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Knowledge, Attitude, and Practice of Voluntary Blood Donation Among Health Professionals in Hadiya Zone, Southern Ethiopia: Cross-Sectional Study Design

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Abstract: Universal access to safe, affordable surgery when needed depends on a sufficient and safe blood supply. This is not the case in most of the world today. The average blood donation rate in low-income countries (2·8 donations per 1000 population) was an order of magnitude below that of high-income countries (36·4 donations per 1000 population). Typically, Ethiopia has a blood donation rate of 0·6 units per 1000 population, or roughly 56 000 units per year. This study assessed the level of knowledge, attitude, and practice, of blood donation among health professionals using an Institution-based analytic cross-sectional study design. A pre-tested and structured self-administered questionnaire was used to collect data. Among the study participants, 280 (86.4%) had adequate knowledge of blood, about 52% responded harmful events might occur during donations and 20% said only physically strong people donate. Only 65.1% showed a willingness to donate during an emergency and 36% of health professionals donated blood at least one time. In conclusion the level of knowledge was high in health care workers, and a significant number of health workers' attitudes towards blood donation were inadequate. Although health workers were equipped with good knowledge of blood donation, an insignificant amount of blood donation practice was identified.

Keywords: Knowledge, Attitude, Practice, Health Worker, Cross-Sectional, Ethiopia

1. Introduction

Universal access to safe, affordable surgery when needed depends on a sufficient and safe blood supply [1]. This is not the case in most of the world today [1]. The average donation rate in low-income countries (2.8 donations per 1000 population) is an order of magnitude below that of high-income countries (36.4 donations per 1000 population) [1].

Ethiopia has a blood donation rate of 0.6 units per 1000 population, or roughly 56 000 units per year [1]. Each year about 25 to 40% of Ethiopian mothers are said to have died due to a lack of enough blood from donors [2]. According to the National Blood Bank of Ethiopia, the amount of blood collected from donors last year was about 88,000 units of blood through the country's annual demand amounts up to 250,000 units. The discrepancy between what is needed and what is available has put a huge strain on caring for patients in desperate need of blood transfusion [1, 2].

Different studies have been conducted on health workers, students, and farmers in developed and developing countries [3]. The study revealed that knowledge of blood donation is not a problem, especially among health workers [4]. However, irrespective of different studies, there is a big gap between what is actually and what needs to be done in terms of blood donation [5]. Blood donation, mainly in developing countries including Ethiopia is suffering from a blood drought in the health institution where procedures that need

blood transfusion have been carried out [6].

However, there is not sufficient data throughout Ethiopia including the study area to have adequate blood supply for acute case management [7] and found that the status of Knowledge, Attitude, Practice, and associated factors related to donation among health workers (5, 7). The knowledge, attitude, and practice of health workers in addition to identifying associated factors are very important to improving blood donation all over the country [8]. Health workers are front-line workers to contact communities, they could be role models and mobilize the people [9]. Therefore, this study assessed the level of knowledge, attitude, and practice of health workers in the health institution of Hadiya zone, SNNPR, Ethiopia.

2. Methods and Materials

2.1. Study Setting

The study was conducted in SNNPR, Hadiya zone health institutions. Based on the 2007 (G. C), Census conducted by the Central Statistical Agency of Ethiopia (CSA) projection, the current total population of the zone is 1,650,104, of whom 808,551 are men and 841,553 women. The zone has one zonal hospital, two primary hospitals, and 62 health centers. Health workers mix is 21 specialists, 98 GP, 200 health officers, 351 BSC nurses, 49 BSC midwives, 24 environmental technologists, 42 laboratory technologists, 40 pharmacy technologists, 4 physiotherapists, 11 radiologists, 5 psychiatrists, 805 diploma nurses, 185 diploma midwives, 176 diploma laboratory technicians, 36 diploma health information technologist, 95 diploma pharmacy technician, 35 diploma environmental health. Totally there are 2, 177 health workers in the zone [10].

2.2. Study Period

The study was conducted from March to July 2018.

2.3. Study Design

The institution-based analytical cross-sectional study design was used.

2.4. Source and Study Population

The source population was all health care workers in the Hadiya zone. All health care workers providing health services in the Hadiya zone whose work experience is greater than or equal to 1 year are available during the data collection period.

2.5. Sample Size Determination and Sampling Procedure

$$n = z\alpha/2(1-p)2$$

Where: - α= confidence interval=95%, p= estimate of population proportion (68%) w=maximum acceptable difference=5% n=minimum required sample size.

Zα/2 =value of confidence level=1.96

$$n = (1.96)^2.0.68(1-0.68)/ (0.05)\ 2 = 334.37288 \approx 335$$

Since the study population was less than 10,000, i.e., 2177, by using correction factor (nf = n/1+n/N), =295 considering 10% non-response rate =29

The total sample size was 324

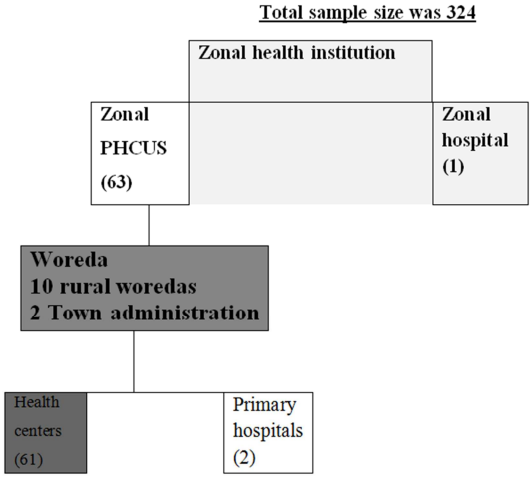

Figure 1. *Sampling procedure of the study.*

Zonal hospital (Hossana hospital) was purposely selected due to treating complex cases that might need a blood transfusion. After using multistage sampling (zone →Woreda→PHCUs & Hospital), data was collected from all health care workers who were present at the time of data collection, randomly selected, and volunteered to participate in the study.

2.6. Data Collection Tools and Technique

Data was collected by using a self-administered questionnaire which is prepared in English as study units were minimum Diploma holders. Data was collected for about three weeks by trained data collectors. The semi-structured questionnaire was used as a data collection tool.

2.7. Variables

Level of knowledge, attitude, and practice of blood donation.

Independent variables: service year, qualification level, department, exposure to media, and the health status of workers.

2.8. Operational Definition

1) Health workers: were to mean that all health professionals who were licensed by the ministry of health in Ethiopia and formally recruited to provide health services and hold a minimum of a diploma level irrespective of the department.
2) Health institutions: were to mean that all health institutions were registered and licensed to provide health services which include specialized hospitals, zonal hospitals, primary hospitals, and health centers.
3) Safe blood means blood that was free from transfusion

transmissible diseases, drugs, alcohol, chemical substances, or other extraneous factors that might cause harm or danger to the recipient.

4) Voluntary non-remunerated donation means a free donation of blood by volunteers out of humanitarian concern.
5) Replacement donation means the donation of blood for relatives or friends to replace blood used from blood bank stocks.
6) Paid donors are donors who are paid or remunerated otherwise for their donation.
7) Level of knowledge: Knowledge was assessed by 12 questions. Respondents with all correct responses got a maximum of 12 points, higher points indicate good knowledge. Based on the total score, knowledge level on blood donation was categorized into poor (if the below mean is answered), and good knowledge if the above means was answered.
8) Attitude: Attitude was the intention of participants toward blood donation practice. The attitude toward blood donation was assessed through 8 questions. Those who scored less than the mean value were categorized as having a poor attitude toward blood donation, and those who scored above the mean value were categorized as good attitude toward blood donation.
9) Practice: At least one donation was considered as practiced.

2.9. Data Analysis

The collected data were checked for completeness, consistency, and accuracy before analysis. The data was presented by using descriptive (percentage, ratio, mean, median, and frequency) and analytic statistics. The data was entered by Epi data 3.1 versions and was analyzed by using SPSS version 20 version software. The level of knowledge was assessed based on 12 questions validated and analyzed by using means of those questions and similarly attitude was analyzed by using 8 questions validated and then reported based on the mean of eight questions. Donation practice is analyzed at least one term donation as practice.

3. Result

3.1. Socio-Demographic Characteristics of the Respondents

A cross-sectional study was conducted on 324 (160 male and 164 female) health professionals of Hadiya zone health facilities, SNNPR, Ethiopia. The age range was 22-55 and of majority, (52%) were 26-30 with a mean age of 29.19, SD 4.900. Male and females were almost equally proportional 49.4 and 50.6% respectively. About sixty-one percent of respondents were married and majorities (70.4%) were Protestants church followers. Concerning the level of education, 62% of respondents were diploma holders and most the of respondents (66.7%) were in the range of 3001-6000 ETB monthly income with 93.2% service range of 1-10 years' experience. The nursing field was the department that majorly participated in the study (50.3%) (table 1).

Table 1. *Sociodemographic characteristics.*

Characters/Variable		frequency	percent
Age			
	21-25	65	20
	26-30	168	52
	31-35	65	20
	>36	26	8
Sex			
	male	160	49.4
	female	164	50.6
marital status			
	Married	197	.8
	Single	122	37.7
	Other	5	1.5
Qualification level			
	Diploma	201	62
	1st Degree	116	35.8
	second degree	7	2.2
Service experience			
	1-10 year	302	93.2
	11-20 year	20	6.2
	21-30 year	2	0.6
Department			
	Nursing	163	50.3
	Laboratory	30	9.3
	Pharmacy	30	9.3
	Others	101	31.2

3.2. Knowledge Towards Voluntary Blood Donation

The study showed that among the respondents 280 (86.4%) had adequate knowledge of blood donation. According to the study, 86.4% knew common blood groups, and about 90% knew their own blood groups. About 35% of respondents knew compatible blood groups, and about 90% knew common diseases that could be transmitted. Concerning the probable diseases that could be transmitted during transfusion, 47.5% of respondents mentioned all probable diseases that could be transmitted. About sixty-four percent of respondents replied the minimum time interval of blood donation is three months. Concerning the age range to donate, 49% of respondents said that anyone 14-60 years old and healthy could donate blood and 79% responded those who were diseased, under 18 years old, and above 60 years could not donate blood. Regarding the amount of blood to be donated at once and the amount of blood in the human body, 68% of respondents answered less than 500 ml and at the same time, 52% responded as there were three components of blood.

3.3. Attitude Towards Voluntary Blood Donation

The study showed that 91.4%of respondents expressed their opinion as blood donation was important and like to participate in blood donation campaigns. About 84% of participants believed that voluntary blood donation was the best source of donation. Also, about 52% responded harmful events might occur during donations and 20% said only physically strong people to donate. The majority, 72.8% said patient relative to donate and 90% encourage this but only

65.1% showed a willingness to donate during an emergency. Those with good attitudes were 75.9% and poor attitudes were 24.1%.

3.4. Practice Towards Blood Donation

The study showed that of the sample (n=324) about 36% of health workers donated blood at least once. Of this, 25.3% are donated one times, 4.6% two times, 4.9% 3 times, 0.9% 3 times, and 0.3% 4 times donated. Of those donated, 35.2% is for friends, relatives, and for others in an emergency. Of those not donated 24.4 reasoned out that they were not approached, 11.1% were unfit, 9.9% had no need to donate, 7.7% had family influence, 11.1% feared needles, and 1.9% fear of knowing their status.

Table 2. *Practice of blood donation.*

Variables	Frequency		Percent
ever donated blood			
	Yes	117	36.1
	No	207	63.9
How often donated			
	one times	82	70.1
	two times	15	12.8
	three times	16	13.7
	four times	3	2.6
	five times	1	0.9
if donated at least once why			
	for friends/relatives or in any emergency	114	97.4
	to know my screen status	3	2.6
if not donated why			
	not approached	79	36.9
	Unfit	36	16.8
	no need to donate	32	15
	family influence	25	11.7
	fear of needle	36	16.8
	fear of knowing my status	6	2.8

4. Discussion

In this study 86.4% of the health workers had adequate knowledge about blood donation, this is nearly the same as the study conducted among health science students of Addis Ababa University which is 83% [11]. The current finding reveals better findings as compared with the study findings of Tikur Anbesa hospital of Addis Ababa 54.2% [6]. Similar studies were conducted on university students in Thailand and Ethiopia; where the knowledge level was 42.7% and 40.04% respectively [6, 12]. About 63.6% said that the minimum frequency of donation was every three months. This is higher than in studies conducted on health or medical students in Ethiopia and India (40.09% and 59.63%) respectively [6, 12]. The possible reason for this may be perhaps in the studies, the participants were exclusively health professionals with a minimum of one year of service experience.

In this study, 75.9 percent of respondents had a good attitude toward blood donation which showed improvement from a study conducted among health science students of Addis Ababa University which is 68% [6], which is also higher than a study conducted on medical undergraduate students in India and studies in public and private medical students in Pakistan which is 42% [13]. This study showed that 91.4% expressed their opinion as blood donation is important and like to participate in blood donation campaigns which is nearly the same as the Nigerian study on physicians (89%) [14] and 81.6% of health workers in Benin Teaching Hospital, Nigeria [15].

This study showed that 84% of participants believed that voluntary blood donation was the best source of donation as compared with the study in Addis Abeba Tikur anbesa hospital (75%), study in Nigerian physician (80.7%), and study in Benin teaching hospital (71.2%). In this study, about 52% responded harmful events might occur during donation, and 20% said only physically strong people donate [6, 14, 15]. The majority, 72.8% believe patients relative to donate and 90% encourage this but only 65.1% showed a willingness to donate during an emergency. In general, in this study, 75.9% were classified as they had a better attitude and 24.1% had a poor attitude toward blood donation.

About less than half of the respondents (36%) had donated blood at least once. This study finding was nearly the same as study findings in Addisabeba tikur anbansa hospital, 38.5% although a little bit higher than studies in Addis Ababa University Health Science College (23.4%) and lower than a study conducted on the physician of the University of Benin Teaching Hospital in Nigeria (41.4%). About seventy percent of those donated, 70% were donated one time [6, 14].

5. Conclusion and Recommendation

However, the level of knowledge was high among healthcare workers, and the significant number of health workers' attitudes toward blood donation were inadequate. Although health workers were equipped with good knowledge of blood donation, an insignificant amount of blood donation practice was identified.

Better to work on health professional attitudinal change using BCC and further study is needed with intervention.

Ethical Consideration

Ethical clearance was obtained from the Institutional Review Board (IRB) of Pharma Health Science College of Hawassa campus, department of post-graduate studies, and a support letter was written to the Hadiya zone health department. Accordingly, the zone health department had written a support letter to the respective institution. Verbal consent was obtained from all study subjects which assured that participation was on a voluntary basis.

Abbreviations

PHCU: primary health care units
KAP: Knowledge, Attitude, and Practice
SPSS: Statistical Package for Social Science

Author Contributions

All authors contributed to data analysis, drafting or revising the article, have agreed on the journal to which the article will be submitted, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

Conflict of Interests

All the authors do not have any possible conflicts of interest.

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