Factors Associated with Willingness to Blood Donation among Residents of Bustos, Bulacan: An Analytical Cross-sectional Study

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Abstract: **Evidence relating to knowledge, attitudes and practices on blood donation among residents of Bustos, Bulacan is limited. Hence, this study was initiated to establish a baseline information on blood donation targeting the institutionalization of the significant act of humanity. University students characterize a vital group of prospective blood donors, thus this paper investigated what socio-cultural factors may be deemed significant to ponder in upholding voluntary blood donation among the residents of Bustos as well as students of Bulacan State University, Bustos, Campus. The study employed an analytical cross-sectional, descriptive and correlational study to uncover the factors associated with blood donation among the residents of the municipality. The study participants were chosen by using stratified sampling technique. A pre-tested structured questionnaire was used to data collected. Binary Logistic regression was employed in the statistical treatment and results were reported with 90% confidence level, in which collected information were encoded, cleaned and analyzed using Stata SE version 12 in identifying associated factors. There is a total of 446 individuals selected as respondents. However, due to incomplete data provided, 74 observations were excluded in the analysis, consequently identifying motivational factors affecting blood donation and recruitment of safe and low risk donors is necessary. For this reason, the study particularly aimed at assessing knowledge, attitude, and practice towards blood donation and its associated factors. Based on the findings, those who were Born Again Christians, have educational attainment higher than High School graduate, has a monthly income of more than Php 5000 and those who have experience of donating blood are more likely to be willing to donate blood.**

Keywords: **blood donation, factors, willingness and Bustos, Bulacan.**

1. INTRODUCTION

Blood donation is a deed of a person in good physical shape providing blood which will be consumed by another individual in transfusion treatment and since it is non-pharmaceutical merchandise it has to originate straight from an individual in the course of a donation. Altogether, high-income nations have at least 9 times more donations than low-income ones. According to the criteria of World Health Organization (WHO) a state's minimum total blood donation collections should be 1% of total population in order to meet blood transfusion requirements.

Once the encounter of transmission of blood in 1628 by British Physician William Harvey has been established, the area of transfusion treatment has started an imperative development since then. Soon after the major acknowledged blood transfusion endeavour was done. Nonetheless, the first documented successful dog to dog blood transfusion happened 37 years later by English physician Richard Lower In 1665. In 1818 a patient of postpartum haemorrhage recognized the first human blood effectively by the British obstetrician.

Blood transfusion is an essential and a necessary role of any state's well-being sending a pattern for deliverance involvements. The demand for blood and blood supplies is mounting in all parts of the world. Signs exhibited that about a million sections of pregnancy demises worldwide and around 15 % of child death was ascribed to obstetric haemorrhage and anaemia, correspondingly. Had there been suitable and secured blood transfusion facility such a substantial mortality would have been prevented. Generally, around 92 million unit blood donations are accumulated per annum from all categories of blood benefactors. The lower most stages of accessibility are set up in low and middle income nations, like that of the Philippines.
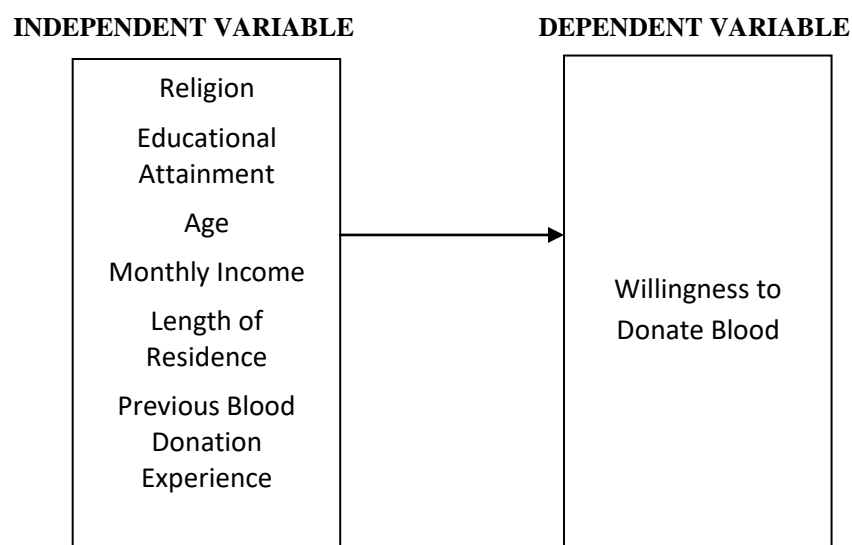
Low levels of knowledge and practice were perceived in a figure of available studies through the high-rising world. A study piloted among Health Science students in South India showed that only 42.7% of the respondents have attained decent information on blood donation likewise greater amount of respondents (62%) never donated blood in their whole lifetime. Nevertheless, an inspiring figure (87.3%) was perceived as consuming an optimistic outlook near blood donation with in a similar study. That same study, to ascertain the association between knowledge level and other associated factors like gender, among selected Medical students had shown the dominance of blood donation frequency of among students were only 13.1%. While this is considerably fewer compared to the projected 60% in developing countries, the outcomes are much nearer to the study conducted by Pravin and Keerti.

There is a run-through in engaging and holding of the probable blood donors for repeating blood donations. Lack of recurring benefactors who provide blood repeatedly delays blood collection which is to be premeditated thoroughly to gather the supplies of blood, by blood clusters and works. Thus, it debilitates the blood transfusion program in upholding a continuous and dependable source of safe and secured blood when necessary in every medical setting involved in transfusion.

An array of socio-demographic, biological, mental and structural features may affect peoples' willingness to donate blood. Education had positive impact on outlooks to blood donation as well as blood donors' understanding to the period and place of donation. The most common fallacies about blood donation were the threat of contamination; selling donated blood to patients, and that blood donation assumed to cause physical weakness. The study attempted to explore those factors that affect voluntary blood donation.

Objectives of the Study. This study seeks to recognize the intentions that function as blood donation motivation among existent donors as well as their attitudes to non-remunerated donation, as the understanding of their motivation is vital for the enhancement of donor enlistment and maintenance efficiency.The study commenced so as to recognize the factors associated with the willingness of Bustos residents on donating blood within the next three months. Specifically, the study focused on determining whether age, educational attainment, average monthly income, religious affiliation and previous blood donation experience are associated, individually and when taken together, with the willingness to donating blood within the next three months.

2. CONCEPTUAL FRAMEWORK

INDEPENDENT VARIABLE   **DEPENDENT VARIABLE**

| Religion |
| Educational Attainment |
| Age |
| Monthly Income |
| Length of Residence |
| Previous Blood Donation Experience |

→

| Willingness to Donate Blood |

3. METHODOLOGY

The scholarly work utilized the analytical cross-sectional design in which the researchers only surveyed in a period of time. Moreover, a descriptive was also employed to describe the demographic profile of the informants in terms of their religion, educational attainment, age, monthly income, length of residence and previous blood donation experience. The design was also used to describe the willingness of the respondents to donate blood. Therefore, the correlational design was also taken to seek the relationships naturally occurring between the demographic profile of the respondents and their willingness to donate blood.

There were 446 informants who were randomly chosen and drawn from the stratified sampling process of the total 14 town (barangay) of Bustos, Bulacan. Howbeit, 74 of the responses were excluded in the analysis.

The instrument of the study is a pre-tested structured questionnaire from which the variable "Age" was dichotomized as"18-40 years" and "41 to 65 years". Similarly, " Educational attainment", "length of residence", and "monthly income" were recoded as "at most high school graduate" and "beyond high school", "1 to 5 years" and "over 5 years", and "PhP5000 and below" and ""above PhP5000", respectively. "Religious affiliation" was re-categorized as "Roman Catholic", "Born-again Christian", "Iglesia Ni Cristo", and "other religious groups". "Previous blood donation experience" was coded as "with" and "without".

Collected information were encoded, cleaned and analyzed using Stata SE version 12. Binary Logistic regression was employed in the statistical treatment and results were reported with a 90% confidence level. The outcome variable in the study was dichotomized as "willing" and "not willing". To prevent the data from being spread too thinly across the varying number of categories of the different factors, most of the categories were merged.

4. RESULTS AND DISCUSSION

Table 1: Distribution of Sample Size Stratified According to Barangay

Barangay	Frequency	Percentage
Bonga Mayor	8	2.15
Bonga Menor	31	8.33
Buisan	13	3.49
Camachilihan	17	4.57
Cambaog	37	9.95
Catacte	44	11.83
Liciada	30	8.06
Malamig	37	9.95
Malawak	18	4.84
San Pedro	44	11.83
Poblacion	37	9.95
Talampas	25	6.72
Tanawan	4	1.08
Tibagan	27	7.26
TOTAL	**372**	**100.00**

Table 2: Distribution of Respondents According to Religious Affiliation

Religion	Frequency	Percentage
Roman Catholic	327	87.90
Protestant	1	0.27
Born Again Christian	26	6.99
Iglesia ni Cristo	12	3.23
Jehovah's Witness	2	0.54
Latter Day Saints	3	0.81
Others	1	0.27
TOTAL	**372**	**100.00**

It can be gleaned from the table that 87.90% of the respondents are Roman Catholic. This is understandable since the Philippines is a predominantly Catholic lead nation. A closer look at the table would reveal that 6.99% of the respondents in this study belong to the Born-Again Christian religious denomination. Least of the respondents or 0.27% are Protestants. The Jehovah's Witnesses, who are known to have included in their beliefs their disapproval to blood transfusion and blood donation comprised 0.54 % of the respondents.

Table 3: Distribution of Respondents According to Educational Attainment

Educational Attainment	Frequency	Percentage
None	1	0.27
Some Elementary	22	5.91
Elementary Graduate	59	15.86
Some High School	47	12.63
High School Graduate	145	38.98
Some College	34	9.14
College Graduate	52	13.98
Vocational	11	2.96
Graduate Studies	1	0.27
TOTAL	**372**	**100.00**

The table reveals that majority of the respondents in this study or 38.98% are high school graduates. This can be explained since the town is mostly agricultural. Furthermore, a closer look at the table will also indicate that 14.57% of the respondents are college graduates. On the other hand, 15.86% of the respondents are elementary graduates, while .27% of the respondents are either possessing advance education or no education at all.

Table 4: Distribution of Respondents According to Age

Age (years)	Frequency	Percentage
18 – 25	49	13.17
26 – 35	102	27.42
36 – 45	104	27.96
46 – 55	73	19.62
56 – 65	44	11.83
TOTAL	**372**	**100.00**

The table indicates that the majority of the respondents used in this study are aged 36 to 45 years old. They amount to almost 85%. On the other hand, 11.83% of the respondents used in this study are aged from 56 to 65. The mean age of respondents is 39.61 years (SD of 11.6 years).

Table 5: Distribution of Respondents According to Monthly Income

Income	Frequency	Percentage
Below PhP1000	2	0.54
PhP1001 to PhP10000	316	84.95
PhP10001 to PhP20000	47	12.63
PhP20001 to Php30000	2	0.54
Over Php30000	5	1.54
TOTAL	**372**	**100.00**

The table above provides that majority of the respondents in this study or 84.95% are earning an average monthly income between PhP1001 to PhP10000. On the other hand, 0.54 % of the respondents are either earning a wage bracket of PhP20001 to PhP30000 or below PhP1000. Five respondents or 1.54% are earning over PhP30000.

Table 6: Distribution of Respondents According to Length of Residence in Bustos

Year/s	Frequency	Percentage
1	6	1.61
2 – 5	26	6.99
6 – 15	56	15.05
16 – 20	31	8.33
21 – 30	87	23.39
More than 30	166	44.62
TOTAL	**372**	**100.00**

The table above shows that 44.62 % of the respondents have been residents of Bustos, Bulacan for more than 30 years, while 23.39 % of the respondents in this study have been residents of the same town for 21 to 30 years. On the other hand, 1.61 % of the respondents are residents of the place for just a year. The mean number of years of residence in Bustos is 29.48 years.

Table 6: Summary Statistics of Age, Monthly Income and Years of Residency

Variable	Mean	p50	Min	Max	SD
Age	39.607	39	18	65	11.65
Monthly Income	7093.68	5000	1000	50000	6427.671
Years of Residency	29.481	29	1	65	16.338

Based on table 6, the mean age of the respondents is 39.6 years (SD = 11.7 years). Roughly 50% of the respondents have an average monthly income of PhP5000.00. The average length of residence in Bustos of the respondents is 29.5 years.

Table 7: Simple Logistic Regression

Factors	Crude Odds Ratio	90% Confidence Interval
Age		
18 to 40 years old	1.00	-
41 to 65 years old	0.87	0.62 – 1.23
Religious Affiliation		
Roman Catholic	1.00	-
Born Again Christian	2.87	1.36 – 6.07
Iglesia Ni Cristo	0.35	0.12 – 1.07
Others (SDA, Mormons, Islam, Protestants, etc.)	0.79	0.22 - 2.82
Educational Attainment		
At most HS graduate	1.00	
Beyond HS	1.52	1.03 – 2.25
Length of Residence		
1 to 5 years	1.00	
More than 5 years	0.74	0.40 - 1.37
Monthly Income		
PhP5000.00 and below	1.00	
Above PhP5000.00	1.51	1.07 - 2.13
Previous Blood Donation Experience		
Without experience	1.00	
With experience	6.32	3.74 - 10.67

In the light of the results, it can be analyzed that on the average, those who are Born-again Christians are almost three time more likely to be willing to donate blood in the next three months compared to their Roman Catholic counterparts. Consequently, on the average, those who reached education higher than a high school graduate are one and half times more likely to be willing to donate blood in the next three months compared to those who are HS graduates and lower. Moreover, those who are earning more than PhP5000.00 monthly are one and half times more likely to be willing to donate blood in the next three months compared to those whose monthly earnings are PhP5000.00 below. On the other hand, those who have previous experience of donating blood are six times more likely to be willing to donate blood in the next three months compared to those who do have previous experience.

Table 8: Multiple Logistic Regression

Factors	Adjusted Odds Ratio	90% Confidence Interval
Age		
18 to 40 years old	1.00	-
41 to 65 years old	0.87	0.62 – 1.23
Religious Affiliation		
Roman Catholic	1.00	-
Born Again Christian	2.27	1.01 – 5.06
Iglesia Ni Cristo	0.27	0.08 – 0.91
Others (SDA, Mormons, Islam, Protestants, etc.)	0.71	0.17 - 2.85
Educational Attainment		
At most HS graduate	1.00	
Beyond HS	1.51	0.98 – 2.32
Length of Residence		
1 to 5 years	1.00	
More than 5 years	0.52	0.27 - 1.00
Monthly Income		
PhP5000.00 and below	1.00	
Above PhP5000.00	1.42	0.97 - 2.06
Previous Blood Donation Experience		
Without experience	1.00	
With experience	6.49	3.79 – 11.11

Based on the results of the multiple logistic regression, on the average, those who have previously blood donation experiences are 6.5 times more likely to be willing to donate blood within the next three months compared to those who do not have previous experience while holding age, educational attainment, religious affiliation, length of residence in Bustos, and monthly income constant. Additionally, those who are Born-Again Christians are 2 times more likely to be willing to donate blood within the next three months compared to Roman Catholics while holding age, educational attainment, previous blood donation experience, length of residence in Bustos, and monthly income constant. Furthermore, on the average, those who are members of Iglesia Ni Cristo are 70% less likely to be willing to donate blood within the next three months compared to their Roman Catholic counterparts while controlling for age, educational attainment, previous blood donation experience, length of residence in Bustos, and monthly income constant.

According to Pesi (2011), if people with religious ties contribute more actively to charitable practices, it is expected that there is some relationship between religiosity and attitudes concerning blood donation. On the other hand, a study by Arage, Ibrahim and Adimasu (2017) stated that the age of the study participants was significantly associated with practice of blood donation. Participants who were more than 25 years old were two times more likely to donate blood when compared to those who are 25 years old or less. Moreover, another study authored by Shenga et. al. (2010) discussed that the knowledge about blood donation was found to be statistically significant with the occupational status and the education levels, both in the bivariate and in the multivariate analyses. Knowledge about blood donation was not

significantly related to age, sex, marital status, religion, community status and per capita monthly family income. On the other hand, from a paper of Tadesse (2018), religion, department and altruism were associated with level of blood donation practice, but factors like sex, age, residence, mass media exposure, and increases level of knowledge, which were predictors of blood donation in the studies of Demisse (2014) and Misganaw et. al. (2014) were not found to be associated in this study. This might be due to Small sample size of the study participant.

5. CONCLUSION

In the light of the results, the following conclusions were drawn:

1. Those who are Born-again Christians are almost three times more likely to be willing to donate blood in the next three months compared to their Roman Catholic counterparts.

2. Those who reached education higher than a high school graduate are one and a half times more likely to be willing to donate blood in the next three months compared to those who are HS graduates and lower.

3. Those who are earning more than PhP5000.00 monthly are one and a half times more likely to be willing to donate blood in the next three months compared to those whose monthly earnings are PhP5000.00 below

4. Those who have previous experience of donating blood are six times more likely to be willing to donate blood in the next three months compared to those who do have previous experience.

6. RECOMMENDATIONS

Based on the conclusion, the following recommendations were made:

1. A more intensive blood donation awareness campaign should be made to increase the willingness of the residents to donate blood.

2. A launch of an information dissemination to both public and private schools, about the significance of blood donation may be prompted.

3. The institutionalization of blood donation to the municipality of Bustos may now be initiated.

4. Similar study may be undertaken to verify the veracity of the results of the present study.

7. AUTHOR CONTRIBUTIONS

1- Conceptualization, Formal Analysis, Investigation, Visualization, Project Administration, Writing Original Draft, Review, Editing and Methodology**; 2-** Investigation, Supervision, Resources and Funding Acquisition**; 3-** Data Curation, Methodology and Software

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