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Original Article

Motivation and Intention to Future Donation among Blood Donors Attending a Tertiary Care Hospital Blood Bank in Kerala

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Abstract

Background and Aims: This study aims to identify the level of motivation among blood donors and their intention to donate again and suggest remedial measures to rectify de-motivating influences.

Materials and Methods: A self-administered questionnaire was distributed among donors to collect data on variables related to the objective.

Results: Most donors were men aged 18-24 years, graduates, and employed. The statistical analysis indicated a significant correlation between socio-demographic variables and intention to donate. Fear is the major de-motivating factor, and waiting hours at the blood bank were rated as inconvenient.

Conclusion: Recognition of the positive and negative motivation factors and measures to remove misconceptions of donors will go on a long way in the recruitment and retention of blood donors.

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Introduction

Blood transfusion services face the challenge of ensuring a sufficient supply of blood and blood products of optimum quality to serve patients whose lives or wellbeing depend on blood transfusion. Availability of healthy blood is essential for blood transfusion, which otherwise would adversely affect recipients' health. Inviting and maintaining low-risk donor groups for voluntary and consistent blood donation is blood transfusion centers' most important management strategy worldwide.

The tighter screening of blood donors in recent years has led to a decrease in the volume of blood collected. The demand for whole blood and blood products is increasing higher than the collection rate [1]. Against an estimated annual requirement of 15 million units of blood, only around 9.3 million units are collected [2].

In the past several years, blood centers have revisited and refocused their efforts in enhancing recruitment strategies to increase the number of new donors while retaining current donors. Recently, more complex infectious disease testing and donor deferral and enhanced regulatory scrutiny have distracted blood centers from customer service to detailed documentation of the entire process of blood collection, processing, and issue. In addition to this redirected energy, enhanced market competition and cost-cutting may have diverted resources from donor recruitment and retention [3]. Satisfaction with the blood donation process has been evaluated by authors [4, 5] as an important factor in recruitment and retention programs. The best way to assess satisfaction level about blood donation is to elicit the information from the donor himself. A questionnaire is an ideal tool to gather first-hand information on all relevant factors related to blood donation as motivating and de-motivating factors, service received at the Blood Transfusion Service (BTS), and intention for future donation.

Motivation to donate blood is a very complex issue. The most common motivation to donate blood is consistently considered to be altruism. Researchers analyzed different aspects of altruism, including pure altruism (Donation driven by only a desire to help others without any personal benefits.), warm glow (donation is sustained by a sense of positive emotional gain), and impure altruism (donation is motivated by a warm glow and potential for personal benefits) [6, 7].

This study was conducted at the blood bank of a tertiary care cancer hospital to assess the degree of altruistic nature among blood donors and better understand factors that could de-motivate a person from blood donation. Besides, it looks into the quality of services offered by a blood bank and suggests remedial measures that could be adopted to decrease the de-motivating factors at the blood center, aiming for a long-term effect of better donor retention.

Materials and Methods

Since this study focuses on subjective factors about the motivation for blood donation and intention to donate again, a qualitative data

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collection method was decided upon. The method selected was a self-administered questionnaire [8] with variables assessing the main objectives. A questionnaire was prepared in English, translated into Malayalam, then back-translated to English to eliminate any ambiguities in the questions.

Face and Content Validity [9]: Item reduction and organizing questions into domains were made using the impact score method. The questionnaire was evaluated by 10 experts in the field. They studied the questions for understandability, ambiguity, and poor order. Each question was then scored on a Five Point Likert scale based on the importance or relevance (0=Least important, 5=Most important). The impact score was calculated as a product of the proportion of people scoring each question as important and the mean Likert score. Items with an impact score of more than 1.5 were included in the questionnaire. (1.5 is the product of mean proportion 50% and the mean score 3 on the 5-point Likert scale). Regarding the internal consistency of the questionnaire, the calculated Cronbach's Alpha was above 0.8 for all items of the questionnaire. The donors' responses to each item are given as Likert scores ranging from 1 to 5, indicating donors' degree of agreement or disagreement. The scores were analyzed to see for major motivating and de-motivating influences for donors and how far our services are satisfactory.

Variables: The four-page questionnaire comprised 30 items designed to assess the motivational and de-motivational factors and intention to donate in the future. The questionnaire was divided into five different sections. (Annexure)

1. Donor demographics
2. Motivational factors for blood donation (8 sub-items)
3. De motivational factors for blood donation (5 sub-items)
4. Services at Blood Centre (7 sub-items)
5. Intention to donate in the future.

Participants were asked for socio-demographic information for the first domain, including age, gender, education, socio-economic status, and donation details. For domains 2 and 4, responses were scored on a 5-point Likert scale ranging from 'strongly Disagree (Score-1)' to 'strongly agree (score 5)'. For the purpose of uniformity, domain 3, De-motivational Factors, was scored exactly the opposite. 'Strongly agree' (Score 1) to 'Strongly disagree' (Score 5). The fifth domain had questions where the donor could select the answer.

The questionnaire was tested on a pilot sample of 20 donors to see if the donors responded adequately and to rectify difficulties in comprehension of questions. Queries from donors were answered in detail, and necessary corrections were made. This cross-sectional study was conducted in the blood bank of a tertiary care Cancer Centre, Trivandrum Kerala, India, over three months. Ethical clearance for the study was obtained from the Institutional Review Board at the institute. No 10/2015/17 dated 29/10/2015.

Inclusion and exclusion criteria: All eligible donors attending Blood Bank, RCC for 3 months from Oct 15 2015, to Jan 15 2016. Donors

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without informed consent Incompletely filled and incorrect questionnaire.

Sample size calculation: There were 30 questions in the questionnaire. Considering a sample of 10 donors for every question, a total of 300 donors was the sample size calculated [8, 9, 10].

Survey methods: Immediately after donating, first-time and repeat donors were approached in the refreshment area and asked if they would consent to complete a brief, voluntary, self-administered research questionnaire to assess their motivating factors for blood donation and intention to future donation. Along with demographic details, details regarding the donor's motivating and de-motivating factors towards blood donation and experience at the blood bank were collected. Since we had a ready availability of donors, a total of 500 completed questionnaires were obtained.

Statistical analyses

All the data was recorded on an excel spreadsheet and analyzed using SPSS software version 16. Analysis was conducted broadly as three subdivisions:

1. Tabulation of Socio-demographic Factors;
2. Scoring of Likert responses. Calculation of Percentage scores, Mean Median, and Standard deviation of each variable;
3. Cross-tabulation between socio-demographic factors and selected variables was done using Chi-square. P-value ≤ 0.05 was considered significant.

Results

Among a total number of 500 participants, the age distribution of donors was 18-54. The majority of donors were male (93.8%), and females donated less (6.2%). Educational status showed that the main population of donors had graduated (48%); a majority of the donors were employed (62%); tabulation of the donor details give the information that the main donor population was the same donors donating repeatedly (70.2%) and the age of the first donation (80.8%) of the most donors was between18-25. The percentage of first-time donors came to 29.8% (Table 2).

Scoring of Likert response

Intention to donate again: For the fifth domain, that is, the intention to donate in the future, 76.4% intended to donate again, whereas 1.4 % were undecided as to whether they would donate again or not. It is in agreement with evidence from literature [11, 12].

Cross tabulation

There was no statistically significant correlation between socio-demographic factors and the first three major domains, i.e., motivation strata, demotivation strata, and donor experience.

Since fear of blood donation, especially the pain of needle prick, was a variable with the maximum de-motivating effect, it was analyzed separately against the age of the first donation and also against donors in the various age strata.

There was no significant difference between age groups regarding needle prick pain. Age was not a factor deciding fear of needle prick.

- With Age of first donation($p = 0.549$)

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• With Age strata (p = 0.72)

The main correlation obtained was between socio-demographic factors and intention to return donate again. Considering each demographic factor individually, donors who have first donated at a younger age have a better intention to return for a future donation (p=0.02).Other sociodemographic parameters as age strata, education status, and occupation of donors were found to influence donors regarding the intention to future donation differently It has a statistical substantiation too (Table 2).

Table 1. Domain 1-Sociodemographic factors

Characteristic	Number	Percentage
Age (years)		
18-24	239	47.8
25-34	193	38.6
35-44	54	10.8
45-54	14	2.8
Sex		
Men	469	93.8
Women	31	6.2
Education		
High school/Higher Secondary	177	35.4
Graduate	242	48.2
Post graduate	51	10.2
Other	30	6
Employment		
Employed	310	62
Not Employed	190	38
Donation details		
First-time donor	149	29.8
2-10 times	299	59.8
11-20 times	41	8.2
>20 times	11	2.2
Age of the first donation (year)		
18-25	404	80.8
26-35	78	15.6
36-45	16	3.2
46-55	2	0.4

Table 2. Socio-demographic variables and intention to future donation

Name of variables	Chi-square	D test P-value
Age strata (Younger age group intended to donate again)	11.79	0.003
Education strata (Higher education status favored repeat donation)	20.17	0.003
Occupation strata (Employed individuals tend to donate again)	20.01	0.000

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Table 3. Motivational factors for blood donation

Domain	Strongly Disagree (1)	Disagree (2)	Equivocal (3)	Agree (4)	Strongly Agree (5)	Total 100%	Mean	Median	Std Deviation
i. Improving fellowman's quality of life	1 (0.2)	1 (0.2%)	-	101 (20.2 %)	397 (79.4%)	500	4.68	5	0.587
ii. Expressing a personal choice	4 (0.8)	1 (0.2)	5 (1.0)	129 (25.8)	361 (72.2)	500	4.68	5	0.587
iii. Request from the patient bystander	-	7 (1.4)	19 (3.8)	200 (40.0)	274 (54.8)	500	4.45	5	0.658
iv. Feel good about themselves	5 (1)	1 (0.2)	1 (0.2)	112 (22.4)	381 (76.2)	500	4.73	5	0.579
v. Good for health	4 (0.8)	5 (1)	11 (2.2)	120 (24.0)	360 (72)	500	4.65	5	0.654
vi. Free blood tests	92 (18.4)	129 (25.8)	63 (12.6)	118 (23.6)	98 (19.6)	500	3.01	3	1.42
vii. Incentives	4 (0.8)	12 (2.4)	18 (3.6)	178 35.6	288 (57.6)	500	4.46	5	0.750
viii. Media (TV, newspaper, etc)	155 (31)	149 (29.8)	14 (2.8)	106 (21.2)	76 (15.2)	500	2.6	2	1.484

Table 4. De-motivating factors for blood donation

Domain	Strongly Agree (1)	Agree (2)	Equivocal (3)	Disagree (4)	Strongly Disagree (5)	Total 100%	Mean	Median	Std Deviation
i. Fear of needle prick	10 (2)	38 (7.6)	6 (1.2)	167 (33.4)	279 (55.8)	500	4.32	5	0.972
ii. Fear of seeing blood	3 (0.6)	26 (5.2)	5 (1)	171 (34.2)	295 (59)	500	4.42	5	0.849
iii. Fear of donor reaction	11 (2.2)	22 (4.4)	19 (3.8)	192 (38.4)	256 (51.2)	500	4.29	5	0.935
iv. Family discouragement	6 (1.2)	23 (4.6)	14 (2.8)	165 (33)	292 (58.4)	500	4.4	5	0.875
v. Fear of transmission of infections	10 (2)	18 (3.6)	35 (7)	166 (33.2)	271 (54.2)	500	4.3	5	0.923

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Table 5. Services at the blood bank

Domain	Strongly Disagree (1)	Disagree (2)	Equivocal (3)	Agree (4)	Strongly Agree (5)	Total 100%	Mean	Median	Std Deviation
i. Working hours at blood bank was convenient	82 (16.4)	76 (15.2)	2 (0.4)	201 (40.2)	139 (27.8)	500	3.48	4	1.448
ii. Waiting period at blood bank was satisfactory	12 (2.4)	20 (4)	-	267 (53.4)	201 (40.2)	500	4	4.25	0.847
iii. Pre donation screening and counselling was satisfactory	3 (0.6)	6 (1.2)	5 (1)	276 (55.2)	210 (42)	500	4.37	4	0.630
iv. Facilities at blood collection room was satisfactory	9 (1.8)	18 (3.6)	1 (0.2)	281 (56.2)	191 (38.2)	500	4.25	4	0.792
v. Venepuncture, bedside manners were satisfactory	4 (0.8)	6 (1.2)	1 (0.2)	283 (56.6)	206 (41.2)	500	4.36	4	0.635
vi. Post donation care was satisfactory	-	4 (0.8)	-	257 (51.4)	239 (47.8)	500	4.46	4	0.545
vii. Refreshments given were satisfactory	9 (1.8)	10 (2)	1 (0.2)	243 (48.6)	237 (47.4)	500	4.38	4	0.759
viii. How long did you wait before being called for a donation?	1-10 minutes	11-20 minutes	21-30 minutes	more	Total 100%	Mean	Median	Std Deviation	
	366 (73.2)	100 (20)	18 (3.6)	16 (3.2)	500	1.37	1.0	0.705	

Table 6. Experience at the blood bank and intention to donate again

Experience	Intention			Total	χ^2	p-value
	Undecided	Agree	Strongly agree			
Not good	2 (1.3%)	5 (3.3%)	144 (95.4%)	151 (100%)	44.96	0.000
Good	5 (1.4%)	106 (30.4%)	238 (68.2%)	349 (100%)		
Total	7 (1.4%)	111 (22.2%)	382 (76.4%)	500 (100%)		

Considering cross-tabulating experience at the blood bank and intention to donate again, results significantly differed between groups (p = 0.000). Contrary to what was expected, donors who have scored a poor experience have a stronger intention to donate again (95.4%). The difference arose because 144 out of 151 (95.4%) have agreed strongly to a subsequent donation.

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Discussion

Results were tabulated and were analyzed in the light of evidence from the literature Tabulation of socio-demographic data (Table 1) revealed that the majority of the donors were males (93.8%), in the age strata 18-24 (47.8%), Graduates (48.4%), Employed (62%), Most of the first time donors (29.8%) were in the age range 18-25.

Weinberg et al. [9] conclude that 71.9% of all donors were repeated donors, and the majority were male donors. Findings from Ray et al. [13] are similar to the present study. They report 89.3% male donors, mainly 16-25 (48%), and a repeat donor population of 27%. Several other studies also reported a male predominance for blood donation [14, 15].

Age is another factor, the relation of which to blood donation has been extensively studied, most of the researchers opine that younger generations had more willingness to donate than elders [15, 16] in several studies, more than half of the donors were in the age group 18-30 years. It is in agreement with the results of the current study.

The donor's education increases his awareness of the population's needs and the pros and cons of blood donation. As in the present study, available literature also favors the fact that education improves blood donation [16, 17]. Education dispels misconceptions related to blood donation.

Dorothy et al. have considered the individual score for each Likert item as the motivation factor and not the sum of scores and percentiles [36].

The eight items in this domain for motivational factors for blood donation, (Table 3), mainly assessed the altruistic nature of donors. The mean score itself in this domain was above 4; responses to questions in this domain indicated the preponderance of altruistic behavior among blood donors (an average of 74.75%).

That is similar to the theory of planned behavior by Armitage [18]. It says that behavioral intention is the primary motivational determinant of individual behavior.

Over 90% of donors agree that there is a form of compulsion to donate. As most donors at the blood center are replacement donors, some degree of genuine requests from bystanders play a part in donor motivation. Literature also says that most donors decide to become a donor and go to the blood center when another person, friend, or relative recommends it [19].

Most donors admit that they get more motivated by some form of incentive. Incentives a donor may receive are of two categories, non-monetary and monetary. A study in New Delhi found that nearly 40% of all donors in this city were paid donors [20, 21]. In a study by Olaiya et al. [19] in Nigeria, 92.1% donated for incentives. Nonfinancial incentives such as T-shirts, mugs, and medical tests are considered an acceptable way to intensify blood donation [22, 23].

The present study also shows that a percentage of people (43.2%) have donated for the incentive they might receive from the patient or for availing of the benefits of free blood testing. The only incentive that the blood bank

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provides is a special leave from work on the donation day.

Media influence [24] on blood donation gave a mixed response in the present study, ranging from 31% who are least influenced to 15.2% who are strongly influenced. The main de-motivational factors are fear, fear of painful needle prick, seeing blood, donor reaction, and transmission of infections (Table 4).

In the present study, even though more than half of the donors do not have any demotivation, 15.8% of individuals have given a mixed response; they do not have a positive outlook towards blood donation. However, 32.4% of individuals have given agreement that they harbor fear towards blood donation. These two groups comprise the de-motivated donors.

It is similar to the study by researchers worldwide, who conclude that fear of various kinds remains the first three de-motivating factors in the blood bank [25, 26]. This false sense of fear can be mitigated by better donor counseling alone, giving awareness about the safety of blood donation, and selecting quality disposables to avoid a painful needle prick. Attention should also be focused on relieving the anxiety of donors before they donate. Also, towards making the blood donation experience most comfortable, especially for first-time donors, Vavic et al. conclude that reducing fears and anxieties could influence a donor to return for donation [27]. Results of the literature report indicated that inconvenience of any type at a blood bank is a barrier to blood donation [28, 29].

Analyzing the data, the majority of the donors have rated their experience at blood banks highly (40.45%) (Table 5). 23% of donors rated the experience as un- rewarding. Out of this 23%, 16.4% have strongly opined against a good experience. The main factors are working hours and waiting periods at the blood bank. A proportion (31.6%) of donors have reported that facilities inside the blood collection room, including quality of venipuncture and post-donation care, were also to their dissatisfaction. Some are displeased with the quality of counseling offered.

The waiting period for blood donation has also been studied and has mixed opinions in the literature. Some researchers state the waiting period as inhibitory (Australian Red Cross). Other studies say that a long waiting period is not considered de-motivating by first-time donors, but experienced donors prefer not to wait.

More than 76.4% of individuals agree strongly. It could mean that despite a lack of a motivating influence or presence of de-motivating factors and inconvenience at the blood bank, donors are still ready to donate again.1.4% of donors were undecided about whether they would return, even though none were undecided. However, none were undecided, and none reported a negative answer. Studies on this variable suggest that a person continues to donate if his motivation can be combined with easily accessible collection points.

A significant correlation was obtained for demographic data and intention to future blood donation. Younger donors, better educated, employed, and those donors who started blood donation at relatively younger ages had a

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statistically significant increment in intention to donate further. Contrary to expectation, there was no significant difference between demotivation strata and donors who intend to donate again (p = 0.09). It could be explained that however de-motivated an individual, he intends to donate again.

Cross tabulating the services received (donation experience) and intention to donate again (Table 6), a statistically significant difference is obtained (p =0.000). However, it is seen that compared to donors with good experience at the blood bank, donors with a less good experience have a better intention to donate again. It could be because few donors in the strata with poor experience have taken a firm stand to donate again. It is the highest form of altruism. This finding is similar to Mathew Mathew et al. [30].

Limitations of the study

Representation of female donors was less than men. The sample collected did not consider to increase female participants. Stratified sampling would have given a better representation of female donors. Also, adequate representation of donors in all age categories could have been achieved through stratified sampling.

The study sample comprised of donors who came to the blood center. They can be part of the motivated group. This cluster is different from the civilians in society. Had data been collected from society; we would have been in a better position to comment on the motivational and demotivation variables.

Conclusion

a. The majority of the donors have an altruistic attitude towards blood donation; however, a population of donors has motives towards incentives and free blood testing.

b.Fear is the major de-motivating factor. It could be fear of needle prick, fear of seeing blood, getting infections, and fear of donor reactions.

c. Most of the donors consider their blood donation experience as rewarding. Although some donors said that the experience was not satisfying

d. the majority of the donors intent to donate again. Statistically, a significant correlation was obtained between intention to donate and the donor's age, education, occupation, and socio-economic status.

e. There was a significant difference between the motivated individuals and de-motivated individuals. The statistical difference could not be obtained between maximum motivated strata and donors who reported a good blood donation experience.

In the present scenario of decreasing blood collection and increasing demand for blood, it is important to recognize the positive and negative factors which influence a blood donor. Several strategies can increase the voluntary donor pool

✓ Such as developing communication strategies for donor education and community involvement

✓ Educating, motivating, and recruiting new donors, encouraging an altruistic motive, discouraging donors from accepting

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incentives, dispelling any misconceptions regarding blood donation

✓ Providing quality service and care by making the working hours convenient for donors to give blood and make blood donation a safe and pleasant experience.

Analysis of blood donor motivation survey will help device strategies that focus on retaining return donors and transforming first-time donors into repeat donors.

Conflict of Interest

Authors have no affiliations with or involvement in any organization or entity with any financial interest such as educational grants, membership, employment, consultancies or patent-licensing arrangements, or nonfinancial interests such as personal or professional relationships, affiliations, knowledge, or knowledge beliefs in the subject matter or materials discussed in this manuscript.

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References

[1]. James RC, Matthews DE. Analysis of blood donor return behaviour using survival regression methods. Transfusion Medicine 1996; 6(1): 21-30.

[2]. Pal R, Kar S, Zaman FA, Pal S. The quest for an Indian blood law as of blood transfusion services regulatory framework. Asian J Transfus Sci. 2011; 5(2): 171-74.

[3]. Simon TL. Where have all the donors gone? A personal reflection on the crisis in America's volunteer blood program. Transfusion 2003; 43(2): 273-79.

[4]. Piliavin JA, Callero PL. Giving blood: the development of an altruistic identity. Baltimore (MD): The Johns Hopkins University Press; 1991.

[5]. Thomson RA, Bethel J, Lo AY, Ownby HE, Nass CC, Williams AE. Retention of "safe" blood donors. The retrovirus epidemiology donor study. Transfusion 1998; 38(4): 359-67.

[6]. Ferguson E, Atsma F, de Kort W, Veldhuizen I. Exploring the pattern of blood donor beliefs in first-time, novice, and experienced donors: differentiating reluctant altruism, pure altruism, impure altruism, and warm glow. Transfusion 2012; 52(2): 343-55.

[7]. Clary EG, Snyder M. The motivations to volunteer: theoretical and practical considerations. Current Directions in Psychological Science 1999; 8(5): 156-59.

[8]. Trovão AC, Zucoloto ML, Martinez EZ. Development of a blood donor satisfaction questionnaire (BDSQ), Hematology, Transfusion and Cell Therapy 2020; 42(4): 333-40.

[9]. Weinberg I, Zarka S, Levy Y, Shinar E. Why would young people donate blood? A survey-based questionnaire study. Vox Sang 2009; 96(2): 128-32.

[10]. Weidmann C, Müller-Steinhardt M, Schneider S, Weck E, Klüter H. Donor satisfaction with a new german blood donor questionnaire and intention of the donor to return for further donations. Transfus Med Hemother. 2013; 40: 356-61.

[11]. Saluja GP, Ahuja V. Assessment of blood donors' perception in a hospital blood bank and their intention for future donation. Health and Population: Perspectives and Issues 2009; 32(2): 78-85.

[12]. Nguyen DD, Devita DA, Hirschler NV, Murphy EL. Blood donor satisfaction and intention of future donation. Transfusion 2008; 48(4): 742-48.

[13]. Ray S, Singh Z, Banerjee A. Psychosocial variables of voluntary blood donors at blood bank of a medical college. Med J Armed Forces India 2005; 61(2): 130-32.

[14]. Shenga N, Thankappan K, Kartha C, Pal R. Analyzing socio-demographic factors amongst blood donors. J Emerg Trauma Shock 2010; 3(1): 21-5.

[15]. McCoumbie Randy P. Blood donation patterns of undergraduate students: family and friend relationship correlates. Journal of Community Psychology 1991; 19(2): 161-65.

[16]. Pule IP, Boitshwarelo R, Mgaywa GM, Damas M, Dereje H. Factors associated with intention to donate blood: socio-demographic and past experience variables. Journal of Blood Transfusion 2014; 571678.

[17]. Wiwanitkit, V. Knowledge about blood donation among a sample of Thai university students. Vox Sanguinis 2002; 83(2): 97-9.

[18]. Armitage CJ, Conner M. Social cognitive determinants of blood donation. Journal of Applied Social Psychology 2001; 31(10): 1431-457.

[19]. Olaiya MA, Alakija W, Ajala A, Olatunji RO. Knowledge, attitudes, beliefs and motivations towards blood donations among blood donors in Lagos, Nigeria. Transfus Med. 2004; 14(1): 13-7.

[20]. Niza C, Tung B, Marteau TM. Incentivizing blood donation: systematic review and meta-

[DOI: 10.18502/ijml.v8i4.8101]

analysis to test Titmuss' hypotheses. Health Psychol. 2013; 32(11): 941-49.
[21]. Sadler A, Shi L, Bethge S, Mühlbacher A: Incentives for blood donation: A discrete choice experiment to analyze extrinsic motivation. Transfus Med Hemother. 2018; 45: 116-24.
[22]. Abolghasemi H, Hosseini-Divkalayi NS, Seighali F. Blood donor incentives: A step forward or backward. Asian J Transfus Sci. 2010; 4(1): 9-13.
[23]. Chell K, Davison TE, Masser B, Jensen K. A systematic review of incentives in blood donation. Transfusion 2018; 58(2): 242-54.
[24]. Sümnig A, Feig M, Greinacher A, Thiele T. The role of social media for blood donor motivation and recruitment. Transfusion 2018; 58(10): 2257-259.
[25]. Chauhan R, Kumar R, Thakur S. A study to assess the knowledge, attitude, and practices about blood donation among medical students of a medical college in north India. J Family Med Prim Care 2018; 7(4): 693-97.
[26]. Asamoah-Akuoko L, Hassall OW, Bates I, Ullum H. Blood donors' perceptions, motivators and deterrents in Sub-Saharan Africa: A scoping review of evidence. Br J Haematol. 2017; 177(6): 864-77.
[27]. Vavić N, Pagliariccio A, Bulajić M, Marinozzi M, Miletić G, Vlatković A. Blood donor satisfaction and the weak link in the chain of donation process. Transfus Apher Sci. 2012; 47(2): 171-77.
[28]. Schreiber GB, Schlumpf KS, Glynn SA, Wright DJ, Tu Y, King MR, et al. National heart, lung, blood institute retrovirus epidemiology donor study. convenience, the bane of our existence, and other barriers to donating. Transfusion 2006; 46(4): 545-53.
[29]. Quang NM, Thuan ND, Tri NA. Establishment of a stable base of voluntary non- remunerated blood donor in Vietnam. ISBT Science Series 2007; 2(1): 89-91.
[30]. Mathew SM, King MR, Glynn SA, Dietz SK, Caswell SL, Schreiber GB. Opinions about donating blood among those who never gave and those who stopped: A focus group assessment. Transfusion 2007; 47(4): 729-35.

[DOI: 10.18502/ijml.v8i4.8101]