life. It is an important and crucial component in the management of patients presenting with severe accident injuries, surgical conditions, malignancies, pregnancy related complications, and other medical conditions.<sup>1</sup> Blood is scarce resource and its demand far outweighs its supply. There is shortage of active blood donors to meet the increased demands of blood, in addition to limited supply, the safety especially with regard to the risk of transfusion transmissible infection is also an issue of utmost concern especially in

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the developing countries. Globally, about 70 countries have a blood donation level less than the optimal level of 10/1000 population. The African continent managed to collect blood to satisfy only about 41% of its demand in 2006.<sup>2</sup> Collection of sufficient blood to meet demand remains a challenge in many Southern African countries. The 2007 WHO report revealed that are improvements in blood donations worldwide, but many developing and transitional countries still rely heavily on relatively unsafe one time only family/replacement donors and paid donors.3 Namibia's blood collected per 1000 population has increased slightly to 11/1000 population.<sup>4</sup> The demand for blood and blood products in most countries continue to increase because of the rise in human life expectancy, road traffic accidents and the implementation of new and aggressive surgical and therapeutic methods requiring large quantities of blood and blood products.5

Donor blood procurement from voluntary non remunerated donor has been adjudged the safest source of blood. Altruism, social responsibility, peer influence, access to health communication, and knowledge about importance of blood donation are some of the factors that motivate individuals to donate blood. 7-12

The challenge in efforts to meet the demands for blood is the fact that only a small percentage of the eligible population actually chooses to donate blood on a regular basis and that a significant percentage of eligible donors are deferred temporarily or permanently because of strict deferral criteria. In every country or society, a reliable supply of safe blood from donors with different blood groups is needed throughout the year. It is therefore crucial that healthy, voluntary unpaid blood donors make a commitment to give blood regularly.<sup>13</sup>

In Namibia, the blood transfusion service of Namibia (NAMBTS) is responsible for all blood donations collected from voluntary, non-remunerated donors. Predonation screening of donors consists of questions regarding medical, travel and life-style history, and checking of relevant physical parameters. Regular blood donors are encouraged and blood collection from first time donors, of whom the risk of infection transmission is slightly higher, is kept to an unavoidable minimum. <sup>14</sup>

There is a considerable gap in public awareness and knowledge about the essentials of blood donation. In order to increase blood donation within the country, motivators and barriers to blood donation for donors should be understood. In order to ensure adequate supply of blood at all times, regular voluntary blood donors need to be recruited and retained as the safest donors because they have been educated about how to stay healthy and lead lifestyles that that are free from the risk of acquiring serious infections. This study was therefore set out to find out barriers faced by students in the Faculty of health Sciences, University of Namibia in voluntarily donating blood.

### **METHODS**

This was a descriptive cross sectional study carried out at Faculty of Health Sciences University of Namibia (UNAM), Windhoek where 311 students were recruited for the study from July to September, 2015. Faculty of Health Sciences is comprised of School of Medicine, School of Pharmacy and School of Nursing and Public Health. A pre-tested questionnaire was handed out to 311 students who were chosen by systematic random sampling after an informed consent obtained. Anonymity of the students was maintained. Ethical committee approved the study. Socio-demographic information related to age, sex, school, etc. was collected. Knowledge on blood donation, perception regarding barriers to blood donation and blood donation by the participants in the past were also collected. For purposes of this study, people who had previously donated blood either on a voluntary basis or as a replacement donor were labeled as donor; people who had never donated blood at any time in the past were labeled as non-donors.

# Data analysis

Data was analyzed using Statistical Package for Social Sciences version 19 (IBM Corporation, USA). Data are expressed as proportion and percentages. Chi square test was applied to find the association of attitude with voluntary blood donations. Association of sociodemographic variables with knowledge regarding blood donation was derived using multivariate analysis.

# **RESULTS**

Out of the 311 students who were recruited in this study nursing students were the majority (166), followed by Medicine (72), Radiology (38) and Pharmacy (32) as shown in the Table 1 below. A majority of the students 62% (206) were females as shown in Table 1 below.

Table 1: Demographic characteristics of students.

Students chara	Frequency (%)		
Gender	Female	206 (66.2)	
	Male	105 (33.8)	
Age group (years)	Below 20	62 (19.9)	
	20-25	210 (67.5)	
	26-30	25 (8.0)	
	Above 30	14 (4.5)	
Department	Nursing	166 (53.4)	
	Medicine	75 (24.1)	
	Radiography	38 (12.2)	
	Pharmacy	32 (10.3)	
Blood donors	Yes	87 (28.0)	
	No	224 (72.0)	

Seventy two percent of the students (224) had never donated blood while only 28% donated blood on a regular basis. Variety of reasons were advanced by students as to why they were not likely to donate blood; 21.5% due to fear of needle; 14.8% lack of information about blood donation; 13.2% said they were underweight, 10% were not interested and 8.7% said they had medical reasons (Table 2.) The study showed that blood donation is associated with gender (p < 0.001), field of study (p = 0.004) and age (p = 0.012), as shown in Table 3. Participants believed that increasing awareness of the importance of blood donation was the most important strategy to increase the number of blood donors. Twenty five percent of the participants who donated blood were

dissatisfied with blood donation campaign compared to 59.8% of those who never donated (Table 3).

**Table 2: Reasons preventing blood donation.** 

Reason	Number (%)		
Fear of needles	67 (21.5)		
Lack of information	46 (14.8)		
Underweight	41 (13.2)		
Not interested	31 (10.0)		
Medical reason	27 (8.7)		
Never had the opportunity	11 (3.5)		

Table 3: Relationship between the variables and blood donation.

Variables		Donated blood (%)	Never donated blood (%)	Total	p value*
Department	Medicine	38 (43.7)	37 (16.5)	75	
	Nursing	31 (35.6)	135 (60.3)	166	
	Pharmacy	14 (16.1)	18 (8.0)	32	0.000
	Radiography	4 (4.6)	34 (15.2)	38	
Gender	Female	47 (54.0)	159 (71.0)	206	
	Male	40 (46.0)	65 (29.0)	105	0.004
Age group (years)	Below 20	10 (11.5)	52 (23.2)	62	
	20-25	62 (71.3)	148 (66.1)	210	
	26-30	9 (10.3)	16 (7.1)	25	0.012
	Above 30	6 (6.9)	8 (3.6)	14	0.012
Reward	Yes	67 (77.0)	190 (84.8)	257	0.073
(Remuneration)	No	20 (23.0)	34 (15.2)	54	0.073

### **DISCUSSION**

Maintaining an adequate and safe blood supply is an issue of concern to health planners especially with the increase in demand. Therefore, it is very important to understand the various factors that could change the perception and awareness about blood donation among University students as they the backbone to blood donation. Such studies are helpful in successful implementation of Voluntary Blood Donation program and introduce new strategies for maintaining an adequate and safe blood supply for a country. This study found a greater proportion of students had never donated blood (224) (72%). In a similar study done in Chennai, Tamil Nadu, South India, it was also found that most of participants (89%) had never donated blood.<sup>15</sup> Most of the participants who have donated blood happen to be in age range 20-25 years old (67.5%) and being Nursing student (53.4%). Medicine and Nursing students had more blood donors 43.7% and 35.6% respectively. Similar study done in India, however, found out that majority of donors (80.8%) were from allied health.<sup>15</sup> This could be explained by involvement of medical and nursing students in the University in blood donation campaigns which could have been the driving force

behind their active participation in blood donation. Gender wise, there were more female donors (54%). This is in contrary of what was reported in other studies, with males being the dominant (76.92) and 95.56% males. <sup>16,17</sup> The high numbers of females in this study could be attributed to the large number of nursing students who took part in the study.

This study found out that most students would not donate blood because; they feared of needles (21.5%), lack of information (14.8%), underweight (13.2%), not interested (10%), medical reason (8.7%) and others never had the opportunity (5%). A similar study done in medical students in Barabanki- India however, found that the students who had no opportunity to donate blood was 56.5% and few feared needles were 6.07% or had a medical reason 7.5% for not donating blood which differed from our study. <sup>18</sup> In another study of population in Lomé- Togo, people feared to donate blood mainly because of fear of catching diseases especially the HIV, lack of information about blood donation, religious beliefs and the fear of knowing the result of one's HIV test. <sup>19</sup>

# **CONCLUSION**

This study was a University-based study representing one of the higher institutions of learning in Namibia. Findings from this study may be more representative of the general public's intention not to donate blood than findings from a facility-based study. Most donors were more prone to fear needles, and lacked information about blood donation. Health programs need to target behavior change using diverse approaches including the use of current blood donors and student leaders as change agents. Evidence-based interventions to retain blood donors as regular donors are of paramount importance. Most University students with or without a prior blood donation history are willing to donate blood based on convenience and support from their peers. Therefore, educational campaigns aimed at all University students should be designed to increase their knowledge of both the blood donation process and the blood supply should be an effective method to increase blood donation rates among Students.

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Institutional Ethics Committee

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