

Impact of various information technology tools on first-time donor recruitment and repeat blood donations in blood bank

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Abstract

Background: Blood is a lifesaving drug for treatment of various critically ill patients. But, demand of blood is continuously increasing, and blood donation rate is declining. The scarcity of safe blood is compounded by the deficiency of donors in developing countries—where that blood is required most. Enrollment and maintenance of donors to sustain and raise the donor base are important for blood banks.

Objective: To evaluate the impact of various information technology (IT) tools such as promotional messages via short message service (SMS), electronic mails (E-mails), and social medias on first-time blood donations and repeat blood donations.

Materials and Methods: This interventional study was carried out at blood bank of GMERS Medical College, Valsad, Gujarat, India. Initially, investigators carried out situational analysis of first-time blood donor recruitment and repeat blood donations from medical records of March 2015–May 2015. Then, various IT tools such as promotional SMS, E-mails, WhatsApp, etc. were applied as interventions during June 2015–August 2015. At the end, outcome indicators noted were percentage change in repeat blood donations and percentage change in first-time blood donations. Data were analyzed by MS Excel.

Result: In this study, before applying various IT tools intervention during March 2015–May 2015, there were in total 411 blood donations reported. Among this, 266 were first-time blood donations, and 145 were repeat blood donations. After applying various IT interventions during June 2015–August 2015, there were 585 blood donation reported in total, which showed 42.35% rise in blood donations. Among this, 386 were first-time blood donations, and 199 were repeat blood donations. In this study, after applying various IT interventions, first-time donor recruitment showed 45.11% rise, and repeat blood donor recruitment showed 37.24% rise.

Conclusion: This study showed there was marked impact of IT tools such as promotional messages via SMS, E-mails, and social media on improving new voluntary blood donor recruitment and repeat blood donations in blood banks.

KEY WORDS: Information technology (IT) tools, first-time blood donor, repeat blood donor

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Introduction

Blood is a lifesaving drug for treatment of various critically ill patients with conditions such as severe anemia, severe trauma, sickle cell anemia, kidney failure, cancer, and accidents and pregnant women. But, demand of blood is continuously increasing, and blood donation rate is declining.^[1] The scarcity of safe blood is compounded by the deficiency of donors

in developing countries—where that blood is required most.^[2] Enrollment and maintenance of donors to sustain and raise the donor base are critical for blood banks.^[3] Donors to the John Scudder Memorial Blood Bank, Christian Medical College Hospital, serving all the requirements of its patients, are either voluntary or replacement donors. It is an accepted reality that the former will considerably intensify blood safety.^[4,5] At present, 30% of the blood bank supplies arrive from voluntary blood donations.^[6] Our donor base consisted chiefly of replacement donors until 2002, when focused efforts were put into trying to enhance our voluntary donor numbers. Replacement blood donation should be to the greatest extent to maintain the ethical code of anonymity between the donor and the recipient. However, this process has been slow, and although over a 4-year period, volunteer donors have increased from 5% to 30%, this is still not enough.^[7]

Of four blood units required, only three can be provided as of today. The shortfall is managed by rational use of blood, improved surgical technique, etc. However, increasing new blood donors at the earliest age of donation (18 years) and repeat donation at 3-monthly intervals are the only options to overcome this shortfall to ensure adequate availability of blood. For that, motivation of donors is very essential. There are various ways to improve blood donation. So, this study was planned to evaluate various information technology (IT) tools such as promotional messages via short message service (SMS), electronic mails (E-mails), and social medias.

Materials and Methods

This interventional study was carried out at blood bank of GMERS Medical College, Valsad, Gujarat, India. The study was started after obtaining permission from the institutional human ethics committee. In this study, initially, investigators had done situational analysis of first-time blood donor recruitment and repeat blood donation by previous donors from medical records of March–May 2015.

Then interventions were applied in study duration of June–August 2015 in the form of

1. Digitize all the data of the existing registered voluntary blood donors.
2. Utilize existing voluntary blood donors as peer counselors to enroll new blood donors.
3. Motivate new eligible blood donors by using SMS and E-mail at the earliest entry age of blood donation (completion of 18 years).
4. Establish an emotional connect with all the blood donors by SMS, E-mail, or phone on birthday/marriage anniversary/completion of 90 days of last donation, etc.

At the end of study period, outcome indicators noted were percentage change in repeat blood donation and percentage change in first-time blood donation. Data were analyzed by MS Excel.

Result

During study period of March 2015–August 2015, there were a total of 996 donors reported. Among them, 652 were first-time blood donors, and 344 were repeat blood donors.

From the 652 first-time blood donors, 313 (48%) were male and the rest were female donors [339 (52%)]. Most of them [318 (48.77%)] belonged to 18–29 years of age group. Most of them [436 (66.87%)] belonged to Hindu religion. A total of 372 (57.06%) first-time donors were having education up to graduate and 282 (42.94%) were having higher education [Table 1].

From the 344 repeat blood donors, 189 (54.94%) were male and the rest were female donors [155 (45.06%)]. Most of them [152 (44.19%)] belonged to 30–39 years of age group. Most of them [166 (67.15%)] belonged to Hindu religion. A total of 166 (48.26%) repeat blood donors were having education up to graduate and 178 (51.74%) were having higher education [Table 1].

In this study, before applying various IT tools intervention during March 2015–May 2015, there were a total of 411 blood donations reported. Among these, 266 were first-time blood donations and 145 repeat blood donations. After applying various IT interventions during June 2015–August 2015, there were a total of 585 blood donations reported, which showed 42.35% rise in blood donation. Among these, 386 were first-time blood donations and 199 repeat blood donations. So, in this study, after applying various IT interventions, first-time donor recruitment showed 45.11% rise, and repeat blood donor recruitment showed 37.24% rise [Figure 1].

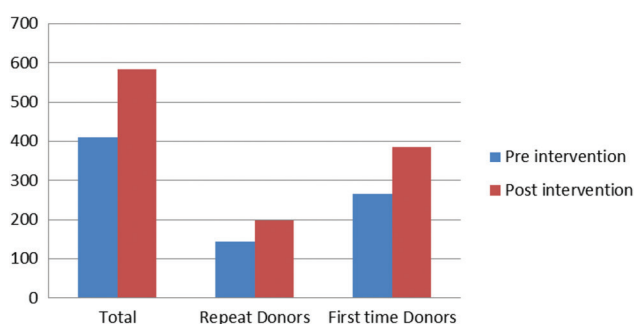
Discussion

Voluntary blood donation is the one of best ways to serve humanity. Various previous studies showed that people donate blood because it is an act of goodness, love, humanity, and charity. Blood donation gives them immense self-satisfaction and inner joy; moreover, they want to help ill and needy patients.^[8] The awareness manifestation of a constant need for blood donation and donating as a selfless act is corroborated by the statement that every blood donation should be altruistic, voluntary, and nongratified, either directly or indirectly, and anonymity should be guaranteed. Therefore, such perception confirms that blood is a precious element that depends on a selfless act.^[9]

There are various ways to increase blood donation. In this study, various IT tools such as promotional SMS, E-mails, and WhatsApp were evaluated for the sake of increasing voluntary blood donation. Because of such IT interventions, first-time donor recruitment showed 45.11% rise, and repeat blood donor recruitment showed 37.24% rise in this study. Another study mentioned similar increase with such IT interventions.^[7] Results mentioned most of first-time donors were having education up to graduate and belonged to 18–29 years of age

Table 1: Characteristics of blood donors

Characteristics	First-time blood donors (652), n (%)	Repeat blood donors (344), n (%)
Gender		
Male	313 (48)	189 (54.94)
Female	339 (52)	155 (45.06)
Age (years)		
18–29	318 (48.77)	91 (26.45)
30–39	189 (28.99)	152 (44.19)
40–49	126 (19.35)	67 (19.48)
50–59	19 (2.91)	34 (9.88)
Religion		
Hindu	436 (66.87)	231 (67.15)
Muslim	165 (25.31)	79 (22.97)
Others	51 (7.82)	34 (9.88)
Education		
Up to graduate	372 (57.06)	166 (48.26)
More than graduate	280 (42.94)	178 (51.74)

**Figure 1:** Results of various IT interventions on blood donations.

group; so, if such donors were followed up by such IT tools, then we can increase repeat donations.^[7,10] Our study showed repeat blood donation were mostly seen in 30–39 years of age group who had education more than graduate; so, that age group was also targeted with various IT tools to increase repeat donation.^[7,11]

One study mentioned that promotional messages about blood donation need to be focused on clear, captivating, interesting, and above all, feature appropriate content to be more effective. The message should be presented in the local language, so that the information reaches the right person in the most effective way. Blood banks, however, should continue to improve waiting times and donor care. Asking for donor's opinions, comments, and suggestions is a dimension of customer service that helps to enhance regular blood donations. A key factor in meeting the needs of the donor is ensuring that the time and venue of blood donation camps should be

convenient to the majority of existing potential blood donors.^[7] Another study mentioned that encouraging current donors to donate more frequently during the first year may help to establish regular donation behavior.^[10]

This study showed the importance of various IT tools in increasing blood donations. It showed many donors give blood for altruistic humanitarian reasons; with that, recognition also helps to motivate individuals to donate blood. Social influencing variables might have played a key role influencing the participants. So, these factors should be considered while setting up blood donation camp.^[7]

Various studies showed that people think blood donation creates weakness and can also cause various serious infections such as HIV and HBV infection. These IT tools can be also used to remove such fears, myths, and superstitions from people mind about blood donation.^[7,12,13]

Future studies can be planned with more sample size and involving some IT experts who have an in-depth knowledge in that field, so that we can use such nice IT tools for increasing blood donations. Such kind of integration of various technologies will become a great boon for critically ill patients.

Conclusion

This study showed that there was a marked impact of IT tools such as promotional messages via SMS, E-mails, and social media in improving new voluntary blood donor recruitment and repeat blood donations in blood banks.

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