

Research Article

Knowledge, Attitudes and Practices of Blood Donors towards Voluntary Blood Donation in Vellore District, Tamilnadu, South India

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Abstract

Voluntary Non-Remunerated Blood Donation (VNRBD) is an important source for transfusion services; therefore, blood is an important concern to society. Every blood bank needs to identify, motivate and recruit more voluntary non-remunerated blood donors for a safe transfusion service. Motivating people to donate is one of the most important aspects of recruiting voluntary blood donors. A high level of knowledge of blood donors towards voluntary blood donation may result in a high propensity to practice voluntary blood donation. Motivating a spirit of generosity will provide possibilities for reciprocal volunteering in the future. Blood banks can enhance public confidence regarding blood safety and availability; reduce rates of transfusion-transmitted infections. The objectives of this study were to determine the level of knowledge, attitude and practices towards blood donation among voluntary blood donors. The study was conducted among voluntary blood donors in Vellore district, from eleven places. The total score of knowledge and attitude was poor to excellent while practices and altruistic behavior were average to excellent. The poor knowledge level of blood donors may lower the likelihood of subsequent blood donation.

Keywords: Blood donation; Knowledge; Vellore district; Attitude; Practices

Introduction

Voluntary Non-Remunerated Blood Donation (VNRBD) is an important source for transfusion services therefore; blood is an important concern to society. As blood is a scarce resource, motivation, recruitment and retention of voluntary blood donors are important to achieve safe blood donation as they are considered to be the safest source [1]. The risk of transfusion-transmitted diseases is highest with the use of blood procured from remunerated donors than unpaid donors [2]. Every blood bank needs to identify, motivate and recruit more voluntary non-remunerated blood donors for a safe transfusion service as blood banks have an obligation to provide adequate safe blood to the community. Human blood is an element of human life [3]. Donated blood can be lifesaving for individuals who have lost large volumes of blood from serious accidents, obstetric and gynecological hemorrhages, or surgery and stem cell transplant patients as well as for individuals who have symptomatic anemia from medical or hematologic conditions or cancers [4]. The ability to transfuse blood and its components represents one of the great advances in modern medicine [5]. Motivating more people to donate is one of the most important aspects of recruiting voluntary blood donors for the wellbeing of society, as a true substitute for blood and blood components may not be available for many years [6]. Every blood transfusion service aims to operate on the basis of voluntary, nonremunerated blood donation as mentioned by Melbourne declaration [7].

A high level of knowledge of blood donors about voluntary blood donation may result in a high propensity to practice voluntary blood donation. Inspiring non-donors to become regular blood donors is

a conversion process. The person who educates the public on blood donation must be adequately knowledgeable and skilled in public relations, must be effective in communication and know the local language. It is important to understand behaviors and attitudes towards blood donation and the factors that predict future donations. Motivating a spirit of generosity will provide possibilities for reciprocal volunteering in the future. Blood banks can enhance public confidence regarding blood safety and availability; reduce rates of transfusion-transmitted infections. The objectives of this study were to determine the level of knowledge, attitude and practices towards blood donation among voluntary blood donors and to correlate socioeconomic and demographic characters with the knowledge, attitude and practices of blood donors.

Materials and Methods

A descriptive study design was used to determine knowledge, attitude, and behavior aspects of voluntary blood donation and to correlate socioeconomic and demographic characters with the knowledge, attitude and practices of blood donors. This study was conducted among voluntary blood donors in Vellore district, Tamilnadu, India, from eleven places, and the study towns of this district were selected by lottery method. A systematic sampling method was used and respondents who satisfied the inclusion criteria were chosen. The total sampling was 700 voluntary blood donors. Voluntary blood donors within the age group of 18 to 60 years, who had donated blood voluntarily in blood banks or a blood donation drive in and around Vellore district, were included in the study. The donors were selected for the study based on the available donor list from blood banks in Vellore district; from donor lists of the National

Table 1: Distribution of socio demographic variables.

Variables	N	%
Gender		
Male	629	89.9
Female	71	10.1
Age (Mean, S.D.)	27.87	(9.15)
Education Level		
Up to Higher Secondary	171	24.4
Under-graduate	325	46.4
Post-graduate and Others	204	29.1
Residence		
Rural	215	30.7
Urban	485	69.3
Religion		
Hindu	548	78.3
Muslim	23	3.3
Christian	129	18.4
Marital Status		
Single	436	62.3
Married	264	37.7
Occupation		
Unemployed / studentship	215	30.7
Self employed	96	13.7
Employed	389	55.6
How many times have you donated so far? Mean (S.D)	4.27	(7.5)

Service Scheme, National Cadet Corps, Youth Red Cross; student organizations from educational institutions; and donor lists from Non-Governmental Organizations who are involved in the cause of voluntary blood donation.

Measurements

The knowledge variables and strongly contributing determinants for blood donations were measured as Yes or No. A scoring mechanism was used to understand overall knowledge level; a score of ONE was given for each correct response and ZERO for a wrong response. Likert rating scale method ranging from Strongly Agree to Strongly Disagree was used to measure attitude and practice of blood donors. Respondents with 100% correct responses were given a higher percentage which indicated a good level of knowledge, attitude and practice. Responses were categorized into poor (< 35%), average (35 -50%) good (51 - 75%) and Excellent (> 75%). All the data were analyzed with Chi-square - Pearson & Fisher's test and an Independent t test and ANOVA were used to find significance. A p-value of <0.05 was considered significant. The collected data were arranged and analyzed using SPSS (Statistical Package for Social Sciences) computer program 16.1 version.

Results

According to Table 1, most of the donors included in this study are predominantly male voluntary blood donors. Male donors comprised 89.9% and female donors 10.1%. Nearly half of the blood donors had undergraduate level of education (46.4%); one-quarter (24.4%) had up to higher secondary level, including all formal and informal education less than higher secondary, while 29.1% of donors had post graduate or a higher diploma level of education. With respect to the religion of donors, over three-quarters of the donors (78.3%) belonged to the Hindu religion followed by Christians (18.4%) and Muslims (3.3%). With respect to the marital status of the donors, a majority of them were single (62.3%) and the rest of them were married (37.7%). With respect to the residential status of the donors, a majority of them were from urban areas (69.3%) and the rest of

Table 2: Variables on frequency of donation – ANOVA Analysis.

Dependent Variables	Frequency of donation	N	Mean	Std. Deviation	F	Sig. p<0.05
Knowledge total score	Once	274	32.7299	2.54485	7.371	.000
	2-9	349	32.7650	2.38935		
	10-39	67	31.3731	2.17308		
	Above 39	7	31.1429	.69007		
	Total	697	32.6011	2.45626		
Attitude total score	Once	276	39.7717	5.13194	5.606	.001
	2-9	350	40.0200	4.99365		
	10-39	67	42.1045	4.57640		
	Above 39	7	44.2857	3.94606		
	Total	700	40.1643	5.05225		
Practice total score	Once	276	33.1304	4.93717	1.708	.164
	2-9	350	32.9571	5.12770		
	10-39	67	31.6567	4.37816		
	Above 39	7	31.8571	4.01782		
	Total	700	32.8900	4.98474		
Total	Total	699	15.1917	2.24831		

them were from rural areas (30.7%). With respect to the occupation status of donors, a majority of them were employed (56.6%), while unemployed, including students and self - employed were 30.7% and 13.7% respectively. The mean time of the blood donation was (Mean (S.D) 4.27 (7.5) times.

The majority of the blood donors (93%) knew their blood grouping and typing and only 7% did not know. Around three-quarters of them (72.6%) belonged to the "20 - 39 years" age group, 15.9% and 11.6% belonged to the "up to 19 years" and "40 - 60 years" age groups respectively.

According to Table 2, the descriptive score varies with respect to the frequency of blood donation. The mean (SD) score of knowledge is 32.72 (2.54), 32.76 (2.38), 32.37 (2.17) and 31.14 (0.69) for one time, for 2 to 9 times, 10 to 39 times and above 39 times of donation respectively. The mean (SD) score of attitude is 39.77 (5.13), 40.02 (4.99), 42.10 (4.57) and 44.28 (3.94), for one time, for 2 to 9 times, 10 to 39 times and above 39 times of donation respectively. The mean (SD) score of practice is 33.13 (4.93), 32.95 (5.12), 31.65 (4.37) and 31.85 (4.01), for one time, for 2 to 9 times, 10-39 times and above 39 times of donation respectively.

According to Table 3, the p value of knowledge and attitude shows significant differences in frequency of donation. In the less frequent donation groups ("once" and "2 to 9 times"), knowledge was lower than for donors in the higher frequency groups ("10 to 39" and "above 39 times"). The attitude scores steadily and significantly increased among the "once" and "2 to 9 times" blood donation groups. (Mean 39, 40, 42 and 44).

The mean score of knowledge, attitudes and practices were high among the donors. According to Table 4, donors' maximum and minimum knowledge was 32% and 96% respectively; maximum and minimum attitude scores were 26.7% and 100%, and practice (i.e donation) scores were 40.6% and 100% respectively. The mean score

Table 3: Comparison of knowledge score with respect to frequency of blood donation.

Dependent Variable	(I) timedon1	(J) timedon1	Mean Difference (I-J)	Std. Error	Sig. p<0.05
Knowledge total score	Once	2-9	-.03512	.19559	1.000
		10-39	1.35679 [*]	.33026	.000
		Above 39	1.58707	.92751	.525
	2-9	Once	.03512	.19559	1.000
		10-39	1.39191 [*]	.32321	.000
		Above 39	1.62219	.92503	.480
	10-39	Once	-1.35679 [*]	.33026	.000
		2-9	-1.39191 [*]	.32321	.000
		Above 39	.23028	.96255	1.000
	Above 39	Once	-1.58707	.92751	.525
		2-9	-1.62219	.92503	.480
		10-39	-.23028	.96255	1.000
Attitude total score	Once	2-9	-.24826	.40275	1.000
		10-39	-2.33274 [*]	.68138	.004
		Above 39	-4.51398	1.91480	.112
	2-9	Once	.24826	.40275	1.000
		10-39	-2.08448 [*]	.66716	.011
		Above 39	-4.26571	1.90979	.155
	10-39	Once	2.33274 [*]	.68138	.004
		2-9	2.08448 [*]	.66716	.011
		Above 39	-2.18124	1.98730	1.000
	Above 39	Once	4.51398	1.91480	.112
		2-9	4.26571	1.90979	.155
		10-39	2.18124	1.98730	1.000
Practice total score	Once	2-9	.17329	.40067	1.000
		10-39	1.47372	.67786	.180
		Above 39	1.27329	1.90491	1.000
	2-9	Once	-.17329	.40067	1.000
		10-39	1.30043	.66371	.303
		Above 39	1.10000	1.89992	1.000
	10-39	Once	-1.47372	.67786	.180
		2-9	-1.30043	.66371	.303
		Above 39	-.20043	1.97703	1.000
	Above 39	Once	-1.27329	1.90491	1.000
		2-9	-1.10000	1.89992	1.000
		10-39	.20043	1.97703	1.000

The mean difference is significant at the 0.05 level.

of knowledge, attitude, and practice were, 19.84, 46.04, and 48.98 respectively. The total score of knowledge and attitude varied between poor to excellent level and practice was average to excellent level.

Discussion

Most of the blood donors included in this study was predominantly male voluntary blood donors. Male blood donors were 89.9% and female blood donors were 10.1%. This difference may be due to the reason that the blood donor population is predominantly male

worldwide [8].

Nearly half of the blood donors had undergraduate level of education (46.4%), and one-quarter (24.4%) up to higher secondary level, which includes all formal and informal education. 29.1% of blood donors were of post-graduation and higher diploma level. This shows, according to the previous study results, education is an important factor to predict voluntary blood donations [9,10].

With respect to the residential status, 69.3% of the blood donors

Table 4: Descriptive scores of Knowledge, Attitude, Practice and Altruistic behavior.

Variables (Scores)	N	Minimum	%	Maximum	%	Mean	S.D.
Knowledge	700	8	32%	24	96%	19.84	2.87
Attitude	700	15	26.7%	56	100%	46.04	6.37
Practice	700	26	40.6%	64	100%	48.98	5.57

were residing in the urban areas, and 30.75% of blood donors were residing in the rural areas. More than one third of blood donors that is 37.0% were from Vellore town; this may be due to the availability of four designated blood banks, two medical colleges, major universities and colleges which are located in the Vellore corporation area.

As for the religion of blood donors, 78.3% of the blood donors belonged to the Hindu religion, followed by Christians 18.4% and Muslims 3.3%. This difference may be because Hinduism is the dominant religion in India. Vellore district has a population of 34,77,317 (3.47 million). More than 86% of the population belonging to the Hindu religion. Islam and Christianity are the other religions followed by a minority of people, of other religions. The percentage representation of religion in Vellore District is: Hindus 86.76%, Muslims 10.09%, Christians 2.95% and others 0.2% [11].

With regard to the marital status of blood donors, 62.3% of blood donors were single and 37.7% were married. Unmarried blood donors (single) were high in number in the act of blood donation. Unmarried blood donors showed a significant difference in their knowledge and practice of voluntary blood donation.

A study done in Bangladesh identified family background, physical status, urgency of family needs, awareness/knowledge and maturity levels as factors which influence blood donation [12]. A study done in Iran, found a significant relationship between location, age, education, occupation and social status with knowledge of blood donation [13]. The present study found that a majority (55%) of blood donors was employed.

Almost all blood donors 93% were aware of their blood grouping and typing and only 7% were not aware of their blood grouping and typing even though they had donated many times. It shows that less than 7% of blood donors lacked knowledge of their blood grouping and typing. As a result of this 93% of donors were available to donate blood to help when an emergency situation arose. Blood banks should take initiative to issue grouping cards before blood donors leave the blood bank or they should be sent by post. However, it is a really positive sign that a majority of the blood donors were aware of their blood grouping and typing. This improves the availability of more donors for repeated blood donation whenever the need arose.

Perceptions of blood donation may be influenced to a large extent by knowledge significantly related to the occupation and education among the general population [14]. This current study shows that employed donors were interested in repeated blood donation. The study shows that there was a significant difference between employed and unemployed blood donors with regard to knowledge and practice.

Hindu donors donate more in the frequency categories "once" and "2 to 9", "10 to 39" and "above 39 times", and this reflects previous study results [15]. Repeated blood donation shows their commitment

and the voluntary blood donation concept is really pronounced among those donors. There is real commitment among blood donors belonging to Christianity and Islam too. The huge difference between Hindu blood donors and donors of other religions is more pronounced because of the high prevalence rate of that religion in the area where the study took place.

88% of blood donors, who were aware of their blood grouping and typing, donated once. 96% of them donated blood about 2 to 9 times and 98.5% of them donated about 10 to 39 times and 100% of them donated above 39 times. This shows that awareness of blood grouping and typing plays a vital role in repeated donations. If blood donors are made aware of their blood grouping and typing, this seems likely to lead to an increase in the frequency of donation.

Among blood donors residing in urban areas 69.9% donated one time, 65.7% of them donated blood about 2 to 9 times, 82% of them donated about 10 to 39 times and 100% of them donated above 39 times. While among those residing in rural areas 30% donated one time 34.2% of them donated blood about 2 to 9 times, 17.9% of them donated about 10 to 39 times and none of them donated above 39 times. Donors residing in urban areas have high commitment to blood donation. Rural donors are also performing well. There is a significant difference between donors from urban areas and those from rural areas with respect to their knowledge and attitudes. Urban donors are getting more opportunities in the form of information sharing, contacts, media impact etc, whereas this is less available for the rural population.

Repeated blood donations among donors residing in Vellore are high. 36.9% of them donated blood one time, 32.8% of them donated about 2 to 9 times 55.2% of them donated about 10 to 39 times and 71.4% of them donated above 39 times. This may be because of the availability of major blood banks, Universities and Colleges in Vellore. The donors residing in other towns like Ambur, Arakkonam, Arcot, Gudiyatham, Kaveripakkam, Ranipet, Tirupattur, Vaniyambadi, Walajapet and Sholinghur are also equally good in repeated blood donation.

As for the frequency of blood donation by voluntary blood donors, 39.4% of them donated blood about one time, 50.0% of them donated about 2 to 9 times, 9.6% of them donated about 10 to 39 times and 1.0% of them donated above 39 times. A study suggests a potential value in encouraging first-time donors to return as frequently as possible to increase the potential for long-term donation patterns [16]. The present study suggests that blood banks should take initiative in converting one-time donors to becoming repeated donors by adopting newer techniques and conducting more community based awareness programs.

Knowledge is highly significant, in the less frequent group of blood donation of once and 2 to 9 times, than the higher frequency groups of 10 to 39 and above 39 times. The attitude scores steadily and significantly increase over the frequency of blood donation groups, one time and 2 to 9 etc. (Mean 39, 40, 42 and 44). The mean (SD) value of the total score of Knowledge, attitudes and practices for frequency of donation is 32.60 (2.45), 40.16 (5.05) and 32.89 (4.98) respectively.

There is a significant difference in knowledge and attitude with respect to frequency of blood donation. There is a significant

difference in the one-time donation of 10 to 39 times and 2 to 9 times to 10 to 39 times of donation. And there is no significant difference with practice regarding frequency of blood donation.

The p value of the total score of Knowledge, attitudes and practices for all the donors belong to above towns is 0.008, 0.008 and 0.298 respectively. There is a significant difference among blood donors belonging to all the above towns in their knowledge and attitude.

Conclusion

This study shows that willingness to donate blood was significantly higher among blood donors who had a high level of knowledge about blood donation. Blood donation awareness camps should be useful among blood donors and non-blood donors to clarify their doubts before the commencement of an actual donation camp, so that basic doubts of blood donors and non-donors can be cleared and levels of knowledge on voluntary blood donation can be improved. It is suggested by student donors that lessons on blood donation, health awareness and voluntary social services could be introduced in the curriculum. That would help them to develop a helping attitude and motivate them to become blood donors once they complete 18 years.

Minimum and maximum score of knowledge that they scored is 32 % and 96%, Attitude scores were 36.7% and 100%, Practice scores were 40.6% and 100%, Altruistic behavior scores were 37.5% and 100%. The mean score of knowledge, attitude, practice and altruistic behavior were, 19.84, 46.04, 48.98 and 39.98 respectively. The total score of knowledge and attitude was poor to excellent while, practice and altruistic behavior were average to excellent. The poor knowledge level of blood donors may increase the reluctance in their subsequent blood donation. However the mean score of knowledge, attitudes and practices were high among donors. The blood donation camp organizers could target potential donors to motivate them to donate, so that we could increase more blood donation in the near future.

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