Analysis of motivational factors and deterrents affecting blood donation in Zimbabwe's tertiary institutions.

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RESEARCH ARTICLE

Received: **05-01-2021**
Accepted: **06-01-2021**
Published: 08-**01-2021**

Abstract: Blood is a special fluid that gives passage to nutrients, oxygen and metabolic waste. It is a non-pharmaceutical product obtained through voluntary donations. Patients who are in need of blood donation expect the availability of adequate blood to satisfy their demands. Nevertheless, this is not so, mainly in third world countries like Zimbabwe where less than 6 people donate blood per 1000 populace. This study attempts to evaluate the various reasons that motivate or demotivate people at tertiary institutions to donate blood.

Methods: A cross sectional study of donors and non-donors willing to participate in this study was used and a sample size of 501 was used. An online self-administered questionnaire was used in this research. The research instrument targeted on finding factors that motivate repeat donors and also why non donors have never donated. Statistical methods were used for to analyse and present the responses.

Results: Most of the 501 participants were repeat donors 299(59.7%) and 85 (17%) were non donors. All donors agreed that there exist factors that motivate them to donate blood which included the desire to help someone in need (96.8%), and influence by family and peers (91.5%) among other significant factors. Busy schedule, fear of needles, lack of incentives was among the most significant deterrents in the tertiary population. Most participants wanted branded materials to be part of incentives to encourage repeat donors. On average only 34% know their blood group and almost every participant know that blood cannot be manufactured in the laboratory.

Conclusion: Our findings suggest that more campus donor drives needs to be taken educating people on benefits of blood donation and encouraging them to be continuous blood donors. Young donors are more attracted to branded incentives and females donate more than males.

Keywords: ***Blood donation, motivators, deterrents, altruism.***

Introduction

Saving lives could be the ultimate humanitarian gift and one way of doing this is through blood donation (Mauka et al., 2015). Blood is an important fluid formed by a combination of life saving components that includes: plasma, red blood cells, white blood cells, and platelets (Dailey, 2001). It constitutes 7% of the body weight and has several functions in the body which includes among others to: transport oxygen and nutrients, carry cells and antibodies that fight infection, transport metabolic waste products, and regulate temperature. Blood transfusion is an indispensable component of healthcare that permits complex medical and surgical interventions to improve life expectancy in patients. Healthy individuals voluntarily donate blood free of charge to be used in transfusion therapy. Every patient has a right to adequate blood supplies all the times. However, in the third world countries like Zimbabwe there is a wide difference between blood demand and supply (WHO;2010; 2013). Blood shortage will mainly affect children with anaemia, malaria and those expecting mothers who have complications related to pregnancy (Tapko et al, 2014). At most 34% of maternal deaths in Africa can be attributed to bleeding in labour, which avoidable if adequate supplies of blood are available (WHO;2014). Additionally, man-made calamities like accidents, and conflicts further increase the burden for blood demand in Africa. Though access to blood is a right it remains a challenge many countries, blood demand rises each year without corresponding increase in donations (McCarthy, 2007), this is due to increasing surgeries and chemotherapies which are aggressive and also the ageing population which implies a reduction in the donor pool (Hannon, 2011). Around 108 million units of blood are collected per annum globally, with more than 50% from the developed world with 20% of the overall world populace (Mauka et al., 2015). Annually around 234 million major clinical operations are performed globally where blood transfusion is mandatory (Societies, 2013).

World health organisation (WHO) recommends that every ten humans per thousand populaces in any given nation need to be regular voluntary blood donors for that nation to have sufficient stocks of blood all the time (Tapko et al., 2014). However, Zimbabwe has not managed to surpass six voluntary and non-renumerated blood doners per one thousand populaces. The world health organisation recommends that all nations should

be self-sufficient in all blood products and that all blood donations should be voluntary, anonymous and non-remunerated. However, blood supplies for over 62 countries in the world are now 100% dependant on voluntary, anonymous and non-remunerated blood donations (WHO;2015, Amatya, 2013). To achieve this good objective blood banks authorities and volunteers have to work together, and a big investment for recruiting and preserving regular voluntary blood donors has to be secured (WHO, 2009). On donor recruitment more efforts should be channelled towards the young generation as they are more likely to be health and their donating career may be long (Yuan et al, 2011).

All blood donors should be tested for transfusion transmissible infections (TTIs) like HIV, syphilis, hepatitis B and C among others (Tapko et al., 2014). With an ever-growing demand on blood supplies internationally, there's a tremendous desire to ensure a secure and sufficient supply of blood products. However, recruiting and maintaining blood donors stays a key undertaking for blood organizations internationally. We need a deep understanding of factors that affect blood donation. We also need to adequately have enough information and knowledge on importance of blood donation as donors are inspired to donate if they have full information about the process and the associated benefits. There are also African myths and fears associated with blood donation which needs to be demystified.

Blood donation has been studied in the literature as one of the most essential gestures of "natural altruism" since one donates blood not know the person that will receive it (Guiddi et al., 2015). Pro social beliefs which include among others, feeling for others, selflessness and duty to help others (social responsibility) were the strongest motivating factors and some general factors include participation of friend or family members (Joseph et al, 2019; Chacón et al., 2017). Among the studied deterrents is pain associated with blood donation and the time

constraint, some people said they will donate if the process is more convenient to them and also that they preferred to be contacted via social platforms available (Allerson, 2012). Stepwise regression was used by Misje and Heier (2005) in determining motivating variables, those with factor loadings greater than 0.4 were considered to be significant. Altruistic motivational factor is relatively high amongst women, leading to a greater response to altruistic messages by women (Glynn *et al*., 2002; Randolph Steele *et al*., 2008), hence more efforts must be made to attract male donors.

National blood service Zimbabwe has 5 branches distributed across the country's major provinces. Each branch has many mobile collection points in its geographical location, which also includes tertiary institutions where campus blood drives should be done. For the past five years total national collections dropped from approximately 82 000 units per year in 2012 to below 62 000 units in 2016 (NBSZ annual reports, 2016). Tertiary institutions are full of young health people who are great resources for blood collection agencies as they can be easily accessed but unfortunately, many students do not donate blood (Allerson, 2012). Different African areas have their own diverse fears, cultures, beliefs and knowledge about blood donation (Asamoah et al, 2017) hence a deep understanding of the limiting factors is needed before motivating possible donors. Although many researches have been done to study possible motivators and deterrents to donating blood, it is of great importance to identify the reasons behind the decline in blood donor supplies in the developing world and to plan how they can be minimised. In Zimbabwe published literature on motives and deterrents that respectively drive and deter blood donations is very limited. It is against this background that we want to analyse factors that motivate or deter blood donors at tertiary institutions and establish the relationship between these factors and socio demographic variables so as to increase knowledge about blood donation and recruit more voluntary nonremunerated blood donors. Understanding these variables can assist in designing promotional strategies and interventions aimed at boosting blood donations in young adults. Other researches like in Asamoah et al, (2017), they focused on an individual's general knowledge on blood donation like donation age, time between donations and frequency of donations, but in this study, we evaluated knowledge on the importance of blood donation.

RESEARCH METHODOLOGY

The purpose of this study was to perform a deep analysis of blood donor motivators, possible deterrents and increase blood donor knowledge on the benefits of donating blood among tertiary students so as to increase recruitment and retention of voluntary nonremunerated donors, thereby appeasing blood shortages within the country.

Research design and target population

The study was carried out at a tertiary institution in Zimbabwe using a descriptive cross-sectional approach in order to describe through different statistics the characteristics of the target population as in Allerson, 2012. All tertiary students and staff who had donated or tried to donate blood at the institution in 2019 constituted our study population. Participants were invited to take part in this study through their campus e-mail, the invitation explained the research objectives and that the data would be only used for research which is aimed at increasing the national donor pool. Completing the survey was taken as their informed consent to participate in this study. Confidentiality and anonymity of the study participants were

maintained at all levels of the study.

Data collection and analysis

An online 5 Likert scale questionnaire was used to collect data and it was designed to include sections on motivations, possible deterrents and knowledge on blood donation as in other studies like: Yuan et al, 2011; Allerson, 2012; Mohammed and Barton,2018; Asamoah-akuok et al, 2017; and Chacón et al, 2017. The variables of interest included demographic information, history on blood donation of the participants, importance of potential motivators, preferred incentives, potential deterrents and knowledge about benefits of donating blood. Experts from the National Blood Services Zimbabwe (NBSZ) were consulted and prior to data collection, the questionnaire was scrutinised by experts in this study field and their inputs were considered. The first stage in data analysis was checking for completeness, those incomplete questionnaires were rejected. Response frequencies were summarised in form of tables indicating total percentages for different motivating factors, possible deterrents and knowledge on benefits of donating blood. Principal component analysis was used to identify the significant factors that affect blood donation. Those with P value < 0.05 were considered to be significant.

Results

Data presentation

A total of 4 campus blood drives was done in 2019 and a total of 2450 members have registered to have participated in these drives. All the registered members were given the questionnaire and a total of 765(31.2% of total population) e-mail recipients participated in the survey and only 501(65.5% of total response) gave complete responses. A summary of the respondents is given in Table 1. Among the 501 respondents 305(60.9%) were female participants and 196 (39.1%) were males. Most of the blood donors were in the (18 -24) age range which is 75.4% of the study population with only 46(9.2%) being above 40 years of age. Most participants in this study were first year students and single with 283(56.5%) and 356(71.1%) respectively. Other level in the academic category includes staff members at the institution who are regular and upcoming blood donors. At most 17% of the participants were non donors while 299(59.7) have donated at least twice. First time donors 117(23.4%) indicate an increase in the national donor pool in 2019.

Motivating factors

A 5 Likert scale was used and Table 2 shows the categories of respondents who said the factor was very important or important. The most common identified motivators in the institution were; to help those in need which was supported by 96.9%(n=190) and 97.7%(n=298) males and females respectively. Among the 378 students in the age group of 18 to 24, most of them are motivated by the need to help (n=373, 98.7%), Good attitude of staff (n=375, 99.2%), donor incentives (n=361, 95.5%), and encouragement from peers and family members (n=340, 89.9%). These factors had p values that were less than 0.05 otherwise they are not significant. The least supported motivators are to get blood tested and shortage of blood as only 15.2% and 13.4% of the young group of donors agreed to this notion. Most of the blood donors are fist year students as shown in Table 2 while donors in the other category (4) of academic level are not very much motivated by encouragements but by altruism.

Possible deterrents

Respondents were classifying deterrents between very important and not important and Table 3 shows statistics of those who said these deterrents are important or very important or not important or said the factor was very important or important. There are seven possible deterrents and these affect different age groups and those that are classified as non-donors almost agreed to all deterrents. Having a busy schedule (n=86, 73.5%), unfriendly staff (n=61, 52.1), unpleasing incentives (n=53, 45.3%) and unpleasant feeling after donation (n=38, 32.5%) were the most significant possible deterrents among the first-time donors across all genders. Most of participants in the fourth academic level are not deterred by these highlighted factors. A total of 218 (46.2% males and 41.8 females) out of 501 participants agreed that they are deterred by their culture and beliefs. The most cited deterrent by non-donors is that donated blood is sold (92.8%).

Preferred incentives

The percentages in Table 4 shows statistics for those who view the listed incentives as important and very important. Most you donors preferred almost all available options except certificates of recognition and monetary rewards which was supported by less than half of the population. Non donors highlighted that branded wear (61.1%), tickets to social activities (89.4%), monetary rewards (67.1%) are the most important incentives that can at least encourage them to be donors. Those above 40 years preferred tickets to social activities (89.7%) most than other available incentives.

Blood donor knowledge

Table 5 gives a summary of donors' knowledge about blood donation. The figures show the percentage of participants who has the correct knowledge for each category. Many females have better knowledge on blood donation than their male counterparts as shown in Table 5. Generally, less people know their blood group as only 24.7% and 43.3% males and females respectively knew their blood groups. At least 98% of all age

groups know that blood cannot be manufactured in the lab.

Discussion

Maintaining a sustainable and adequate supply of blood and its products is the main thrust of any blood service organization across the globe. To meet the blood demand, understanding unique factors that motivate and deter donors from donating blood can play an important role in the success of blood collection. This will enable formulation of programmes that leads to effective recruitment programs. This study was dominated by repeat donors (n=299, 59.7%), which concurs with findings from Wiersum-osselton, (2014); Zanin et al, (2016) and Suemnig, (2017) but our findings contradicts Mohammed and Barton (2018) who did their study in Ghana and observed that inaugural donors dominate in the donation pool. In Zimbabwe we have more female donors than male which again is in contradiction with the findings of, Joseph et al (2019), Vincent et al (2019) and Finck et al (2016) for high school going age groups. Repeat donors are mainly motivated by altruism to continue donating but there is need to increase on the incentives so that we retain a greater population of all donors. Influence plays a major role in motivating donors, as 89.9% of the young donors aged between 18 and 24 were encouraged by their friends or families to donate blood. The need to help others, good staff attitude, donor reminders through road shows, social media platforms, radio and tv presentations by famous blood recipients, incentives and influence are the most significant motivators in tertiary institutions. Our findings were consistent with findings from several other studies done around the globe which includes by Maghsudlu et al (2011) in Iran, Yuan (2011) in California and Mohammed and Barton (2018) in Ghana who all found that altruism is the strongest motivators among the young donors. Repeat donors are mainly encouraged by the need to help others and the friendly staff attitude. When donors feel motivated and appreciated, they are more likely to return for repeat donations. Most acknowledged donor incentives include branded wear, utensils, stationery and tickets to social activities. Incentives can be used to increase the national donor pool, as these can help to break some anxiety in non-donors who are motivated by altruism to donate blood. Incentives have been ranked number 3 out of seven possible motivators studied. Tickets for social activities were appealing for almost all age groups in the study. In this study there were seven possible deterrents and different groups have different choices of these factors, but for non-donors they almost agreed to every factor. Non donors did not agree that they are not donating because of their culture and beliefs rather they cited the other factors in Table 4 as important factors contributing on them non donating. In overall, males have many reasons that they say affect them, like their school schedules lack of incentives, staff attitudes, and some said they don't want to give blood to the association for free which will later sell to those in need. Feeling uncomfortably dizzy after donation is the other deterrent which is also consistent with the findings of Asamoah et al (2017). If the national blood services Zimbabwe (NBSZ) is to increase its blood collections these factors needs to be addressed, they can consider for campus donor centre where the donation programmes can run for 24 hrs a day such that those with busy schedules can find time to donate. They also need to have short revision courses for all their staff and try to incorporate the type of incentives that are most needed in tertiary institutions.

We found that only 24.7% males and 43.3% females know their blood group but on average most of them know the legal age (71% male, 84.6% female) to donate and the benefits of donating blood (79.4% male and 86.6% female). Almost everyone at the tertiary institution knows that blood cannot be manufactured in the laboratory. These findings agree with those of Melku et al (2016) in Ethiopia and Mohammed and Barton (2018) who did their research in Ghana. Our findings mean that there is need for more educational campaigns on blood donation in the institution to recruit more donors.

Conclusion

We found that most donors are motivated by altruism, though they have greater passion for incentives, they desire to assist those in need of blood. Influence from family and peers has also been cited as a push factor for blood donation. Donors needs to be encouraged to overcome the fear of needles and the associated feelings after donating. Our findings suggest that there is need to be educated on benefits of blood donation and also incorporate the suggested incentives to increase the national donor pool, and staff needs to be motivated as their attitude can affect blood donors.

Authorship contributions

All authors worked together in all sections of this study.

Conflict of interest

No conflict of interest was declared

Table1:A summary of participants characteristics(N=501)

Variable	Statistics	Percentage contribution
Age		
18-24(1)	378	75.4
25- 40 (2)	77	15.4
Above 40 (3)	46	9.2
Donor Status		
1st time (1)	117	23.4
Non 1st time (2)	299	59.7
Not a donor (3)	85	17
Gender		
Male (M)	196	39.1
Female (F)	305	60.9
Marital Status		
Single (S)	356	71.1
Married (M)	94	18.8
Widowed (W)	45	9
Divorced (D)	6	1.2
Academic level		
1st year (1)	283	56.5
2nd year (2)	172	34.3
3rd year (3)	11	2.2
Other (4)	35	7

Motivating Factor	Age			Gender		Academic level				P Value
	1	2	3	M	F	1	2	3	4	
To help those in need	98.7	97.4	99.8	96.9	97.7	97.2	87.2	99.6	99.4	**
Donor reminders	88.2	82.1	79.7	89.3	76.1	91.4	85.3	80.7	83.2	**
Good attitude of staff	99,2	89.5	26.1	85.3	91.5	96.7	94.3	74.1	69.8	**
Donor incentives	95.5	67.1	36.4	89.4	92.8	98.2	95.7	75.3	64.1	**
Encouraged by a friend/family member	89.9	57.2	32.1	94.3	88.7	56.4	27.8	20.9	11.6	**
To get my blood tested	15.2	42.1	57.1	58.2	41.9	11.1	18.7	29.8	33.8	
There is a blood shortage	13.4	17.1	28.5	12.2	18.9	9.2	13.8	12.6	26.1	

Table 3: Donor responses to potential deterrents (%) (is for a P value less than 0.05)**

Deterrents	Donor status			Gender		Academic level				P value
	1	2	3	M	F	1	2	3	4	
Have a busy schedule	73.5	34.9	88.1	68.3	49.5	28.2	37.4	54.1	48.3	**
Staff is not friendly	52.1	24.2	71.8	87.8	64.7	19.5	21.3	29.7	11.6	**
Absence of incentives	45.3	39.7	82.6	91.4	61.1	13.2	16.7	24.1	14.2	**
Fear of needles/ feeling dizzy after donation	32.5	19.4	79.8	65.4	79.5	46.9	38.1	24.2	9.8	**
My culture and beliefs.	12.0	6.5	28.9	46.2	41.8	22.3	19.4	10.1	6.2	
Donated blood being sold	28.9	22.1	92.8	68.2	46.9	12.5	15.7	21.1	10.6	**
Inconvenient times	19.8	12.7	48.3	56.9	34.4	18.2	14.9	10.1	8.4	

Table 4: Donor responses to preferred incentives (%)

Preferred incentives	Age			Donor status		
	1	2	3	1	2	3
Branded wear	78.5	79.2	74.9	56.4	38.8	61.1
Tickets to social activities	51.1	77.5	89.7	59.1	85.5	89.4
Branded stationary	75.2	79.8	69.3	61.9	66.6	48.1
Branded utensils	64.4	68.7	73.1	56.2	59.7	37.8
Monetary rewards	46.9	41.2	25.7	48.3	24.0	67.1
Certificates of recognition	37.1	65.8	79.5	29.7	58.3	12.4

Table 5: Donor responses to blood knowledge (%)

Knowledge	Age			Donor status			Gender	
	1	2	3	1	2	3	M	F
Do you know the legal age to donate blood?	75.9	76.1	79.4	68.2	71.5	22.3	71.0	84.6
Do you know the number of lives that can be saved by one pint of blood?	64.7	69.9	72.1	54.4	64.9	21.8	74.5	89.7
Do you know your own blood group? (yes/no)	34.8	49.7	57.2	14.9	39.8	8.8	24.7	43.3
Can blood be manufactured in the lab? (yes/no)	94.1	95.5	96.7	89.7	97.3	65.8	98.8	99.0
Do you know thee benefits of donating blood?	79.8	89.1	94.2	75.7	97.6	27.1	79.4	86.6

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