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Blood donation knowledge, attitude, and practice among regular undergraduate medical and health science students at Wolkite University, Central Ethiopia: A cross sectional study

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ABSTRACT

Aims: To assess the knowledge, attitude, and practice of blood donation among students studying medicine and health sciences, at Wolkite University, in 2024.

Methods: A cross-sectional study was conducted with 407 participant's selected using simple random sampling from each department. Data were collected through semi-structured questionnaires and self-administration. The collected data were entered into Epi-data 3.1 and analyzed using SPSS-25.A scoring system was used, with one point given for each correct response and zero for incorrect responses. Participants could score a maximum of 16 points. Knowledge levels were categorized as poor (less than 8 points or more). Data distribution was assessed for normality using histograms and the Kolmogorov–Smirnov test. Categorical data were presented as frequencies and percentages, while continuous variables were analyzed using means and standard deviations. A p-value of less than 0.05 was considered as significant.

Results: Of the 407 participants, 257 (63.1%) were males and 150 (36.9%) were females with a mean age of 22.47±1.77. 94.6% of respondents scored 8 or more correct answers, indicating good knowledge. 32.8% heard about blood donation through mass media, and (49.1%) identified voluntary donors and family as blood sources. 95.3% had a good habit of donating blood, and 85.3% recommended voluntary donation for safe blood supply. 28.7% had donated blood, with 54.8% donating once.

Conclusion: Opportunities, information, social responsibility, and motivation are key factors influencing students' blood donation behavior. Increased information, education, and communication (IEC) activities and seminars can raise awareness among medical students, encouraging voluntary donation, and inspiring others. Involving influential figures like celebrities, religious leaders, regular donors, and blood recipients can further motivate students to participate in blood donation campaigns.

Keywords: Attitude, Blood donation, Knowledge, Practice

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INTRODUCTION

Blood is the essence of life, a complex fluid medium of plasma containing a suspension of living cells [1]. The process of transferring homogenous blood from one member of the same species to another is known as blood transfusion. In human medicine, preserving severely ill patients with low blood parameters is a regular procedure that has been utilized for many years as an emergency and life-saving measure [2].

Red blood cell transfusions are used to treat bleeding and improve oxygen delivery to tissues. The decision to give a red blood cell transfusion should be based on the patient's clinical condition. Reasons for red blood cell transfusion include symptomatic anemia (which can cause shortness of breath, dizziness, congestive heart failure, and reduced exercise capacity), acute sickle cell crisis, and acute blood loss exceeding 30% of blood volume [3]. Fresh frozen plasma infusion can be used to counteract anticoagulant effects. Platelet transfusions are recommended to prevent bleeding in patients with thrombocytopenia or platelet function abnormalities. Cryoprecipitate is used in causes of hyperfibrinogenemia, which often occurs in cases of extensive bleeding or consumptive coagulopathy [3].

Blood scarcity is a common problem in hospitals caused by an imbalance between the rising demand for safe blood and blood products on one hand and the failure to organize regular blood supply due to misconceptions, perceived harms and risks, and a lack of motivation among potential donors. It is estimated that there are about 234 million major operations performed annually around the world [4, 5]. Donating blood has benefits for emotional and physical health. It can reduce stress, provide a sense of belonging, reduce isolation, lower the risk of acute myocardial infarction, improves insulin sensitivity, and aid in maintaining of the body's glucose balance. It has been discovered that finding trustworthy contributors is more difficult, particularly in developing nations like Ethiopia [6, 7].

The demand for blood transfusions is alarmingly rising due to the increased utilization of newly expanded invasive procedures, an increase in accidents, and chronic non-communicable diseases that require transfusions. But currently, the demand is higher than the supply [8]. Globally around 118.5 million blood donations are made, with 40% of blood donated by developed countries where only 16% of the population resides. The percentage of people who donate whole blood serves as a gauge for the country's overall blood supply. Blood donors can be classified as voluntary, paid and family or substitution donors, also known as replacement donors. Over 50% of the world's blood donations are still obtained from paid blood donors and relatives in 54 different countries [9].

It is generally recommended that blood donation should be limited to voluntary donations due to the increasing number of infections transmitted during blood transfusion [10, 11]. The World Health Organization (WHO) suggests voluntary, non-remunerated blood donation and has established a standard of 10 donations per 1000 population as a minimum requirement for all countries to meet [12]. High income countries (HICs) typically have 32.1 donations per 1000 population, while low income countries (LICs) have only 4.6 donations per 1000 population, and middle income countries (MICs) have 8.1 donations per 1000 people. It is estimated that only 1% of a country's population needs to donate blood to meet the basic demand [13].

To achieve this goal, the WHO recommends centralizing all blood donation activities, including collection, testing, processing, and storage, at the national level. While many countries are working toward this, it can be more challenging for low- and middle-income countries (LMICs) with limited infrastructure and healthcare funding [13]. The focus should be on promoting 100% non-remunerated, voluntary blood donation from low-risk populations to reduce the risk of transfusion-associated infections [14].

Only five countries (Algeria, Botswana, Congo, Mauritius, and South Africa) were able to collect at least 10 units per 1000 populations [15]. This is why, there is a significant gap between blood needs and supplies in many developing countries, including Ethiopia. The main reasons for low blood donation rates in sub-Saharan African countries include a lack of well-established structures for blood donation services, poor infrastructure, challenges in recruiting, and retaining blood donors, large and dispersed populations, especially in rural areas with limited access to blood centers, inadequate communication networks, and misperceptions about blood and donation due to lack of knowledge and cultural influences [16].

Research examining the influential factors that affect blood donor recruitment and retention has shown that people's willingness to donate blood is influenced by socio-demographic, organizational, physiological, and psychological factors [17]. The number of active blood donors has decreased over the last several decades, making it unable to meet the increased demands for blood transfusions. Moreover, most people do not donate blood voluntarily; they only donate for their relatives or friends in need of a transfusion. Very few blood donors are paid [18]. Furthermore, the issue of safety related to blood donations and transfusions, such as avoiding transfusion-transmissible infections (TTIs), is a crucial concern, especially in developing countries. Thus, blood transfusion is limited to relatives with special precautions [19]. One of the reasons for blood scarcity is the inability to arrange regular blood supply due to misconceptions, hazards that donors perceive, and lack of enthusiasm among them [20].

What motivates a person to donate blood voluntarily? What challenges do they face? And how can blood centers encourage donors to come back? The answers to these questions help blood collection agencies identify potential new donors and predict future donations [21]. Hemorrhage remains the leading cause of maternal

mortality worldwide, responsible for 34% of maternal deaths in Africa, 31% in Asia, 21% in Latin America, and 13% in developed countries [18]. While efforts have focused on preventing of postpartum hemorrhage through the use of uterotonics and active management of the third stage of labor, women continue to die due to inadequate blood supply. In sub-Saharan Africa, it is predictable that 26% of maternal hemorrhagic deaths outcome from a shortage of blood transfusion facilities, and worldwide up to 150,000 pregnancy-related deaths could be prohibited each year if women had access to safe blood [22].

In Ethiopia approximately 25–40% of pregnant mothers die due to shortage of blood supply from donors [23]. Ensuring the availability of safe blood at all health facilities could reduce maternal deaths, guaranteeing that the lives of every pregnant mother are not at risk in emergencies due to a lack of blood [24]. Despite the Ethiopian National Blood Bank collecting nearly 200,000 units of blood from donors annually, the country needs 18,000 units of blood daily. However, the average daily amount collected is only around 1,100 units [25]. Increasing awareness and fostering a positive attitude toward blood donation is the top priority or all blood transfusion centers. The first step in achieving this goal is to conduct comprehensive studies that measure the current levels of awareness, knowledge, beliefs, and attitude of the population toward blood donation [26].

Young, healthy, and physically fit students are potential sources of safe and high quality blood. To target this population, it is important to assess their knowledge and attitude toward blood donation. Medical students, being in the healthcare field, are expected to be more aware of the role of blood in saving patients' lives than non-medical students. However, does this assumption result in differences in their knowledge and attitudes toward voluntary blood donation? There are no published studies on the level of knowledge and factors influencing knowledge and attitudes toward blood donation among university students at Wolkite University. To address this gap in information, this study was conducted to explore the knowledge, attitudes, and practice toward blood donation among Health and Medicine students at Wolkite University.

Surveys on knowledge and practices can assist blood donation centers in developing future policies to encourage regular blood donations and motivate non-donors to start donating [18]. Voluntary unpaid blood donors are safest group and could provide sustainable national blood supplies to meet the countries demand [18]. There are limited studies evaluating awareness and practices of voluntary blood donation among medical students, which should be expanded as they could be a valuable source of quality blood if motivated to donate voluntarily. Research on blood donation knowledge, attitude, and practices (KAPs) has been conducted in other regions of Ethiopia, but there is a lack of studies in central Ethiopia, particularly among medical and health sciences university students.

MATERIALS AND METHODS

Study design, period, and area

From February to May 2024, a cross-sectional study was conducted at Wolkite University, which is located in Wolkite town approximately 158 km southwest of Addis Ababa, the capital city of Ethiopia. Wolkite serves as the capital city of Gurage Zone, boasting an average annual temperature of 18.6°C and an average rainfall of 1244 mm. The town's elevation ranges between 1920 and 1935 meters above sea level [27]. According to the 2007 Census conducted by the Central Statistics Agency of Ethiopia, Wolkite town has a total population of 28,856, with 15,068 males and 13,788 females [28]. Wolkite University was established in 2001 EC and has three campuses: Gubure campus, Wolkite campus, and Butajira campus, with housing a total of seven colleges and one school. The College of Medicine and Health Science, founded in 2016, currently consists of seven departments with a total of 915 students in 2024.

Study populations

This study involved all regular undergraduate Medicine and Health Science students who were enrolled at Wolkite University during the study period. However, students with serious illnesses, those unwilling to provide data, or sign the written consent form, or those who were away from the university compound due to the Community Based Training Program, Team Training Program, clinical attachments, or other reasons were excluded from the study.

Sample size

The single population proportion formula was used to determine the sample size by considering the proportion of adequate knowledge toward voluntary blood donation VBD (40.4%) among regular students at Ambo University [29], with a 10% allowance for non-respondent rate.

The formula used is:

$$n = \frac{(Z\alpha/2)^2 p\,(1-p)}{z^2}$$

where α is confidence interval=95%, p is best estimate of population proportion (40.4%), z is maximum acceptable difference=5%, n is maximum required sample size, $Z\alpha/2$ is value under standard normal table for the given value of confidence level=1.96, n is $(1.96)^2 \times 0.404\ (1-0.404)/(0.05)^2$=370, and adding 10% non-respondent rate so the final sample size is n=407.

Sampling technique

The study utilized a proportional stratified sampling method to ensure relative homogeneity based on our

research interests. Students were divided into two strata: the first consisting of students from the Medicine, Pharmacy, and Anesthesia departments, and the second consisting of students from Public Health, Nursing, Medical Laboratory, and Midwifery.

The number of samples to be studied was determined through proportional allocation, with the number of students from each department within the stratum also determined by proportional allocation. The study sample was chosen using a simple random sampling technique, specifically the lottery method, based on the sampling frame obtained from the Registrar's Office. Out of a total of 915 students, 407 participants were selected (Figure 1).

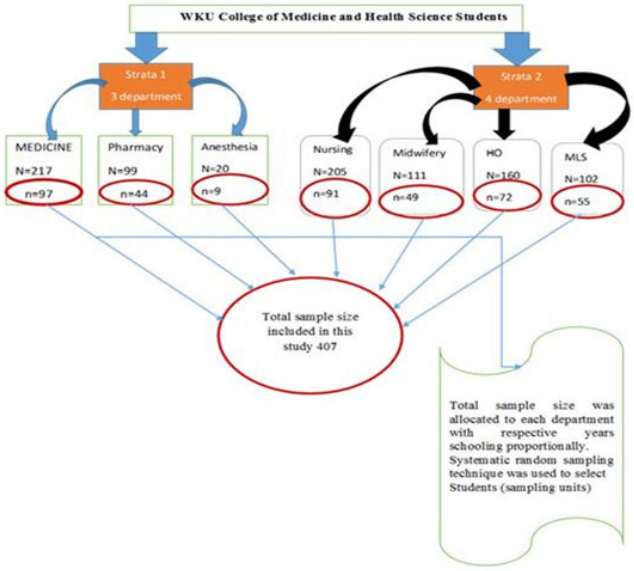

Figure 1: Sampling technique among medicine and health science colleges in Wolkite University, Wolkite, Central Ethiopia, 2024. HO: Health officer; MLS: Medical laboratory sciences.

Data collection procedure and tools

Data were collected using a self-administered pretested structured questionnaire designed for the study based on a literature review [30, 31], and WHO guidelines for blood donation [6].

Three expert community and family medicine consultants in the field of research methodology validated the research tools. The questionnaire consisted of four parts. The first part inquired about socio-demographic characteristics. The second part focused on knowledge of blood donation, with 16 questions covering participants understanding of the benefits, requirements, and restrictions of blood donation.

The third part assessed participants attitudes toward blood donation through seven questions with "yes" and "no" options. The fourth part focused on practice, with six questions regarding the nature and frequency of blood donation, reasons for not donating, and other related topics. Participants were provided with an informed consent form outlining the study's purpose and how to complete the questionnaire. It was emphasized that participation was voluntary, all data collected would be kept confidential, and would only be used for the purpose of the study.

For the assessment of knowledge level: This relates to students' understanding of the benefits, risks, and eligibility criteria for blood donation. The knowledge level was assessed through 16 questions. Respondents who answered all questions correctly received a maximum of 16 points, with higher scores indicating better knowledge. Based on the total score, knowledge levels on blood donation were categorized as low (less than 8 points) or high (8 points or more).

Attitudes toward blood donation were evaluated using seven questions with "yes" and "no" options. A score of one was assigned for each "yes" response, and zero for each "no" response. Individuals scoring less than 4 points were classified as having an uncomfortable attitude toward blood donation, while those scoring 4 points or more were considered to have a comfortable attitude toward blood donation.

Regarding practice: This indicates whether a particular study participant has experience with blood donation or not, as well as the reasons and frequency of blood donation for those who donate blood and the reasons for donating for who do not donate blood.

Informed consent statement: Prior to actual data collection, approved ethical clearance was obtained from the Ethical Research Committee of the College of Medicine, and Health Sciences at Wolkite University. This letter was submitted to the relevant bodies at Wolkite University. The purpose of the study and the rationale behind it were briefly discussed with all study participants, and informed consent was obtained from each participant. Throughout the study, the information of the participants was kept confidential.

Statistical data analysis and interpretations

The data collected were cleaned, coded, and entered into Epi-Data version 3.1, then exported to the SPSS version 25 program (Statistical Package for Social Sciences; SPSS Inc., Chicago, IL, USA) for analysis. A scoring system was applied to determine the overall knowledge level score, with one point given for each correct response and zero points for a wrong response. Respondents who answered all questions correctly received a maximum of 16 points. Based on the total score, knowledge levels on voluntary blood donation were categorized as poor (less than 8), and very good (greater than 8 points).

The normal distribution of continuous data was assessed using a Histogram and Kolmogorov–Smirnov test. Frequencies and percentages were used for categorical data, while means and standard deviations were used for the presentation of continuous variables. A p-value of < 0.05 was considered significant.

RESULTS

Socio-demographic characteristics of respondents

Among the respondents, 257 (63.1%) were males and 150 (36.9%) were females. The mean±SD age of our participants was 22.47±1.77. Approximately 194 (47.7%) of participants identified as orthodox in religion, while 97 (23.8%) were in the Medicine department and 91 (22.4%) were in the Nursing department. One hundred fifty-eight (38.8%) were in their fourth year class and around 141 (34.6%) identified as Oromo in ethnicity (Table 1).

Knowledge level of respondents toward blood donation

The overall level of knowledge was determined by adding up the correct answers of each individual response. It was found that 94.6% of the respondents scored 8 out of 16 correct answers, labeling them as having good knowledge. However, the remaining 5.4% scored less than 8 out of 16 correct answers, labeling them as having poor knowledge.

About 134 (32.8%) respondents heard about blood donation from mass media, and 188 (49.1%) of our study participants said that voluntary blood donors and family are a source of blood supply. One hundred sixty seven (41%) respondents said that the eligible age group for blood donation is between 18 and 60 years old. Approximately 97.1% of participants knew about blood groups and 81.1% of them knew their own blood type. One hundred twenty eight (31.4%) participants agreed with the idea that the duration of the donation process is between 20 and 60 minutes (Table 2).

Attitude level of respondents toward blood donation

About 388 (95.3%) of our study participants had a good habit of donating blood. Approximately 347 (85.3%) participants recommended voluntary blood donation as the best source for safe blood. Around 287 (70.5%) of our study participants disagree d with the idea that something harmful could happen to a blood donor during or after donation. Three hundred and sixty-one participants expressed a positive willingness to continue donating blood in the future. Three hundred seventy (90.9%) participants showed a positive understanding of the importance of encouraging relatives to donate blood (Table 3).

Blood donation practice of respondents

One hundred seventeen (28.7%) participants had experience with blood donation, of whom approximately 64 (54.8%) donated about once. Around 20.5% of participants donated blood out of altruism, a sense of social responsibility, to help friends/relatives, or for spiritual blessings. Approximately 58 (49.6%) donors felt comfortable after donating blood, while about 24.8% were regular donors (Table 4).

Reasons why participants do not donate blood regularly

About 29.5% of study participants had no reasons for not donating blood in a regular scheme, while 16.5% of them feared the pain. Approximately 12.5% of our study participants ignored regular blood donation due to medical reasons, and 4.4% cited parental restrictions as their reasons (Figure 2).

Table 1: Distribution of socio-demographic characteristics among regular medicine and health science students in Wolkite University, 2024 (n=407)

Variables	Categories	Number	%
Sex	Male	257	63.1%
	Female	150	36.9%
Age	Mean±SD	22.47±1.77	–
Religion	Orthodox	194	47.7%
	Muslim	99	24.3%
	Protestant	93	22.9%
	Catholic	13	3.2%
	Others*	8	2.0%
Department	Nursing	91	22.4%
	Midwifery	49	12%
	Public health	72	17.7%
	Anesthesia	9	2.2%
	Medical laboratory	45	11.1%
	Medicine	97	23.8%
	Pharmacy	44	10.8%

Table 1: *(Continued)*

Variables	Categories	Number	%
Class year	Third year	139	34.2%
	Fourth year	158	38.8%
	Pre-clinical-1	22	22.6%
	Pre-clinical-2	23	23.7%
	Clinical-1	21	21.6%
	Clinical-2	12	12.4%
	Fifth year	12	12.4%
	Internship	7	7.2%
Ethnicity	Amhara	126	31.0%
	Oromo	141	34.6%
	Tigre	9	2.2%
	Gurage	101	24.8%
	Wolayita	22	5.4%
	Other#	8	2.0%

*Other religion includes: Adventist and waqefata.
#Other ethnicity includes: Hadiya, Silte, Sidama, and Gambela.

Table 2: Level of knowledge on blood donation among regular health science students in Wolkite University, 2024 (n=407)

Knowledge-related variables	Categories	Number	Percentage
Have you ever heard about blood donation?	Yes	396	97.3%
	No	11	2.7%
If your answer is "yes," to precede question what is your source of information? (More than one answer is possible)	Mass media, family/friend and from blood donors	97	24.5%
	Mass media and family or friends	29	7.3%
	Blood donors	34	8.6%
	Mass media	134	32.8%
	Mass media and blood donors	71	17.9%
	From family or friends	31	7.8%
Do you know source to give blood for those who need blood supply?	Yes	383	94.1%
	No	24	5.9%
If yes, what are sources for blood supply to the patient who need blood? (More than one answer is possible)	Voluntary blood donors , family donors, and paid donors	51	13.3%
	Voluntary blood donors and family donors	188	49.1%
	Paid donors	8	2.1%
	Family donors	125	32.6%
	I do not know	11	2.9%
What is the age of eligibility for blood donation?	18–60	167	41%
	18–65	120	29.5%
	19–65	20	4.9%
	I do not know	100	24.6%
What is the minimum weight eligibility for blood donation?	45 and above	191	46.9%
	50 and above	147	36.1%
	55	6	1.5%
	I do not know	63	15.5%

Table 2: *(Continued)*

Knowledge-related variables	Categories	Number	Percentage
How many milliliters of blood does a person donate each time?	350–450	227	55.8%
	500–600	70	17.2%
	800–900	13	3.2%
	I do not know	97	23.8%
How often can people donate blood?	Once in every 3 months for males and 4 months for female	281	69%
	Twice in every 3 months for males and 4 months for females	13	3.2%
	Once in every 6 months for males and 7 months for females	43	10.6%
	Once in a year for both males and females	8	2%
	I do not know	62	15.2%
Can a person be infected by receiving blood?	Yes	344	84.5%
	No	63	15.5%
If you say yes; what diseases are transmissible by blood transfuse?	HIV, HBV, HCV, Syphilis, Malaria, and CMV	150	43.6%
	HIV, HBV, HCV, and Malaria	18	5.2%
	Malaria	5	1.5%
	Malaria and HIV	8	2.3%
	HIV, HBV, and HCV	103	29.9%
	HIV	60	17.4%
Do you know about blood group?	Yes	395	97.1%
	No	12	2.9%
Do you know your own blood group type?	Yes	330	81.1%
	No	77	18.9%
What can happen to a blood donor during or after donation?	Contact infection	95	23.3%
	Feel sick	37	9.1%
	Temporary weakness	155	38.1%
	Not applicable	120	29.5%
Who should donate blood?	Man	53	13.0%
	Women	19	4.7%
	Older than 60 years	3	0.7%
	Younger than 18 years	10	2.5%
	Vulnerable group	29	7.1%
	Diseased only	4	1.0%
	Healthy only	289	71.0%
What is the duration of the donation process?	20 min	99	24.3%
	20–60 min	128	31.4%
	I do not know	180	44.3%
Is human blood manufacture artificially?	Yes	56	13.8%
	No	351	86.2%

Abbreviations: HIV: human immune virus; HBV: hepatitis B virus; HCV: hepatitis C virus; CMV: cytomegalic virus.

Table 3: Attitude toward blood donation among regular health science students in Wolkite University, 2024 (n=407)

Attitude question		Number	Frequency
Do you think that donating blood is good habit?	Yes	388	95.3%
	No	19	4.7%
Can something harmful happen to a blood donor during or after blood donation?	Yes	120	29.5%
	No	287	70.5%
Do you think that voluntary blood donation is best source to make safe blood?	Yes	347	85.3%
	No	60	14.7%
Do you think that donating blood lower donor's immunity?	Yes	88	21.6%
	No	319	78.4%
Could blood donation leads to anemia?	Yes	177	43.5%
	No	230	56.5%
Are you willing to donate blood in the future?	Yes	361	88.7%
	No	46	11.3%
Do you encourage relatives to donate?	Yes	370	90.9%
	No	37	9.1%

Table 4: Practice of voluntary blood donation among regular health science students in Wolkite University, 2024 (n=407)

Practice-related question		Number	Frequency
Have you ever donated blood before?	Yes	117	28.7%
	No	290	71.3%
If your answer to Q1 is "yes," how many times do you donate?	Once	64	54.7%
	Two times	33	28.2%
	Three times or more	20	17.1%
What are the reasons for donating blood?	Altruism/doing good to others, sense of social responsibility, for helping friends/ relatives, and spiritual bless	24	20.5%
	For helping friends/relatives and spiritual bless	18	15.4%
	For helping friends/relatives	21	17.9%
	Altruism/doing good to others	20	17.1%
	Spiritual bless	15	12.8%
	Sense of social responsibility	8	6.8%
	Altruism/doing good to others and sense of social responsibility	11	9.4%
How do you feel after donating blood?	Comfortable	58	49.6%
	Fear	37	31.6%
	Anger	3	2.6%
	Indifferent	19	16.2%
Are you a regular donor?	Yes	29	24.8%
	No	88	75.2%
When was the last time you donated blood?	Greater than one year	58	49.6%
	Less than one year	59	50.4%

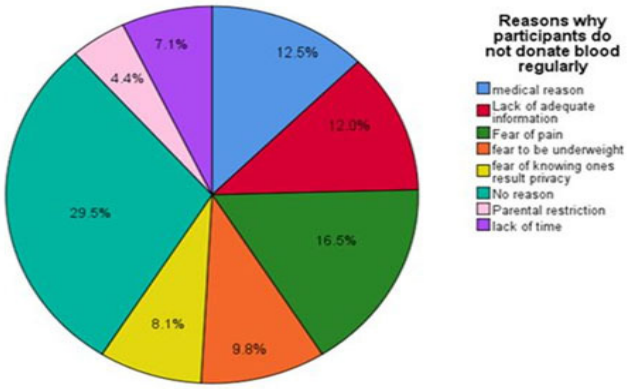

Figure 2: Reasons why Medicine and Health Sciences students do not donate blood regularly at Wolkite University, Central, Ethiopia, 2024.

DISCUSSION

In this study, an effort has been made to assess the level of knowledge, attitude, and practice of study participants on blood donation. This information is important for understanding the KAP about voluntary blood donation. It also provide information that can serve as a basis for improving and enhancing the blood donation strategy at both individual and government levels.

Of our total study participants, 385 (94.6%) had good knowledge regarding blood donation. About 97.1% of participants were aware of blood groups, and 81.1% of them knew their own blood type. This high level of awareness can be attributed to medical and health science students practicing blood groups during hospital attachments as seen in our study results. Our findings suggest that higher education plays a significant role in imparting knowledge and fostering a positive attitude towards voluntary blood donation.

Our study results higher than those of studies conducted in Saudi Arabian [27], Lahore, Pakistan [28, 29], India [30], Caribbean [21], Iraq [31], Ethiopia [32, 33], and Riyadh [34].

The discrepancy in overall knowledge between our study and previous studies may be attributed to the fact that the topic of blood donation is not considered part of the curriculum, the number of blood donation campaigns held, the level of awareness and different criteria used for assessing knowledge regarding blood donation in these countries compared to our own setup.

A recent study found that 89.2% of students had a positive attitude toward blood donation. Studies conducted in Saudi Arabia [27], the Caribbean [21], and India [35] reported higher levels of positive attitude among their study participants compared to ours. The variation may be due to differences in motivation, levels of awareness through social media, misconceptions and the frequency of blood donation campaigns in these countries.

Out of the total study participants, only 117 (28.7%) had experience with blood donation, with 64 (54.8%) donating about once. Studies conducted in Lahore, Pakistan [28, 29] and Ethiopia [33] have reported almost similar practices of blood donation among their participants as ours. However, a study done in India [30] showed higher levels of practice than our study results. This variation may be due to difference in altruism and its effects on blood donation practices, as supported by studies that enhance the positive willingness of donors to donate blood.

In our study, 29.5% of study participants had no reasons for not donating blood in a regular scheme, while 16.5% of them feared the pain. Approximately 12.5% of our study participants ignored regular blood donation due to medical reasons, and 4.4% cited parental restrictions as their reasons. Our findings coherence with the review report from Canada [36].

STRENGTH OF THIS STUDY

This study is a comprehensive evaluation of the knowledge, attitudes, and practices among medical and health students at Wolkite University. It aimed to provide insight into the importance of understanding blood donation and its benefits for health. The study utilized a large sample size, allowing for potential generalization to the broader population.

LIMITATION OF THIS STUDY

The main limitations of our study were those inherent in most studies on knowledge, attitudes, and practices. Responses may have been influenced by socially desirable attributes, and there is a possibility of both recall bias and interviewer bias. Additionally, since Ethiopia is a multicultural country with a broad diversity, and the students in our study were from only one medical college it would not be appropriate to generalize the results to students from all medical colleges or the general population. The present study may also have validity issues due to its sample size. Students involved in external programs (e.g., clinical attachments) were excluded, which might affect sample representativeness.

CONCLUSION

Availability of appropriate opportunities, better information, a sense of social responsibility, and other motivational factors could play decisive roles in influencing students' behavior and practices. Efforts are necessary to motivate students donate blood regularly rather than randomly and only when a need for blood transfusion arises. It is crucial to not only create opportunities for blood donation, but also to raise awareness of voluntary blood donation (VBD).

Information, education, and communication (IEC) activities should be increased and regular seminars should be conducted to enhance awareness among medical students, encouraging them to donate blood voluntarily and inspire others to do the same. Famous personalities, religious leaders, regular blood donors, and individuals saved by blood donation should be engaged to motivate students to participate in blood donation campaigns.

Strategies should be developed to promote voluntary blood donation among students. Incorporating the topic of blood donation in to the existing curriculum, utilizing mass media, collaborative work with different national and international institutions are all important steps in achieving this goal.

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