

Barriers and Motivators for In-house Blood Donation: A Cross-sectional Study from Tertiary Care Hospital, Kilinochchi, Sri Lanka

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ABSTRACT

Introduction: Most Sri Lankan blood donations (93%) are from mobile blood donation campaigns. Restricted community gathering during the Coronavirus Disease 2019 (COVID-19) pandemic has adversely affected the blood supply. Further, Kilinochchi has lower blood donation rates than other Sri Lanka areas.

Aim: To describe the level of donor satisfaction, identify the barriers and factors to increase in-house blood donors of a District General Hospital, Kilinochchi.

Materials and Methods: This questionnaire-based cross-sectional study was conducted with 193 in-house voluntary blood donors in blood bank at District General Hospital (DGH) Kilinochchi, Sri Lanka, from April 2021 to July 2021. Donors with at least one year of residence in Northern Province were included, and data was collected by pretested, self-administered questionnaire. The parameters assessed were socio-demographic data, donor satisfaction, blood donation information receiving methods, factors affecting blood donation, and factors to improve blood donation. Data entered and analysed using Statistical Package of Social Sciences (SPSS) version 22.0.

Results: Out of total 193, 120 (62.17%) were regular donors. Majority donors were male donors, 168 (87.04%) and among 25-35 years group, 85 (44.05%). Most had completed grade 13 exam, 66 (34.19%), only 28 (14.5%) had a degree and 106 (54.92%) donors were within 10 km from the blood bank. The majority of 122 (63.21%) were aware from a friend, and 16.06% (n=31) were aware from YouTube. Gaining information from a friend was statistically associated with the distance to the blood bank (p-value=0.036). A majority 190 (98.44%) of the in-house blood donors were satisfied with the services provided by the blood bank staff, and 188 (97.40%) had stated they are confident about the facilities provided by the blood bank for in-house blood donation.

Conclusion: Majority of the in-house blood donors were satisfied with the services provided by the blood bank staff and blood bank facilities. Delivering information regarding blood donation via friends to the population who reside close to the blood bank and awareness programs by healthcare workers would be the best method to improve in-house blood donations in this area.

Keywords: Deterrents, Donations, Donor satisfaction, Facilitators

INTRODUCTION

National Blood Transfusion Service Sri Lanka (NBTS) is a specialised campaign under the health ministry. As public health measures restricted community gatherings, maintaining the blood supply during Coronavirus Disease 2019 (COVID-19) is unique and challenging since 93% of Sri Lankan blood donations are from mobile blood donation campaigns. Thus, NBTS has emphasised the importance of increasing in-house blood donations [1].

District General Hospital (DGH) Kilinochchi caters to 150,000 populations in the Kilinochchi district, situated in the northern peninsula of Sri Lanka [2]. The local population's contribution to blood donation is relatively much lower than other country areas. In 2018, Sri Lanka had 450,640 blood donations, and Kilinochchi had only 1005 donations during the same year. When considering to 1000 population, 20.79 had donated in Sri Lanka, and only 7.97 donations/1000 population donations had occurred in Kilinochchi district [1].

The inconvenience due to the place or time is considered a common barrier for blood donation [3,4]. In Sri Lanka, distance to the blood bank was a barrier to in-house blood donation [5]. Fear of needles, fear of acquiring diseases such as Human Immunodeficiency Virus (HIV), and side effects due to blood donation were identified as barriers to blood donation [3,4].

Considering the facilitators to blood donation, Altruism is the most common factor [4,6]. Friends, encouraging media, and religion were

influential factors for blood donation [7]. Male gender and good knowledge about blood donation had been identified as positive factors by previous studies [8,9]. Rising awareness programs and new recruiting strategies are considered motivating factors for blood donation [4].

There were no published studies on in-house blood donors of the Kilinochchi area; therefore, this study would lead to further research in this area. Additional measures to improve in-house blood donations in blood bank-Kilinochchi need to be done based on the findings in the present study. Thus, the present study was done to describe the level of donor satisfaction, identify the barriers and factors to increase in-house blood donors of DGH Kilinochchi, Sri Lanka.

MATERIALS AND METHODS

This questionnaire-based cross-sectional study was conducted with 193 in-house voluntary blood donors in blood bank at District General Hospital (DGH) Kilinochchi, Sri Lanka, from April 2021 to July 2021. The ethical clearance for the study was obtained from the Ethical Clearance Committee, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka. Informed written consent was obtained from all the participants after explaining the purpose of the study, and the confidentiality of participants was maintained.

Inclusion and Exclusion criteria: All in-house voluntary blood donors at the blood bank, DGH Kilinochchi, who have been residing

in Northern Province for at least the last one year, were included in the study. Non consenting in-house blood donors and blood donors who are not residents of Northern Province for at least one year were excluded.

Sample size calculation: The sample size was measured by Daniel's 1999 formula to calculate sample size for prevalence studies [10]. The sample size was 193, which was selected by the non probability sampling method, and all the eligible persons were recruited consecutively.

Data Collection

Data was collected with a self-administered questionnaire, which had two parts.

- Part A collected the socio-demographic data with nine questions.
- Part B included-Factors affecting in-house blood donation, donor satisfaction level, blood donation information receiving methods, factors affecting blood donation, factors to improve in-house blood donation with six questions.

Previous study on a similar topic was taken as a reference to design the study questionnaire [5]. It was formulated in English and was reviewed by two transfusion medicine physicians to correct the questionnaire's content. Then, it was translated to the Tamil and Sinhala languages and translated back to check the consistency of the translated version. Questionnaires were pretested with 10 mobile blood donors not included in the study.

When assessing donor satisfaction of blood bank staff and facilities, a scale from 1 to 10 was used, and scores >5 were regarded as satisfying levels.

STATISTICAL ANALYSIS

Data was entered and analysed using Statistical Package of Social Sciences (SPSS) version 22.0. All the measurements were analysed for central tendency and dispersion. The p-value or confidence intervals were calculated. Nominal or ordinal data were analysed and presented as percentages and confidence intervals. The p-value <0.05 was considered as statistically significant.

RESULTS

Majority were male donors 168 (87.04%) and were hindu devoties 151 (78.23). When considering the age groups most were among 25-35 years group 85 (44.05%) and nealy one fifth, 42 (21.76%) were among 18-24 years group. Most had completed grade 13 exam 66 (34.19%) and only 28 (14.5%) had a degree. Considering employment most were doing business, farming, manual labour 85 (44.04%) and 57 (29.53%) had done permanent occupation.

Most donors were within 10 km from the blood bank 106 (54.92%). Considering the mode of transport, a majority had used the motor bicycle 133 (68.9%). Four donors (2.1%) had walked to the blood bank. Most of the donors were regular donors, which accounted for 120 (62.17%) [Table/Fig-1].

Characteristics	Number (n)	Percentage (%)
Gender		
Male	168	87.04
Female	25	12.95
Religion		
Hindu	151	78.23
Catholic	28	14.50
Christians	12	6.21
Buddhists	1	0.51
Islamic	1	0.51
Age (years)		
18-24	42	21.76

25-35	85	44.04
36-60	66	34.19
Education level		
Had a graduate/postgraduate	28	14.50
Completed grade 13 exam	66	34.19
Completed grade 11 exam	61	31.60
Studied up to grade 10	38	19.68
Employment		
Permanent (government/private)	57	29.53
Temporary (government/private)	51	26.42
Business/farming/manual labour	85	44.04
Monthly income (Sri Lankan rupees)		
Below Rs. 20000	88	45.59
Rs. 20000-Rs. 50000	90	46.63
Above Rs. 50000	15	7.77
Distance to the blood bank		
Within 10 km	106	54.92
More than 10 km	87	45.07
Transport mode to the blood bank		
By foot	4	2.07
Foot bicycle	9	4.70
Motor bicycle	133	68.91
Three-wheel	9	4.70
Bus	22	11.40
Others	16	8.30
Frequency of blood donation		
First-time donors	73	37.82
Regular donors	120	62.17

[Table/Fig-1]: Socio-demographic data of the study population.

Majority 190 (98.44%) of the in-house blood donors were satisfied with the services provided by the blood bank staff, and 188 (97.40%) had stated they are satisfied about the facilities provided by the blood bank for in-house blood donation [Table/Fig-2].

Satisfaction state about the blood bank staffs services provided		
Score out of 10 scale	Number of donors	Percentage (%)
5 or <5	3	1.55
6-8	19	9.84
9 or >9	171	88.60
Satisfaction state about the facilities provided by the blood bank		
5 or <5	5	2.59
6-8	15	7.77
9 or >9	173	89.63

[Table/Fig-2]: Donor satisfaction level of blood bank services.

Learning from a friend, 122 (63.21%) was the most common method to get information about blood donation, while the least used way was to learn from radio (1.03%). Some donors have obtained information from multiple sources [Table/Fig-3].

To get information regarding blood donation from a friend has a statistically significant association with the distance from the blood bank (p-value=0.036). But obtaining information regarding blood donation from a friend did not associate with age, gender, education income, or donation frequency [Table/Fig-4].

Some blood donors had selected multiple aims for blood donation. A 48.18% (n=93) of participants' blood donation aims to help people and 53.89% (n=104) blood donation for social responsibility [Table/Fig-5].

A total of 23 (11.91%) blood donors did not respond to the question on barriers of blood donation. Out of total, 73 (37.82%)

Mode of learning about in-house blood donation	Number (n)	Percentage (%)
Learn from friend	122	63.21
Through newspapers	9	4.66
By television	10	5.18
By radio	2	1.03
By YouTube/Facebook	31	16.06
Inside the hospital premises public awareness programs		
Public awareness programs	23	11.92
Outside the hospital premises public awareness programs		
Public awareness programs	45	23.32
From the staff of blood bank	23	11.92
Total	265	

[Table/Fig-3]: Methods by which donors have learned about in-house blood donation. Some donors have obtained information from multiple sources.

Characteristics	Knew from friend		Knew from other modes		Significance
	Number (n)	Percentage (%)	Number (n)	Percentage (%)	
Age					
18-24 years	28	22.95	14	19.72	$\chi^2=0.276$ df=2 p-value=0.871
25-35 years	53	43.45	32	45.07	
36-60 years	41	33.60	25	35.21	
Total	122	100	71	100	
Gender					
Male	104	85.25	64	90.14	$\chi^2=0.954$ df=1 p-value=0.396
Female	18	14.75	07	9.86	
Total	122	100	71	100	
Education					
Had a graduate/postgraduate	18	14.75	10	14.08	$\chi^2=2.856$ df=3 p-value=0.414
Completed grade 13 exam	37	30.33	29	40.85	
Completed grade 11 exam	43	35.25	18	25.35	
Up to grade 10	24	19.67	14	19.72	
Total	122	100	71	100	
Income					
Below Rs. 20000	53	43.44	35	49.30	$\chi^2=0.866$ df=2 p-value=0.649
Rs. 20000-Rs. 50000	60	49.18	30	42.25	
Above Rs. 50000	09	7.38	06	8.45	
Total	122	100	71	100	
Frequency of donations					
First-time donors	63	51.64	39	54.93	$\chi^2=1.95$ df=1 p-value=0.659
Regular donors	59	48.36	32	45.07	
Total	122	100	71	100	
Distance					
Within 10 km	74	60.65	32	45.07	$\chi^2=4.403$ df=1 p-value=0.036
More than 10 km	48	39.35	39	54.93	
Total	122	100	71	100	

[Table/Fig-4]: Association of obtaining information of blood donation from a friend with socio-demographic factors.

Aim of blood donation	Number (N)	Percentage (%)
For the benefit of patients	93	48.18
Since blood donation is a social responsibility	104	53.89
To get any material or other benefit	3	1.55
To get investigated for diseases	4	2.07
Due to religious beliefs	7	3.62

[Table/Fig-5]: The aim of blood donation (N=193). More than one response was marked.

stated barrier to blood donation was a smaller number of mobile blood donation camps in the area. Total 58 (30.06%) indicated barrier to blood donation was less awareness of the programme [Table/Fig-6].

Barriers to blood donation	Number (N)	Percentage (%)	Valid percentage (%) (Out of number of responders)
Not having enough blood donation camps	73	37.82	42.95
Not having adequate awareness about in-house blood donation	58	30.06	34.11
Barriers due to religious and ethnicity related beliefs	5	2.59	2.94
fears that the blood donation can cause side effects	34	17.62	20
Non responders to the question	23	11.91	0
Total	193	100	100

[Table/Fig-6]: Barriers to blood donation in the Kilinochchi area.

Some blood donors had selected multiple methods to improve blood donation. A majority 128 (66.32%) suggested arranging public awareness programs by healthcare workers. Also, 39 (20.21%) mentioned that social media awareness would improve blood donation [Table/Fig-7].

Characteristic	Number (N)	Percentage (%)
Public awareness programs conducted by healthcare workers	128	66.32
Leaflets/posters/banners distribution	23	11.92
Giving publicity through mass media (TV/Radio/Newspaper)	29	15.03
Increase awareness through social media	39	20.21

[Table/Fig-7]: Suggestions to improve in-house blood donation (N=193). More than one response was marked.

DISCUSSION

In the present study, majority were male donors 168 (87.04%), which was familiar with other studies [5,11]. The majority of blood donors were less than 35 years of age 127 (65.8%). Similarly, a study done in the Western province of Sri Lanka had the majority of blood donors in 24-35 years age group [5] and, a study in India had a majority of blood donors in the age group of 18-37 (n=162, 81%) [11].

Most blood donors, 105 (54.4%) had income above 20,000 Sri Lankan Rupees (SLR); however average individual income in the Northern province of Sri Lanka is 11,000 SLR [12]. So, blood donors have income over the average monthly income of the normal population of Kilinochchi. In a study done in the Western Province of Sri Lanka, most donors 288 (73.1%) had income above 15000 SLR [5]. This may be due to the voluntary non remunerated blood donor policy practiced in Sri Lanka, where donors do not receive any benefits from blood donation. In a similar study done in India, most blood donors 131 (65.5%) had an average income above 10,000 Indian rupees [11].

Most 106 (54.92%) blood donors were within 10 km from the blood bank, highlighting that distance influences in-house blood donation. A Western Province study reported a high percentage (94.4%) of blood donors within 10 km of the living place [5].

In this study, most were regular donors 120 (62.17%) comparable with other studies [5,11] and annual statistic reports of the NBTS of Sri Lanka [1]. A majority 190 (98.44%) of the in-house blood donors were satisfied with the services provided by the blood bank staff, and 188,97.40% had stated they are satisfied about the facilities provided by the blood bank for in-house blood donation.

Learning from a friend 122 (63.21%) was the most common method to get information about blood donation. There was a statistically

significant association between obtaining information regarding blood donation from a friend and the distance to the blood donation facility (Chi-square=4.403, df=1, p-value=0.036). In a study in Western Province in Sri Lanka, 95 (57.8%) had received information about in-house blood donation from friends [5]. This study showed minimal use of the TV, radio, and newspapers as the source of information regarding in-house blood donation, compatible with Western Province, Sri Lanka study [5].

Interestingly, 31 (16.06%) had stated gaining information about in-house blood donation from the Internet (YouTube/Facebook) in the background of 47% of Sri Lankan population using the internet in 2021 [13]. Therefore, it may be possible to improve awareness about in-house blood donation through the internet in the future. A 48.18% (n=93) of participants' blood donation aims to help people and 53.89% (n=104) blood donation for social responsibility. This is comparable with other studies [4,6,7].

The central barriers for blood donation were not having enough blood donation camps 73 (37.82%) and not having adequate awareness about in-house blood donation, 58 (30.06%). In comparison, 34 (17.62%) of donors had stated fears that blood donation can cause side effects as the barrier for blood donations.

In this study, a majority 128 (66.32%) suggested that arranging public awareness programs by healthcare workers can improve blood donation. In previous studies, awareness was identified as a motivating factor for blood donation [4,14]. A 20.21% (n=39) suggested that social media awareness can improve blood donation. A study done in Pakistan during the COVID-19 pandemic had a 31.65% (395/1248) response rate for the social media messages of blood donation, and it highlighted recruitment of young and female donors [15].

Limitation(s)

The limitation of the present study was that a non probability sampling method was used to select the sample; therefore, the finding in the present study can not be generalised to all in-house blood donors of Sri Lanka.

CONCLUSION(S)

In conclusion, majority of the in-house blood donors were satisfied with the services provided by the blood bank staff and blood bank facilities. Delivering information regarding blood donation via friends to the population who reside close to the blood bank and awareness

programs by healthcare workers would be the best method to improve in-house blood donations in this area. Further studies will be needed with probability sampling to generalise findings to Sri Lanka and assess the effectiveness of social media for promoting in-house blood donation. Future studies to assess the effectiveness of social media in promoting in-house blood donation are recommended.

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