

A Study of Social Barrier about Blood Donation in Rural and Urban Population

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Abstract

Blood transfusion is a basic procedure that has helped save billions of lives each year. The transfusion of blood and its components is very important in treating patients who are suffering from life-threatening conditions, enhancing the quality of life of critically ill-patients as it supports complex medical and surgical procedures. It also plays an essential, life-saving role in child and maternal care as well as during human-inflicted disasters. As per the World Health Organization , for any country to meet the minimum demand for blood, the collection should be at least 2% of the total population. The aim of this study was to evaluate the perceived barriers to blood donation and to assess any association between the demographic variables with the barriers predicting blood donation. This study aims to explore the reasons for not donating blood in eligible adults especially when it involves family members who are critically ill.

Keywords: Blood Tranfusion, WHO, Rural, Urban.

Introduction

Blood transfusion is a basic procedure that has helped save billions of lives each year. The transfusion of blood and its components is very important in treating patients who are suffering from life-threatening conditions, enhancing the quality of life of critically ill-patients as it supports complex medical and surgical procedures. It also plays an essential, life-saving role in child and maternal care as well as during human-inflicted disasters.

Therefore, there is a high need for a proper blood supply to be used for such medical treatments. Many countries are experiencing the shortage of good, quality blood supply to meet the rising demands. Approximately 80% transfusions are given to regulate a low Hemoglobin (Hb) rather than to treat active bleeding(1). Blood donation is pivotal and indispensable in the medical process of saving lives. It is essential to spread public awareness with regard to blood donation and its eligibility criteria(2). Many factors including fear and self-awareness affects the likelihood for a person to become a blood donor.

Awareness is more likely to increase when it involves a personal experience such as a family member needing a supply of blood for transfusion(3,4). The demand for blood transfusion is increasing over time, and there is an urgent need to cope up with this demand. Blood donors are lifesavers in the true sense. Round the clock availability of safe blood and blood products is a crucial factor for any health-care center(6). As per the World Health Organization (WHO), for any country to meet the minimum demand for blood, the collection should be at least 2% of the total population (5, 7).

The demand for blood transfusion is increasing over time because of the increase in the number of serious, unintentional injuries, advanced surgical procedures, and the treatment of hematological disorders and cancers. On the other hand, because of a higher risk of transmitting infections from paid donors, the WHO recommends to collect blood only from voluntary and unpaid donors which makes it more challenging to meet the demand (8, 9).

Targeted and tailored interventions cannot be designed unless local barriers are recognized.

As per the available information from the regional blood bank, the average number for blood donations is insufficient to meet the local requirements, due to which the general public is unable to receive the required treatment.

Objective

- 1) The aim of this study was to evaluate the perceived barriers to blood donation and to assess any association between the demographic variables with the barriers predicting blood donation.
- 2) This current study aims to explore the reasons for not donating blood in eligible adults especially when it involves family members who are critically ill.

Methodology

A cross sectional study was conducted by circulating google forms in the urban areas of Nagpur and for the rural population Khasada gaav(village) and Katol(municipal council) was taken. Random sampling technique was used to determine the sample size of total 200 (rural =100; urban=100). Data were collected face to face for rural population, and google forms for urban population. Chi-square test was used to determine the association between donor status and the motivators of blood donation, barriers to blood donation and the socio-demographic characteristics of donors.

Study Design

A questionnaire based study of social barrier for blood donation in rural and urban population of area near tertiary care hospital, NKP Salve institute of medical sciences and hospital of, Hingna, Nagpur.

Selection Criteria

Inclusion criteria : Individuals who have never donated blood, but are eligible and is in the age group of 18-60 years.

Exclusion criteria: Individuals who are not eligible for blood donation.

Data Collection

The questionnaire contains demographic detail, blood donation related queries, questions assessing knowledge of social barriers of blood donation. The question elicit responses of individual regarding blood donation and about general knowledge of the difficulties, problem faced after blood donation, misconception about blood donation, general knowledge regarding blood donation.

Focus group discussion will be carried out to overcome the barriers of blood donation which were experienced by the individual.

The questionnaire assessed the following four categories

- Socio-demographic characteristics of participants
- Motivators of blood donation
- Barriers to blood donation
- Knowledge about blood donation

Social demographic questionnaire

Variables

1. Age
2. Sex
3. Address
4. Marital status
5. Religion
6. Education
7. Employment
8. Daily income
9. Donor status

Questionnaire of motivators of blood donation

1. When someone is in need of blood {yes/no}
2. Good attitude of staff [yes/no]
3. Incentives for donation[yes/no]
4. Appeals on radio, TV etc [yes /no]
5. To help person in need [yes or no]

Questionnaire of barriers for blood donation

1. Do you have fear of weakness after donation?
2. Do you have fear of needle or pain?
3. Do you have fear of contagion?
4. Does poor attitude of staff affect your blood donation?
5. Do you face inconvenience at donor's clinic?

Questionnaire of knowledge about blood donation

1. Do you know minimum age of blood donation?
2. Do you know maximum number of donation in a year?
3. What is minimum time interval between two blood donation?

4. Do you know expiry of donated blood?

Ethical Approval

Ethical clearance was obtained from the Institute Ethical Committee, for conducting this study according to the guidelines provided by NKP Salve Institute of Medical Sciences and Research Center.

Data Management and Analysis

Collected data was checked for completeness, coded and entered into Microsoft Excel spreadsheet. We analyzed 200 completed questionnaire for descriptive statistics. Using donor status (urban or rural) as a categorical dependent variable, the association of donor status and social demographic characteristics, motivators of blood donation and barriers to blood donation was determined using Pearson Chi square. Chi values and p values were presented in tables. The significance levels was set at 0.05.

Results

Background characteristics: We analyzed a total of 200 completed questionnaires. Out of 200 people in urban population 63 people out of 100 have donated blood before and 37 people out of 100 haven't. In rural population 27% people did donate blood previously and 73% of people didn't donated blood before. The survey of urban population mostly consisted of students.

Urban population

1. The first basis of separation was taken as age in which the majority 69% of the donors were in the age range of 21-30 years old. The second majority of donors came form the age group of less than 20 years old which was 24% of the total donors. The minority population was of 1% which consisted of people aged more than 40 years.
2. The second basis of separation was gender. There were no differences in the census taken of the blood

donors i.e. both genders were represented in equal percentage in the total blood donors population.

3. The third basis of separation was marital status . Among the participants 92% were single and the rest 8% were married, there were no divorcees.
4. The fourth basis of separation was religion. Out of 200 participants 64% were Hindu, 2% were Muslim, 13% were Buddhist, 1% were Sikh and Christian respectively (minority).
5. The fifth basis of separation was education. 55% were undergraduates, 37% and 8% were graduates and post graduates (minority) respectively.
6. The sixth basis of separation was employment. 86% were unemployed, 12 % were employed and 2% were daily wage workers (minority) .

Rural population

1. The first basis of separation was age, majority of the population were 31-50 years old i.e. 63% , the second major age group of donors were 21 to 30 years old i.e. 21% . There were 11% of people in the above 50 range and there were 5% people in the below 20 years old age group.
2. The second basis of separation was gender. 57% were male and 43% were female among the donors respectively.
3. The third basis of separation was marital status. 75% were married 23% were single and the remaining 2% were divorced.
4. The fourth basis of separation was religion. 79 % were Hindu, 17% were Buddhist and 2% were of Muslims Sikhs respectively.
5. The fifth basis of separation was education. 43% were undergraduate, 21% were graduates and 19% were postgraduates and 17% that was left was uneducated.

6. The sixth basis of separation was employment. 35% were employed, 20% unemployed and the remaining 4% was daily wage workers.

Table 1

CHARACTERISTICS	DONOR STATUS	
	Urban Population	Rural Population
Age		
<20	24	5
21-30	69	21
31-40	6	37
41-50	1	26
>50	0	11
SEX		
Male	50	57
Female	50	43
Martial Status		
married	8	75
single	92	23
divorced	0	2
widowed	0	0
RELIGION		
hindhu	64	79
muslim	2	2
sikh	1	2
buddhist	13	17
christian	1	0
EDUCATION		
uneducated	1	17
10th pass	0	17
12th pass	54	26
graduate	37	21
postgraduate	8	19
EMPLOYMENT		
unemployed	86	20
employed	12	35
daily wage worker	2	4

Motivators of blood donation

Urban population

1. 97% of donors were motivated to donate when someone they know is in need of blood.
2. Good attitude of staff was important to majority of the population that is 95%. Statistically significant

($X^2=14.56$, $p=0.00013$) number of donors endorsed good attitude of staff as motivator.

3. Number of donors who endorsed incentives as a motivator were 56%. Statistically, the numbers of donors who endorsed incentive as motivator were non-significant ($X^2=3.6$, $p=0.057$).
4. Of the donors that endorsed appeals on radio, television or social media were 64% and 2% were unaffected by it.

Rural population

Table 2

MOTIVATOR VARIABLE	DONOR STATUS		Chi Sq	P value
	Urban	Rural		
<u><i>When someone is need of blood?</i></u>				
Yes	97	91	3.19	0.07 Non Significant
No	3	9		
maybe	0			
<u><i>Good attitude of staff</i></u>				
Yes	95	76	14.56	0.00013 Significant
No	5	24		
<u><i>Incentive (gift) after donation?</i></u>				
Yes	56	69	3.6	0.057 Non Significant
No	44	31		
<u><i>Appeals on radio ,television or social media ?</i></u>				
Yes	64	64	0	1
No	34	36		
sometimes	2	0		

Barriers of blood donation

There were 5 parameters used to evaluate the barriers of blood donation.

Urban population

1. 11 % of the population had fear of weakness after donation, 69% were not skeptical to the thought of weakness after donation. 20% were unaffected by it. A statistically significant

91% of the population were motivated to donate when someone they know is in need. The attitude of the staff was important to the majority of 76% of the population and 24% were not affected by it. A statistically significant number of donors who endorsed incentive as a motivator were of 69% and 31% were not affected by it. Of the donors that appeals on radio, TV, social media were of population 64% and the remaining 36% were not affected.

number of donors ($X^2=18.53$, $p=<0.001$) had a fear of weakness after donation.

2. 24% were afraid of needles or the pain caused by it. 56% of the population was not affected by it. 20% were indecisive about their fear.
3. 24% of the people had fear of contagion which may spread via needle or via blood transfusion. 56% of the population were not bothered by it

and 20% of the population were not sure about it.

Poor attitude of staff was the main barrier for about 41% of the people. 35% were not affected by it and 24% were unsure. ($X^2=8.365, p=0.004$).

Approximately 66% of donors were not affected by poor attitude of staff. Only 7% of the people were affected by it and 27% were unaware. It has significant statistical value $X^2=12.05, p=0.05$

Rural population

37% of the population has fear of weakness after blood donation. 52% of the people didn't have the fear of it and 11% of the people were not sure about it. The fear

of needles or the pain caused by it was seen in 29% of the people and 68% were not afraid of it and 3% were not sure. Fear of contagion was seen in 27% of the people and 63% were unaffected by it, 10% were not sure. Poor attitude of staff affected 22% of the people for blood donation and 46% of people were not affected by it and 32% were not sure. 25% of the people faced inconvenience at donors clinic therefore were reluctant about blood donation, this factor doesn't affect 45% of people and 30% were not sure.

Table 3

BARRIER VARIABLE	DONOR STATUS		Chi Sq	p value
	Urban	Rural		
<u>Fear of weakness after donation?</u>				
Yes	11	37	18.53	<0.001 significant
No	69	52		
Not sure	20	11		
<u>Fear of needle or pain?</u>				
Yes	24	29	0.64	0.42 non significant
No	72	68		
Not sure	4	3		
<u>Fear of contagion?</u>				
Yes	24	27	0.23	0.62 non significant
No	56	63		
May be	20	10		
<u>Poor attitude of staff?</u>				
Yes	41	22	8.365	0.004 significant
No	35	46		
May be	24	32		
<u>Inconvinience at donors clinic</u>				
Yes	7	25	12.05	0.005 significant
No	66	45		
May be	27	30		

Knowledge

Urban population

1. In urban population majority of people knew the exact age i.e. 18 (84%). Only 1% of the people had no idea of minimum age of blood donation that is statistically significant number of people ($X^2=37.78, p=<0.001$).

- The majority of the population that is 51% of people felt that the number of donations was 3 and 4% people felt it was 5 times a year which was a minority. The significantly statistical value ($X^2=8.233, p=0.041$).
- From the date gathered it showed that knowledge of minimum time interval between 2 blood

donations was correct among the maximity of the population which was 3 months (59%), and the 12% of the population thought it was 4 months which was the minority ($X^2=20.88, p=0.0001$).

4. 61% of population had no knowledge of the concept of expiry of donated blood which was the majority, and only 2% of the people thought it was 50 days which was the minority ($X^2=16.31, p=0.00097$).

Rural population

- 1) 53% of the people knew the exact age of blood donation that is above 18 which was the majority, and only 7% of population thought it was above 15.

- 2) Equal percentage (i.e. 32% each) of people felt that max. number of donation was 2 times and 3 times respectively, only 7% felt that maximum number of donations was 5 times.

- 3) Knowledge about minimum time interval between 2 blood donations was thought as of 6 months by 36% of people but second majority of people that is 35% of population were correct that it is 3 months. Only 9 % of population said it was 2 months.

- 4) Majority of population (68%) didn't have the knowledge of expiry of donated blood. Only 15% knew the exact time of expiry of blood i.e. 42 days. 14% of population thought it was 50 days.

Table 4

KNOWLEDGE BASED VARIABLES	DONOR STATUS		Chi Sq	P value
	Urban	Rural		
Minimum age of blood donation				
above 15	12	7	37.78	<0.001
above 18	84	53		
above 21	3	30		
no idea	1	10		
Maximum number of donation				
2	20	32	8.233	0.041
4	25	29		
3	51	32		
5	4	7		
Minimum time interval between two blood donation				
2 months	16	9	20.88	0.0001
3 months	59	35		
4 months	12	20		
6 months	13	36		
Expiry of donated bloods				
32 days	9	3	16.31	0.00097
42 days	28	15		
50 days	2	14		
No idea	61	68		

Conclusion

We found that donors desire to help a family member or a friend in need of blood was the most cited motivator for blood donation(10) in this study, followed by a positive attitude of staff at the donors clinic, incentive and appeals on radio and social media.

Poor attitude of staff was reported as the major barrier to blood donation in urban population whereas in rural population, weakness after blood donation was the main barrier, followed by fear of needle and fear of contagion.

Our finding suggest that public education on blood donation, regular prompts of donors to donate when there is shortage and friendly attitude of staff have the potential to motivate donors and eliminate barriers to blood donation.

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