

Impact of COVID-19 Pandemic on Voluntary Blood Donations

The COVID-19 pandemic had a negative impact on health care services throughout the world, considering that a growing number of patients required hospitalization and ventilatory support. When the coronavirus pandemic caused widespread closures of schools, colleges, businesses, and social gatherings from March 2020 onwards, blood donation drives also were cancelled and the supply of blood decreased suddenly in many countries including United States (US),^[1] Italy,^[2] and India. It was difficult to maintain their stocks at appropriate levels. Each blood transfusion service faced similar problems. The major hit was observed in voluntary non-remunerated blood donors.

The aim of the present study was to determine the changes in blood donation due to the COVID-19 pandemic. The present study was conducted retrospectively in one of the largest standalone blood centers collecting blood only from voluntary non-remunerated blood donors. In the present study, six months' worth of data of a blood center pre- and post-COVID-19 outbreak were analyzed retrospectively. Donor demographic data, blood group, repeat and first-time donor turn down, and blood components issue were analyzed statistically. Mitigative measures adopted were discussed for smooth functioning of blood transfusion services.

Health status of the blood center's manpower was recorded and documented by daily temperature checks, and those who showed symptoms of COVID-19 were subjected to testing for confirmation. Due to less work load and the lockdown, the blood center issued curfew passes for donors and arranged vehicles for pick-up and drop-off of donors as well.

The present study was a retrospective data analytic study. Donor details were made confidential. The local management's clearance was obtained before data compilation.

Statistical analysis was performed using Chi-squared test and calculating *P* value. *P* value less than 0.0001 was considered as significant.

In the blood center, a significant drop in voluntary blood donation was observed. In India, the major impacts started from the end of March 2020 as complete lockdown was announced on 23 March 2020. The sudden drop in donation was observed in all of the months starting from April to July 2020. Once lockdown restrictions were relaxed, the situation with blood donations improved a bit. Total voluntary donations were only 56% of last year's donation [Table 1]. The major impact was felt during the initial few months where more than 50% reduction in voluntary blood donation was observed. The reduction was observed in both first-time and repeat donors, with more impact on repeat donors with a reduction of 60.57% in repeat donors and 52.61% in first-time donors [Figures 1 and 2].

Table 1: Total donations

Year	2019	2020	% Reduction
April	2249	817	63.67%
May	1910	838	56.12%
June	3235	1558	51.83%
July	3643	1353	62.86%
August	2116	1872	11.53%
September	2560	2384	6.87%
Total	15713	8822	

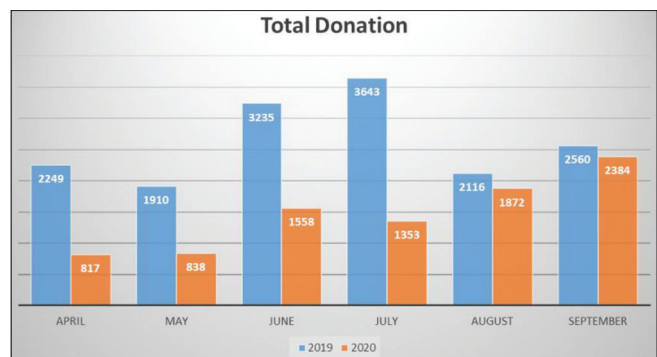


Figure 1: Total blood donation

As per the Drugs and Cosmetics Act, a healthy person can donate blood from 18 years to 65 years of age. The decrease in voluntary donors was observed across all age groups.

The blood center has a practice of collecting blood via blood donation camps, walk-in blood donors, and blood mobile vans. A majority of the blood donation used to happen with blood donation drives. Due to the pandemic, the numbers of voluntary blood donation camps went drastically down even with cancellation of pre-fixed blood donation drives [Figure 3]. Decrease in blood donation drives was observed to be 62.89% of pre-COVID phase. It was mainly observed from May to July 2020. When compared in different age group, more reduction was observed with higher age group population [Table 2]. There are many thalassemia patients who depend on blood centers. Due to the reduced frequency of blood donation activity, the center was under lot of pressure and stress. In the months of May and June, many blood donation drives were organized by children or parents of these thalassemia patients.

A reduction in percentage of donors was noted with $P < 0.0001$. A decrease in repeat donors was also observed with $P < 0.0001$.

Blood can neither be synthesized nor stored for a long period. Some patients are solely dependent on blood for their survival. The shelf life of RBCs is 35–42 days whereas for platelets, it is only 4–5 days.^[3,4]

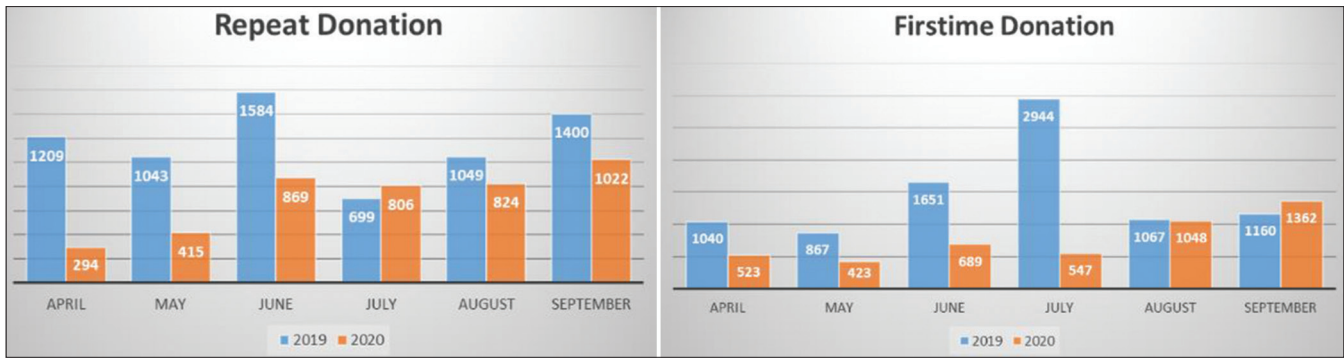


Figure 2: Blood donation by repeat and first-time donors

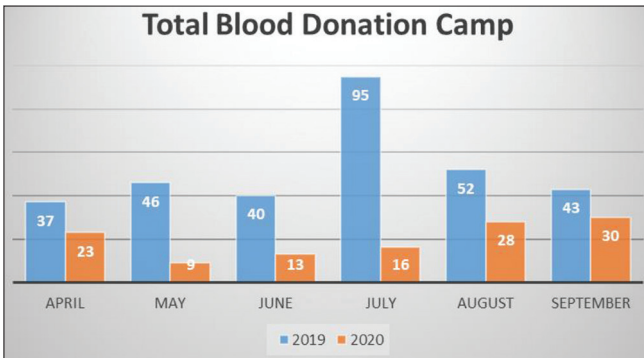


Figure 3: Organization of voluntary blood donation camps

Patients with thalassemia require regular blood transfusions, supported by appropriate iron chelation therapy (ICT), throughout their life. Thalassemia is a global disease that is most highly prevalent in Southeast Asia, Africa, and Mediterranean countries. They need lifelong regular blood transfusions, usually starting before the age of 2.^[5] Approximately 200 thalassemia patients were dependent on the blood donation activity of the blood center. For the past 20 years, they would receive blood from a dedicated group of 10–12 donors (depending on the blood requirement), and they hardly faced any issues related to blood donation. The prime concern was to manage blood units from the same group.

Following the first exposure on 9 March 2020 in Karnataka and declaration of pan-lockdown in India (24 March 2020), there has been a significant reduction in total number of blood donations in our study, mainly due to exposure to SARS-CoV-2 infection, which is consistent with various studies conducted worldwide.^[6-8] Also, the walk-in donors do not have an easy access to the blood bank due to mobility constraints and strict measures put in place to prevent the spread of SARS-CoV-2 virus.^[9,10] To overcome the issue of easy access to the blood center, the blood center managed a curfew pass, transport facility for donors, and the use of blood mobile van brought at the door step of the donors. Even with so much support extended, the footfall of donors reduced drastically.

The voluntary blood donation camps and mobile blood drives have also drastically reduced post COVID-19 outbreaks, which could be due to cancellation of pre-planned blood

Table 2: Age group-wise blood donors

Year	<25 years	26-40 years	>40 years
2019	3261	8360	4092
2020	1508	4792	2522
% Reduction	46.24%	57.32%	61.63%

donation camps because of closure of educational institutions, employment campuses, voluntary organizations and mass gathering for social events, which is similar to observations made by various blood bank associated health institutions.^[6,11]

A significant drop in voluntary blood donation was observed. The reduction was observed in both first-time and repeat donors, with more impact on repeat donors with a decrease of 60.57% in repeat donors and 52.61% in first-time donors. The major blood donation activity was supported by Thalassemia patients. The only place where blood donation activity was carried out was in residential areas and that too with the support of thalassemia patients who were the biggest sufferers. These patients started using social media platforms and did word-of-mouth publicity for whatever donors they could bring in. That was the reason for increased first time donors.

Many of the blood centers have policies and procedures for disaster management, both manmade and natural. But most of the time, the disasters' effect lasts for a short period and is limited to only one region. But most of the centers were not prepared for the pandemic situation. The blood centers and national authority should develop plans to handle the pandemic. The blood centers should have a system for backup and handle such types of emergencies.

Our observations confirm that the outbreak of SARS-CoV-2 had a significant impact on blood supplies in the form of decreased blood donations. Information about these has been posted on blood center's website, and other social media. As in other countries, public health authorities and social media have a central role in raising awareness in the local community of the implications related to blood shortages and the need for routine blood donations. Regular blood donors are less affected than first-time donors. Other than this, the most important supportive group is word-of-mouth publicity and appeal made by the patients, especially thalassemia patients, played a major

role in raising blood donations, especially during the most crucial initial four months of the pandemic.

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Conflicts of interest

There are no conflicts of interest.

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