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# Knowledge and attitudes regarding voluntary blood donation in Navi Mumbai

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**Abstract**
Majority of blood donation is done by the young population of the society. Knowledge about their attitudes and information regarding blood donation helps to formulate policy towards blood donation.
**Methods:** Our study is a cross-sectional observational study analysing questionnaires filled up by the general population of the city of Navi Mumbai in India.
**Results:** Our study consisted of 489 participants. 33.74% of participants had ever done a blood donation. Only 2.82% of participants do regular blood donations every 3 months. 11.04% of patients have undergone blood transfusion themselves. Majority of participants (63.7%) have a positive attitude towards blood donation. 40.70% of participants were ready to donate blood as replacement if they had a relative or friend who would need blood transfusion. Only 24.74% of participants were of the opinion that they would voluntarily donate blood with altruism in mind towards society.
**Discussion:** Majority of patients agree to donate blood for their relatives or friends. Positive knowledge and attitudes towards blood donation will help for adequate blood availability in blood banks.

**Keywords:** TPO expression, CK-19 expression

## Introduction
Blood transfusion is one of the most common medical procedures. It is especially useful in trauma, major surgeries, gynaecological procedures, blood dyscrasias and anaemia. The global availability of blood units was 272 million units. Still, there is a shortfall of around 30 million units [1]. Analysing the motivation factors for the general population and ensuring a steady supply of low-risk blood donors is a challenging task for the developing world [2]. The Melbourne Declaration states that voluntary non remunerated blood donation (VNRBD) has been accepted as a universal cornerstone of safe blood in the whole world [3]. WHO (world health organization) estimates that the world blood requirements will be satisfied even if 3% of world population donates blood [4]. The average age of Indian population is 26.8 years [4, 5]. The legal age for blood donation in India is above 18 years.[6]. Hence, it gives a huge potential to India to tap into an enormous pool of low-risk healthy blood donors in India. Identifying knowledge and attitudes of potential blood donors paves a way to formulate strategies to influence them positively.
Our study aims to find the main gap points about the general attitude and knowledge regarding blood donation in Navi Mumbai.

## Methods
1. Study Design- The participants were recruited from the general population from relatives of patients, who came from a major private hospital in Nerul region of Navi Mumbai. Navi Mumbai is a city near Mumbai in Maharashtra with a population of approximately 1.1 Million [7]. The number of normal participants who filled up the Questionnaire is 489 patients. The questionnaire was either filled up in local language in Marathi (72%) or in English (28%).
2. Study Population, Sample Size and sample procedures- The participants contained the relatives of patients who had come with their patients or people who had come to visit patients in hospitals. We calculated the sample size based on Kish and Lisle formula for cross-sectional studies. We ball parked the proportion of blood donation to 50%, power of study to 80%, 10% of non-response and significance value of 5%. We calculated the minimum value of sample size to be 422 [7, 8] But we had done 580 questionnaires.

91 questionnaires were rejected because they were incompletely filled. We anticipated more rejection in forms. Many people refused to fill up the questionnaire, but we didn't keep a tab of the number who rejected.

**Data collection and analysis**

The data was based on questionnaires collected. The questionnaire was designed based on reviews of previous studies [8–11]. We conducted a pilot study before the main study with 15 participants who were patient's relatives who came to the hospital, which was validated later on. The questionnaire contained 3 parts-

Part 1- Demographics and socio-educational background.

Part 2- Knowledge background.

Part 3- Blood donation activities and reasons for not donating.

The study was conducted in a period of 3 months from November 2019 to January 2020.

During data collection we used some volunteer hospital staff for data collection. Participants who could not read and write were helped by these volunteers to fill up the form. The volunteers were trained to ask the participants questions in the participant's vernacular language like Marathi or Hindi. The data was recorded and analysed in due course of time.

We tabulated the data in Microsoft excel and analysed the data in charts and graphs.

The target population was normal people coming to hospital. The people who were included in study after taking verbal consent. The answers in the questionnaire did not affect the outcome of their patients in any way. Hence no ethical clearance was taken for this study.

## Results

**Socio-educational demographics of the participants**

The total participants who enrolled in the study were 580. We had anticipated a rejection rate of 25%. But surprisingly our rejection rate was up to 15.69%. 91 Questionnaires were rejected as they were incompletely filled or wrongly filled. We had avoided open ended responses form the participants as it would prevent uniform analysis of the study. All the participants were residents of Navi Mumbai. 303 (61.96%) participants were male and 186 (38.04%) were females. The disparity of participation can be attributed to the fact that many female relatives were reluctant to fill the questionnaire form. The reasons may be low educational level, fear of adverse effect on treatment of their patients or pure disinterest in such a survey. Around a quarter of participants (27.4%) were not able to read and write. About 70% of people were educated i.e. they could read and write. In that group, approximately 30% were graduates and the rest were non-graduate in educational level.

**Knowledge and attitudes about blood donation**

Poor health was the most common reason (60.36%) for refusing to do blood donation. Fear about aspects of donation and fear of infection were seen in around 30% of patients equally. About 20% patients argued for lack of time and 14% mentioned ignorance about places for blood donation facility, as their reason for not doing blood donation.

Participants who couldn't read and write had stark different views about blood donation than the educated participants. The rate of disagreeing with voluntary blood donation was high (75.4%) in this group. But, many agreed with the concept of giving blood as a replacement (64.6%) for their relatives in Blood bank. Many of these participants from uneducated group who did blood donation (85%) did in blood camps near their locality instead of going to medical centres.

Participants from the educated group had a positive attitude towards blood donation. Around 40% of patients were positive to donate blood and 32% of patients had done blood donation.

In the graduate group, 63% of participants were happy to do blood donation with altruism towards society. This shows a very glaring difference how education plays a vital role in demonstrating the attitude change towards blood donation.

Among all the participants, 2/3rd participants have never donated blood. Equal participants donated blood in medical centres and blood banks.

**Table 1:** Showing observations of our study

| **Number of participants** | **489** | |
|---|---|---|
| **Age of participants (yrs)** | **patients** | **Percentage** |
| 18-25 | 128 | 26.18 |
| 26-40 | 187 | 38.24 |
| 40-60 | 174 | 35.58 |
| Sex | | |
| Male | 303 | 61.96 |
| Female | 186 | 38.04 |
| Education | | |
| can read and write | 134 | 27.40 |
| can read and write | 212 | 43.35 |
| Graduate | 143 | 29.24 |
| Agree | | |
| Voluntary BT | 121 | 24.74 |
| for relatives/friend as replacement | 199 | 40.70 |
| Disagree | 169 | 34.56 |
| reasons for disagree | | |
| no time | 34 | 20.12 |
| poor health | 102 | 60.36 |
| afraid of infection | 67 | 39.64 |
| don't know where to go for donation | 24 | 14.20 |
| fear of donation | 56 | 33.14 |
| Total Questionnaires | 580 | |
| Accepted | 489 | 84.31 |
| Rejected | 91 | 15.69 |
| Donated blood before | | |
| Yes | 165 | 33.74 |
| No | 324 | 66.26 |
| regular donations | 14 | 2.86 |
| places where donation done | | |
| Hospital/medical centre | 235 | 48.06 |
| Blood camp | 254 | 51.94 |
| Underwent blood transfusions | | |
| Yes | 54 | 11.04 |
| No | 435 | 88.96 |

## Discussion

India has the most acute shortage of blood units in absolute terms of about 41 million units [1]. Education makes a significant impact in attitude towards blood donation [9]. The current study shows that the majority of the population has a positive attitude about blood donation. But, people are more accepting of blood donation for friends and relatives as replacement instead of remuneration free random altruistic blood donation. In developed countries the percentage of people who have donated blood is around 59%. [12, 13]. Iran has shown around 39% of their population has donated blood voluntarily [14]. Greece shows a low rate of about 16% voluntary blood donations [14, 15]. Our study depicts that the rate of donation in navi Mumbai has been around 33.74%. This rate of blood donation is low compared to developed countries like Austria (66%), France (52%) and Cyprus (51%) [16].

Women participants showed a low willingness of blood donation compared to female participants. This is in line with the observations in other studies which took place in Saudi Arabia and Nigeria [17]. This can be attributed to the general wrong belief that female is a weaker sex and general social restriction of society.

Patients had no taboo in receiving blood transfusions if needed. About 11.2% of patients have been transfused blood products in their lifetime.

Positive mass counselling, advertisement and promotion of blood donation on social media and television channels can develop a positive attitude towards the concept of blood donation. It also helps to break the taboo associated with blood donation like infertility and weakness. Donor recruitment programmes help to increase awareness among masses especially health care providers. Due to the unmet needs of bloods 2 major bad developments have happened in India. Firstly there has been a slow growth of black market for such blood products. Secondly, in spite of the government capping the cost of blood products for patients, some places especially in rural parts of India, blood products are sold at very steep prices [18].

The shortcomings of this study are present as it is a questionnaire based survey. It may contain question formatting bias, recall bias and missing data bias [19]. Also the population was restricted to one geographical location and doesn't present the true picture of a vast country like India. The strong points of our study are that they have adequate sample size based on the statistical calculations. We also studied the previous studies to formulate the questionnaire. We modified our approach to involve the uneducated population to get the true snapshot about attitudes towards blood donation.

## Conclusion

The ultimate goal of India should be to have 100% non-remunerated blood donation through a stream of highly motivated adults. Different models of education and promotion need to be tested in universities and colleges which would pave a way to need a crop of healthy blood donors for India. Our study shows education plays a major role in making changes in attitude towards blood donation. Primary education should be encouraged and the benefits of blood donation should be taught in primary education to create a positive opinion in the minds of people along with quelling the taboo against blood donation. Our female population makes a considerable portion of our eligible donor population. Female tailored education programs will help to balance the gender based donor divide problem and increase overall donation numbers.

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