Knowledge, Attitudes and Practices (KAP) among Blood Donors from Southern Sri Lanka

A Karunanayake[1], MA Weerasuriya[2], AP Karunathilaka[3]

[1]*Department of Physiology, Faculty of Medicine, University of Ruhuna, Sri Lanka*
[2] *Rural Hospital Midigama, Sri Lanka*
[3] *Faculty of Medicine, University of Ruhuna, Sri Lanka*
[1]a2222nath@gmail.com, [2] mandrikaanuji@gmail.com, [3] apkamila@gmail.com

Abstract— *Behaviour of the blood donors plays a major role in maintaining continuous blood supply for transfusion services worldwide. At the same time it is a challenge to obtain safe blood from the donors. A cross sectional descriptive study was conducted by using a self administered, anonymous questionnaire to determine knowledge, attitudes and practices among blood donors coming to the blood bank in the largest tertiary care centre in the Southern Province, Sri Lanka which caters to a multi ethnic community. This study included 339 randomly selected donors with age range from 18 to 57 with the mean age of 30 (SD 7.8). Majority of them were males (98.2%), unmarried (48.9%), Sinhala Buddhist (99.4%) and had post secondary education (92.9%). Average frequency of the blood donation was 4.6 (SD 3.4). 75.2% of them had previously donated blood (repeat donors) and 83.5% of repeat donors had their first donation before 30 years. 99 % of the donors knew at least one indication for blood transfusion. Majority of the donors stated that sexually transmitted diseases cannot be considered as a cause of transfusion transmitted disease and were unable to define ''unprotected sex''. Mass media significantly contributed to gain knowledge on transfusion transmitted diseases. The main reason given for not to re-donate was ''no benefit for self''. Regular donors tend to direct others for donation than occasional donors (P=0.001). Young, educated donors and low female contribution reported here is similar to other countries. Willingness for re-donation and low post donation complications are encouraging findings. Potentiality of donors for recruiting others for blood donation is a novel finding of this study.*

Keywords— Blood donors, Sri Lanka,KAP

I. INTRODUCTION

Since the first recorded successful blood transfusion by Dr. Jean Baptiste Denis on 1667, transfusion medicine has made significant progress. Blood donation has no alternative. It depends on altruism of the abled humans (Fastag, 2013). To receive safe blood at the right time for the right disease is a Right of the patient. Obtaining and maintaining safe blood stocks for the ever increasing demands are challenges faced by transfusion services all over the world. Non remunerated, regular, voluntary donors are believed to be the best source for safe blood (WHO, 2014). But citizens from most of the countries do not enjoyed that privilege. Many transfusion services of the developing countries mainly rely on replacement donors or remunerated donors who carry high risk for a safe blood concept (WHO, 2014).

The motivation, recruitment, selection and retention are considered as the most important strategies to ensure safe and continuous supply of blood from voluntary, non remunerated blood donors (Tendulkar, 2014). It has been shown that donors' behaviour plays a major role in various aspects of road to safe donation. Willingness for blood donation which is an expected behaviour of the blood donor is influenced by dynamic factors (Masser, 2008; McMahon, 2008). Transfusion transmitted diseases are a major risk associated with blood trasfusion which is not completely prevented by existing procedures. Unprotected sexual intercourse is the predominant mode of transmission of main transfusion transmitted diseases. While motivating potential, appropriate donors, it is essential to promote self-deferal of the high risk donors in order to minimise tranfusion transmitted diseases.

Studies have been conducted in various countries to assess the knowledge, attitudes and practices of the donors to evaluate their behaviour. (Gillespie, 2002; Lownik, 2012; Uma, 2013; Olaiya, 2004). Donor motivation campaigns are based on donors' feedback and the factors prevailing in the country which can influence the willingness of the donors. At the same time, surveillance is needed to look at rejection of donors and factors affecting the willingness for re-donation.

The objective of this study was to assess the knowledge related to indications for blood transfusion and transfusion transmitted diseases, to evaluate attitudes of the donors for re-donation and to determine the donors' practices to direct others for blood donation.

II. METHODS

A cross sectional descriptive study was conducted in the blood bank at the Teaching Hospital Karapitiya which is the largest tertiary care hospital in southern Sri Lanka. The ethical clearance was obtained from the ethical review committee of the Faculty of Medicine, University of Ruhuna, Sri Lanka. The consented blood donors eligible for blood donation were randomly selected. A pretested, self administered, anonymous questionnaire in Sinhala language was given during the pre and post donation period. The pre donation questions were designed to probe donors' Sociodemographic details and their knowledge on transfusion transmitted diseases. As an additional factor knowledge related to thalassamia was also questioned. The post donation questionnaire mainly evaluated their willingness for re-donation and practices to direct others for donation. Statistical analysis was done by using SPSS software. The Mann – Whitney U test was used to examine the differences between two groups.

III. RESULTS

This study included 339 donors. Their age ranged from 18 to 57 years with the mean age of 30 years (SD 7.8 years). A majority of them were males (98.2%), unmarried (48.9%), Sinhalese Buddhist (99.4%) and had post secondary education (92.9%) (Table 1).

Age at first donation was 21.8 years among the married donors which was significantly lower than the 25.3 years for the same parameter in unmarried donors($p<0.02$). Unmarried donors had 3.7 donations compared with married donor 5.2 donations which was also significantly lower ($p<0.02$). Donors who had education above G.C.E(OL) had their first donation at a significantly earlier age than others (22.7 Vs. 24.3 $P< 0.05$). 75.2% of them had previously donated blood (repeat donors) and 83.5% had their first donation before 30 years of age (Table 2). Mean age was significantly higher among repeat donors than new donors (31.4 Vs. 24.3 $p< 0.01$). Mean age at the first donation was 23.7 years (SD 5.6) and average frequency of blood donation was 4.6 (SD 3.4) among repeat donors. Age of the donor was positively correlated with the number of donations (r 0.147 $p=0.19$). The age at first donation of the repeat donors negatively correlated with education (r -0.157 $p<0.05$) and number of donations(r -0.199 $p<0.01$). Donors who had donated more than five occasions (regular donors) started donation significantly earlier than donors who had less than five donations (occasional donors) (21.9 Vs. 24.4 $p<0.01$).

Table 1. Sociodemographic parameters of the donors

Parameter	N=339	Percentage %
Gender		
Males	333	98.2
Females	6	1.8
No response	0	0
Marital status		
Married	162	47.8
Unmarried	165	48.9
No response	12	3.3
Age		
<20	25	7.4
21-30	162	46.8
31-40	108	31.9
41-50	39	11.5
>51	5	1.5
Education		
No education	1	0.3
Up to OL	15	4.3
Up to AL	175	50.4
Tertiary education	140	40.3
No response	8	4.7
Religion		
Buddhism	337	99.4
Hinduism	1	0.3
Islam	1	0.3

99 % of the donors knew at least one indication for blood transfusion (Table 3). 76.2 %of the new donors correctly mentioned HIV/AIDS as a transfusion transmitted disease which was significantly lower than the knowledge of repeat donors, on the same area (*p =0.011*). 58.4% of the repeat donors and 63% of the new donors stated that sexually transmitted diseases (STD) cannot be considered as a cause of transfusion transmitted diseases (Table 4). Only nine donors (2.7%) were able to correctly define ''unprotected sex''.

Table 2. Donor blood donation details

Parameter	N=339	Percentage %
Previous donations		
Repeat donors	255	75.2
New donors	84	24.5
Number of donation by repeat donors		
1-5	185	72.5
6-10	49	19.2
>11	21	8.2
Age at first donation of the repeat donors		
<20	71	29.8
21 -30	142	59.7
31- 40	21	8.8
41-50	2	0.8
>50	2	0.8

As additional information we have collected and evaluated donors' knowledge related to thalassamia. 34.8% knew that thalassamia can be avoided by pre- marriage blood test. Statistically significant higher number of regular donors mentioned that thalassamia can be prevented by pre-marriage blood test than occasional donors ($p< 0.01$).

75.22% of the donors stated that mass media significantly contributed to gain knowledge on transfusion transmitted diseases. Television (40.4%) and newspaper (34%) were mentioned as main sources to gain knowledge related to transfusion transmitted diseases (Table-5). Only 3% of the donors mentioned that radio was contributed for their knowledge.

Table 3. Donors' Knowledge on indication for transfusion

Question	N=339 (Percentage %)	
	Repeat donors (n=255)	New donors (n=84)
What are the instances that blood or blood components can be used as a treatment?		
complications after delivery of a baby		
Yes	239 (93.7%)	75(89.2%)
No	11 (4.6%)	4(4.8%)
Don't know	5 (1.7%)	5(6%)
Victims of road traffic accidents		
Yes	254 (99.6%)	82 (97.6%)
No	1 (0.4%)	2 (2.4%)
Don't know	0	0
Cancer patients		
Yes	201(78.8%)	53(63.0%)
No	43(16.8%)	20(23.8%)
Don't know	11 (4.4%)	11(13.2%)
Genetic blood disorders		
Yes	84(32.9%)	31(36.9%)
No	27(10.6%)	17(20.2%)
Don't know	144(56.5%)	35(42.9%)
Critical stages of Dengue disease		
Yes	198(76.6%)	53(63.0%)
No	37(14.5%)	12(14.3%)
Don't know	20(8.9%)	18(21.4%)

Four donors (1.17%) had minor complaints during post donation such as pain at the site of the puncture.

Table 4. Donors' Knowledge on transfusion transmitted diseases

Question	N=339 (Percentage %)	
What are the diseases that can be spread by blood?	Repeat donors (n=255)	New donors (n=84)
AIDS/HIV		
Yes	225(88.2%)	64(76.2%)
No	17(6.6%)	10(11.9%)

Don't know	13(5.0%)	10(11.9%)
Cancer		
Yes	238 (93.3%)	81 (93.7%)
No	9 (4.6%)	3(4.6%)
Don't know	8 (1.7%)	5 (1.7%)
STD		
Yes	88 (34.5%)	25(29.7%)
No	149(58.4%)	53(63%)
Don't know	18(7.1%)	6(7.3%))
Malaria		
Yes	233 (91.2%)	80 (95.2%)
No	11 (4.4%)	2 (2.4%)
Don't know	11 (4.4%)	2 (2.4%)
Hepatitis		
Yes	141(55.2%)	37(44.0%)
No	85(33.3%)	34(40.4%)
Don't know	29 (11.5%)	13 (11.6%)

Table 5. Source of Knowledge on transfusion transmitted diseases

Question	N=339	Percentage %
How did you get knowledge on disease which can be transmitted by blood?		
1. Radio	10	3%
2.Television	133	40.4%
3.Newspapers	112	34.0%
4.Brochures	3	0.9%
5.Other person	71	21.6%

64.6% of the donors have stated that they were willing for re-donation (Table 6). 40% of the repeat donors and the 19% of the new donors were not willing for re donation which was statistically significant (*p = 0.001*). The main reason given against re-donation was ''no benefit for self'' by both groups (Table 6). 63.6% of the occasional donors and the 50% of the regular donors stated their willingness for re-donation (*P<0.05*).

71.4 Of regular donors and 48.3% of occasional donors have directed others for blood donation (*P=0.001*) (Table 7).A majority of the regular donors believed that explaining benefits to society as the best strategy to direct others for blood donation. In contrast, occasional donors mentioned that accompanying donors to blood bank as the best strategy (Table 7).

Table 6. Donors' attitudes towards re-donation

Question	N=339 Percentage %	
Will you donate blood again?	**Repeat donors (n=255)**	**New donors (n=84)**
Yes	152(59.6%)	67(79.8%)
No	102(40%)	16(19.0%)
No response	1(0.4%)	1(1.2%)
Reasons for no re-donation		
1.time wasting	10 (10.1%)	1 (6.3%)
2.not willing to reveal private details	11 (11.1%)	2(12.5%)
3.no benefit for self	53(20.8%)	9 (56.3%)
4.donation is difficult and painful	3 (3%)	1 (6.3%)
5.other reasons	22(22%)	3(18.8%)

Table 7. Repeat donors' practices for directing others for blood donation

Question and the response	N=339 Percentage %	
Did you ever direct a person for blood donation?	**Occasional donor (n=185)**	**Regular donors (n=70)**
Yes	88(47.6%)	50(71.4%)
No	93(50.3%)	20(28.6%)
No response	4(2.1%)	0
How did you direct a person for blood donation?		
1.by explaining benefits for self	1 (0.6%)	0
2.by forcing	1(0.6%)	0
3.by providing information	58(32%)	10 (14.5%)
4.by accompanying to blood bank	47(26%)	39(56.5%)
5.by explaining benefits for society	74(40.9%)	20(29%)

IV. DISCUSSION

There is a paucity of information related to blood donors and blood donation in Sri lanka. This study represent a sample of donors that consist of new donors, occasional donors and regular donors where each category possess unique features and dynamics related to blood donation. Low female contribution for blood donation is seen in our study which was also reported by other studies (Gillespie, 2002; Uma, 2013). Hollingsworth and Wildman has reported only 1% female donors at their donor population (Hollingsworth, 2004). Low donor turnover and temporary deferral conditions like anaemia, low weight was attributed for this low female contribution (Uma, 2013). Further studies are need to evaluate the low female contribution for blood donation in Sri Lankan settings. Majority of the donors are Sinhala Buddhist who represented nearly 94% of the population of the southern province of Sri Lanka (DCS 2014). This is similar to the findings of an all-island survey conducted in 1985 with the particiapation of 26,932 donors which had shown that 96% of the donors were from Sinhala Buddhist population (De Soysa, 1992). Donors from the young age group and from higher educational background seen in our study are similar to the findings of previous studies (Bharucha, 2005; Allain *et al,* 2008;Uma, 2013). Low mean age of the regular donors and the negative correlation of the age at first donation with number of donation signify that recruitment at young age will retain donors. We would like to suggest that motivation campaigns should target the young age group including school children to become donors when they become eligible for donation.

Blood donation is totally dependent on altruism of human beings. Boulware *et al* has identified that Lack of awareness of the need for donation is a potential reasons for ethnic and racial disparities in blood donation (Boulware *et al*, 2002). If the donor knows reasons for need of blood transfusion it may positively affect their attitudes for donation and becoming a regular donor. At the same time they would become a safe donor if they know about transfusion transmitted diseases which would cause harm for the recipients. This is a valuable point for recruiting and retaining young blood donors who tend to be healthy and motivated which will improve the long term safety and sufficiency of a country's blood supply. The younger population is more likely to practice risk behaviours which may put them at higher risk of developing transfusion transmissible infections. These two aspects were probed simultaneously in this study. Majority of them knew indications for blood transfusion. 85.2% of the donors stated that AIDS/HIV can be transmitted through blood which is similar to Shah *et al* study done in India (Shah 2007). Low level of knowledge was recorded with regard to sexually transmitted diseases (STD) as a cause of transfusion transmitted diseases in which 58.4% of the repeat donors and 63% of the new donors stated that STD cannot be considered as a cause of transfusion transmitted disease. Perception of STD being only transmitted by sexual contact would have partly contributed to these findings. Only 2.7% (n=9) of the donors were able to define ''unprotected sex'' in this study. These two findings suggest that donors' knowledge in this population may not be up to standard to become a safe donor.

Post donation assessment has shown that majority of the donors are willing to donate blood again. The main reason given for not to re-donation was '' no benefit for self'' by donors which could be considered as negative effect. Previous studies have showed that nearly 75% of the donors reflected positive effects as an impact of the blood donation (Nilsson, 2003 ; Uma, 2013). Only four donors had minor complaints during post donation which much lower than values reported by previous studies (Uma, 2013; Nilsson, 2003). Counselling has been recommended as an effective tool to improve knowledge, attitudes and behaviour for blood donation (Kulkarni, 2014). Post donation counselling would reduce negative effects.

We have evaluated the practices of the donors to direct others for blood donation. Results have indicated that regular donors tend to direct other people for donation. This indicates that blood donors themself can be employed as a potential tool to recruit others for blood donation. This aspect has not been previously studied.

In conclusion, blood donors from southern Sri Lanka share common trends of young age, high educational background, and low female contribution with donors from other parts of the world. They have shown good knowledge related to indications for blood transfusion. Willingness for re-donation and low post donation complication are encouraging findings. Potentiality of donors for

recruiting others for blood donation is a novel finding of this study.

ACKNOWLEDGMENT

This study was funded by IRQUE project of Faculty of Medicine, University of Ruhuna.

REFERENCES

Allain JP, Francis S, Peter B, Kwame A, Ernest K, Shirley O (2008). *A pool of repeat blood donors can be generated with little expense to the blood center in Sub Saharan Africa.* Transfusion, Vol. 45, pp. 735-41.

Bharucha ZS (2005).*Donor management in South-East Asia region (SEAR).* Dev Biol (Basel), pp. 145-53.

Boulware LE, Ratner LE, Ness PM, Cooper LA, Campbell-Lee S, LaVeist TA,PoweNR (2002).*The contribution of sociodemographic, medical, and attitudinal factors to blood donation among the general public.* Transfusion, Vol. 42, pp. 669-78.

Department of Sensus and statistics. [Online] 2014. [Cited: 03 June 2014.]http://www.statistics.gov.lk/

De Zoysa NS (1992).*Survey of blood donors in Sri Lanka, 1985.* Ceylon Med J, Vol. 37, pp. 129-30.

Fastag E, Varon J, Sternbach G. Richard Lower (2013).*The origins of blood.* J Emerg Med, Vol. 44, pp. 1146-50.

Gillespie TW, Hillyer CD (2002). *Blood donors and factors impacting the blood donation decision.* Transfusion medicine Reviews, Vol. 16, pp. 115-17.

Hinrichs A, Picker SM, Schneider A, Lefering R, Neugebauer EAM, Gathof BS (2008). *Effect of blood donation on well being of blood donors.* Transfusion medicine,, Vol. 18, pp. 40-48.

Hollingsworth B, Wildman J (2004.).*What population influences the decision to donate blood? .* Transfusion medicine, Vol. 14, pp. 9-12.

Kulkarni P, Kulkarni A (2014). *Mass counseling: effective tool to improve knowledge, attitude and behavior regarding blood donation.* Ann Med Health Sci Res, Vol. 4, pp. 90-4.

Lownik E, Riley E, Konstenius T, Riley W, McCullough J (2012). *Knowledge, attitudes and practices surveys of blood donation in developing*Vox Sang, Vol. 103, pp. 64-67.

Masser BM, White KM, Hyde MK, Terry DJ (2008).*The psychology of blooddonation: Current research and future directions.* Transfus Med Rev, Vol. 22, pp. 215-33.

McMahon R, Byrne M (2008).*Predicting donation among an Irish sampleof donors and non-donors: Extending the theory of planned behavior* Transfusion, Vol. 48, pp. 321-31.

Nilsson Sojka B, Sojka P (2003).*The blood-donation experience: perceived physical, psychological and social impact of blood donation on the donor.* Vox Sang, Vol. 84, pp. 120-8.

Olaiya MA, Alakija W, Ajala A, Olatunji RO (2004). *Knowledge, attitudes, beliefs and motivations towards blood donations among blood donors in Lagos, Nigeria.* Transfusion medicine, Vol. 14, pp. 13-7.

Tendulkar A, Shah S, Patil D, Tambe M (2014).*Platelet donation drives: A novel initiative to recruit platelet donors.* Transfus Apher Sci, Vol. 50, pp. 407-10.

Thomson RA, Bethel J, Lo AY, et al (1998).*Retention of safe blood donors. Retrovirus Epidemiology donor study.* Transfusion, Vol. 38, pp. 359-67.

Uma S, Arun R, Arumugam P (2013).*The Knowledge, Attitude and Practice Towards Blood Donation Among Voluntary Blood Donors in Chennai, India.* J Clin Diagn Res, Vol. 7, pp. 1043-1046.

WHO. [Online] 2014. [Cited: 03 June 2014.] Available:http://www.who.int/features/factfiles/blood_transfusion/blood_transfusion/en/.

BIOGRAPHY OF AUTHORS

[1]Author is a lecturer in Physiology, Department of Physiology, Faculty of Medicine, University of Ruhuna. He has worked as medical officer at blood bank, Teaching Hospital Karapitiya.

[2]Author is a medical officer attached to Ministry of Health, Sri Lanka. Former medical officer attached to Anaesthesia /intensive care unit, Teaching Hospital Karapitiya.

[3] Author is a pre intern graduate from Faculty of Medicine, University of Ruhuna.