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KNOWLEDGE AND ATTITUDE TOWARDS BLOOD DONATION OF PRESIDENTS AT CAT HAI AND BACH LONG VI ISLAND DISTRICTS AT HAI PHONG CITY IN 2019

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ABSTRACT

Background: Blood transfusion and donation can save millions of lives. Recently, the Vietnam National Blood Bank reported a shortage of blood units. This can endanger for patients and people in the community who in need for treatment, especially in remote, isolated places.

Materials And Methods: A community-based cross-sectional study was conducted from 1/2019 to 12/2019 on Cat Hai and Bach Long Vi – 2 remote islands in northern Hai Phong, Vietnam. A total of 802 adults' residents were randomly selected and interviewed using a pretested, structured questionnaire. Data were entered with Epi info 3.5 and transported to SPSS 20 for analysis.

Results: Of 802 participants, 251 (31.3%) and 586 (73.1%) were had adequate knowledge and positive attitude towards blood donation, respectively. Higher education status (AOR=2.18, 95%CI: 1.47-3.25), living location (AOR=1.37, 95%CI: 1.01-1.86) and history of previous donation (AOR =1. 49, 95%CI: 1.06-2.09) were significantly associated with knowledge of the participants. Residents who attained higher education (AOR=2.37, 95%CI: 1.44-3.89), had history of previous donation (AOR =1.6, 95%CI: 1.07-2.4) and had age at 24-30 (AOR=1.58, 95%CI: 1.04-2.38) were more likely to have good attitide status.

Conclusion: To increase the level of knowledge and attitude towards blood donation, health education to the community is recommended.

INTRODUCTION

Blood donation is remained the most important source of blood and blood components worldwide. While extensive promising research have come up, a real substitute for blood and blood components is not available [1]. Donated blood is a vital component within the management of the many diseases. It is the most lifesaving for an individual with loss of huge volumes of blood from accidents, hemorrhages or surgery [2].

Evidences showed that the annual global blood collection is 112.5 million units of blood. Over half these units of blood are collected in developed countries. The blood donation rate per 1000 people in high income countries is quite fivefold compered to low-income countries (32.1 vs 4.6 donations). Voluntary blood donors cover over 90% of donations in developed countries while they account below 50% in developing countries [3]. While over a million of blood units are collected each year, more millions still have to be collected to fulfill the worldwide demand, make sure the sufficient and timely provision of blood [4]. However, the demand and provide are not being balanced, the demand is escalating.

Vietnam is one of the developing countries in Southeast Asia, with 600 maternal deaths and more than 10,000 neonatal deaths are recorded in the country each year [5] and high motor accident rate. There is insufficiency and in-equitability in access to blood. Recently, with the influence of the COVID 19 pandemic, the National Blood Bank reported a shortage of blood units. [6], [7], [8]. This can endanger for patients and people in the community who in need for treatment, especially in remote, isolated places.

Since 2012, the Vietnam National Institute of Hematology and Blood Transfusion has established the blood bank center located on Cat Hai to monitor and reserve blood donor units on 2 islands Cat Hai and Bach Long Vi. However, after 5 years, the number of blood donor units has fluctuated. The actual reason why large proportion of the potentially eligible population do not actively donate blood is not clearly assessed in those islands. The blood donors' attitude, beliefs, and knowledge may be a factor for not being a blood donor. Thus, the current study was aimed to assess residents' knowledge and attitude towards blood donation at 2 islands of Hai Phong, Vietnam. The findings will be used as a baseline information for the blood banks to plan an effective strategy to increase and maintain safe and adequate blood supply.

METHODS

Study Setting and Population

A cross-sectional study was conducted from 1/2019 to 12/2019 on Cat Hai and Bach Long Vi – 2 remote islands in northern Hai Phong, Vietnam, on 802 residents who have been living and working in the island ≥ 2 years.

Sample Size Determination and Sampling Technique

To determine the required sample size for study, a single population proportion formula was used.

$N = Z^2_{1-\alpha/2} \frac{p(1-p)}{d^2}$	Where: - $Z_{1-\alpha/2}$ =1,96 (at 95% confidence interval) - d=0,05 (tolerable error) - p=50% (because there is no previous study)

Considering 5% non-response rate (384×5%=19), the final sample size becomes 403 for each island. The sample size obtained was 802 residents. The study participants were selected randomly selected according to the resident list of the local government health facility.

Data Collection

The study participants were interviewed after obtaining written informed consent. We used a structured pretested questionnaire to collect socio-demographic data, knowledge, attitude, previous blood donation history and reasons for not donating blood previously. In addition to pretest, training was given for data collectors about data collection procedures and objectives of the study. Consistency of the collected data was also checked daily.

Knowledge Assessment Towards Blood Donation

We used nine questions to assess knowledge of study participants. For the "correct" and "incorrect" response, "1" and "zero" score were used, respectively. Then the total score was obtained by summing up of the nine knowledge questions score. The scoring ranges from 0 to 9. Those study participants who answer "five" and more questions correctly from 9 (> 50%) were considered as knowledgeable.

Attitude Assessment Towards Blood Donation

In this study, attitude was assessed using eight questions. Similar to knowledge scoring "1" and "zero" were used for favorable and unfavorable attitude, respectively. The total score was calculated up to determine the total attitude score. The score was ranged from 0 to 8. Attitude score of half and more (50%) was considered as favorable attitude.

Data Analysis and Interpretation

Data were entered with Epi Info 3.5 and transported to SPSS 20 for analysis. Descriptive results were summarized and presented with tables. The association of the independent variable with the categorical outcome variable was measured by calculating odds ratio with 95% confidence interval using bivariate and multivariate logistic regression. P value < 0.05 was considered as statistically significant.

RESULT

General Characteristics of The Study Objects

Table 1. Characteristics Of Study Participants

District		**Cat Hai** (n = 387)		**Bach Long Vi** (n = 415)		**Total** (n = 802)	
Variable		Frequency	%	Frequency	%	Frequency	%
Age	<24	101	26.1	115	27.7	216	26.9
	24-30	170	43.9	178	42.9	348	43.4
	>30	116	30	122	29.4	238	29.7
Gender	Male	190	49.1	189	45.5	379	47.3
	Female	197	50.9	226	54.5	423	52.7
Marital status	Single	91	23.5	106	25.5	197	24.6
	Married	296	76.5	309	74.5	605	75.4
Education	Up to primary school attended	157	40.6	161	38.8	318	39.7
	Up to secondary school attended	154	39.8	155	37.4	309	38.5
	Higher education attended	76	19.6	99	23.9	175	21.8
Occupation	Student	53	13.7	60	14.5	113	14.1
	Private work	229	59.2	223	53.7	452	56.4
	Government Staff	105	27.1	132	31.8	237	29.6
Previous donation	No	292	75.5	305	73.5	597	74.4
	Yes	95	24.6	110	26.5	205	25.6

In this study a total of 802 (379 male and 423 female) study participants was included. The mean age of study participants was 30.4±10.9 years ranging from 18 to 61 years old. The majority (43.4%) of them was in the age group of 24–30 years. About one-fifth (21.8%) of the participants had been attending higher education. a quarter 205 (25.6%) of study participants had previous history of donation.

Table 2. Knowledge And Attitude Questions Response of Study Participants Towards Blood Donation at Cat Hai and Bach Long Vi Island Districts, Hai Phong City, Vietnam

Knowledge assessment items	**Response**	
	Correct response N (%)	**Incorrect response N (%)**
Knowledge about place of blood donation	246 (30.7%)	556 (69.3%)
Importance of blood donation	761 (94.9%)	41 (5.1%)
Minimum age eligible for blood donation	320 (39.9%)	482 (60.1%)
Maximum age eligible for blood donation	82 (10.2%)	720 (89.8%)
Minimum weight eligible for blood donation	564 (70.3%)	238 (29.7%)
Minimum time interval for blood donation	561 (70%)	241 (30%)
Knowledge about TTIs	78 (9.7%)	724 (90.3%)
Does donated blood will undergo screening?	728 (90.8%)	74 (9.2%)
Is there a possibility of recipients to be exposed to infection/ harm during transfusion?	80 (10%)	722 (90%)
Attitude assessment items	**Favorable response N (%)**	**Unfavorable response N (%)**
Do you think donation is harm full to donors	705 (87.9%)	97 (12.1%)
Will you donate voluntarily	561 (70%)	241 (30%)
Will you donate to unknown person if you are asked	482 (60.1%)	320 (39.9%)
Will you ask for a monetary compensation for blood donation	769 (95.9%)	33 (4.1%)
Will you discuss with your friends and your family about blood donation	756 (94.3%)	46 (5.7%)
Will you encourage others for donation	514 (64.1%)	288 (35.9%)
Do you have a plan to become a regular blood donor	521 (65%)	281 (35%)
Will you tell your true health status to doctors before donation?	681 (84.9%)	121 (15.1%)

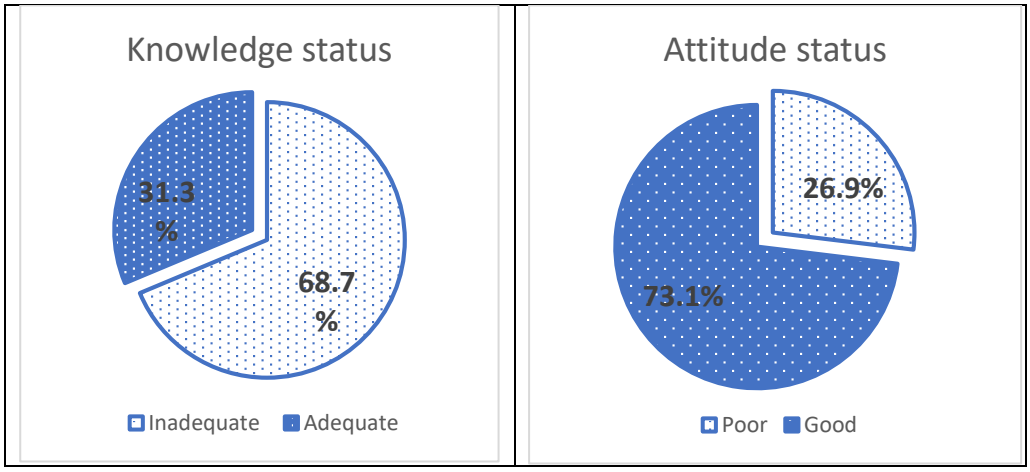

Figure 1. Knowledge And Attitude Status of The Study Participants (N=802)

From the total study participants, 251 (31.3%) had adequate knowledge towards blood donation (Figure 1). Almost all of the study participants (94.9%) argued that the importance of blood donation is to save life (Table 2). From the total study participants, 728 (90.8%) of them had information regarding screening of donated blood for infectious disease before transfusion. But only 78 (9.8%) of the study participants knew about transfusion transmittable infections (TTIs), such as HIV, hepatitis virus and syphilis.

Nearly three-quarters 586 (73.1%) of the study participants had good attitude towards blood donation (Figure 1). Majority 561 (70.0%) of the participants had a plan to donate blood voluntarily in the future. Majority 705 (87.9%) of the study participants had a perception of donation is not harmful to donors (Table 2).

Factor Associated with Knowledge and Attitude of Study Participants

Table 3. Logistic Regression of Knowledge with Socio-Demographic Status of The Study Participants (N=802)

Assessment items	***Knowledge status***		**COR (95%CI)**	**AOR (95%CI)**
	Adequate	**Inadequate**		
Age				
<24	75 (34.7%)	141 (65.3%)	1	-
24-30	112 (32.2%)	236 (67.8%)	0.89 (0.62-1.28)	-
>30	64 (26.9%)	174 (73.1%)	0.69 (0.46-1.03)	-
Gender				
Male	111 (29.3%)	268 (70.7%)	1	-
Female	140 (33.1%)	283 (66.9%)	1.19 (0.88-1.61)	-
Location				
Cat Hai	106 (27.4%)	281 (72.6%)	1	1
Bach Long Vi	145 (34.9%)	270 (65.1%)	1.42 (1.05-1.93)	1.37 (1.01-1.86) *
Marital status				
Single	65 (33%)	132 (67%)	1	-

Married	186 (30.7%)	419 (69.3%)	0.9 (0.64-1.27)	-
Education				
Up to primary school attended	81 (25.5%)	237 (74.5%)	1	1
Up to secondary school attended	91 (29.5%)	218 (70.6%)	1.22 (0.86-1.74)	1.22 (0.86-1.74)
Higher education attended	79 (45.1%)	96 (54.9%)	2.41 (1.62-3.59)	2.18 (1.47-3.25) *
Occupation				
Student	28 (24.8%)	85 (75.2%)	1	-
Private work	143 (31.6%)	309 (68.4%)	1.4 (0.88-2.25)	-
Government Staff	80 (33.8%)	157 (66.2%)	1.55 (0.93-2.57)	-
Previous donation				
No	170 (28.5%)	427 (71.5%)	1	1
Yes	81 (39.5%)	124 (60.5%)	1.64 (1.18-2.29)	1.49 (1.06-2.09) *
Attitide status				
Poor	54 (25%)	162 (75%)	1	-
Good	197 (33.6%)	389 (66.4%)	1.52 (1.07-2.16)	-

In multivariate logistic regression analysis, educational status, living location, previous donation history was significantly associated. Study participants who attained higher education (AOR=2.18, 95%CI: 1.47-3.25), living in Bach Long Vi island (AOR=1.37, 95%CI: 1.01-1.86) and had history of previous donation (AOR =1. 49, 95%CI: 1.06-2.09) were more likely to have adequate knowledge. (Table 3)

Table 4. Logistic Regression of Attitude with Socio-Demographic Status of The Study Participants (N=802)

Assessment items	**Attitide status**		**COR (95%CI)**	**AOR (95%CI)**
	Good	**Poor**		
Age				
<24	159 (73.6%)	57 (26.4%)	1	1
24-30	284 (81.6%)	64 (18.4%)	1.59 (1.06-2.39)	1.58 (1.04-2.38) *
>30	143 (60.1%)	95 (39.9%)	0.54 (0.36-0.81)	0.58 (0.39-0.87) *
Gender				
Male	278 (73.4%)	101 (26.7%)	1	-
Female	308 (72.8%)	115 (27.2%)	0.97 (0.71-1.33)	-
Location				
Cat Hai	273 (70.5%)	114 (29.5%)	1	-
Bach Long Vi	313 (75.4%)	102 (24.6%)	1.28 (0.94-1.75)	-
Marital status				
Single	142 (72.1%)	55 (27.9%)	1	-
Married	444 (73.4%)	161 (26.6%)	1.07 (0.75-1.53)	-
Education				
Up to primary school attended	219 (68.9%)	99 (31.1%)	1	1

Up to secondary school attended	217 (70.2%)	92 (29.8%)	1.07 (0.76-1.5)	1.07 (0.75-1.52)
Higher education attended	150 (85.7%)	25 (14.3%)	2.71 (1.65-4.45)	2.37 (1.44-3.89) *
Occupation				
Student	77 (68.1%)	36 (31.9%)	1	-
Private work	346 (76.6%)	106 (23.5%)	1.53 (0.97-2.4)	-
Government Staff	163 (68.8%)	74 (31.2%)	1.03 (0.64-1.67)	-
Previous donation				
No	420 (70.4%)	177 (29.7%)	1	1
Yes	166 (81%)	39 (19%)	1.79 (1.21-2.66)	1.6 (1.07-2.4) *
Knowledge status				
Inadequate	389 (70.6%)	162 (29.4%)	1	-
Adequate	197 (78.5%)	54 (21.5%)	1.52 (1.07-2.16)	-

Multivariate logistic regression analysis showed that age, educational status and previous donation history were significantly associated. Study participants who attained higher education (AOR=2.37, 95%CI: 1.44-3.89), had history of previous donation (AOR =1.6, 95%CI: 1.07-2.4) and had age at 24-30 (AOR=1.58, 95%CI: 1.04-2.38) were more likely to have good attitide status. (Table 4).

DISCUSSION

The cross-sectional study conducted on 802 residents on Cat Hai and Bach Long Vi islands showed that 31.3% of participants had adequate knowledge towards blood donation. The result was higher than a study conducted in Jordan which reported that 28.6% of them had adequate knowledge towards blood donation. [9]. But the level of knowledge in this study was lower than the results in studies from Gondar [10], Basrah, Iraq [11], Birbir Town [12] and Eastern Ethiopia [13]. The difference may be associated with the type of study subjects included in the studies. The above-mentioned studies include medical and health science students and also health care workers. Thus, it is expected that this group of people have high level of knowledge towards blood donation. In this study, participants who attained higher education were more likely to have adequate knowledge towards blood donation. This is supported by studies in Birbir Town [12], Eastern Ethiopia [13], Northwest Ethiopia [14]. Similarly, those donors who were donate blood previously had higher adequate knowledge rate compared to their counterparts. If people had experience, they will also have more information. We also found that people who were living on Bach Long Vi island were more likely to have adequate knowledge than people on Cat Hai Island. This is because Bach Long Island is larger, has a better health education and communication system, and people on the island are better able to know about blood donation. Also, it suggests for more investigations to assess the quality of health education communication.

For accessing the attitide of participants, 73.1% of them had good attitide towards blood donation. The finding was lower as compared to the results of the study in Gondar [10], Northwest Ethiopia [14], but higher than study results in Basrah, Iraq [11]. In our study, study participants who attained higher education were more likely to have good attitide status, the same with Urgesa, at. el in Eastern Ethiopia (college graduates participants, AOR = 13.05, 95% CI:

4.12–41.29) [13]. Also, those donors who were donate blood previously had better attitude compared to their counterparts. People had age at 24-30 were more likely to have good attitide status, but >30 age group were more likely to have poor attitide status. This may be explained by the fact that young and healthy people, of working age, are more likely to donate blood and are more open to blood donation.

The study still has limitations. First, the study design was not further supported by qualitative approaches. It might be stronger if we use analytical approaches to assess the extent of community knowledge, attitude, and practice regarding voluntary blood donation and complement the study with a qualitative data collection approach. Also, the study must access to the standard of the local medical infrastructures, to form sure they were working properly.

CONCLUSION

In this study, attitude towards blood donation overall was average, but the level of knowledge was inadequate. Education, location, previous blood donation history was statistically associated with adequate knowledge. age, educational and previous donation history were statistically associated with good attitude. To increase the level of knowledge and attitude towards blood donation, health education to the community is recommended.

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CONFLICTS OF INTEREST:

The author has declared no conflicts of interest

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