INTRODUCTION
The need for blood donation is increasing day by day due to advances made in clinical medicine. Safe blood is a critical component in improving health care. Knowledge, attitude and practice studies have been used to understand the various factors that influence blood donation which is the basis for donor mobilization and retention strategies [1]. Blood transfusions form a crucial and irreplaceable part in the medical management of many diseases [2]. It saves lives and improves health, but patients requiring transfusion do not have timely access to safe blood. WHO recommends that all activities related to blood collection, testing, processing, storage and distribution be coordinated at the national level through effective organization and integrated blood supply networks. The median blood donation rate in high-income countries is 32.1 donations per 1000 persons, 14.9 donations in upper-middle-income countries, 7.8 donations in lower-middle-income countries and 4.6 donations in low-income countries [3]. WHO is advocating a policy towards 100% voluntary non-remunerated blood donation by year 2020. [4] The statistics prepared by the Association of Voluntary Blood Donors Forum (AVBDF) on the percentage of voluntary blood donation to the total blood collection in individual states in the year 2009-2010 showed a rapid decline in the number of donors throughout India [5]. There is no shortage of Blood Banks in the country, and a total of 2708 Blood Banks in the country [6]. Medical and Dental 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. To study the awareness regarding blood donation among first year Medical and Dental students in our institution and compare the two groups. A cross-sectional study among 49 first year medical students at NKP Salve Institute of Medical Science, Nagpur and 50 first year dental students at VSPM Dental College, Nagpur was conducted using a pre-designed, pre-tested, self-administered questionnaire consisting of three levels, testing the general knowledge, pre-requisites of blood donation and details of the same. All the 99 students were aware of blood donation but only 7.07% (7 out of 99) had donated blood. Donation rate was slightly more in MBBS students (5.05%) as compared to BDS students (2.02%). The most common reason for not donating blood was that they were never approached among 44.44% students followed by 20.20% students stating that they were underweight. Despite having knowledge about blood donation, prevalence of donation was very low among both MBBS and BDS students. This issue can be tackled by creating awareness at initial stages of higher education by conducting periodic awareness programs.

Keywords: Blood donation, Awareness, Medical students, Questionnaire based study.
MATERIALS AND METHODS

After obtaining approval from Institutional Ethics Committee, a cross-sectional study among 49 first year medical students at NKP Salve Institute of Medical Science and Research Centre, Nagpur and 50 first year dental students at VSPM Dental College, Nagpur. A pre-designed, pre-tested, self-administered questionnaire, consisting of three levels was devised to collect data. Questionnaire consists of knowledge based questions. Knowledge on blood donation was assessed through 18 questions. Each correct answer was given one score, and the range of the score varied between 0 (with no correct answer) to 18 (for all correct answers). Based on total score, awareness level on blood donation was categorized into poor (≤ 9 points), average (9-15 points), and good (≥ 15 points). The questions were placed on three levels, Level 1 consisting of general knowledge about blood donation, Level 2 comprising of questions related to pre-requisites of blood donation and Level 3 having questions related to diseases transmitted, limitations of diabetics and patients of hypertension and other details. The participation in study was done on voluntary basis. All participants were given a briefing about objective of the study and maintenance of confidentiality in collection of personal data. Data was entered in MS Excel and analysed. At the end of the study period all the participants were given a sheet of correct answers for the questions asked, to improve their awareness.

RESULTS

A total of 99 out of 100 students responded voluntarily in this study, out of which 59.5% (59 out of 99) were females and 40.4% (40 out of 99) were males. The age range of the participants was between 17 to 20 years, average age being 18.56 years. The overall result of the students was found to be 51.83%. The rate of donation was found to be 7.07% (7 out of 99) with the most common reason (47.82%, 44 out of 92) for non-donation to be that the students were never approached for donation followed by being underweight 21.7% (20 out of 92). 90.9% students were aware of the correct age for starting blood donation.

The following are the observations made in each level of the questionnaire.

Level 1 consists of general knowledge regarding blood donation.

Table 1 show that general information regarding blood donation was good among both MBBS and BDS students with average result being 74.58% in MBBS and 73.42% in BDS students. More than 50% correct responses were recorded by 96.96% students.

Table 2 shows that knowledge about pre-requisites of blood donation was less than 50% score in both MBBS and BDS students with 44.42% in MBBS and 30% in BDS students. Only 16.1% students scored more than 50% marks. Level 3 tests knowledge about details of blood donation.
DISCUSSION

The present study assessed the knowledge, attitudes and practice regarding blood donations and transfusion services among the health care professional medical students in Nagpur, Maharashtra, India. The main purpose of this study was to assess awareness levels of students and identify strategies that can be implemented to achieve the status of 100% voluntary blood donation among MBBS and BDS students. The knowledge was measured using the following questions. The general requirements to become an eligible donor, how many times in a year a healthy male and female can donate blood, volume of donated blood, number of days donated blood can be stored; components of donated blood; the maximum number of lives saved from the donated blood, etc. The overall result was found to be 51.83% which was greater than 37.3%; the result of a study conducted in Gujrat, India by Desai et al. [8].

92.9% students had never donated blood before which was found similar to the data found, 89.25% in a study conducted in Chennai, India by Manikandan et al. [9]. The most common reason (47.82%, 44 out of 92) for non-donation to be that the students were never approached for donation followed by being underweight 21.7% (20 out of 92). The results of Level 1 (general information about blood donation) were found to be excellent with 96.9% (96 out of 99) students having more than 50% correct responses.

The questions included in Level 1 were regarding knowledge about universal donors, universal recipients, whether the donor is paid for donation, collection of blood is done from artery or vein, consent of donor before donation and occurrence of World Blood Donor’s day. Similar studies conducted by Singh, Parveen et al and by Sarma, Roy et al [4, 10] showed that 77.25% and 91% students respectively were aware about the requirement of consent of donor, as compared to 84.8% found in this study. Occurrence of World Blood donor’s day was responded correctly by 37.3% students as compared to 57% students responding correctly in a study conducted by Sarma, Roy et al. [10]. 55.5% students agreed to the fact that regular blood donation has medical benefits, similar to the observations noted by Kumari, Raina et al. [11].

Level 2 of the questionnaire had questions related to pre-requisites of blood donation, including questions like minimum age requirement for donation, age limit, minimum haemoglobin levels required, frequency of donation of blood, quantity of blood that can be donated at a time, etc. The overall result of Level 2 was 16.1% students having more than 50% correct responses. In a study conducted by Kumari et al [11], 43.10% students were aware of the amount of blood taken by the donor in each donation, similar to the 37.3% found in this study. However, only 8% answered frequency of donation correctly.

Level 3 questions tested the detailed information regarding blood donation like limitations of diabetics and patients of hypertension; diseases transmitted by blood transfusion, no of patients benefitted from a single unit of donated blood, etc. The overall result of Level 3 was 23.23% students having more than 50% correct responses. A study conducted by Nadeem et al [12] showed that 64% population was aware of the number of people benefiting from a single unit of blood, as compared to 39.3% found in this study.

However, only 12.12% population was able to answer the diseases transmitted by blood transfusion correctly, as compared to 35.2% observed by Giri et al. [13].

CONCLUSION

Significant differences exist in the knowledge and practice of blood donation among students which needs to be addressed by creating awareness [14].

Table 3 shows the responses of level 3, the average result of which was 38.38% in MBBS and 44.33% in BDS students. More than 50% correct responses were recorded by just 23.23% students. This shows that more students have knowledge about diseases transmitted, limitations of diabetics and patients of hypertension than pre-requisites of blood donation.

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**CONCLUSION**

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Especially at the initial stage of higher education by conducting periodic awareness programs. Basic knowledge about universal donors, universal recipients and minimum age required for blood donation was known to the students but specific areas of knowledge like diseases transmitted by blood donation, the permissible frequency of blood donation should be highlighted in awareness programs. In order to improve the knowledge and awareness, education regarding blood donation should be incorporated in the initial stage of medical education and periodic awareness programs should be there for recruitment and retention of donors. Benefits of blood donation should be highlighted during regular visits to blood banks and blood donation camps. Incentives as a part of motivation can be given to donors at student level.

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