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Knowledge, Attitude and Practices of Prospective Blood Donors at Kampala International University

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ABSTRACT

Blood transfusion is an indispensable component of health care. It contributes to saving millions of lives each year in both routine and emergency situations. The present study determined the knowledge, attitude and practice of prospective blood donors aged between 18 to 35 years at KIU, Bushenyi-Ishaka Municipality, southwestern Uganda. This was a cross-section conducted among 384 Students at KIU-WC who consented. These participants were selected based on simple random sampling techniques and data was obtained from all the participants using a questionnaire and analyzed using SPSS version 25. The analyzed data was then presented in the form of frequency tables and graphs. The majority 215 (53.4%) of the participants were males, many 166(43.2%) were 3rd-year students, 245(63.8%) participants were Christians and lastly, and 209 (54.4%) participants were from the Schools of Health Sciences. 49.2% have good knowledge of blood donation. Many 220(57.3%) knew that the best source of blood was voluntary donors, majority 362(94.3%) knew that blood cannot be manufactured, many 246(66.6%) knew that the recommended age to start donating blood is 18 years and above, majority 250(65.1%) knew that the minimum weight for the eligible blood donor is 45 kgs, many 308 (80.2%) knew that nothing harmful can happen to blood donor, 246(64.1%) knew that temporary weakness happened to the blood donor during and after donation. Lastly, 268(69.8%) knew at least one condition where blood donation is required or used. many 186 (48.4%) thought that blood donation is good, the majority 269 (70.1%) encouraged others to donate, and 194 (50.4%) believed donating blood is too. Much of an inconvenience, 270 (70.3%) were less likely to donate blood even if they were paid to do so and lastly many 231 (60.2%) were not willing to donate blood in future. many 318(82.8%) had never donated blood. Of the 66 (17.2%) who had ever donated blood, many 44(66.7%) donated once. Of the 318 who had never donated blood, the main reason was fear of needles/pain suggested by 117(30.5%). This study observed found low levels of knowledge and practice. The rate of positive attitude was relatively low and a high were not willing to donate blood in future. The main reason for not donating blood was fear of needles/pain.

Keywords: Blood transfusion, Health care, Blood donors, Voluntary donors, Blood donation.

INTRODUCTION

Blood and its product remain an entity that has not been made artificially. Blood is a specialized body fluid in humans that delivers necessary substances such as nutrients and oxygen to the cells and transports metabolic waste products away from those same cells. Human blood is an element of human life [1]. Blood is made up of three different life-saving components which include plasma, Platelets and red blood cells [2]. It has an important role in regulating the body system and maintaining homeostasis. It is a valuable and life-sustaining fluid which can be transferred from

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a donor to a recipient's circulatory system through the process of blood transfusion [3]. Blood transfusion is a medical procedure that is designed to provide patients who need blood or blood products to correct a defect [4]. A blood donation occurs when a person voluntarily has blood drawn and used for transfusions and/or made into biopharmaceutical medications by a process called fractionation (separation of whole-blood components). Donation may be of whole blood, or of specific components directly (the latter called apheresis). It is a life-saving scheme in either routine or emergencies to replace lost blood cells or blood components due to serious accidents, obstetric haemorrhage or any other cause of anaemia such as medical or surgical conditions [5]. It is an indispensable component of health care. It contributes to saving millions of lives each year in both routine and emergency situations [6]. It permits increasingly complex medical and surgical interventions and improves the quality of life of patients with a variety of acute and chronic conditions [7]. Donated blood plays an essential role in the management of bleeding during major surgeries, accidents, deliveries, bleeding peptic ulcers, liver diseases, lung diseases, cancers, blood diseases such as haemophilia, severe anaemia and newborn baby with blood diseases [8]. Blood donation has long been taught of as an act of altruism. From a single donation alone, three blood components may be derived useful to specific patient needs. The WHO recommends voluntary, non-remunerated blood donation (VNRBD) and has set a standard of 10 blood donations/per 1000 population as a baseline value for all countries to meet [9]. Globally, over 81 million units of blood are collected annually [3]. Approximately half of these are collected in high-income countries which are home to 19% of the world's population [10]. There is a huge imbalance between the demand for and supply of blood and blood products. [8]. In LMICs, common barriers both with blood donation and processing of blood units, make it difficult to maintain an adequate blood supply [11]. Furthermore, 35 studies on the motivations and deterrents to blood donation in 16 Sub-Saharan African countries found fear as a major deterrent, including fear of needles, adverse effects, and discouraging spiritual, religious, and cultural perceptions of blood donation. Given the unique cultural and societal factors [11]. Limited supply of blood in Africa is a serious problem, out of 75 countries that report fewer than 10 donations per 1000 people 38 of them are from Africa [10]. Uganda collected 240000 units of blood in the year 2016 and yet WHO recommends 1% of the country's total population [9]. This implies that Uganda still has a big gap to meet the required blood units that should be collected yearly as WHO recommends and also to meet the increasing demand for conditions in routine and emergency situations like gynaecological conditions, pregnancy, childbirth, severe childhood illness, trauma and cancers.

Statement of Problem

Globally there are 112.5 million blood donations per year most by voluntary donors [9]. In Sub-Saharan Africa out of 18 million units of safe blood required per year, merely about 15% in the year 2018 were collected [13]. In developing countries, people still die due to inadequate supply of blood and blood products [14]. Despite impressive strides in blood donation, in the year 2017, blood supply in Uganda was just over 200,000 units, this fell short of official hospital demand by 10% and 30% short of the World Health Organization target for blood collection of units of blood equivalent to 1% of the total population [10]. This indicates the severe shortage of blood supplies for the vast population. Uganda still has a high maternal mortality rate and high motor accidents (among the top ten worldwide) major cases that need blood among others [8]. According to records of Uganda National Blood Bank Mbarara regional branch, the blood collection camp conducted in KIU Western campus in 2017 yielded only 223 units of blood yet the University is currently having over 5000 students which represents a small number of students (Anecdotal findings from KIU-TH records). Therefore, this study was carried out in an attempt to gain insight into whether knowledge, attitude and practice about voluntary blood donation can influence one's intent to donate.

Aim

To assess the knowledge, attitude and practices of prospective blood donors at KIU Western Campus.

Specific objectives

- To assess the knowledge on blood donation of prospective blood donors at KIU Western campus.
- To assess the attitude toward blood donation of prospective blood donors at KIU Western Campus.
- To assess the practice of blood donation of prospective blood donors at KIU Western Campus.

Study questions

- i. What is the knowledge on blood donation of prospective blood donors aged between 18 to 35 years at KIU Western Campus?
- ii. What is the attitude toward blood donation of prospective blood donors at KIU Western Campus?
- iii. What is the practice of blood donation of prospective blood donors at KIU Western Campus?

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METHODOLOGY

Study design

The study was a cross-sectional hospital-based survey. The cross-sectional study design entailed the collection of information on the individual study parameters at a single point in time between March 2022 to June 2022. It provides a basis for describing the status of phenomena at a fixed point in time and does not allow for inference of changes and trends of the same over time.

Area of Study

The study was carried out at Kampala International University Teaching Hospital along Mbarara-Kasese road, in Bushenyi-Ishaka Municipality South-western Uganda. Kampala International University Teaching Hospital, a private hospital in partnership with the government of Uganda for a program that runs the free treatment policy. The hospital's location lies approximately 360 kilometers (220 mi), by road, southwest of Kampala, the largest city in the country. The coordinates of the hospital are: 0° 32' 29.04"S, 30° 8' 25.80"E (Latitude: 0.5414; Longitude: 30.1405). The hospital has a private and a public wing with total bed capacity of about 100. The 5 major disciplines present are: Internal medicine, Obstetrics/Gynecology, Surgery and Pediatrics. The hospital serves a population of about 2 million people. The scope is wide as many patients come from even the neighbouring Kigali, Rwanda. It has special clinics, for example, Mother-child health, Mental Health Clinic (MHC), ophthalmology, dental, Ear, Nose and Throat (ENT), Radiology, and Dermatology, which work throughout the week.

Study population

Students undertaking a medical-related course at KIU-TH WC.

Inclusion criteria

Students undertaking any course at KIU-WC who consent to the study.

Exclusion criteria

The exclusion criteria included:

- Lecturers and other staff at KIU-WC.

Sample size determination

The sample size was calculated using the probability sampling formula by (Fischer et al, 1991) i.e.

$$N = Z^2 pq / d^2$$

Where, n = sample size, when the population size is greater than 10,000.

z = Standard normal deviation, i.e. 1.96, set at 95% confidence level

p = rate of practice of blood donation.

q = 1 - p = expected non-prevalence

d = Desired degree of accuracy

If the value of p = 50% [9].

$$n = Z^2 p (1 - p) / d^2$$

$$= 1.96^2 \times 0.5(1 - 0.5) / 0.05^2$$

$$= 384 \text{ participants.}$$

Sampling and recruitment procedures

The researcher used a purposive convenient sampling technique. This technique is cheap, efficient and simple to implement.

Data collection methods and management

Primary data was obtained using a structured questionnaire containing demographic information, social factors and patient clinical factors that were obtained from the patient. It was administered in English. Whenever a participant agreed to be interviewed he/she was asked to provide written consent by signing or fingerprinting. After obtaining informed consent, participants were interviewed using researcher administered a hard copy questionnaire. The researcher entered responses given by the participant by ticking the appropriate response and entering the same number in to the coding box immediately to reduce likelihood of data loss. The process of data collection continued until every effort to contact every study participant in the sample is exhausted. Completed data collection forms were kept under lock and key to ensure safety. The questionnaire was pretested from Kampala International University Teaching Hospital on at least 10 students in Faculty of Clinical Medicine and Dentistry.

Data collection tools

The study adopted a semi-structured questionnaire. The questionnaire was designed in a way that participants answer closed-ended questions and open-ended questions. The questionnaire was written in simple language and was easy to read in English.

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Data analysis

Analyzed data was presented in tables and figures showing frequencies and proportions. Univariate analysis was done for continuous variables to report measures of central tendency like mean, median and mode and measures of dispersion like the range, and interquartile range and measures of variance like standard deviation for various independent variables. For categorical variables, data presentation will be through well-summarized “2 by 2” tables that show frequencies (percentages) and totals. For continuous and categorical data, bar graphs, histograms, and pie charts will be used where suited to present the data. Data were analysed using STATA version 11 in line with the study objectives. Knowledge of blood donation was analyzed/assessed with the aid of 7 self-administered questions from the questionnaire whose answers were given a score of one for every correctly answered question and a score of zero for every wrongly answered question. The percentage score for each participant was acquired by dividing the total sum of one’s score by 7 multiplied by 100. Those with 80% and above were categorized as having good knowledge, 60-80% as moderate and below 60% as poor or low knowledge. To assess attitude, 4 self-administered questions were used. Their responses scored 2 for strongly agree, 1 for uncertain or not sure, and 0 for strongly disagree. With the total sum of positive response scores being 8, the participant’s attitude was graded as positive if the total score was ≥ 5 and negative if below 5 points. To assess practices, 4 self-administered questions were used.

Quality control

To ensure quality work, the inclusion and exclusion criteria were strictly adhered to and data forms were double-checked for completeness by the principal investigator. Completely filled data forms were kept under lock and key by the principal investigator to minimize data loss and also ensure confidentiality. Incompletely filled forms were discarded and not used during data analysis.

RESULTS

Demographic findings

Table 1: Showing the demographic of study respondents

Variable	Number of participants (n=384)	Percentage (%)
Gender		
Female	179	46.6
Male	215	53.4
Year of education		
1 st year	79	20.6
2 rd year	103	26.8
3 rd year	166	43.2
4 th or 5 th year	36	9.4
Marital status		
Muslims	139	36.2
Christians	245	63.8
Faculty/ School		
Faculty of Business	35	9.1
Faculty of Education	98	25.5
School of Health Sciences	209	54.4
Faculty of Computer Studies	42	10.9

From the table above, the majority 215(53.4%) of the participants were males, many 166(43.2%) were 3rd-year students, 245(63.8%) of the participants were Christians and lastly 209(54.4%) the participants were from the School

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of Health Sciences. Knowledge of blood donation of prospective blood donors aged between 18 to 35 years at KIU, Bushenyi-Ishaka Municipality, and Southwestern Uganda.

General knowledge on blood donation of prospective blood donors aged between 18 to 35 years at KIU, Bushenyi-Ishaka Municipality, Southwestern Uganda.

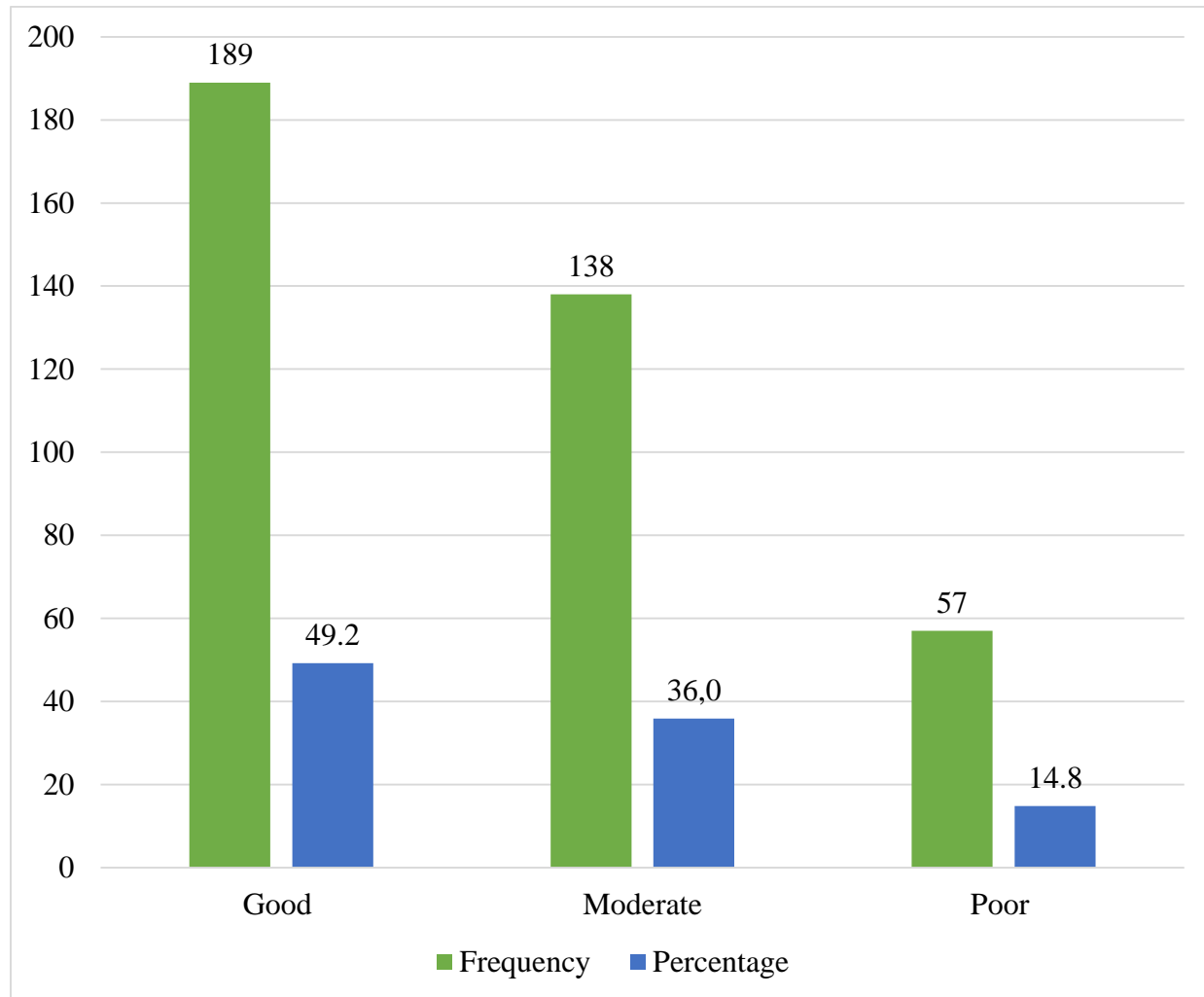


Figure 1: A graph of overall knowledge of prospective blood donors aged between 18 to 35 years at KIU on blood donation.

The graph in Figure 1 shows that 49.2% have good knowledge, 36.0% have moderate knowledge, and 14.8% have poor knowledge of blood donation. Detailed knowledge of blood donation of prospective blood donors aged between 18 to 35 years at KIU, Bushenyi-Ishaka Municipality, and Southwestern Uganda.

Table 2: Detailed knowledge on blood donation of prospective blood donors aged between 18 to 35 years at KIU, Bushenyi-Ishaka Municipality, and Southwestern Uganda

Statements	Frequency (n=384)	Per cent
The best source of blood		
Voluntary donor	220	57.3
Self-donor	83	21.5
Do not know	10	2.7
Remunerated donor	71	18.5
Can blood be artificially manufactured		
Yes	22	5.7
No	362	94.3
Recommended age to start blood donation		
Below 18 years	23	6.0
At 15 years	34	8.9
18 years and above	256	66.6
Do not know	71	18.5
Minimum weight for the eligible blood donor		
30 kgs	73	9.8
45 Kgs	250	65.1
60 Kgs	96	25.2
Can something harmful happen to a blood donor		
Yes	69	18.0
No	308	80.2
No idea	7	1.8
What can happen to the blood during and after donation		
Temporary weakness	246	64.1
Contract infection	24	6.3
Fall sick	114	29.6
Do you any condition where blood is necessary		
Yes	268	69.8
No	13	3.4
Don't know	103	26.8

Table 2 above shows many 220(57.3%) knew that the best source of blood was voluntary donors, majority 362(94.3%) knew that blood cannot be manufactured, many 246(66.6%) knew that the recommended age to start donating blood is 18 years and above, majority 250(65.1%) knew that the minimum weight for the eligible blood donor is 45 kgs, many 308 (80.2%) knew that nothing harmful can happen to blood donor, 246(64.1%) knew that temporary weakness happened to the blood donor during and after donation. Lastly, 268(69.8%) knew at least one condition where blood donate is required or used. Attitude toward blood donation of prospective blood donors aged between 18 to 35 years at KIU, Bushenyi-Ishaka Municipality, and Southwestern Uganda.

Table 3: Table showing attitudes towards sanitation practices among nursing students at KIU

N=384

Statements	Strongly agree	Uncertain	Strongly disagree
What do you think about blood donation? Is it good?	186 (48.4%)	176 (45.8%)	22 (5.7%)
Do you encourage others to donate	269 (70.1%)	42 (10.9%)	73 (19.0%)
I believe donating blood is too much of an inconvenience.	43 (11.2%)	147 (38.4%)	194 (50.4%)
I would be more likely to donate blood if I were paid to do so	76 (19.8%)	38 (9.9%)	270 (70.3%)
If approached are you willing to donate blood in future	153 (39.8%)	0(0%)	231 (60.2%)

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Table 2 above shows that many 186 (48.4%) thought that blood donation is good, the majority 269 (70.1%) encouraged others to donate, 194 (50.4%) believed donating blood is too much of an inconvenience, 270 (70.3%) were less likely to donate blood even if they were paid to do so and lastly many 231 (60.2%) were not willing to donate blood in future.

Table 3: Practice of blood donation of prospective blood donors aged between 18 to 35 years at KIU, Bushenyi-Ishaka Municipality, Southwestern Uganda

N=384

Statements	Frequency	Percent
Have ever donated blood in your life		
Yes	66	17.2
No	318	82.8
Number times ever donated blood		
Once	44	11.5
Twice or more	22	5.7
Never	318	82.8
Reasons for not donating blood(n=318)		
No remuneration	2	0.5
Lack of time	13	3.9
Fear of knowing my status	5	1.3
Unfit to donate	93	24.2
Not approached to donate	88	22.9
Fear of needles or pain	117	30.5

Table 4 above shows that many 318(82.8%) had never donated blood. Of the 66(17.2%) who had ever donated blood, many 44(66.7%) donated once. Of the 318 who had never donated blood, the main reason was fear of needles/pain suggested by 117(30.5%).

DISCUSSION

Knowledge of blood donation of prospective blood donors aged between 18 to 35 years

49.2% have good knowledge, 36.0% have moderate knowledge, and 14.8% have poor knowledge of blood donation. Many 220(57.3%) knew that the best source of blood was voluntary donors, majority 362(94.3%) knew that blood cannot be manufactured, many 246(66.6%) knew that the recommended age to start donating blood is 18 years and above, majority 250(65.1%) knew that the minimum weight for the eligible blood donor is 45 kgs, many 308 (80.2%) knew that nothing harmful can happen to blood donor, 246(64.1%) knew that temporary weakness happened to the blood donor during and after donation. Lastly, 268(69.8%) knew at least one condition where blood donation is

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required or used. Low levels of knowledge and practice were observed in a number of published studies across the developing world. A study conducted among Health Science students in Ethiopia revealed that only 48.5 % of the respondents have acquired a good knowledge of blood donation [14]. Another meta-analysis in Ethiopia showed that 56.57% of respondents had good knowledge about blood donation [13]. A cross-sectional study among 384 university students in Karachi City, Sindh, Pakistan for a period of four months showed that most of the student's level of knowledge regarding blood donation was lacking with a considerable number lacking basic knowledge. The most common source of knowledge about blood donation was friends and relatives (55%), followed by healthcare (14.3%), print resources (10.4%) and television (10.7%) [15]. Another carried out in India among 1520 college students from six colleges for the period of one year showed the prevalence of blood donors was 13.81%. In this study, 81.57 % of students were aware of Voluntary Blood Donation (VBD). 62.5% of the students had awareness regarding the spread and transmission of HIV/AIDS. 49.34% of students were not aware of the fact that paid / professional blood donation has been banned in India. 76.68% of the students had knowledge that blood donation has medical benefits [16]. In another literature review about knowledge of blood donation in Malaysia revealed non-exclusivity of high KAP to blood donation in favor to students whose program or courses are inclined to paramedical nature. It can be established that regardless of exposure, literature suggest that students display similar KAP on blood donation [5]. More so a study on knowledge, attitude and practice about blood donation conducted in the urban population of Yazd University Iran, shows that the level of knowledge of the population under study about services of blood transfusion centres and uses of blood and blood products was relatively good [13]. WHO recognized the existence of a significant dependency on family/relative replacement and remunerated donors in developing countries and advocates the establishment of national blood transfusion services that functions on the basis of voluntary, non-remunerable blood donation by member states [4]. A descriptive study to assess the knowledge, attitude, and practices about blood donation among medical students of a medical college in North India showed that the mean knowledge score of participants was 74.4%. [17].

Attitude towards blood donation of prospective blood donors aged between 18 to 35 years

Many 186 (48.4%) thought that blood donation is good, the majority 269 (70.1%) encouraged others to donate, 194 (50.4%) believed donating blood is too much of an inconvenience, 270 (70.3%) less likely to donate blood even if they were paid to do so and lastly many 231 (60.2%) were not willing to donate blood in future. A study conducted in the Kilimanjaro region of Tanzania on voluntary blood donation among students revealed a positive attitude toward voluntary blood donation where 94.4% of the respondents were willing to voluntarily donate to anyone and 94.5% were willing to donate to relatives in need of blood [12]. In a study Uganda on KAP among the adult population in Pakistan, positive attitude towards blood donation stemmed from altruism taking 66%, family and friends 28% while religious organizations scored 16%. The negative attitude towards the practice was due to fear of the procedure and the concept that blood banks misuse that also includes sell of blood products for monetary benefits [9]. A study to assess blood donation practice and its associated factors among civil servants in Chiro Town, Western Hararghe, Oromia Region, Ethiopia revealed that 61.1% of respondents had a positive attitude towards blood donation and being males increased the odds of favourable blood donation [3]. However, an assessment of knowledge, attitude and practice of voluntary blood donation and associated factors among Residents of Birbir Town in the same country showed that only 45.2% had a good attitude towards donation [1]. A similar study conducted in Bhubaneswar city India among collage going students revealed that students of all streams had a positive attitude towards blood donation however some steps are needed to be taken to allay fear, create more opportunities for donation, recognize and tap this source of safe blood [17]. Furthermore, a cross-sectional study to find out Blood donors' knowledge and attitude towards blood donation at North Gondar district blood bank, Northwest Ethiopia revealed that 94.5% of the study participants had favorable attitude towards blood donation possibly because they had good knowledge of the use of the donation [8].

Practices on blood donation of prospective blood donors aged between 18 to 35 years

Many 318 (82.8%) had never donated blood. Of the 66 (17.2%) who had ever donated blood, many 44 (66.7%) donated once. Of the 318 who had never donated blood, the main reason was fear of needles/pain suggested by 117 (30.5%) The University population has been identified as a key low risk donor group in various blood transfusion services especially during emergencies and disasters because of being easily accessed and educated and presents a high potential population of becoming regular non remunerated blood donors [6]. According to a study conducted in Ethiopia revealed that less than quarter 18.4% of the respondents had an experience of blood donation and 81.6% never donated blood before. The given reasons were; lack of information on where, when and how to donate blood, perception of not being fit to donate fear of being anemic and health related risks following blood donation [8]. Another research done in South Sudan revealed that majority 87.23% of students never donated blood [11]. In

another study conducted among private medical college students in India indicated that 30% of the university students had ever donated blood in their lifetime, 55% had donated twice or more. Majority reported reason for their donation to be out of voluntarism, 1.6% donated because they wanted to know their HIV health status. Pertaining reasons for not donating some never donated in their life time due to fear of needle pain(17.5%) [17]. A Cross-Sectional Study to assess low blood donation practice of health sciences college students in Northeast Ethiopia found that only 12.4% of students had donated blood at least once in their lifetime [14]. This could be explained by people voluntarily donating blood after experiencing a family member's health problems, which required a blood transfusion. Furthermore, students who had knowledge about blood donation were twice as likely to donate blood compared to those who had no knowledge [7].

CONCLUSION

In conclusion, this study observed found low levels of knowledge and practice. The rate of positive attitude was relatively low and a high were not willing to donate blood in future. The main reason for not donating blood was fear of needles/pain.

RECOMMENDATION

- More emphasis is required to improve awareness of university students about voluntary blood donation and its positive value to the health sector in the country.
- The Ministry of Health should emphasize radio and Television talk shows in order to improve awareness among resource-full societies like universities, Tertiary institutions, secondary schools and the general public as well.
- Blood donor education and sensitization should begin at secondary school by blood donor organizers.

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