

# A Case study of Knowledge, Attitude and Willingness to donate blood among Thai people aged 15-60 years old during COVID-19 pandemic

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**Abstract:** Objective: To assess knowledge regarding blood donation, attitude toward blood donation and intention to donate blood among a representative sample of people aged 15-60 years living in Thailand.

**Keywords:** blood donation, COVID-19 pandemic.

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## 1. INTRODUCTION

### Background and Significance:

At present, the blood shortage situation in Thailand is still a major problem that affects public health agencies or blood centres which supply blood to more than 340 hospitals across the country with average daily blood needs by 8,000 units. However; only 2,300 units of blood can be dispensed per day, representing 28% [1]. for the treatment of patients from both accidents and surgery including patients with blood diseases who need to receive blood continuously. The World Health Organization (WHO) has set a target for the supply and acceptance of adequate blood donations should be at least 3% per population rate [2]. real situation is found that the amount of supply according to this criteria is insufficient for patients because of approximately 90-95% of the blood supplied is obtained from donations. [3]. It is necessary to have regular donors because the blood or red blood cells can be kept alive outside the body for only 35-42 days.

The factors affecting the decision to donate blood include personal factors such as gender, age, education level, weight, income, psychological and social influencing factors such as wanting to help society and show generosity belief in charity, knowledge factors and good attitude towards blood donation, service factors of the blood centres such as satisfaction with the service convenience of location and duration, reward when donating blood [4]. which affects the intention to come back

to donate blood again [5]. From the study of Assoc. Prof. Dr. Kritakorn Pratumwong and his team [6]. who studied behavioural factors and decision making in personnel blood donation. Bangkok Thonburi University was found that the main reason for the decision not to donate blood was fear of the risk of a blood borne diseases and the situation of the COVID-19 epidemic currently.

Besides, according to the situation of the outbreak of COVID-19 which is a respiratory disease that is transmitted by coughing, sneezing or touching the patient's secretions, some had severe pneumonia and died. This was a major outbreak due to the large number of cases and deaths making the number of blood donors in Washington state, The United States dropped by 10 to 30% [7]. as Thailand's blood supply which affected by the cancellation of many mobile blood donation units and the number of blood donors nationwide fell 23 to 57% [3]. in 2020 due to fears of environmental infections. For this reason, the National Blood Centre has adjusted the strategy by the blood donor recruitment campaign in order to have sufficient blood reserved for medical treatment by organizing public relations, campaigns, educating and raising awareness for the general public, youth, community leaders, religious leaders, teachers, lecturers, volunteers as socially responsible participants by donating blood and self-assessment of the readiness to donate blood to reduce the number of blood donors who are temporarily and permanently denied blood donations, increasing the integration of cooperation to expand blood donation arrangements with local agencies, districts, temples, government offices, communities, villages, condos, companies, shops, and expanding blood donation locations to be fixed blood donation rooms (Fixed Stations), urban such as shopping malls to increase convenience for the transportation and help blood donors to have easier access to blood donations, which must be at the discretion of the Communicable Disease Committee in each province and must strictly follow the rules and measures to prevent and control the disease including disseminating knowledge about blood donation, readiness to blood donation features, Preparation before and after blood donation through modern media channels such as websites and social media.

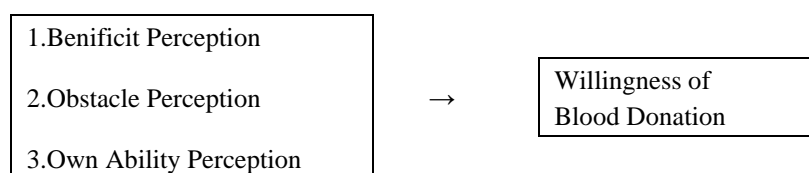
Measures to control the epidemic of Covid-19 during the year 2019-2021 have ordered the closure of service at various facilities. As a result, the service model has been modified. For example, the closure of service places, restaurants, educational institutions, and workplaces where people need to adjust their daily lives, such as working or studying at home, order food for delivery, go out for the less recreational activities which affects health behaviours that change in the range of measures to control the spread of COVID-19 [8], including the perception of the risk of contracting COVID-19. different between individuals that may affect the readiness and willingness to donate blood during with the COVID-19 outbreak. In this study, the researcher aimed to study the factors affecting the willingness to donate blood of people aged 18-60 years under the inadequate blood situation due to the COVID-19 situation by studying demographic factors, measure the cognition of blood donation, attitude and belief towards blood donation.

**Objectives**

1. To measure the level of knowledge, understanding and attitude about blood donation
2. To study about the willingness of blood donation
3. To study about related factors to willingness of blood donation

**Conceptual Framework**

People’s willingness to donate their blood need to have correct knowledge and understanding of blood donation. This study examines the factors affecting the willingness of blood donation. Under the framework of Pender's Health Promoting Theory [9]. health promoting behaviours are derived from 3 factors; 1) personal factors 2) cognitive factors that are specific to health behaviours and social support and 3) outcome behaviours. In this study, the researcher studied the cognitive factors that are specific to behaviours which consists of perceived benefit recognition of obstacles and perception of their abilities to practice behaviours. These factors affect the willingness to donate blood of the sample. (Chart 1)



**Chart 1**

## 2. METHOD

This research is Predictive Correlation Research to study related factors that affect people's willingness to donate blood.

### Sample population

The sample group was Thai people aged between 18-60 years living in Thailand and can access the internet and being a social media member. The selection criteria are as follows; 1. Willingness and consent to cooperate in research 2. Willingness to participate in the research project of the unknown total population numbers calculated by Yamane's formula (Taro Yamane) [10], with the error by significant level at 0.05. A total of 400 samples were obtained.

### Research tools

This research tool was a questionnaire which the researcher has developed according to the research tool development process. The details are as follows; 1. Study about the situation of blood donation, knowledge of blood donation, Information about COVID-19 transmission, treatment and prevention 2. Create a questionnaire based on the research conceptual framework. Research objectives consist of 4 parts as follows;

1) Demographic data, gender, age, education level, occupation, income, province of residence, congenital disease, number of times of blood donation, assess the readiness of the body, evaluate the convenience of travelling to the service point for blood donation (10 questions)

2) knowledge and understanding about blood donation. There are 2 optional questions with 1 correct answer. There are 17 questions covering knowledge of blood donation, benefits of donating blood, blood demand situation and properties of donors. A high score means a high level of comprehension. A low score means a low level of comprehension.

3) Attitudes about blood donation perceived risk of contracting COVID-19 for 4 items questionnaires were on a Likert scale by 4 levels, with scoring criteria from 1 low to 4 very high. All questions were combined scores. A score between 4-16 indicates a good level of attitude towards blood donation.

4) Level of willingness to donate blood for 1 item, the question type was 3 options, willing, uncertain and unwilling.

Quality inspection of research instruments in this research, the researcher examined the content validity and confidence values. (Reliability) by bringing the created questionnaire and propose to 3 experts to check the suitability and correctness of 23 questions and the content applied in the questionnaire by using Predictive Validity. (Reliability) The researcher used a created questionnaire and modified according to the advice of experts and find the confidence value by using the Cronbach' Alpha Coefficient formula which is information on factors affecting willingness to donate blood. The confidence values were 0.65, 0.70 and 1.0.

### Data Collection Method

The researcher created a questionnaire in Online Google Form and sent inquiries to Thai people aged 18-60 years living in Thailand through online channels, social group and sent via email.

## 3. DATA ANALYSIS

1. Using descriptive statistics such as frequency distribution, percentage, mean and standard deviation, analyse personal information knowledge and understanding of attitude and belief about blood donation.

2. Using multi regression analysis to analyses factors that affecting willingness to donate blood.

## 4. RESULTS

The study of related factors to willingness for blood donation among people aged 15-60 years living in Thailand found that 400 respondents were mostly females (n=244, 61%) and males (n=156, 39%), most respondents were aged 51-60 (n=133, 33%), followed by 41-50 years (n=69, 24%), followed by 15-17 years (n=64, 16%), 18-22 (n=55, 13.8%), then 31-40 (n=34, 8.5%), and 23-30 (n. =18, 4.5%), respectively. Most of the respondents were at the lower level of education (n=178, 44.5%), followed by those who were studying at the bachelor's degree (n=128, 32%) followed by the higher than bachelor's degree (n=94, 23.5%). In this study, the highest number of occupations were company employees/employees/civil servants/state enterprises (n=141, 35.3. %) followed by students/undergraduates (n=103, 25.8%), followed by employed/self-employed (n=60, 15%), and finally business owners and 'others' with the equal number (n=30, 7.5%). 40,001-80,000 Baht (n=112, 28%), followed by 20,001-40,000 Baht (n=91, 22.8%), followed by 80,001-150,000 Baht (n=83, 20%), then income >

150,000 Baht (n=72, 18%) and finally income <20,000 Baht (n=42, 10.5%). In this group, the vast majority had no congenital disease (n= 285, 71.3%), had congenital disease (n=115, 28.7%). The highest number of times that people donated blood was 0-5 times (n=325, 81.3%), followed by 6-10 times (n=36, 9.0%), followed by 11-30 times (n=24, 6.0% and more than 30 times (15, 3.8%), respectively.

Most of the respondents had a moderate level of knowledge about blood donation (M=12.24, SD=1.69). The male respondents (M=12.34, SD=1.67) had a high score on blood donation knowledge than females (M=12.17, SD=1.70), the age group 18-22 years had the highest score on knowledge about blood donation (M=12.54, SD=1.66), followed by 23-30 years (M=12.5, SD=1.50), group 51-60 years (M=12.34, SD=1.59), group 41-50 years (M=12.20, SD=1.78), group 15-17 years (M=11.95, SD=1.94) and group 31-40 years (M=11.81, SD=1.34)

The respondents engaged in medical science occupations had the highest scores on blood donation knowledge (M=12.50, SD=1.48), followed by students (M=12.50, SD=1.65), followed by those who engage in other occupations (M=12.37, SD=1.77), followed by company employees/employees/government officers/state enterprises officers (M=12.21, SD=1.59), then general employees/freelancers/ (M=12.03, SD=1.97) and business owners. (M=11.41, SD=1.63).

In terms of family income per month, the group with monthly family income 80,001-150,000 Baht had the highest score on knowledge about blood donation (M=12.50, SD=1.77), followed by the group with a monthly income more than 150,000 Baht (M=12.36, SD=1.63), followed by the income group 40,001-80,000 Baht (M=12.27, 1.63), then the income group 20,0001-40,000 Baht (M=12.02, SD=1.68) and the income group less than 20,000 baht (M=11.88, SD=1.74). Respondents who had a congenital disease (M=12.36, SD=1.51) had a higher score on knowledge about blood donation than the respondents without any congenital disease (M=12.19, SD=1.76). The respondents who had donated blood 11-30 times had the highest blood donation knowledge score (M=12.92, SD=1.74), followed by the group who had donated blood more than 30 times, (M=12.84, SD=1.19), then those who had donated blood 6-10 times (M=12.60, SD=1.50) and those who had donated 0-5 times (M=12.12, SD=1.71), respectively.

Most of the respondents had a moderate blood donation attitude score (M=15.31, SD=1.30). Males (M=15.37, SD=1.29) had higher blood donation attitude scores than females (M=15.27, SD=1.31), group 41-50 years had the highest attitude score (M=15.57, SD=1.31), followed by group 51-60 years (M=15.56, SD=1.306), group 23-30 years (M= 15.33, SD=1.19), group 31-40 years (M=15.00, SD=1.79), then group 18-22 years (M=14.93, SD=1.33) and group 15-17 years (M=14.88, SD=1.47) accordingly by educational level. The respondents with the highest attitude scores were those with higher than bachelor's degree (M=15.54, SD=1.10), followed by those with bachelor's degree (M=15.37, SD=1.39) and the group who graduated below a bachelor's degree (M=15.15, SD=1.31), respectively.

The respondents who worked as company employees/employees/government officers/ state enterprise officers had the highest attitude towards blood donation (M=15.51, SD=1.17), followed by a group of business owners (M=15.43, SD=1.07), followed by general employees/ freelancers (M=15.43, SD=1.07), then other occupation (M=15.43, SD=1.30) and student/undergraduates (M=14.937, SD= 1.41) respectively. The respondents with monthly income 20,001-40,000 Baht were highest scores of attitudes towards blood donation (M=15.45, SD=1.20), followed by income 80,001-150,000 Baht (M=15.41, SD=1.07), income greater than 150,000 Baht (M=15.39, SD=1.22), then income 40,001-80,000 Baht (M=15.18, SD=1.50) and income less than 20,000 Baht (M=15.00, SD=1.41).

The respondents with congenital disease (M=15.44, SD=1.20) had higher blood donation attitude scores than respondents without congenital disease (M=15.30, SD=1.34). The respondents who had donated blood 11-30 times, had the highest attitude towards blood donation (M=15.79, SD=0.66), followed by the group who had donated blood more than 30 times (M=15.60, SD=0.83) and who had donated blood 0-5 times (M=15.22, SD=1.37) (Table 1)

**Table 1: Demographic characteristics, knowledge and attitudes towards blood donation of the respondents (n=400)**

Variants	n (%)	Blood Donation Knowledge	Attitude towards Blood Donation
		(1-17) M (SD)	(5-16) M (SD)
<b>Gender</b>			
Male	156 (39.0)	12.34 (1.67)	15.37 (1.29)
Female	244 (61.0)	12.17 (1.70)	15.27 (1.31)
<b>Ages</b>			
15-17	64 (16.0)	11.95 (1.94)	14.88 (1.47)

18-22	55 (13.8)	12.54 (1.66)	14.93 (1.33)
23-30	18 (4.5)	12.5 (1.5)	15.33 (1.19)
31-40	34 (8.5)	11.82 (1.34)	15.00 (1.79)
41-50	69 (24.0)	12.20 (1.78)	15.57 (1.31)
51-60	133 (33.3)	12.34 (1.59)	15.56 (1.06)
<b>Education Level</b>			
Undergraduate	178 (44.5)	12.25 (1.71)	15.15 (1.31)
Bachelor's degree	128 (32.0)	12.15 (1.62)	15.37 (1.39)
Higher than bachelor's degree	94 (23.5)	12.30 (1.73)	15.54 (1.10)
<b>Occupation</b>			
Medical Science	36 (9.0)	12.50 (1.48)	15.47 (1.00)
Company Employee/Employee/ Civil Servant/ State Enterprise Employee	141 (35.3)	12.21 (1.59)	15.51 (1.17)
Business Owner	30 (7.5)	11.4 (1.63)	15.43 (1.07)
General employee/Freelancer	60 (15.0)	12.03 (1.97)	15.43(1.07)
Student/Undergraduate	103 (25.8)	12.50(1.65)	14.93 (1.41)
Others	30 (7.5)	12.37 (1.77)	15.43 (1.30)
<b>Monthly Family Income (Baht)</b>			
<20,000	42 (10.5)	11.88 (1.74)	15.00 (1.41)
20,001-40,000	91 (22.8)	12.02 (1.68)	15.45 (1.20)
40,001-80,000	112 (28.0)	12.27 (1.63)	15.18 (1.50)
80,001-150,000	83 (20)	12.50 (1.77)	15.41(1.07)
> 150,000	72 (18.0)	12.36(1.63)	15.39 (1.22)
<b>Congenital Disease</b>			
Don't have	285 (71.3)	12.19 (1.76)	15.30 (1.34)
Have	115 (28.7)	12.36 (1.51)	15.44 (1.20)
<b>The number of times for Blood Donation</b>			
0-5 times	325 (81.3)	12.12 (1.71)	15.22 (1.37)
6-10 times	36 (9.0)	12.60 (1.50)	15.64 (1.00)
11-30 times	24 (6.0)	12.92 (1.74)	15.79 (0.66)
More than 30 times	15 (3.8)	12.87 (1.19)	15.60 (0.83)
<b>Total</b>	<b>400 (100)</b>	<b>12.24 (1.69)</b>	<b>15.31 (1.30)</b>

Out of the 400 respondents, 318 respondents answered to donate blood willingly, representing 79.5%, 68 people answered that they were not sure, representing 17% and 14 people answered that they were unwilling to donate blood, representing 3.5%. 78.2% (n=122) of the male respondents were willing to donate blood, 15.38% (n=15.38) were uncertain, and 6.41% (n=10) were unwilling to donate blood, 80.32% (n=196) of the female respondents were willing to donate blood, 18.03% (n=44) were not sure, and 1.63% (n=4) were unwilling to donate blood. In the age group 51-60 years old, 87.22% willing to donate blood (n=116), followed by age 41 -50 years (n=80, 83.33%) and 23-30 years (n=15, 83.30%), respectively.

In terms of education level, the respondents of the higher than bachelor's degree group were willing to donate blood, representing 89.36% (n=84), followed by 79.69% for bachelor's degrees (n=102) were willing to donate blood and 74% of the undergraduate degree group were willing to donate blood (n=132).

In terms of occupation, the respondents in others group were willing to donate blood, representing 90% (n=27), followed by the company employees/employees/ government officers/state enterprises officers group were willing to donate blood by 84.40 % (n=119), 80.56 % of medical science occupations were willing to donate blood business owners were willing to donate blood (n=29), followed by group of business owners were willing to donate blood, representing 80% (n=24), then 78.33% (n=47) of general employees/freelancers were willing to donate blood and student/undergraduate group were willing to donate blood by 69.9% (n=72)

In terms of monthly income, the respondents in income group 80,001-150,000 Baht were willing to donate blood, representing 85.54% (n=71), followed by income group 20,001-40,000 Baht, representing 83.52% (n=76), followed by income group 40,000-80,000 Baht, representing 76.79% (n=86), and less than 20,000 Baht, representing 59.52% (n=25).

The respondents without any congenital disease were willing to donate blood at 80.35 % (n=229) while 77.69% of respondents with congenital disease were willing to donate blood (n=89), 11-30 respondents who previously donated blood. The group who donated blood 6-10 times was willing to donate blood at 97.22% (n=35), followed by the group who donated blood 0-5 times, representing 74.69% (n=246) and those who donated more than 30 times, representing 86.67% (n=13).

A group that assessed the strength of own body that they are not very strong have 100% willingness (n=2), followed by those was very strong at 90% willingness (n=45), followed by those was strong were 80% willingness (n=240), and finally by those was unhealthy were willing at 64.58% (n=31).

**Table 2: The willingness to donate blood among the respondents by demographic characteristics (n=400)**

Variants	n	Blood Donation Willingness, n (%)			P Value
		Willing (n=318, 79.5%)	Uncertain (n=68, 17.0%)	Unwilling (n=14, 3.5%)	
<b>Gender</b>					0.036
Male	156	122 (78.20)	24 (15.38)	10 (6.41)	
Female	244	196 (80.32)	44 (18.03)	4 (1.63)	
<b>Ages</b>					0.051
15-17	64	44 (68.75)	18 (28.13)	2 (3.13)	
18-22	55	37 (67.27)	15 (27.27)	3 (5.45)	
23-30	18	15 (83.30)	3 (16.67)	0 (0.0)	
31-40	34	26 (76.47)	7 (20.59)	1 (2.94)	
41-50	96	80 (83.33)	12 (12.50)	4 (4.17)	
51-60	133	116 (87.22)	13 (9.77)	4 (3.01)	
<b>Education Level</b>					0.046
Undergraduate	178	132 (74.16)	39 (21.91)	7 (3.93)	
Bachelor's degree	128	102 (79.69)	20 (15.63)	6 (4.69)	
Higher than bachelor's degree	94	84 (89.36)	9 (9.57)	1 (1.06)	
<b>Occupation</b>					0.034
Medical Science	36	29 (80.56)	6 (16.67)	1 (2.78)	
Company employee/ Employee/ Civil Servant/ State Enterprise Officer	141	119 (84.40)	20 (14.18)	2 (1.42)	
Business Owner	30	24 (80.00)	6 (20.00)	0 (0.00)	
General employee/Freelancer	60	47 (78.33)	8 (13.33)	5 (8.33)	
Student/Undergraduate	103	72 (69.9)	27 (26.21)	4 (3.88)	
Others	30	27 (90.00)	1 (3.33)	2 (6.67)	
<b>Monthly Family Income (Baht)</b>					0.024
<20,000	42	25 (59.52)	14 (33.33)	3 (7.14)	
20,001-40,000	91	76 (83.52)	10 (10.99)	5 (5.49)	
40,001-80,000	112	86 (76.79)	23 (20.54)	3 (2.68)	
80,001-150,000	83	71(85.54)	10(12.05)	2 (2.41)	
> 150,000	72	60 (83.33)	11 (15.28)	1 (1.39)	
<b>Congenital Disease</b>					0.771
Don't have	285	229 (80.35)	46 (16.14)	10 (3.51)	
Have	115	89 (77.39)	22 (19.13)	4 (3.48)	

<b>The number of times for Blood Donation</b>					0
0-5 times	325	246 (75.69)	68 (20.29)	11 (3.38)	
6-10 times	36	35 (97.22)	0 (0.00)	1 (2.78)	
11-30 times	24	24 (100)	0 (0.00)	0 (0.00)	
More than 30 times	15	13 (86.67)	0 (0.00)	2 (13.33)	
<b>Strength by Self-Assessment</b>					0.083
Very strong	50	45 (90.00)	4 (8.00)	1 (2.00)	
Strong	300	240 (80.00)	49 (16.33)	11 (3.67)	
Not strong	48	31 (64.58)	15 (31.25)	2 (4.17)	
A bit strong	2	2 (100.00)	0 (0.00)	0 (0.00)	
<b>Blood Donation Knowledge</b>					0
Good	100	90	8	2	
Moderate	238	187	42	9	
Low	62	41	18	3	
<b>Blood Donation Attitude</b>					0
Good	384	312	62	10	
Moderate	14	6	5	3	
Low	2	0	1	1	
<b>Total</b>	<b>400</b>	<b>318 (79.5%)</b>	<b>68 (17.0%)</b>	<b>14 (3.5%)</b>	

## 5. DISCUSSION

From the study of knowledge, understanding and attitudes about blood donation to study the willingness to donate blood of respondents aged 15-60 years living in Thailand. It was found that a total of 400 participants answered the questionnaire. Most of them were female (n=244, 61.0%), mostly aged 51-60 years (n=133, 33%). Most education level was lower than bachelor's degree. (n=178, 44.5%) Most of the respondents were company employees/employees/ government officers/ state enterprise officers (n=141, 35.3%). Most of the respondents had monthly family incomes between 40,001-80,000 Baht (n=112, 28.0%). Most of them had no congenital disease representing 71.3% (n=285). Most of the respondents had donated blood 0-5 times, representing 81.3% (n=325). They had a moderate level of blood donation knowledge (M=12.24, SD=1.69) and a moderate level of attitude towards blood donation (M=15.31, SD=1.30) Knowledge score on blood donation and attitudes towards blood donation of male respondents (M=12.34, SD=1.67), (M=15.37, SD= 1.29) were higher than female (M=12.17, SD=1.70), (M=15.27, SD= 1.31). The group of respondents who graduated in higher than bachelor's degree. The scores of blood donation knowledge (M=12.30, SD=1.73 and attitude towards blood donation (M=15.54, SD=1.10) were higher than other groups. Those who had donated blood 11-30 times had higher scores on blood donation knowledge (M=12.92, SD=1.74 and attitude towards blood donation (M=15.79, SD=0.66) than other groups. For the willingness to donate blood, it was found that 79.5% (n=318) of the respondents said they were willing to donate blood, 17% (n=68) were uncertain, and 3.5 % (n=14) answered they are unwilling donate blood.

Related factors for the willingness to donate blood of the respondents were gender (p=0.036), education level (p=0.046), occupation (p=0.034), family income (p=0.024), number of times for blood donate donation (p=0.000), knowledge of blood donation (p=0.000) and attitude towards blood donation (p=0.000).

From the result of this study, The respondents have willingness to donate blood at 79.5% (n=318) in line with the study of Assoc. Prof. Krithakorn Pratumnong [11]. which study about behavioural factors and decision for blood donation among Personnel of Bangkok Thonburi University and found that 71.88% of the respondents were willing to donate blood. The related factor for blood donation is blood donation knowledge.

Meanwhile the study of Anongsri Simsiri, Factors Influencing Intention to Blood Donation among People of Narathiwat Province,[12]. Most 200 participants have the wrong knowledge about blood donation in terms of qualification, procedure, and benefit of donation representing 63%, never donated blood before representing 37% of the respondents.

Tippanita Sottip [13]. A study of blood donation decision of 400 donors at the Thai Red Cross Society found that the factors which affects the decision to donate blood are the knowledge and understanding of blood donation, motivation for donating blood and attitudes towards donating blood.

Phanida Khamthita studies the factors affecting re-donation among blood donors. Lamphun Hospital found that donors had a high level of knowledge about blood donation and 71.3 % more likely to donate again [14].

From this study and related studies, it may be concluded that correct knowledge of blood donation is an important factor for the willingness to donate blood and repeat donations among the respondents. Therefore; there should provide the education of the knowledge to the public in order to increase the number of blood donors via various channels which suit for each group [15] Anchalee Pochailert, including providing donation services at various points for more convenience of the donors [11] (repeated reference)

## 6. CONCLUSION

A total of 400 participants who answered the questionnaire, the majority were female (n=244, 61.0%), most aged group were 51-60 years, representing 33% (n=133). Most education level was lower than bachelor's degree, representing 44.5% (n =178). Most of the respondents were employed by company employees/employees/ government officers/ state enterprise officers, representing 35.3% (n=141,). Most of the respondents had monthly family income between 40,001-80,000 Baht, representing 28% (n=112). Most of them had no congenital disease, representing 71.3% (n=285). Most of the respondents had donated blood 0-5 times, representing 81.3% (n=325). They had a moderate level of knowledge about blood donation (M=12.24, SD=1.69) and a moderate level of attitude towards blood donation (M=15.31, SD=1.30). Attitude towards blood donation of male respondents (M=12.34, SD= 1.67) were (M=15.37, SD= 1.29) higher than female (M=12.17, SD=1.70), (M=15.27, SD= 1.31).

A group of respondents who graduated with bachelor's degree have the blood donation knowledge score (M=12.30, SD=1.73 and attitude towards blood donation (M=15.54, SD=1.10) higher than other groups. Those who had donated blood 11-30 times had higher scores on blood donation knowledge (M=12.92, SD=1.74 and attitude towards blood donation (M=15.79, SD=0.66) higher than other groups. As for the willingness to donate blood, it was found that 79.5% (n=318) of the respondents said they were willing to donate blood, representing 17% (n=68), were uncertain, and 3.5% (n=14) answered they were unwilling to donate blood.

The related factors to blood donation willingness of the respondents were gender (p=0.036), education level (p=0.046), occupation (p=0.034), family income (p=0.024), number of times to donate blood (p=0.000), knowledge of blood donation (p=0.000) and attitude towards blood donation (p=0.000).

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