Blood donation awareness and beliefs among medical and nursing students

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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 exists 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...
service; and it should be collected only from voluntary non-
remunerated donors, should be tested for transfusion trans-
missible 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 stu-
dents 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 com-
pare 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 stu-
dents 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 propor-
tion (p) as 50% and 5% absolute error. Using the formula
\[ n = \frac{Z^2 \cdot \alpha}{2 \cdot \hat{p} (1-\hat{p})/d^2} \]
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.

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>
<thead>
<tr>
<th>Students</th>
<th>Blood donation</th>
<th>( \chi^2 ) value, df, ( p )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (( n = 114 ))</td>
<td>No (( n = 286 ))</td>
</tr>
<tr>
<td>First-year MBBS</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>Second-year MBBS</td>
<td>35</td>
<td>65</td>
</tr>
<tr>
<td>Third-year MBBS</td>
<td>36</td>
<td>64</td>
</tr>
<tr>
<td>Nursing</td>
<td>12</td>
<td>88</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Table 1: Socio demographic profile of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-year MBBS students (( n = 100 ))</td>
</tr>
<tr>
<td>Age 18.73±1.171</td>
</tr>
</tbody>
</table>
| 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 |
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 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]
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


### 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

<table>
<thead>
<tr>
<th>Beliefs in blood donation</th>
<th>First-year MBBS</th>
<th>Second-year MBBS</th>
<th>Third-year MBBS</th>
<th>Nursing students</th>
<th>Total</th>
<th>Value, df, p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consent</td>
<td>Yes</td>
<td>67</td>
<td>78</td>
<td>82</td>
<td>82</td>
<td>309</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>14</td>
<td>9</td>
<td>14</td>
<td>9</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>19</td>
<td>13</td>
<td>4</td>
<td>9</td>
<td>45</td>
</tr>
<tr>
<td>Age limit</td>
<td>Yes</td>
<td>90</td>
<td>85</td>
<td>85</td>
<td>81</td>
<td>341</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>6</td>
<td>12</td>
<td>12</td>
<td>9</td>
<td>39</td>
</tr>
<tr>
<td>Amount of blood</td>
<td>350 mL</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>350–500 mL</td>
<td>85</td>
<td>91</td>
<td>87</td>
<td>85</td>
<td>348</td>
</tr>
<tr>
<td></td>
<td>500 mL–1 L</td>
<td>10</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>Place of blood donation</td>
<td>Hospital</td>
<td>44</td>
<td>36</td>
<td>45</td>
<td>29</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td>Camps</td>
<td>19</td>
<td>21</td>
<td>20</td>
<td>9</td>
<td>69</td>
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<tr>
<td></td>
<td>Blood bank</td>
<td>37</td>
<td>43</td>
<td>35</td>
<td>62</td>
<td>177</td>
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<tr>
<td>Time required for donation</td>
<td>20–40 min</td>
<td>75</td>
<td>78</td>
<td>77</td>
<td>63</td>
<td>293</td>
</tr>
<tr>
<td></td>
<td>&gt;1 hour</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>18</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>16</td>
<td>12</td>
<td>14</td>
<td>19</td>
<td>61</td>
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<tr>
<td>Minimum gap after donation</td>
<td>3 Months</td>
<td>39</td>
<td>42</td>
<td>41</td>
<td>25</td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>6 Months</td>
<td>56</td>
<td>56</td>
<td>53</td>
<td>68</td>
<td>233</td>
</tr>
<tr>
<td></td>
<td>1 Year</td>
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<td>1</td>
<td>4</td>
<td>5</td>
<td>12</td>
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<td></td>
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<td>3</td>
<td>1</td>
<td>2</td>
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<td>Minimum weight for blood donation</td>
<td>Yes</td>
<td>75</td>
<td>89</td>
<td>85</td>
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<td>6</td>
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<tr>
<td></td>
<td>Don’t know</td>
<td>19</td>
<td>2</td>
<td>9</td>
<td>8</td>
<td>38</td>
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<tr>
<td>HIV and Hep B tests done</td>
<td>Yes</td>
<td>88</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>358</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>9</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Confidentiality maintained</td>
<td>Yes</td>
<td>23</td>
<td>44</td>
<td>48</td>
<td>45</td>
<td>160</td>
</tr>
<tr>
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<td>No</td>
<td>23</td>
<td>14</td>
<td>17</td>
<td>29</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>54</td>
<td>42</td>
<td>35</td>
<td>26</td>
<td>157</td>
</tr>
<tr>
<td>Know about blood banks near by</td>
<td>Yes</td>
<td>23</td>
<td>30</td>
<td>41</td>
<td>54</td>
<td>148</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>32</td>
<td>30</td>
<td>29</td>
<td>18</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>45</td>
<td>40</td>
<td>30</td>
<td>28</td>
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</tbody>
</table>

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