

Awareness towards blood donation of presidents at Cat Hai Districts, Hai Phong City, Vietnam 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 from 1/2019 to 12/2019 on Cat Hai - remote island in northern Hai Phong, Vietnam. A total of 415 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 415 participants, 145 (34.9%) and 313 (75.4%) were had adequate awareness and positive attitude towards blood donation, respectively. Study participants who attained higher education (AOR=4.11, 95%CI: 1.38-7.25), and had history of previous donation (AOR =1.49, 95%CI: 1.06-2.09) were more likely to have adequate awareness. lacking of information (45.9%) and lacking of confidence (“fear of pain” - 21.3%; “Perceptions of am not medically fit for blood donation”- 22.3%) were the main reasons to prevent blood donation.

Conclusion: The result suggests for more investigations to assess the quality of health education communication, and more health education programe to the community.

Keywords: blood transfusion, awareness, attitude, Vietnam

INTRODUCTION

Blood and blood components are irreplaceable medical necessities that can only be obtained through voluntary blood donation. Since then, voluntary blood donation is remained as an extremely important activity worldwide [1]. It is of undisputed importance for patients with severe blood loss or undergoing surgery [2].

According to WHO, the annual global blood collection is approximately 118.5 million units of blood. Developed countries are accounted for over half these collected units of blood. Also, the blood donation rate in high income countries per 1000 people is much higher compered to low and middle income countries (31.5 vs 8.8 donations) [3]. Voluntary blood donors cover over 90% of donations in developed countries while they account below 50% in developing countries [4]. The World Health Organization also warned that, although more than a million units of blood are collected each year, the worldwide demand for blood for the medical industry was still great, so millions more must still have to be collected to ensure the sufficient and timely provision of blood [5].

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 [6] 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. [7], [8], [9]. 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 Cat Hai islands. 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' awareness towards blood donation at Cat Hai islands of Hai Phong, Vietnam. The findings will be used as a evidence for the Ministry of Health and local bank center to plan an effective strategy, to assure the safety and sufficiency of blood supply.

METHODS

Study setting and population

A cross-sectional study was conducted from 1/2019 to 12/2019 on Cat Hai – a remote islands in northern Hai Phong, Vietnam, on 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.

$$N = Z_{1-\alpha/2}^2 \frac{p(1-p)}{d^2}$$

Where:

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

The final sample size becomes 384 for each island. The sample size obtained was 415 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 asked for written informed consent, then were interviewed after that. We used a structured pretested questionnaire (socio-demographic data, awareness, attitude, previous blood donation history...). Data collectors had to be trained about data collection procedures and objectives of the study.

Awareness assessment towards blood donation

We used a questionnaire with nine items to assess awareness of participants. Based on the answer results (correct/incorrect), 1 point and 0 point are scored by the data collector, respectively. The scoring ranges from 0 to 9. Those study participants who had at least 5 correct answers were rated as having good awareness

Attitude assessment towards blood donation

Similar to awareness assessment, attitude was assessed using questionnaire with eight questions. For favorable and unfavorable attitude answer, 1 point and 0 point are scored, respectively. The score was ranged from 0 to 8. Those study participants who had at least 4 favorable answers were rated as having favorable attitude.

Data analysis and interpretation

We used Epi Info 3.5 for data entering, and SPSS 20 for data analysis after data transported. 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

Table1. Characteristics of study participants

District		Cat Hai (n = 415)	
Variable		Frequency	%
Age	<24	115	27.7
	24-30	178	42.9
	>30	122	29.4
Gender	Male	189	45.5
	Female	226	54.5
Marital status	Single	106	25.5

	Married	309	74.5
Education	Up to primary school attended	161	38.8
	Up to secondary school attended	155	37.4
	Higher education attended	99	23.9
Occupation	Student	60	14.5
	Private work	223	53.7
	Government Staff	132	31.8
Previous donation	No	305	73.5
	Yes	110	26.5
Number of donations (n=110)	1 time	58	52.7
	2-3 times	27	24.6
	>3 times	25	22.7

Table 1 showed that, of 802 study participants, 226 (54.5%) were female. With the mean age 29.9 ± 10.3 years ranging from 18 to 61 years old, the majority (42.9%) of them was in the age group of 24–30 years. Nearly one-fourth (23.9%) of the participants had been attending higher education. A quarter 110 (26.5%) of study participants had previous history of donation.

Table 2. Awareness and attitude questions response of study participants towards blood donation at Cat Hai Island Districts, Hai Phong City, Vietnam

Awareness assessment items	Response	
	Correct response N (%)	Incorrect response N (%)
Knew about blood donation destination	123 (29.6%)	292 (70.4%)
Knew about the importance of blood donation	381 (91.7%)	35 (8.3%)
Knew about minimum eligible age for blood donation	160 (38.6%)	255 (61.4%)
Knew about maximum eligible age for blood donation	41 (9.9%)	374 (90.1%)
Knew minimum eligible weight for blood donation	282 (68%)	133 (32%)
Knew minimum time interval for blood donation	281 (67.6%)	135 (32.4%)
Knew about TTIs	39 (9.4%)	376 (90.6%)
Knew about the importance of donated blood screening	364 (87.7%)	51 (12.3%)
Knew about infection/harm possibility that recipients maybe exposed during transfusion	40 (9.6%)	375 (90.4%)
Attitude assessment items	Favorable response N (%)	Unfavorable response N (%)
Thought donation is harm full to donors	353 (84.9%)	63 (15.1%)
Would donate voluntarily	281 (67.6%)	135 (32.4%)

Would donate to unknown person (if you are asked)	241 (58.1%)	174 (41.9%)
Would ask for a monetary compensation for blood donation	385 (92.7%)	31 (7.3%)
Would discuss with friends and family about blood donation	378 (91.1%)	37 (8.9%)
Would encourage others for donation	257 (61.9%)	158 (38.1%)
Had a plan to become a regular blood donor	261 (62.8%)	155 (37.2%)
Would tell true health status to doctors before donation	341 (82%)	75 (18%)

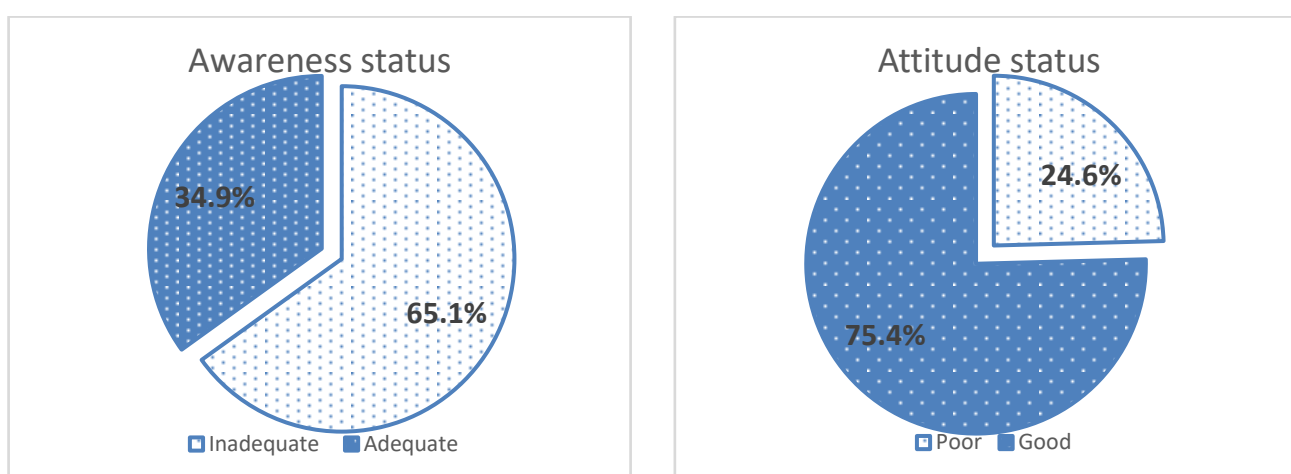


Figure 1. Awareness and attitude status of the study participants (n=415)

Among study participants, 145 (34.9%) had adequate awareness towards blood donation (Figure 1). Almost all of the study participants (91.7%) agreed that blood donation can save life, hence its importance (Table 2). Also, 364 (87.7%) of them knew about the importance of donated blood screening for preventing infectious disease before transfusion. But only 40 (9.6%) of the study participants had awareness about transfusion transmittable infections (TTIs), such as HIV, hepatitis virus and syphilis.

Three-quarters 313 (75.4%) of the study participants had good attitude towards blood donation (Figure 1). The proportion of the participants that had a plan to become a regular volunteer blood donor and would encourage others for donation are 62.8% and 61.9%, respectively.

Table 3. Logistic regression of awareness with socio-demographic status of the study participants (n=415)

Assessment items	Awareness status		COR (95%CI)	AOR (95%CI)
	Adequate	Inadequate		
Age				
<24	48 (41.7%)	67 (58.3%)	1	1
24-30	60 (33.7%)	118 (66.3%)	0.71 (0.44-1.15)	0.72 (0.25-2.06)
>30	37 (30.3%)	85 (69.7%)	0.61 (0.35-1.04)	0.53 (0.14-2.09)
Gender				
Male	56 (29.6%)	133 (70.4%)	1	1
Female	89 (39.4%)	137 (60.6%)	1.54 (1.02-2.33)	1.34 (0.56-3.21)
Marital status				
Single	41 (38.7%)	65 (61.3%)	1	1
Married	104 (33.7%)	205 (66.3%)	0.8 (0.51-1.27)	0.46 (0.16-1.34)
Education				
Up to primary school attended	42 (26.1%)	119 (73.9%)	1	1
Up to secondary school attended	51 (32.9%)	104 (67.1%)	1.39 (0.85-2.26)	2.18 (0.74-6.41)
Higher education attended	52 (52.5%)	47 (47.5%)	3.13 (1.81-5.43)	4.11 (1.38-7.25)*
Occupation				
Student	15 (25%)	45 (75%)	1	1
Private work	76 (34.1%)	147 (65.9%)	1.55 (0.81-2.97)	2.16 (0.54-3.58)
Government Staff	54 (40.9%)	78 (59.1%)	2.08 (1.04-4.14)	2.5 (1.06-5.14)
Previous donation				
No	94 (30.8%)	211 (69.2%)	1	1
Yes	51 (46.4%)	59 (53.6%)	1.94 (1.23-3.05)	1.49 (1.06-2.09)*
Attitude status				
Poor	29 (28.4%)	73 (71.6%)	1	1
Good	116 (37.1%)	197 (62.9%)	1.48 (0.91-2.42)	1.15 (0.64-1.59)
Number of donations				
1 time	23 (39.7%)	35 (60.3%)	1	1
2-3 times	15 (55.6%)	12 (44.4%)	1.9 (0.74-4.87)	1.81 (0.64-5.12)
>3 times	13 (52%)	12 (48%)	1.65 (0.63-4.29)	1.83 (0.6-5.53)
*: p<0,05. COR: Crude Odds Ratio. AOR: Adjusted Odds Ratio. CI: Confidence interval.				

In bivariate logistic regression analysis, the results showed that gender, educational status, occupation and previous donation history were significantly associated with awareness of participants. While in multivariate logistic regression analysis, study participants who attained higher education (AOR=4.11, 95%CI: 1.38-7.25), and had history of previous donation (AOR =1.49, 95%CI: 1.06-2.09) were more likely to have adequate awareness. (table 3)

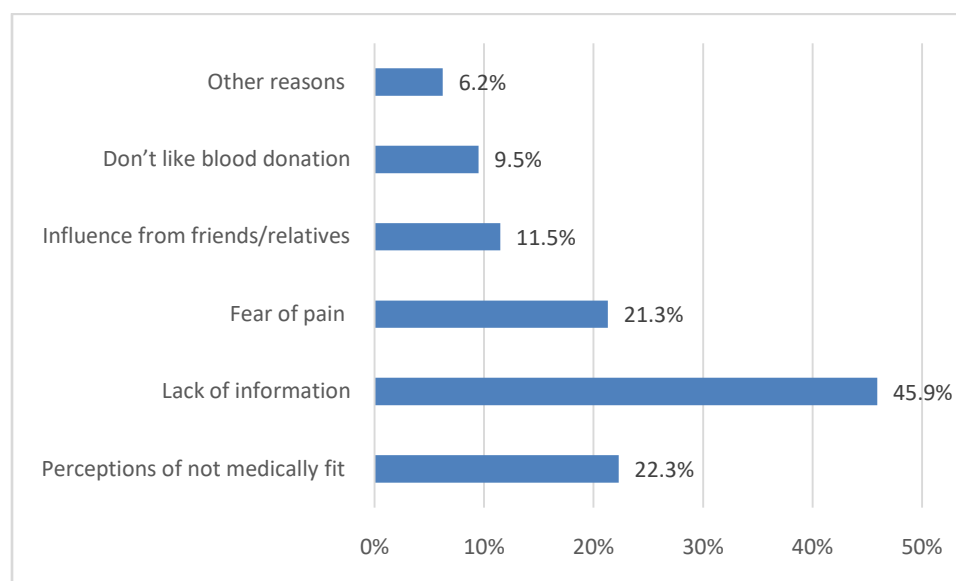


Figure 2. Reasons for not donating blood (n=305)

Among participants who hasn't donated blood, about half (45.9%) said they have lacked of information about blood donation. Next is lack of confidence: the proportion of participants who "fear of pain" and "Perceptions of am not medically fit for blood donation" were 21.3% and 22.3%, respectively.

DISCUSSION

The cross-sectional study conducted on 415 residents on Cat Hai islands showed that 34.9% of participants had adequate awareness towards blood donation. Abderrahman, et al. conducted a study to assess the level of knowledge and attitudes of Jordan which reported that 28.6% of them had adequate knowledge towards blood donation [10]. Our study also similar result with the study of Bamlaku, et al. in Gondar, Northwest Ethiopia (35.4%) [11]. But the level of knowledge in this study was lower than the results in studies from Basrah, Iraq [12], Birbir Town [13] and Central Ethiopia [14]. This can be explained by the different types of study subjects. On the other hand, in our study, 26.5% of the participants had previous history of donation, this result is higher than the study of Bamlaku, et al. (14.5%) [11], Benedict, et al. in Benin City, Nigeria (22.1%) [15] and Girma in Central Ethiopia (17%) [14].

Our result showed that participants who attained higher education were more likely to have adequate awareness towards blood donation. This is supported by studies in Birbir Town [13], Eastern Ethiopia [14], Northwest Ethiopia [11]. Similarly, those participants who had donated blood had better awareness rate compared to their counterparts. If people had experience, they will also had more information. We also found that "Lack of information" was the main reason leading to people did not

donating blood. Compared to other studies, this is proved to exist in other study [11], [15], [16]. Also, it suggests for more investigations to assess the quality of health education communication.

The study still have 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, the level of awareness was still low, attitude towards blood donation overall was average. Education and previous blood donation history were statistically associated with adequate awareness. The result suggests for more investigations to assess the quality of health education communication, and more health education programs to the community.

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CONFLICTS OF INTEREST:

The author have declared no conflicts of interest

REFERENCES

1. Nwogoh B., Aigberadion U., và Nwannadi A.I. (2013). Knowledge, Attitude, and Practice of Voluntary Blood Donation among Healthcare Workers at the University of Benin Teaching Hospital, Benin City, Nigeria. *J Blood Transfus*, **2013**, 797830–797830.
2. WHO AFRO (2013). Blood safety. <<https://www.afro.who.int/health-topics/blood-safety>>, accessed: 01/03/2021.

3. WHO (2020). Blood safety and availability. <<https://www.who.int/news-room/fact-sheets/detail/blood-safety-and-availability>>, accessed: 09/01/2020.
4. WHO SEARO (2018). Blood Transfusion Services in South-East Asia Region. A 5-year review. <<https://apps.who.int/iris/handle/10665/274274>>, accessed: 03/01/2021.
5. WHO South-East Asia (2018). Blood safety and Health laboratory technologies in the South-East Asia. <<https://www.who.int/southeastasia/health-topics/blood-safety>>, accessed: 03/01/2020.
6. UNICEF Vietnam (2019). Maternal Child Health. <<https://www.unicef.org/vietnam/maternal-child-health>>, accessed: 03/01/2020.
7. Central Statistical Agency. (2020). Central Statistical Agency. Vietnam demographic and health survey. .
8. Stanworth S.J., New H.V., Apolseth T.O. và cộng sự. (2020). Effects of the COVID-19 pandemic on supply and use of blood for transfusion. *Lancet Haematol*, **7(10)**, e756–e764.
9. Vietnam Express (2020). Blood bank runs dry as Covid-19 fears keep donors away. <<https://e.vnexpress.net/news/news/blood-bank-runs-dry-as-covid-19-fears-keep-donors-away-4068461.html>>, accessed: 05/01/2020.
10. Abderrahman B.H. và Saleh M.Y.N. (2014). Investigating Knowledge and Attitudes of Blood Donors and Barriers Concerning Blood Donation in Jordan. *Procedia - Social and Behavioral Sciences*, **116**, 2146–2154.
11. Enawgaw B., Yalew A., và Shiferaw E. (2019). Blood donors' knowledge and attitude towards blood donation at North Gondar district blood bank, Northwest Ethiopia: a cross-sectional study. *BMC Research Notes*, **12(1)**, 729.
12. Jasim Al-Asadi và Asaad Al-Yassen (2018). Knowledge, attitude and practice of blood donation among university students in Basrah, Iraq: A comparison between medical and non-medical students. *AJMS*, **9(6)**.
13. Gube A. và Hebo S. (2017). Assessment of Knowledge, Attitude and Practice of Voluntary Blood Donation and Associated Factors among Residents of Birbir Town. *Journal of Community Medicine and Health Education*, **7**, 504.
14. Urgesa K., Hassen N., và Seyoum A. (2017). Knowledge, attitude, and practice regarding voluntary blood donation among adult residents of Harar town, Eastern Ethiopia: a community-based study. *J Blood Med*, **8**, 13–20.
15. Nwogoh B., Aigberadion U., và Nwannadi A.I. (2013). Knowledge, Attitude, and Practice of Voluntary Blood Donation among Healthcare Workers at the University of Benin Teaching Hospital, Benin City, Nigeria. *J Blood Transfus*, **2013**, 797830–797830.
16. Beyene G.A. (2020). Voluntary Blood Donation Knowledge, Attitudes, and Practices in Central Ethiopia. *Int J Gen Med*, **13**, 67–76.