



Original article

Comparative Study on Knowledge Attitude and Practice regarding Blood Donation in Rural and Urban area of Bangalore

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ABSTRACT

Background: The perceptions toward voluntary blood donation could be influenced to a large extent by socio-demographic variables of knowledge among the general population. **Materials and Methods:** A cross-sectional descriptive study was done in two groups comprising of 100 people each using a self-administered structured questionnaire. One group comprised of patients and blood donors from Attibele region attending the hospital and blood bank premise located in a rural suburb of Bangalore, while the other group were respondents from urban areas of Bangalore. **Results:** Majority of the respondents were aware of the different ABO blood groups (96%) and Rh types (92.5%). The rural population had relatively low awareness on blood transmissible diseases (65%) when compared to urban respondents (92%). Although an overwhelming 89% agree that blood donation is a noble act only 48% intend to donate regularly. Practice of blood donation had male propensity and was higher among those who were educated beyond high school and above (56%). The most common reasons for not donating blood was no information as to how to donate blood (16%). **Conclusion:** Knowledge on blood transmissible diseases was low in rural population. Knowledge on certain conditions when an eligible person may donate blood was low among the urban population. Blood donation practice had male propensity and was more common among those educated beyond high school. Blood donation practice was more common among the urban subgroup. However as the sample size was small, further studies are needed to understand the patterns and various factors influencing blood donation in urban and rural areas.

KEYWORDS: Blood donation, Knowledge, Attitude and Practice.

INTRODUCTION

“Safe blood starts with me, blood saves lives.” was the W.H.O theme for 2000 AD. Blood has always held a mysterious fascination for all and it is considered to be the living force of our body. Today, the use of whole blood is a well-accepted and a commonly employed measure without which many modern surgical procedures cannot be carried out [1]. Human blood is an essential element of the human life and there are no substitutes for it [2]. There is a considerable shortage of blood, even in large metropolises.

The World Health Organization estimates that blood donation by 1% of the population is generally the minimum needed to meet a nation's most basic requirements for blood.[3] WHO also advocates for 100% non-remunerated voluntary blood donation (VBD), citing it as the first line of defence against transmission of diseases through the

transfusion route. Although many individuals are eligible to donate blood and numerous awareness campaigns promote its importance, only a small percentage of eligible individuals, about one third, donate blood in the US and other developed countries, and even fewer do so in developing countries [4].

In the developing countries, the hesitation among people to donate blood is accounted to misconceptions related to fears of physical harm in the process of donating blood. The perceptions toward voluntary blood donation could be influenced to a large extent by socio-demographic variables of knowledge among the general population [5]. Major factors deterring an individual from donation are safety worries and inadequate knowledge about donor eligibility [6]. Unfortunately, 83% of the global population who are

living in developing countries have access to only 40% of blood supplied, and this blood in 60% of cases is collected from paid or replacement blood donors rather than from voluntary non-remunerated low risk donors.[7] In India there is a need of about 8 million units of blood every year, out of which only about one third are obtained from voluntary donors[8].

The objectives of the study were to assess the knowledge, attitude and practice among two groups of respondents from urban and rural areas of Bangalore and to determine the association of blood donation, gender, place of residence and level of education.

MATERIALS AND METHODS

The current study was a prospective one. A cross-sectional descriptive study was done in two groups comprising of 100 people each using a self-administered structured questionnaire. One group comprised of patients and blood donors from Attibele region attending the hospital and blood bank premise located in a rural suburb of Bangalore, while the other group were respondents from urban areas of Bangalore. Questionnaires were distributed to the respondents individually and returned by them after completing. A scoring mechanism was used to understand overall knowledge level; a score of one has given for each correct response and zero for wrong response. The data was

entered in Microsoft Excel and analysed for statistical significance. Level of significance was set at p value 0.05. The study was approved by the Institution ethic committee.

RESULTS

A total of 200 respondents (100 each from urban and rural areas of Bangalore) participated, comprising 128 males (64%) and 72 females (36%). Of them 150 had been educated beyond high school and above while 50 had completed less than high school. Mean age for all the respondents ranged from 17 to 69 years. Mean age of the males and females were comparable, being 33 years for males and 30 years for females. Out of the 200 respondents, 50% had donated blood while another 50% had not donated blood.(Table 1)

Assessment of knowledge

Only about 63% of the respondents correctly answered the volume of blood in the human body. A good majority of the respondents were aware of the different ABO blood groups (96%) and Rh types (92.5%).The rural population had a relatively low awareness on blood transmissible diseases (65%) when compared to their urban counter parts (92%). Majority of the respondents (77.5%) knew the time taken for blood transfusion.

Table 1: Demographic profile of the study subjects

| | Donors (N=100) n (%) | Non Donors (N=100) n (%) | Total (N= 200) n (%) | P value |
|---------------------------|----------------------------|--------------------------------|----------------------------|-------------------------------------|
| Age(in years) | | | | |
| 60 and above | 2 (2) | 3 (3) | 5 (2.5) | $\chi^2= 10.8$ P = 0.096 NS |
| 50-59 | 2 (2) | 8 (8) | 10 (5) | |
| 40-49 | 12 (12) | 12 (12) | 24 (12) | |
| 30-39 | 30 (30) | 33 (33) | 63 (31.5) | |
| 21-29 | 49 (49) | 32 (32) | 81 (40.5) | |
| 18-20 | 5 (5) | 11 (11) | 16 (8) | |
| 17 or younger | 0 (0) | 1 (1) | 1 (0.5) | |
| Gender | | | | |
| Male | 81 (81) | 47 (47) | 128 (64) | $\chi^2=25.0868.$ P= <0.006.,S |
| Female | 19 (19) | 53 (53) | 72 (36) | |
| Education status | | | | |
| School education | 16 (16) | 34 (34) | 50 (25) | $\chi^2=8.64.$ P= 0.003289. S |
| College education | 84 (84) | 66 (66) | 150 (75) | |
| Place of Residence | | | | |
| Urban | 59 (59) | 41 (41) | 100 (50) | $\chi^2=6.48$ P= 0.010909. S |
| Rural | 41 (41) | 59 (59) | 100 (50) | |

(p<0.05 is significant) S- significant, NS- not significant

The knowledge on donor eligibility was 71%. The knowledge of the urban respondents was more compared to their rural counterparts in questions related to donor eligibility. The most incorrectly answered question was the maximum age for blood donation.The knowledge when an eligible person may not donate was 80%.The question which was most incorrectly answered was regarding smoking and blood donation. Other low scoring questions were regarding

blood donation during common cold and in allergy. The knowledge on long term risk to blood donors was 79%.The urban respondents had more misconceptions and fears regarding blood donation. Surprisingly about 67% of them believed there was a risk of contracting HIV by donating blood. Similarly 63% had fears about contracting Hepatitis B.(Table 2)

Table 2: Comparison of the Knowledge on Blood Donation of the two study subgroups

| | Urban (N=100) n (%) Correct response | Rural (N=100) n (%) Correct response | Overall (N=200) n (%) Correct response | P value |
|--|--|--|--|---------------------------------------|
| Knowledge on general aspects of blood donation: | | | | |
| 1. How much blood is there in the human body? | 66 (66) | 60 (60) | 126 (63) | $\chi^2=0.772, p=0.38, NS$ |
| 2. How much blood is removed during donation? | 63 (63) | 77 (77) | 140 (70) | $\chi^2= 4.67, p=0.031, NS$ |
| 3. Are you aware of the different blood groups? | 100 (100) | 92 (92) | 192 (96) | $\chi^2= 8.33, p=0.004, S$ |
| 4. Are you aware of the Rh blood types? | 92 (92) | 93 (93) | 195 (92.5) | $\chi^2= 0.721E-01$ $p= 0.788, NS$ |
| 5. Are disease transmitted by blood transfusion? | 92 (92) | 65 (65) | 157 (78.5) | $\chi^2= 21.6, p= 0.00, S$ |
| 6. How much time is taken to withdraw blood during blood donation? | 83 (83) | 72 (72) | 155 (77.5) | $\chi^2= 3.47, p= 0.063, NS$ |
| Knowledge on donor eligibility: | | | | |
| 7. What is the minimum age for donor? | 79 (79) | 72 (72) | 151 (75.5) | $\chi^2=1.32, p= 0.250, NS$ |
| 8. What is the maximum age for donor? | 39 (39) | 35 (35) | 74 (37) | $\chi^2=0.343, p=0.558, NS$ |
| 9. What is the minimum weight for donor? | 70 (70) | 60 (60) | 130 (65) | $\chi^2= 2.20, p= 0.138, NS$ |
| 10. How often can one donate? | 67 (67) | 73 (73) | 140 (70) | $\chi^2= 0.857, p=0.355, NS$ |
| 11. Can a pregnant woman donate? | 89 (89) | 93 (93) | 182 (91) | $\chi^2= 0.977, p=0.323, NS$ |
| 12. Can a female during menstruation donate? | 61 (61) | 63 (63) | 124 (62) | $\chi^2= 0.894E- 01 p=0.771,$ NS |
| Knowledge about conditions when an eligible person should not donate: | | | | |
| 13. Can one donate during fever? | 90 (90) | 96 (96) | 186 (93) | $\chi^2=2.76, p= 0.096, NS$ |
| 14. Can one donate while having common cold? | 54 (54) | 94 (94) | 148 (74) | $\chi^2=41.6, p= 0.00, S$ |
| 15. Can a person with high BP donate? | 73 (73) | 99 (99) | 172 (86) | $\chi^2=28.1, p= 0.00, S$ |
| 16. Can a person donate when BP is low? | 94 (94) | 96 (96) | 190 (95) | $\chi^2=0.421, p= 0.516, NS$ |
| 17. Can a donation be done by a person who is taking medicines for chronic diseases? | 91 (91) | 98 (98) | 189 (94.5) | $\chi^2=4.71, p= 0.030, S$ |
| 18. Can a person having allergy donate? | 51 (51) | 98 (98) | 149 (74.5) | $\chi^2= 58.1, p=0.00, S$ |
| 19. Can a smoker donate blood? | 66 (66) | 15 (15) | 81 (40.5) | $\chi^2=54, p=0.00, S$ |
| 20. Can a person with chronic alcoholism donate blood? | 83 (83) | 93 (93) | 176 (88) | $\chi^2= 4.7, p=0.03, S$ |
| Knowledge about long-term risks to donor: | | | | |
| 21. Is there a risk of contracting HIV by donating? | 32 (32) | 93 (93) | 125 (62.5) | $\chi^2=79.4, p=0.00, S$ |
| 22. Is there a risk of contracting Hepatitis by donating? | 37 (37) | 95(47.5) | 132 (66) | $\chi^2= 75, p=0.00, S$ |
| 23. Is there a risk of contracting other infections by donating? | 33 (33) | 93(46.5) | 126 (63) | $\chi^2=77.2, p=0.00,S$ |
| 24. Does blood donation cause bleeding disorders? | 93 (93) | 98 (98) | 191 (95.5) | $\chi^2=2.91, p= 0.088, NS$ |
| 25. Does blood donation cause anaemia? | 86 (86) | 96 (96) | 182 (91) | $\chi^2= 6.11, p= 0.013, S$ |
| 26. Does blood donation cause mental disorders? | 99 (99) | 98 (98) | 197 (98.5) | $\chi^2= 0.338, p= 0.561, NS$ |

(p<0.05 is significant)Degree of freedom=1, S- significant, NS- not significant

The knowledge regarding blood donation was comparable between donors and non donors. Similarly the knowledge regarding blood donation was comparable between those educated up to high school and those who had been educated beyond high school.

Respondent’s attitude towards blood donation

Although an overwhelming 89% agree that blood donation is a noble act only 48% intend to donate regularly. There was a difference of opinion regarding the statement “Only physically strong can donate blood with 40% agreeing while 47% disagreeing on it. A sizeable number (32%) of the respondents believe that blood banks collect blood from donors to sell it to those in need. About 63% of the

respondents agreed that Blood should be collected from voluntary donors. The urban respondents were more motivated to donate blood regularly (60%) when compared to their rural counterparts (37%).(Table 3)The urban respondents were more in favour of voluntary blood donation (87%) when compared to their rural counterparts (40%).

Practice of blood donation

Practice of blood donation had male propensity. The blood donation rate was higher among males (63%) when compared to females (26%).The result was statistically significant ($\chi^2=25.0868, P= 1E-06$. This result is significant at $p < 0.05$). Out of the 200 respondents, 50% had donated

blood while another 50% had not donated blood. The practice of blood donation was higher among those who were educated beyond high school and above (56%) when compared to those who were educated only up to high school (32%).The result was statistically significant. ($\chi^2=8.64$. $P= 0.003289$. This result is significant at $p < 0.05$).

The blood donation was higher among urban respondents (59%) when compared to the rural respondents (41%). ($\chi^2=6.48$ $P= 0.010909$. This result is significant at $p < 0.05$).The most common reasons for not donating blood was No information as to how to donate blood (16%) followed by medical reasons unfit for donating (10%) and no request for blood (10%). One respondent cited a reason that women should not donate blood. (Table -4)

Table 3: Comparison of the attitude of the two study subgroups on Blood donation

| Attitude of the two study subgroups on Blood donation | Urban (N=100) n (%) | Rural (N=100) n (%) | Overall (N=200) n (%) | P value |
|---|------------------------|------------------------|--------------------------|---------------------------------|
| Blood donation is a noble act | | | | |
| Agree | 99 (99) | 79 (79) | 178 (89) | $\chi^2= 20.6$, p= 0.00, S |
| Disagree | 1 (1) | 12 (12) | 13 (6.5) | |
| No Idea | 0 (0) | 9 (9) | 9 (4.5) | |
| 1. Only physically strong can donate | | | | |
| Agree | 36 (36) | 44 (44) | 80 (40) | $\chi^2= 20.5$, p= 0.00, S |
| Disagree | 60 (60) | 34 (34) | 94 (47) | |
| No Idea | 4 (4) | 22 (22) | 26 (13) | |
| 2. Regular donors get money | | | | |
| Agree | 16 (16) | 16 (16) | 32 (16) | $\chi^2= 10.8$, p= 0.005, S |
| Disagree | 59 (59) | 38 (38) | 97 (48.5) | |
| No Idea | 25 (25) | 46 (46) | 71 (35.5) | |
| 3. Blood is sold to the needed | | | | |
| Agree | 46 (46) | 19 (19) | 65 (32.5) | $\chi^2= 34.3$, p= 0.00, S |
| Disagree | 44 (44) | 36 (36) | 80 (40) | |
| No Idea | 10 (10) | 45 (45) | 55 (27.5) | |
| 4. You intend to donate regularly | | | | |
| Agree | 60 (60) | 37 (37) | 97 (48.5) | $\chi^2=29.7$, p= 0.00, S |
| Disagree | 25 (25) | 12 (12) | 37 (18.5) | |
| No Idea | 15 (15) | 51 (51) | 66 (33) | |
| 5. Blood should be collected from voluntary donors only | | | | |
| Agree | 87 (87) | 40 () | 127 (63.5) | $\chi^2= 61.7$, p= 0.00, S |
| Disagree | 11 (11) | 10 () | 21 (10.5) | |
| No Idea | 2 (2) | 50 () | 52 (26) | |

($p < 0.05$ is significant), Degree of freedom=2, S- significant, NS- not significant

Table 4: Reasons for not donating blood

| Reason | Number | Percentage |
|---|--------|------------|
| Medical reasons or medically unfit for donating | 21 | 10% |
| No request for blood | 20 | 10% |
| No time for donating | 8 | 4% |
| No information as to when , where , how to donate | 32 | 16% |
| Parents do not allow | 3 | 1% |
| Fear of weakness from blood donation | 12 | 6% |
| Fear of pain | 3 | 1% |
| Fear of the needle, sight of blood, fainting | 5 | 2% |
| Fear of contracting disease | 8 | 4% |
| Fear of other adverse effects | 3 | 1% |
| Do not like the idea of donating | 5 | 2% |
| Other | 9 | 4% |

DISCUSSION

Studies to understand the various factors that could change the perception and awareness about blood donation among the community may come out to be useful for the successful implementation of 100% VBD program in the Bangalore city. The present study assessed the knowledge, attitudes and practice regarding blood donations and transfusion services among the respondents in urban and rural area of Bangalore. The main purpose of this study was to identify strategies and factors that influence the recruitment and retention of voluntary non-remunerated blood donors to achieve 100% VBD.

This study found a significant association between blood donation and gender. Males in our society are more likely to donate blood than females. This is quite understandable since women within the donor age range usually may have one factor or another interfering with their chances of being suitable to donate. Factors such as their frequent menstrual cycles, pregnancy, and lactation may prevent them from donation. This is in affirmation of the WHO report that there are more male donors worldwide [9]. Similar male predominance was noticed in the study by Amatya in Kathmandu [10] and Singh B among Delhi slum dwellers [11].

Knowledge on the volume of blood in the human body was much lower in the present study group when compared to study by Amatya [10] but was higher than seen in the study by Benedict et al in Benin [12]. Almost all the participants had knowledge about ABO blood groups and Rh typing similar to the study by Devi et al at Imphal [13]. Knowledge on spread of disease by unsafe blood transfusion in the present study (77%) was comparable to the study by Amatya et al (68%) [10]. The rural population had a relatively low awareness on blood transmissible diseases (65%) when compared to their urban counterparts (92%). Majority of the respondents (77.5%) knew the time taken for blood transfusion unlike in the study by Benedict et al [12] in Benin wherein only 36.2% knew that blood donation lasts less than 20 minutes.

The knowledge on donor eligibility in the present study (71%) was much higher than seen in the study by Amatya et al [10] (56.12%). The knowledge of the urban respondents was more compared to their rural counterparts when it came to questions on donor eligibility. The most incorrectly answered question on donor eligibility was that related to maximum age on donation. In study by Alam et al [14] in Saudi Arabia, only 0.06% men had correct knowledge on suitable age for blood donation.

The average score when an eligible person may not donate in the present study was 80% which was much higher than seen in the study by Amatya et al [10] (37.1%). The question which was most incorrectly answered by the respondents in the present study was regarding smoking and blood donation and that regarding blood donation during common cold and in allergy. Our findings are consistent with the study by Amatya et al [10] where in the question on smoking and blood donation was correctly answered by 35% and whether an eligible person with common cold could donate was correctly answered by merely 15.25%. There is a need to create awareness regarding time gap between

smoking and blood donation. Similarly an awareness campaign regarding the time gap between allergic diseases, common cold and blood donation could help in clearing the misconceptions. (Table 6)

The knowledge on long term risk to blood donors was 79%. The urban respondents had more misconceptions and fears regarding blood donation when compared to the rural respondents. About 67% of the urban respondents believed there was a risk of contracting HIV by donating blood. Similarly 63% of the urban respondents had fears about contracting Hepatitis B by blood donation. In the study by Benedict et al [12] in Benin, a mere 12.3% said a donor can contract infection by blood donation.

An overwhelming 89% agree that blood donation is a noble act and have a positive attitude similar to the study by Sabu et al [15] (87.3%), Benedict et al [12] (81.6%) and much higher than seen in the study by Manikandan et al [16] (63.58%) in Chennai. However only 48% of the respondents intend to donate regularly which is slightly higher than seen in the study by Manikandan et al (32.21%). The urban respondents were more in favour of voluntary blood donation (87%) when compared to their rural counterparts (40%). In the study by Amatya et al [10], 60% of the respondents were in favour of voluntary blood donation.

The blood donation was higher among urban respondents (59% than rural respondents (41%). However as the sample size was small, further studies are needed to understand the patterns and various factors influencing blood donation in urban and rural areas. The knowledge regarding blood donation was comparable between those educated up to high school and those who had been educated beyond high school.

Similarly, Sabu et al [15] noted that the knowledge level of students on blood donation reported in various studies including theirs is similar to results among illiterate and uneducated population. The results signify importance of conducting periodic awareness programmes on voluntary blood donation. The most common reasons for not donating blood was No information as to how to donate blood (16%) followed by medical reasons unfit for donating (10%) and no request for blood (10%).

In the study by Giri PA et al [17] non consideration, forgetfulness and lack of time were the most common reasons for not donating blood. Lack of information on blood donation and negative attitude were cited as the most common reasons in the study by Manikandan et al [16]. In the study by Singh B [11] among Delhi slum dwellers, the most common reason for not donating given by 50% of the respondents was "Khoonki kami" which translates into less blood and was explained as volumetric deficit of blood rather than a percentage decrease in haemoglobin. Around 25% had not felt the need to donate blood. No request for blood and fear of weakness were the most common reasons for not donating in the study by Amatya et al [10].

CONCLUSION

Knowledge on blood transmissible diseases is low in rural population. Awareness campaigns in rural areas should emphasise more on the importance of voluntary blood donation. Knowledge on conditions when an eligible person may donate (especially smoking, common cold and allergy) is low among the urban population. Awareness campaigns in urban areas should focus more on the safety of the procedure and the lack of long term risks to blood donors. Awareness campaigns on blood donation need to be tailor made according to the target populations.

Blood donation practice was more common among males when compared to females. Blood donation practice was more common among those educated beyond high school than those educated up to high school. Blood donation practice was more common in urban population when compared to rural in our study groups. However as the sample size was small, further studies are needed to understand the patterns and various factors influencing blood donation in urban and rural areas.

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