

Original Research Article

Association of blood donation related fears with donors' characteristics and their impact on future donation

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ABSTRACT

Background: To find the association of blood donation related fears with the donors' characteristics like age, education level and previous donation history and to find their impact on future donation.

Methods: It was a cross-sectional study carried out at a tertiary care hospital in Lahore, Pakistan, from June to December 2022. A self-designed questionnaire addressing five types of fears was filled from 700 blood donors through interview after taking informed consent. Data was analyzed by using IBM-SPSS V23.

Results: Among 700 participants, 91.1% were male with mean age \pm SD of 28.9 ± 7.1 years and 8.9% were female with mean age of 24.5 ± 3.7 years. For previous donation experience, the cohort was divided into five subgroups in which 19.7% had never donated blood and 11.3% had six or more donations. Fears were significantly reduced among donors with frequent donations compared to those with reduced donations. However, 4-5% had some retained fears. Reduced fears were observed in donors with higher education except for the fear of needle. Fears of having blood drawn/seeing blood and fear of fainting were more in younger donors. Out of 5.71% donors who were not willing for voluntary blood donation in future, 95% had fears.

Conclusions: Frequent blood donations, higher education level and age more than 30 years were associated with reduced blood donation associated fears among blood donors. The presence of fears has negative relation with willingness for future blood donations.

Key words: Blood donation, Voluntary donation, Donor fears, Transfusion, Donation history

INTRODUCTION

The most frequently donated tissue in clinical practice is blood. It is one of the life-saving therapy. Only humans are its manufacturer, so, blood donation is considered as a sign of humanity with high sense of altruism.¹ Blood donation is a safe procedure. In this process only those donors are selected who meet certain criteria as per standard guidelines. Although there is an increase in blood donation, but still, it does not meet the demand. There are

four types of blood donors, directed, replacement, autologous, and voluntary non-remunerated blood donors (VNRBD).² In developing countries like ours, the blood supply is mostly from donors who are directed or replacement donors. Females making half of our population, donate minimally.³ The number of voluntary donors is not up to the mark yet.⁴ There are many barriers to the blood donation process like security of donors, lack of knowledge, counselling and education, misconceptions and myths related to blood donation, anxiety and different

fears. These uncertainties reduce the rate of voluntary blood donations. Fear of hospital, needle, sight of blood, pain or fear of fainting can deter a number of people from donating blood.^{5,6} Sometimes, these fears can cause syncopal, pre-syncopal, and vasovagal reactions in donors making problem in donor retention for future donations.^{7,8}

Such fears can be addressed with proper counseling and plan so that a potential donor should not be lost. Previous studies have shown that individualized fear coping plans have worked better and resulted in subsequent lower apprehension and stronger will among donors to donate blood.⁹ This is a high time to promote voluntary blood donation in our population to meet our increasing demand. The information presentation should be catchy and in local languages to achieve the goal. In this study we have focused on determining six different fears prevailing among blood donors and stratified them according to donors' characteristics and previous blood donation experiences. We have also tried to establish the impact of existing fears on donors' intention of future donations.

METHODS

It was a cross-sectional study, carried out at the hematology and transfusion medicine department of the university of child health sciences & the children's hospital, Lahore from June 2022 to December 2022 after Institutional Ethical committee approval. Consecutive sampling technique was used to include 700 blood donors including both male and female from ages 18-60years who came to donate blood in the hospital-based blood bank. A pilot study including 50 participants was carried out initially and reliability of the questionnaire was determined by using Cronbach's Alpha which was 0.888.

Study questionnaire

After taking informed consent, a self-designed questionnaire was filled from the donors through an interview by a lab technologist and a Hematology Fellow before the donation process started. The questionnaire addressed 4 areas: Demographics, Donor's characteristics, Blood donation related fears and Willingness towards voluntary future donation. Donor's characteristics included age, education level, number of previous donations, and type of donation (directed, replacement, autologous, and voluntary non remunerated blood donation). Blood donation related fears included fear of hospital settings, fear of needle, fear of seeing blood, fear of missing next day job and fear of feeling faint or light headedness after donation. Fears were rated as 0 for not at all, 1 for somewhat, 2 for mild, 3 for moderate, and 4 for extreme fear. In the end there was a question about voluntary future blood donation.

Statistical analysis

Data was entered and analyzed using IBM-SPSS V23. Categorical variables were expressed in the form of

frequency and percentages. Bar charts were used to display this data. Chi square test was used to find the association between categorical variables, p value <0.05 was taken as statistical significance. The confidentiality of participants was maintained at each level of response in this study. Informed consent was obtained from study participants. No financial grant from any public or private organization was received for this study.

RESULTS

Among 700 donors, 638 (91.1%) were male with mean age±SD of 28.9±7.1 years and 62 (8.9%) were female with mean age±SD of 24.5±3.7 years. 84.1% belonged to Punjabi ethnic group. Majority were directed donors (513, 73.2%), while 101 (14.4%) were replacement and 86 (12.2%) were voluntary donors.

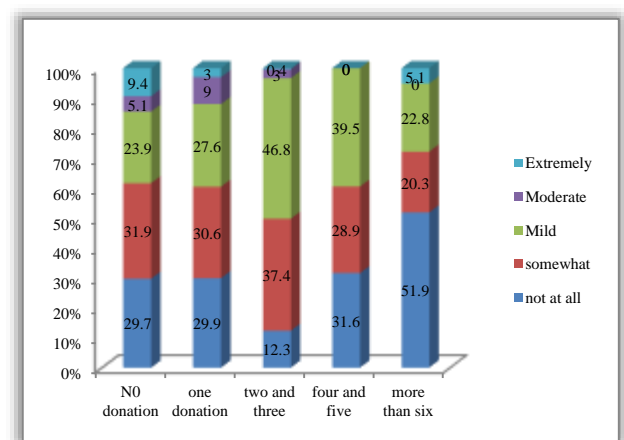


Figure 1: Frequency of “fear of hospital settings” as a function of donation history.

Fears and prior donation history

To determine the association between reported fears and prior donation history, the cohort was divided into five subgroups including donors who had never donated blood (N=138, 19.7%), who had donated one time (N=134, 19.1%), two or three times (N=235, 33.6%), four or five times (N=114, 16.3%) and six or more times (N=79, 11.3%). The (Figure 1) shows that 29.7% of donors who had never donated blood, had no fear of hospital settings and 9.4% of such donors had extreme fear of hospital settings. It also shows that 72.2% of frequent donors had no or somewhat fear of hospital settings and 5.1% had some retained extreme fear of hospital settings. The (Figure 2) shows a decreasing trend of fear of needle or pain at phlebotomy site with increasing donations history. However, extreme fear was still reported in 2.5% of donors. The (Figure 3) illustrates that 29.7% of donors with history of no prior donation had no fear of having blood drawn and 14.5% of such donors had extreme fear. This figure also shows that around two third of experienced donors had no or somewhat fear of having

blood drawn and extreme fear was observed in 3.8% of donors.

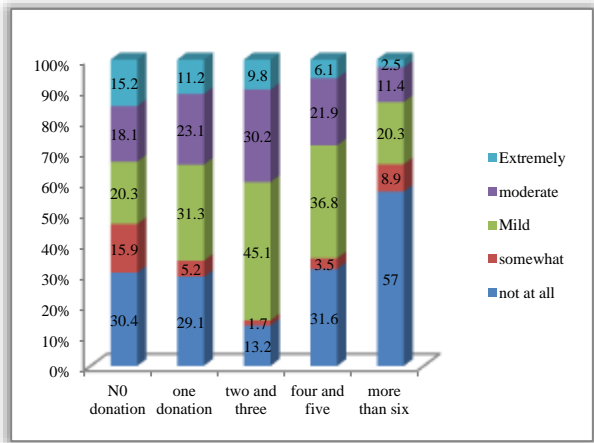


Figure 2: Frequency of 'fear of needle or pain at phlebotomy site' as a function of donation history.

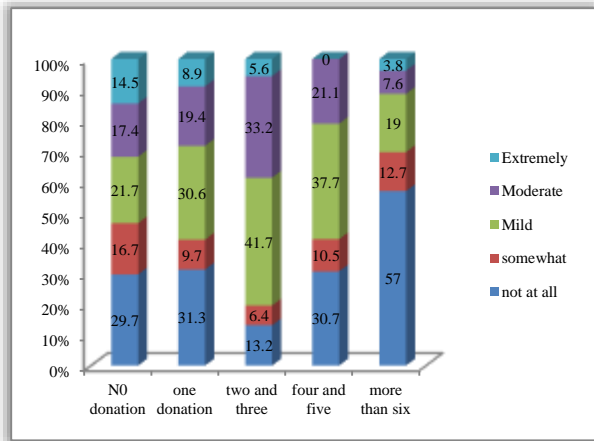


Figure 3: Frequency of 'fear of having blood drawn or seeing blood' as a function of donation history.

The (Figure 4) shows that fear of feeling faint and light headed was not observed in 29.0% of donors who had never donated blood. The extreme form of this fear does persist in two-five times donors. The (Figure 5) shows that extreme fear of missing next day job due to blood donation was observed in 10.1% of potential donors who have had never donated blood as compared to 1.3% of frequent donors.

Fears and educational level

Association between fears and education level was determined by dividing the cohort into five subgroups, which include donors who had never gone to school (N= 75, 10.7%), who had primary schooling (N=242,34.5%), finished matric (N=198,28.2%), college (N=152,21.7%) and higher studies (N=33,4.7%).

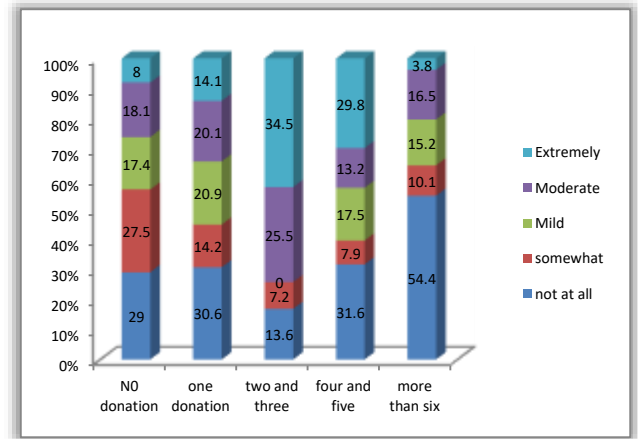


Figure 4: Frequency of 'Fear of feeling faint and light headed' as a function of donation history.

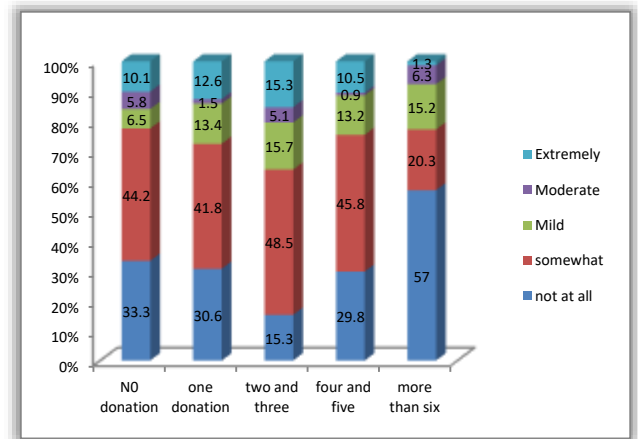


Figure 5: Frequency of 'fear of missing next job' as a function of donation history.

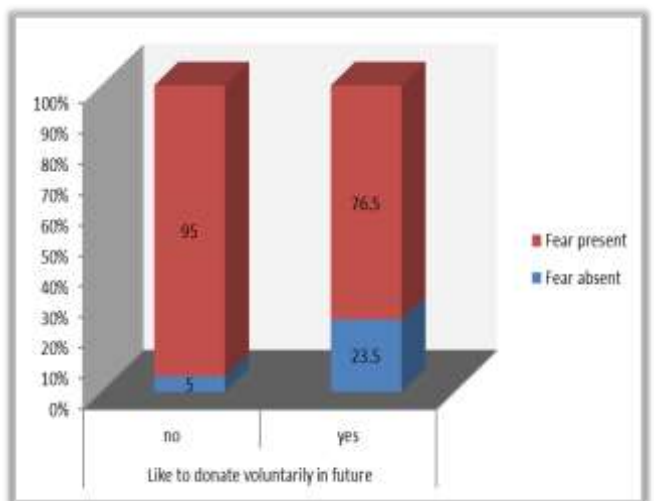


Figure 6: Impact of blood donation related fears on voluntary blood donation decision by the participants.

Table 1: Association of blood donation related fears with education level of donors.

Parameters	Not at all N (%)	Somewhat N (%)	Mild N (%)	Moderate N (%)	Extremely N (%)	Total N (%)
Fear of hospital settings						
Never gone	29 (38.7)	19 (25.3)	23 (30.7)	4 (5.3)	0 (0.0)	75 (100)
Primary School	43 (17.7)	83 (34.2)	103 (42.5)	9 (3.7)	4 (1.6)	242 (100)
Matric	53 (26.8)	72 (36.4)	59 (29.8)	4 (2.0)	10 (5.0)	198 (100)
College	47 (30.9)	41 (27.0)	47 (30.9)	9 (5.9)	8 (5.3)	152 (100)
Higher studies	15 (45.5)	7 (21.2)	11 (33.3)	0 (0.0)	0 (0.0)	33 (100)
Fear of needle/pain at phlebotomy site						
Never gone	30 (40.0)	6 (8.0)	22 (29.3)	10 (13.3)	7 (9.3)	75 (100)
Primary school	45 (18.5)	8 (3.3)	112 (46.2)	56 (23.1)	21 (8.6)	242 (100)
Matric	55 (27.8)	15 (7.6)	59 (29.8)	53 (26.8)	16 (8.0)	198 (100)
College	48 (31.6)	13 (8.6)	38 (25.0)	33 (21.7)	20 (13.1)	152 (100)
Higher studies	15 (45.5)	2 (6.1)	3 (9.1)	9 (27.3)	4 (12.1)	33 (100)
Fear of having blood drawn/seeing blood						
Never gone	30 (40.0)	6 (8.0)	22 (29.3)	13 (17.3)	4 (5.3)	75 (100)
Primary school	40 (16.5)	21 (8.6)	96 (39.6)	72 (29.7)	13 (5.3)	242 (100)
Matric	57 (28.8)	27 (13.6)	67 (33.8)	34 (17.2)	13 (6.6)	198 (100)
College	47 (30.9)	22 (14.5)	36 (23.7)	33 (21.7)	14 (9.2)	152 (100)
Higher studies	14 (45.5)	5 (15.1)	6 (18.2)	6 (18.2)	2 (6.1)	33 (100)
Fear of feeling of getting faint and light headedness						
Never gone	30 (40.0)	5 (6.7)	18 (24.0)	11 (14.7)	11 (14.7)	75 (100)
Primary School	44 (18.1)	46 (19.0)	78 (32.2)	43 (17.7)	31 (12.8)	242 (100)
Matric	57 (28.8)	36 (18.2)	31 (15.7)	52 (26.3)	22 (11.1)	198 (100)
College	49 (32.2)	27 (17.8)	27 (17.8)	28 (18.4)	21 (13.8)	152 (100)
Higher studies	12 (36.4)	6 (18.2)	7 (21.2)	6 (18.2)	2 (6.1)	33 (100)
Fear of missing next day job						
Never gone	30 (40.0)	32 (42.7)	7 (9.3)	4 (5.3)	2 (2.7)	75 (100)
Primary school	43 (17.7)	116 (47.9)	33 (13.6)	14 (5.7)	36 (14.8)	242 (100)
Matric	60 (30.3)	74 (37.4)	31 (15.7)	8 (4.0)	25 (12.6)	198 (100)
College	52 (34.2)	63 (41.4)	18 (11.8)	2 (1.3)	17 (11.2)	152 (100)
Higher studies	17 (51.5)	14 (42.4)	2 (6.1)	0 (0.0)	0 (0.0)	33 (100)

Table 2: Association between blood donations related fears with age of donors.

Age group (years)	Not at all N (%)	Somewhat N (%)	Mild N (%)	Moderate N (%)	Extremely N (%)	Total N (%)
Fear of hospital settings						
18-30	118 (25.4)	145 (31.3)	163 (35.1)	21(4.5)	17 (3.6)	464(100)
31-60	69 (29.2)	77 (32.6)	80 (33.9)	5 (2.1)	5 (2.1)	236(100)
Fear of needle/ pain at phlebotomy site						
18-30	120 (25.9)	31 (6.7)	156 (33.6)	108 (23.3)	49 (10.5)	464 (100)
31-60	73 (30.9)	13 (5.5)	78 (33.1)	53 (22.5)	19 (8.1)	236 (100)
Fear of having blood drawn/seeing blood						
18-30	121 (26.1)	51 (11.0)	143 (30.8)	112 (24.1)	37 (7.9)	464(100)
31-60	73 (30.9)	22 (9.3)	84 (35.6)	46 (19.5)	11 (4.7)	236(100)
Fear of feeling faint and light headed						
18-30	118 (25.4)	68 (14.7)	90 (19.4)	90 (19.4)	98 (21.1)	464(100)
31-60	98 (41.5)	23 (9.7)	50 (21.2)	36 (15.2)	29 (12.2)	236(100)
Fear of missing next day job						
18-30	132 (28.4)	209 (45.0)	50 (10.8)	20 (4.3)	53 (11.4)	464(100)
31-60	70 (29.7)	90 (38.1)	41(17.4)	8 (3.4)	27 (11.4)	236(100)

The (Table 1) shows that the fear of hospital settings was reduced with increasing education level among the donors.

However, the extreme fear was found more in college students. Among the donors who had never gone to school,

extreme fear of needle/pain at phlebotomy site was seen in 9.3% as compared to 12.1% with higher education. Fear of having blood drawn or seeing blood was mostly seen in mild to moderate scale in all groups. Fear of feeling faint and light headed was also seen more in donors with primary or college education. Majority of the donors had no fear of missing next day job while 11.4% had extreme concerns of this sort.

Fears and age of donors

To determine the association between reported fears and age of donors, the sample was divided into two groups. Group 1 and group 2 included donors with ages between 18-30 years (N=464, 66.28%), and ages between 31-60 years (N=236, 33.71%) respectively. The (Table 2) shows that 43.3% donors of group 1 while 38.1% donors of group 2 had mild-extreme degree of fear of hospital settings. Among group 1 and 2 donors, 67.4% and 63.5% had mild-extreme fear of needle/pain at phlebotomy site respectively. Fear of having blood drawn/seeing blood was seen more in younger group (62.9% vs. 55%). Extreme fear of fainting/light headedness was also seen more among group 1. About 28.4% of group 1 donors had no fear of missing next day job but 11.4% have extreme fear which was similar to group 2 responses. The (Figure 6) shows the impact of blood donation related fears on the decision of blood donors to donate blood voluntarily in future. It showed that out of 700 donors, 40 (5.71%) donors were not willing to donate blood in future. Out of these donors 5% had no blood donation related fears and 95% had one or more such fears. P-value of 0.005 indicates significant negative impact of fears on donors' retention as VNRBD.

DISCUSSION

Around the globe about eighty million blood units are donated every year but the availability of safe blood remains scarce.¹⁰ The rate of blood donation versus the demand in developing countries is reported much low. In Pakistan, 3.5 million blood donations are collected annually but at the same time the demand increases by 1.5 million blood bags each year.⁴ Our region is considered to have a high burden of patients with increased transfusion needs like those born with diseases like hemophilia, thalassemia, platelet function defects and others.¹¹⁻¹³ Nevertheless, we have a population consisting of a high number of young adults who can be potential blood donors but the barriers like lack of knowledge, myths and misconceptions, and fears about blood donation process are still a blockage towards achieving 100% voluntary blood donation goal. Our study focused to find out these fears among the blood donors coming to a tertiary care facility and we have tried to determine their association with donors' characteristics. We found an inversely proportional relationship between previous blood donations and all kinds of fears. The experienced blood donors had a better understanding of the donation process with less anxiety as compared to the novice group.

However, 4-5% of the most frequent donors have had some retained fears. The fear of fainting/ light headedness was reported the most. Our findings are similar to the study conducted by France et al.⁵ Boulware L.E et al has also reported a negative relation between prior history of blood donation and fear of hospital settings and donation.¹⁴ The strategies to address these fears among the experienced donors may require an individualized plan in contrast to the newly recruited donors who may be benefitted by information in chunks. A common practice is to avoid the discussion of these fears prior to the donation process as it may delay the intention of the blood donor to donate blood. The training of the relevant healthcare staff is crucial in this regard. Majority of our donors had completed their primary schooling while only 4.7% had achieved higher education. The sample may not be a representative of the society in regards to education level or it may be attributed to the fact that highly educated individuals are not coming in routine to public blood banks to donate blood. We found that extreme fear of needle/pain at phlebotomy site was more in more educated groups. Fear of fainting and hospital settings were reported more among college students. The findings are similar to the previous study.⁸ The fear of needle pain and fear of fainting has shown a strong correlation with syncopal reactions, among blood donors.^{7,8,15} Zucoloto et al carried a cross sectional survey and reported that fear of needle insertion and fear of fainting are barriers to blood donation in Brazil.¹⁶ We found that blood donation fears, particularly the fear of having blood drawn/seeing blood and fear of fainting were more in donors aged between 18 to 30 years. The reason for this may be that older donors were more mature and well-versed about the blood donation process. However, the fear of needle or pain at phlebotomy site was more in older, group 2 donors. The systematic review by McLenon & Rogers showed that around 30% of young adult exhibit fear of needles, with higher prevalence in adolescents.¹⁷ The increased fear of having blood drawn among young donors has been proven to have an adverse effect on donor retention and an indirect negative outcome in the form of vasovagal reactions.^{8,18} Our study has shown that the presence of these fears negatively impacts the decision of blood donors to donate blood voluntarily in future. Zhong Li et al conducted a cross sectional survey in China to understand the intention of blood donors to donate again from a social cognitive perspective and concluded with similar findings as ours.¹⁹ These fears are a barrier to blood donation process and for the retention of donors they need to be effectively managed prior to the donation process. Apart from a routine donor selection form and a comfortable environment of the blood donation site, a concise questionnaire addressing different concerns or fears according to the age, gender and other donors' characteristics can prove beneficial.

Limitations

The study had its limitations as it was not a population-based survey and had a selection bias as only those donors were selected who came to the hospital- based blood bank.

There was very little participation of females. Further research is vital in this regard involving diverse ethnicities and different segments of the society. Moreover, longitudinal studies can be planned to correlate the presence of these fears and occurrence of adverse reactions among donors, so such donors may be identified earlier and can be offered due counselling and care. The other aspect of future research can focus on donors with different fears, counselling strategies and the measurement of their effectiveness through long term follow-ups.

CONCLUSION

In conclusion, blood donors with frequent blood donations, higher education level and older than 30 years had reduced blood donation related fears and more willingness to donate in future. However, despite these favourable factors, some of the fears were retained which need to be addressed accordingly. Having knowledge of these fears will be helpful for the healthcare workers working in blood centres or blood donation campaigns to comprehend the different inhibiting fears and emotions in giving blood. The ability to measure such fears will lead to create effective messages to lessen them.

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