

Blood donation awareness and beliefs among medical and nursing students

Suchetha Singh, Muninarayana Chandrappa, Mahesh Venkatesha, Anil NS

Department of Community Medicine, Sri Devaraj Urs Medical College, Sri Devaraj Urs Academy of Higher Education and Research Kolar, Karnataka, India.

Correspondence to: Mahesh Venkatesha, E-mail: maheshboss1984@gmail.com

Received March 4, 2015. Accepted April 17, 2015

Abstract

Background: College students form a large, healthy, and active population of potential blood donors; their recruitment and retention would immensely help meet the demand of safe blood. The knowledge and practice of blood donation among medical and nursing students are reportedly diverse.

Objective: To compare the reasons for blood donation and knowledge and attitude about blood donation among medical and nursing students.

Materials and Methods: A cross-sectional study was conducted on 400 students (300 medical and 100 nursing students) using a semi-structured self-administered questionnaire to solicit information from medical and nursing students over a period of 3 months.

Results: All the 400 students were aware of blood donation but 71.5% (286) had never donated blood. Blood donation rate was slightly increased from first-year to third-year MBBS students, only 12% of nursing students donated blood. Forty-one percent donated blood as a charity and 34.2% had donated as a replacement donors. The most common reason for not donating blood was that it was not asked among 24% students and because of underweight among 17% students.

Conclusion: Significant difference exist in the knowledge and practice of blood donation among medical and nursing students which needs to be addressed by creating awareness at the initial stage of higher education by conducting periodic awareness programs.

KEY WORDS: Blood donation, knowledge, attitude, medical and nursing students

Introduction

Blood donation need is increasing day by day as a result of advances made in the clinical medicine. It is noted in the country that the death toll from road accidents has increased due to unavailability of blood transfusion services during

“golden hour of first aid.” Also blood is very much necessary during major surgeries (such as, open heart surgery and renal surgery), to replenish blood loss during pregnancy and its complications, for patients with hematological diseases such as severe anemia, leukemia, hemophilia, and thalassemia and other emergencies such as poisoning and burns.

Safe blood is a critical component in improving health care and in preventing the spread of infectious diseases globally. Millions of lives are saved each year through blood transfusions, yet the quality and safety of blood transfusion are still a concern particularly in the developing countries. About 5%–10% of new HIV infections worldwide are transmitted through unsafe blood transfusions. The reason for this includes blood collection from unsafe donors, poor laboratory procedures, and inadequate testing of blood. Blood will be safe if there is a nationally coordinated blood transfusion

| Access this article online | |
|--|---|
| Website: http://www.ijmsph.com | Quick Response Code:  |
| DOI: 10.5455/ijmsph.2015.04032015274 | |

International Journal of Medical Science and Public Health Online 2015. © 2015 Mahesh Venkatesha. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

service; and it should be collected only from voluntary non-remunerated donors, should be tested for transfusion transmissible infection, and right blood should be transfused to right patient through the appropriate clinical use.

A positive attitude among medical and nursing students will bring change in the attitude of blood donation among patients during care and can be a core group to educate many friends and relative about the need for blood transfusion. There is also need to encourage, inspire, and motivate students to donate blood voluntarily and become a professional donor. Though there are few studies, a comparative study was not done on these groups separately. And every year new students are admitted in to institutions where awareness of blood donation has to be spread. Hence this study was undertaken with the following objectives to identify and compare the reasons, beliefs, and attitude for blood donation among medical and nursing students.

Materials and Methods

An analytical cross-sectional study was conducted among first-, second-, third-year medical students and nursing students in deemed University of rural Kolar for a period of 3 months. Sample size was calculated by considering the hypothesized frequency of outcome factor in the proportion (p) as 50% and 5% absolute error. Using the formula $n = Z^2_{\alpha/2} P(1-P)/d^2$ sample size estimated was 384 at 95% confidence interval. Expecting 5% nonresponse a sample size of 400 was taken into the study. For equal representation 300 medical students and 100 nursing students were enrolled for the study. Simple random sampling (lottery method) was carried out to collect the data in each group after obtaining the entire list of students in the classroom. Data were collected using a pretested and structured questionnaire after obtaining the informed consent. Ethical clearance from institution was obtained prior to the study.

Statistical analysis: The data were compiled in Microsoft Excel and Epi Info version 7 was used to analyze the data.

Table 2: Distribution of subjects according to blood donation

| Students | Blood donation | | χ^2 value, df, p -value |
|------------------|----------------------|---------------------|--------------------------------|
| | Yes ($n = 114$) | No ($n = 286$) | |
| First-year MBBS | 31 | 69 | 18.501, |
| Second-year MBBS | 35 | 65 | 3, |
| Third-year MBBS | 36 | 64 | 0.0001** |
| Nursing | 12 | 88 | |

Descriptive statistics like proportions and confidence intervals were computed. Chi-square test is the test of significance for qualitative data and a p -value of <0.05 will be considered as statistically significant.

Results

A total of 400 students who had awareness about blood donation from medical and nursing college in the ratio 3:1 was included in the study. Sociodemographic profile of subjects is shown in Table 1. It was observed that among 400 students only 114 (28.5%) had donated blood one or more times and 286 (71.5%) had never donated blood. Blood donation was higher among medical students than nursing students and it was statistically significant. There was increase in blood donation rate in medical students from first year to third year [Table 2].

It was noted that majority of the students donated blood during last 2 years among both medical and nursing students. It was also observed that blood donation rate was higher in medical students and it was decreasing from first to third year MBBS students. Majority in both groups were non-registered donors and most of them donated blood as a replacement donor. There was significant association between groups and reason for blood donation [Table 3].

The most common reason for not donating blood was that none were asked for blood and second most common reason

Table 1: Socio demographic profile of subjects

| | First-year MBBS students ($n=100$) | Second-year MBBS students ($n=100$) | Third-year MBBS students ($n=100$) | Nursing students ($n=100$) |
|----------------------|--------------------------------------|---------------------------------------|--------------------------------------|------------------------------|
| Age | 18.73±1.171 | 20.10±1.193 | 21.00±1.163 | 20.85±1.882 |
| Gender | | | | |
| Female | 40 | 48 | 62 | 92 |
| Male | 60 | 52 | 38 | 8 |
| Religion | | | | |
| Hindu ($n=264$) | 76 | 72 | 80 | 36 |
| Christian ($n=77$) | 12 | 4 | 2 | 59 |
| Muslim ($n=44$) | 8 | 16 | 18 | 2 |
| Others ($n=15$) | 4 | 8 | 0 | 3 |
| Domicile | | | | |
| Urban ($n=302$) | 74 | 75 | 85 | 68 |
| Rural ($n=98$) | 26 | 25 | 15 | 32 |

Table 3: Practices of blood donation

| If blood donated | | Year | | | | Total | χ^2 value, df, p-value |
|---------------------------|--------------------------|--------------------------|---------------------------|--------------------------|------------------|-------|-----------------------------|
| | | First-year MBBS (n = 31) | Second-year MBBS (n = 35) | Third-year MBBS (n = 36) | Nursing (n = 12) | | |
| First time blood donation | >2 year | 7 | 15 | 21 | 4 | 37 | 34.53, 6, 0.0001** |
| | <2 year | 22 | 15 | 5 | 5 | 47 | |
| | Don't know | 2 | 5 | 10 | 3 | 20 | |
| No of times blood donated | Once | 27 | 19 | 21 | 6 | 73 | 22.855, 6, 0.007** |
| | >2 times | 3 | 14 | 14 | 6 | 37 | |
| | Two or more times a year | 1 | 2 | 1 | 0 | 4 | |
| Registered blood donor | No | 20 | 28 | 28 | 11 | 87 | 4.25, 3, 0.235 |
| | Yes | 11 | 7 | 8 | 1 | 27 | |
| Reason for blood donation | Replacement donor | 11 | 5 | 19 | 4 | 39 | 17.05, 9, 0.0047** |
| | Birthday | 2 | 1 | 2 | 1 | 6 | |
| | Charity | 12 | 22 | 12 | 3 | 49 | |
| | Multiple reasons | 6 | 7 | 3 | 4 | 20 | |

Table 4: Reasons of not donating blood among subjects

| If blood not donated | | First-year MBBS (n = 69) | Second-year MBBS (n = 65) | Third-year MBBS (n = 65) | Nursing students (n = 88) | Total | Value, df, p-value |
|----------------------------|-----------------------------|--------------------------|---------------------------|--------------------------|---------------------------|-------|---------------------|
| Reason not to donate blood | No one asked | 13 | 20 | 19 | 16 | 68 | 25.12, 15, 0.0048** |
| | Common blood group | 5 | 1 | 2 | 2 | 10 | |
| | Scared of needles and blood | 2 | 3 | 5 | 7 | 17 | |
| | Too busy | 9 | 3 | 1 | 3 | 16 | |
| | Underweight | 6 | 13 | 11 | 19 | 49 | |
| | Multiple Responses | 34 | 25 | 27 | 41 | 127 | |

was underweight. There was significant association between the groups in reasons for not donating blood [Table 4].

In the study majority believed that consent was needed for blood donation and the knowledge increased from first-year to third-year MBBS students, which was statistically significant between the groups. Majority believed that there is age limit for blood donation, majority opined that 350–500 mL of blood is drawn during each donation, which was of no statistical significance. Majority opined that blood has to be donated in blood bank and hospital, which was statistically significant between the groups. Majority of students (i.e. 240) were not aware of the confidentiality maintained after blood donation and the difference between the groups was significant. Majority of the subjects (i.e. 252 students) were not aware of blood banks nearby, which was statistically significant between the groups. Majority opined that it takes 20–40 min for blood donation and minimum gap for next donation was 6 months. Majority opined that minimum weight is required for blood donation and the difference between the groups was significant [Table 5].

Discussion

This study shows that only 28.5% donated blood and the most important reason for not donating blood was that they were not asked for blood and underweight. Similar

observations was made by a Nigerian study found that only 20.3% of their study population would not donate blood.^[1] In contrast, Giri *et al.*,^[2] Shaz *et al.*,^[3] Shenga *et al.*,^[4] and Sabu *et al.*^[5] revealed 52.5%, 51%, 87.3%, and 62% participants had never donated blood, respectively.

In this study it was observed that the blood donation rate was higher in medical students than nursing students and blood donation rate was decreasing from first-year to third-year MBBS students. Majority of the subjects were females hence there could have been this difference in blood donation rate.

In this study majority (85%) of students were aware of the appropriate age for blood donation and 84.75% of the students had knowledge about the lowest necessary body weight for blood donation. Similar observation was made by Giri *et al.*,^[2] observed that 92% and 72% were aware of appropriate age and weight for blood donation. Kowsalya *et al.*,^[6] observed that 87.5% of respondents were aware about the suitable age, 32.4% of the respondents know minimum weight. Similarly, study in Zanjan, conducted on 600 students, revealed a higher knowledge about the suitable age and a lower knowledge about the minimum weight.^[7] In contrast, a study conducted in Saudi Arabia on 500 men revealed that only 0.06% men were aware of suitable age for blood donation, while 28% knew about the minimum weight.^[8]

Table 5: Significant beliefs to be made bold are Consent, Place of donation, Minimum weight for blood donation, Confidentiality maintained and Know about blood banks near by beliefs of students on blood donation

| Beliefs in blood donation | | First-year MBBS | Second-year MBBS | Third-year MBBS | Nursing students | Total | Value, df, p-value |
|-----------------------------------|-------------------|-----------------|------------------|-----------------|------------------|------------|--------------------|
| Consent | Yes | 67 | 78 | 82 | 82 | 309 | 14.859, |
| | No | 14 | 9 | 14 | 9 | 46 | 6, |
| | Don't know | 19 | 13 | 4 | 9 | 45 | 0.021** |
| Age limit | Yes | 90 | 85 | 85 | 81 | 341 | 9.816, |
| | No | 4 | 3 | 3 | 10 | 20 | 6, |
| | Don't know | 6 | 12 | 12 | 9 | 39 | 0.133 |
| Amount of blood | 350 mL | 5 | 2 | 5 | 9 | 21 | 6.119, |
| | 350–500 mL | 85 | 91 | 87 | 85 | 348 | 6, |
| | 500 mL–1 L | 10 | 7 | 8 | 6 | 31 | 0.396 |
| Place of blood donation | Hospital | 44 | 36 | 45 | 29 | 154 | 20.04, |
| | Camps | 19 | 21 | 20 | 9 | 69 | 6, |
| | Blood bank | 37 | 43 | 35 | 62 | 177 | 0.003** |
| Time required for donation | 20–40 min | 75 | 78 | 77 | 63 | 293 | 8.68, |
| | >1hour | 9 | 10 | 9 | 18 | 46 | 6, |
| | Don't know | 16 | 12 | 14 | 19 | 61 | 0.192 |
| Minimum gap after donation | 3 Months | 39 | 42 | 41 | 25 | 147 | 11.74, |
| | 6 Months | 56 | 56 | 53 | 68 | 233 | 9, |
| | 1 Year | 2 | 1 | 4 | 5 | 12 | 0.228 |
| | No gap | 3 | 1 | 2 | 2 | 8 | |
| Minimum weight for blood donation | Yes | 75 | 89 | 85 | 90 | 339 | 21.649, |
| | No | 6 | 9 | 6 | 2 | 23 | 6, |
| | Don't know | 19 | 2 | 9 | 8 | 38 | 0.001** |
| HIV and Hep B tests done | Yes | 88 | 90 | 90 | 90 | 358 | 9.124, |
| | No | 3 | 4 | 8 | 7 | 22 | 6, |
| | Don't know | 9 | 6 | 2 | 3 | 20 | 0.167 |
| Confidentiality maintained | Yes | 23 | 44 | 48 | 45 | 160 | 26.916, |
| | No | 23 | 14 | 17 | 29 | 83 | 6, |
| | Don't know | 54 | 42 | 35 | 26 | 157 | 0.0001** |
| Know about blood banks near by | Yes | 23 | 30 | 41 | 54 | 148 | |
| | No | 32 | 30 | 29 | 18 | 109 | 24.72, |
| | Don't know | 45 | 40 | 30 | 28 | 143 | 0.0001** |

In this study only 5.25% of students knew about the volume of blood collected, 36.7% of students were aware about gap between blood donations, 89.5% knew about blood-borne infections for which the donated blood is tested. In a study by Kowsalya et al.,^[6] 32% of the respondents know about the collected blood volume in every blood donation, 45.5% students were aware about the frequency of blood donation, 32.4% respondents know blood-borne infections for which the donated blood is tested.

Conclusion

In this study overall third-year MBBS students showed significantly higher knowledge compared with first-year MBBS students and nursing students. This study suggests that to improve knowledge, aspects of blood donation should be incorporated in the initial stage of higher education and periodic awareness program should be there for recruitment

and retention of donors. In addition, blood donation, such as frequent and long-term blood donation, is associated with a lower risk of cardiovascular events and helps in fighting hemochromatosis. Thus, these advantages should be highlighted to both medical and nursing students for better motivation.

References

1. Okpara RA. Attitudes of Nigerians towards blood donation and blood transfusion. *Trop Geogr Med* 1989;41:89–93.
2. Giri PA, Phalke DB. Knowledge and attitude about blood donation amongst undergraduate students of Pravara Institute of Medical Sciences Deemed University of Central India. *Ann Trop Med Public Health* 2012;5:569–73.
3. Shaz BH, Demmons DG, Crittenden CP, Carnevale CV, Lee M, Burnett M et al. Motivators and barriers to blood donation in African American College students. *Transfus Apher Sci* 2009;41:191–7.

4. Shenga N, Pal R, Sengupta S. Behavior disparities towards blood donation in Sikkim, India. *Asian J Transfus Sci* 2008;2:56–60.
5. Sabu KM, Remya A, Binu VS, Vivek R. Knowledge, attitude and practice on blood donation among health science students in a University Campus, South India. *Online J Health Allied Sci* 2011;10:6.
6. Kowsalya V, Vijayakumar R, Chidambaram R, Srikumar R, Prabhakar E, Reddy S et al. A study on knowledge, attitude and practice regarding voluntary blood donation among medical students in Puducherry, India. *Pakistan J Biol Sci* 2013;16:439–42.
7. Mortazavi Y, Mahmoodizadeh F. Evaluation of the awareness of students in Zanjan universities about blood donation eligibility criteria. *Sci J Iran Blood Transfus Org* 2008;5:195–202.
8. Alam M, Masameh B. Knowledge, attitudes and practices regarding blood donation among the Saudi population. *Saudi Med J* 2004;25:318–21.

How to cite this article: Singh S, Chandrappa M, Venkatesha M, Anil NS. Blood donation awareness and beliefs among medical and nursing students. *Int J Med Sci Public Health* 2015;4: 1338-1342

Source of Support: Nil, **Conflict of Interest:** None declared.