

Need of Medium for Finding Blood Donor in Bhutan

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Abstract— finding a blood donor at right time is a big issue around the globe. Though the issue is a major concern even in our country Bhutan, it is left unaddressed until now. Here, in this paper an effort is presented to address this issue using the mobile application. The paper presents the current practices and issues faced by Bhutanese people in finding a right donor at right time. The data were collected from around 210 people around Bhutan either using online questionnaires or through paper-based interviews. The survey analysis showed that there is difficulty in finding a right donor at the right time. The study also found that majority of the people dominantly uses the platform of social media to find blood donor in Bhutan. The respondents unanimously supported the urgent need of easier technology that would ease the problem. The paper proposes the use of mobile application as a solution to address the current issue to find the blood donor in Bhutan.

Keywords— *Blood donor, mobile application, issues, current practice.*

I. INTRODUCTION

Blood is the most precious thing, is the savior of all mortal life, blood donation is thing a person can make as an important contribution to the society. Every day in a country, there is immediate requirement of different blood group. During emergencies like accidents, surgeries and delivery an extensive amount of blood is required, but shortage of supplies in particular hospital seems to be an issue. Majority of the people collect blood from their friends, relatives and strangers, but when rare group of blood is in need, people encounter with problems and cannot get the blood they need in the hospital. In developing countries such as Bhutan, there is few specialized organization that can manage the blood donation process. Because humans are usually driven by certain values and moral, there is large number of voluntary donors but

the problem is to find a ready donor within a significant amount of time because of lack of proper media [1] [2]. There is a need for mobile application that can be directly accessible to willing donors and recipients. There are various mobile applications based on blood banks and donations, but they are not applicable to Bhutan as we do not have separate blood banks. Mobile has become a part of life. In order to know the possibility of mobile application development and to have direct contact with voluntary donors, this paper aims to enhanced the current blood discovery and blood donation situation. In order to determine the core client requirements to be implemented in this type of blood seeking application, the author and the team have conducted an investigation through online questionnaire survey and a basic interview.

LITERATURE REVIEW

In “Android blood Bank” [1] the author has proposed a medium for finding a blood donor and storing the blood in the blood bank for emergency. The author has rightly stated that “The problem is not insufficient number of donor but finding a willing donor at the right time”. Author also talks about how that proposed medium will function and create networks between the donor and receiver. It also talks about how the information related to blood can be manage using a system instead of doing everything manually. Since with the development of technology, everyone is using a smart phone so therefore, its shows the feasibility of development and the usage of Android App. The author has clearly mentioned the architecture and methodology of Android Blood Bank. The article can help in developing a better medium for finding a donor. Since people use both IOS and Android phones, it could be better if this proposed medium supports both IOS and Android.

In [3] the author has proposed an idea to develop an improve system for finding a right donor. The author presents and compare between the existing system and the improved system. The article talks on some of the drawbacks on existing system and how this drawback is overcome with the help of improved system. The author presents an idea of interconnecting all the blood banks in a single zone and availability of blood at the right time. The author also talks on the GPS technology in the improved system to locate the nearer blood bank and blood donor.

In [4], the author talks about the difficulty of finding a blood donor in India during emergency situation with only 5% willing donor of the total population. The author proposed an improved system based on cloud base, which is much more efficient, time saving and usability. The article also talks about addition of extra feature such as GPS for donor location. This article also tests for the feasibility of improve system with design of algorithm and framework of the system.

According to this paper [2], it states that in most of developing countries finding a blood donor with specific blood group has become a serious issue, due which people lives are in danger. The program such as blood donation campaign are conducted to collect the blood from the willing donors. Though such programs are safe but it is wastage of time and long process. It also states that the blood receiver, those who are willing donor and who wanted to donate blood in near future are facing problems in communicating. So, in such cases mobile application can play vital role to eliminate such gaps and problems. In developed countries such as U.S department of defense, have effective blood donor management system which uses Management software to collect, test and transfuse and also gives information to people through web portal. Information are recorded safely through data mining technique called Novel Techniques where information of donor and receiver are seen. Since

smart phones are used worldwide, so they developed Emergency Panic Button option to help those who suffers from the accident. And GPS and GSM application to tracked the donor.

According to [5], it states that traditional practice of keeping records manually still effect the retrieval of the information and the staffs are not able to maintain the blood information properly. The benefits of this system are, anyone who wants to donate blood can voluntary donate blood, donors can view blood donation camp, donors can check their own medical status and examine the condition of the specific blood group. The receiver can get the blood information from the central inventory during emergency and receivers can get the information of the blood in the blood bank. With this system the manual recording of the blood information is replaced by the automatic system.

METHODOLOGY

There is numerous method of conducting the survey. The instrumentation and in accordance with the span of time involved are the two main categories of survey [6]. Survey implementation through questionnaires and interview are based on instrumentation and survey implementation where information is collected at a single period of time for a specific topic are based on span of time [6]. The authors of these paper have conducted the survey based on the instrumentation via questionnaires and interview.

A. Questionnaires

Survey based on questionnaires can be conducted in numerous survey methodologies such as self-administered, group-administered and household drop-off where self-administered is common methodology used by the present researchers which is usually implemented by sending mail [6]. In order to understand and gather the information related to current practices and issues in finding blood donor in the country Bhutan,

we have send an online based question via email to students of College of Science and Technology. Email was send to 500 students with random selection of students of first year to final year and out of 500 students we got random response from 202 students.

B. Paper based interviews

Since anything related to blood is directly concern with Hospital. We have conducted a paper base interview with eight staffs of Phuentsholing Hospital. The staff comprises of lab worker and Doctors handling the blood related issues. The main reason behind interviewing those concern people is to find out the current practices and issues of blood finding and donation since frequently they are engaged in task related to blood. Therefore, through these online based questionnaires and paper-based interviews, followings are some of our finding.

FINDINGS

C. Testing for the General Knowledge

We have tested for the general knowledge related to the blood. We have asked them the age limit for the blood donation and world blood donation day where 56% of them response that they don't know the age limit as shown in the Fig. 1. And 72% of them response that they don't have the idea on world blood donation day as shown in the Fig. 2. Therefore, we can conclude that most of the people lack general knowledge related to blood.

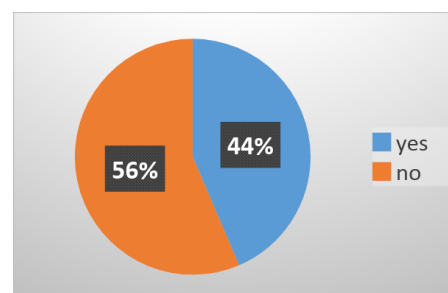


Fig. 1. Age limit for blood donation.

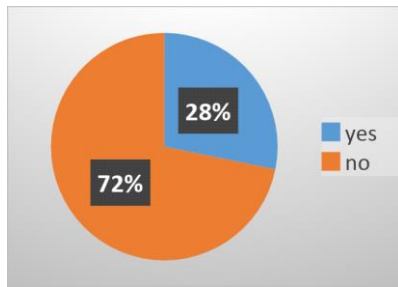


Fig. 2. World blood donation day.

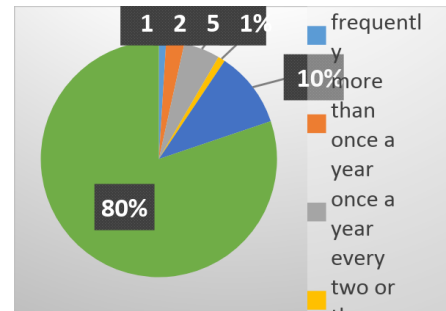


Fig. 4. Donation frequency.

The maximum availability of the blood group is A+ of 32% followed by O+ of 31% and B+ of 26%. The rarer blood groups are AB-, B-, A-, O- of 1% and 2% of them even don't know their blood group as shown in the Fig. 3. We have also tested for the frequency of the blood donation where 80% of them not at all donate blood and most of them are in the category of less often followed by once a year as shown in the Fig. 4. From here we know that people face difficulty in finding blood group of AB-, B-, A- and O- and easy available of blood group A+ and O+.

we have also asked them the reason behind blood donation where 84% of them supported as they wanted to help others and save the human lives as shown in the Fig. 5. From here we can conclude that most of the people has the willing for blood donation.

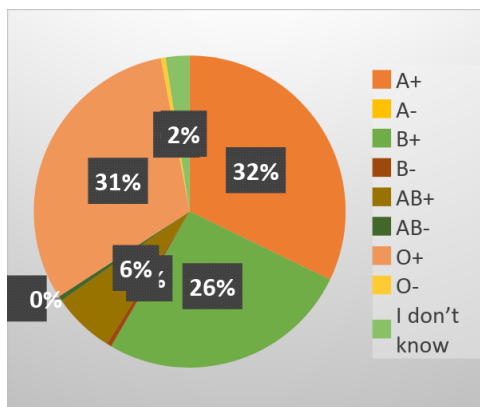


Fig. 3. Blood group.

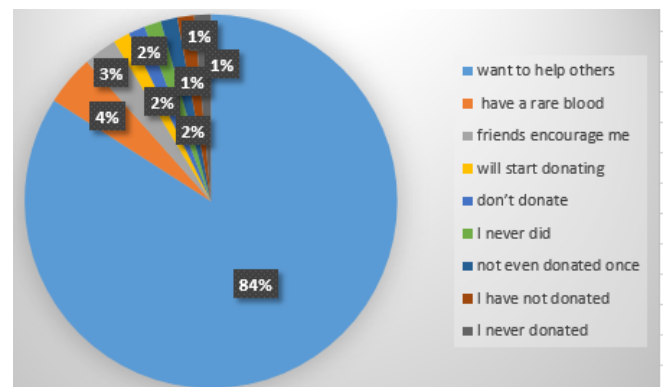


Fig. 5. Blood donation purpose.

D. Medium Used, Efficiency and Challenge

With modernization, more and more people use different kinds of technologies such as Mail system, Facebook, websites, newspaper and Television for the blood finding. Among which people dominantly use Mail system of 33% followed by television of 27% and through Facebook of 25% as shown in the Fig. 6. From here we can conclude that people dominantly use social media for finding blood donor in the current situation.

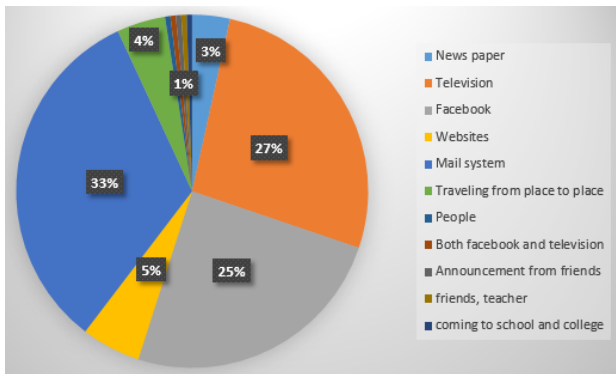


Fig. 6. Current medium used.

we have also asked them about the efficiency of the current strategies mentioned above for finding blood where 89% of them response as the current strategy of finding blood is not efficient and only 11% of them supported that its efficient and working fine as shown in the Fig. 7. We have also asked them on the total time consumed for finding a blood donor in the current situation where 47% of them response as, it takes more than a day and 26% of them even took a week to find a blood donor as shown in the Fig. 8. As a result, we know that the current strategies are not efficient and its time consuming.

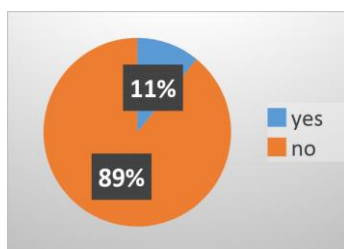


Fig. 7. Efficiency of current strategy.

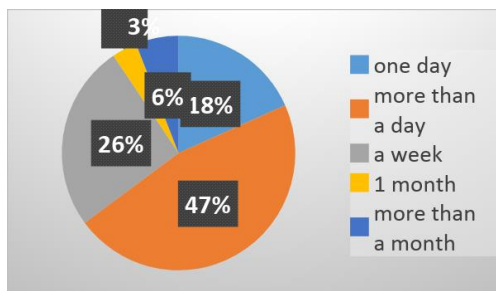


Fig. 8. Time consumed.

The most dominate challenge faced by the blood finders at current situation is with difficulty in finding the right donor of 51% followed by time consumption of 33% as shown in the Fig. 9. From here we can conclude that people face difficulty in finding the right donor at the right time and time wastage with the current strategies.

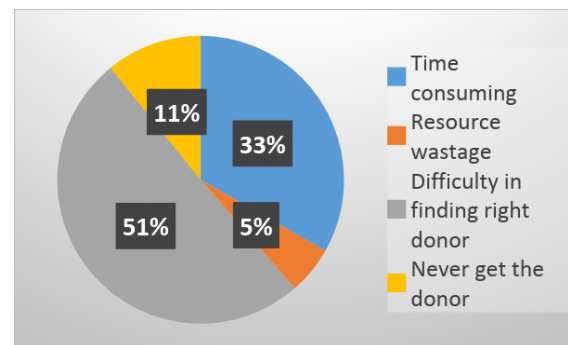


Fig. 9. Challenges.

E. Need of mobile application as a medium

In order to create a platform for direct contact with the blood donor at any time, we have asked them whether there is a need of mobile App and having a mobile App for finding a blood can save the time and resource or not. 96% of them supported that there is a need of mobile App and having a mobile App could save time and the resource. From here we can conclude that there is feasibility of mobile app development.

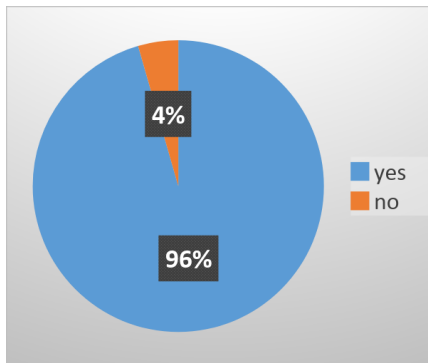


Fig. 10. Need of mobile App

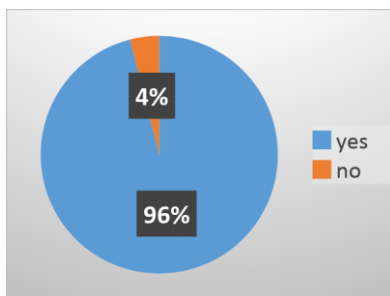


Fig. 11. Save time and resource.

II. DISCUSSION

Here are some of the result from the survey on, need of medium for finding a blood donor in Bhutan:

- € Since 52% of the total population do not have the idea of age limit for blood donation and 72% of the total population do not know the world blood donation day, despite of recognizing this day every year. We can conclude that people lacks general knowledge related to blood.
- € Since 32% of total population is having blood group A+ followed by O+ of 31% and 1% of the total population is with blood group AB-, O- and B-, we can conclude that people with blood group A+ and O+ gets blood donor without much difficulty.

Whereas people blood group AB-, O+ and B- face difficulty in finding a blood donor.

- € Since the country Bhutan is driven by the GNH (Gross National happiness) values, people usually donate blood with the purpose of helping others and saving human lives with 84%. From this we can conclude that the problem is not with the lack of willing blood donor but it's with the lack of proper medium for finding a blood donor.
- € In the current situation, the medium used by the people of Bhutan to find a blood donor is through Mail system with 33% followed by Television with 27% and Facebook with 25%. From this we can conclude that people dominantly use social media as a medium for finding blood donor in the current situation. 89% of the total population says that the current medium i.e., social media is not efficient and 47% of the total population says, its took more than one day or even a week to find a donor. The most dominate challenge face with the current strategies is with difficulty in finding a right donor with 51% followed by time consuming with 33% of the total population. Therefore, we can conclude that there is need of another medium which is much more efficient and time saving.
- € Since 96% of the total population willingly support on need of mobile app for finding a blood donor and having a mobile app can save time and resource, we can conclude that there is feasibility of developing a mobile app for finding blood donor as a separate medium other than social media.
- € Through paper base interview conducted with eight staffs of Phuentsholing Hospital, we found out that every time more than 15 people come for the blood transfusion with major problem having Anemia followed by delivery and accident. The record of blood donor and receiver are usually jotted down manually in register and the system.

According to them recording information manually is time consuming and wastage of resources. They responded that finding donor for patient is difficult and they said that most of the blood finder use social media such as Facebook to find the donor. The challenge with the social media to find donor is difficulty in finding right donor and time consuming. Moreover, 98% of them agreed that the current strategies are not working efficiently and they agreed that there is a need of medium (mobile app) to eliminate the problem faced in finding the blood donor.

CONCLUSION

Blood is the most vital thing for the survival of the all the mortal lives and blood donation is the most precious contribution for helping other and saving the existing lives. Across the globe, there remains a situation with the urgent requirement of any blood group. Emergency situation like accident, major surgeries and delivery, a large quantity of blood is needed. Therefore, requirement of a proper medium for finding a blood donor with greater efficiency and time saving is inevitable. Finding a blood donor in the critical situation is strongly correlated with the medium people used for finding a blood donor. Despite of having difficulty in finding the right blood donor around the globe, even in our country Bhutan, it is left unaddressed till date. Study shows that people dominantly used social media as the medium for finding a blood donor in the current situation and the challenges with the current situation is difficulty in finding a right donor and times consuming. Therefore, the current strategy of finding blood donor is not efficient and needs a separate medium. With help of questionnaires and interview survey, it is clear that development of mobile application as a medium for finding a blood door is feasible. Such an application would help people find a blood donor at the right time without wasting much time.

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