

Comparison of Volunteer Non-Remunerated Donors and Replacement Donors

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ABSTRACT

Background: There are mainly two types of blood donor in Nepal i.e., Voluntary Non-Remunerated Donor and Replacement Donor. The main aim of this study is to compare between Voluntary Non-Remunerated Donor and Replacement Donor.

Methods: This is retrospective and cross-sectional study conducted in the blood transfusion Service, Tribhuvan University Teaching Hospital. The study was conducted on both Voluntary Non-Remunerated Donor and Replacement Donor who came to blood transfusion Service and voluntary blood donation program. All the blood donors donating in blood transfusion Service were considered as the study population.

Results: Out of total 25951 donors, there were 15565(60.02%) Voluntary Non-Remunerated Donor and 10386(39.97%) Replacement Donor. On the whole, there were 21938(84.59%) male donors and 3995(15.40%) female donors. The male Replacement Donor was 14273(93.12%) followed by a male Voluntary Non-Remunerated Donor 7582(73.71%). The female Voluntary Non-Remunerated Donor was 2703(67.65 %) followed by female Replacement Donor 1292(32.34 %).

Conclusions: This study concludes that the Voluntary Non-Remunerated Donor is quite low, in comparison to Replacement Donor. 100 % Voluntary Non-Remunerated Donor could not be achieved due to lack of awareness about health and voluntary type of blood donation.

Keywords: Blood donation; replacement donors; voluntary non-remunerated donors

INTRODUCTION

There are enormous numbers of diseases and medical conditions such as leukemia, severe anemia, thalassemia, major surgeries, bleeding due to trauma, in which a huge volume of blood is required. There should be adequate supply of blood for patients requiring transfusion. All the blood product must be safe, clinically effective and of appropriate and consistent quality.¹ Blood and its product usually come from three sources, Voluntary Non-remunerated Donors (VNRD), Voluntary Remunerated Donors (VRD) and Replacement Donors (RD).² Among these donors VNRD is considered as the safest source for transfusion. WHO targets VNRD donation to meet 100%.³

We conducted this study, to find the difference in VNRD and RD in tertiary care hospital, to compare voluntary-replacement donors' year wise and gender wise, and also to study the pattern of both, voluntary and replacement

donors over the period of 10 years' time. This kind of study would help in generating data for health planners with versatile utilities in near future.

METHODS

This study is a retrospective record-based cross-sectional study. Data were taken from donors registered over the period of 10 years (July 2009 to June 2019). The ethical clearance for the study was provided by the Institutional Review Committee (IRC). This study was carried out in the blood transfusion service of Tribhuvan University Teaching Hospital (TUTH), a tertiary health facility in Kathmandu, Nepal. The study was undertaken on both voluntary non-remunerated donors and replacement donors.

A questionnaire was filled up and written consent was taken from donors prior to blood donation. Eligible

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donors were selected carefully following selection criteria and physical examination. 3 ml of blood in a plain/gel tube and 2 ml of blood in an EDTA tube were obtained from the blood bag for testing Transfusion-Transmitted infections (TTIs), blood grouping and cross-matching. ABO and Rh blood groups of all donors were determined by slide agglutination and for TTIs, ELISA test was carried out.

All data of blood donors were recovered from donor registers, collected, and analyzed. The voluntary non-remunerated donor was obtained from mobile blood donation camps organized by different social and political organizations, and institutions. Replacement donors donated blood for their family members and friends.

The result was analyzed by using SPSS version 11.0. Statistical graphs and tables were made from Microsoft excel which is used for the illustrations.

RESULTS

The total number of donors in 10 years was 25,933. The trend of blood donation over 10 years period is increasing. The total non-remunerated voluntary donor is 10386 (39.97%) and the total replacement donor is 15565 (60.02%).

Majority of donors in all years were male comprising 21938 (84.59%) whereas female donors comprised of 3995 (15.40%). Maximum number of donors were male replacement type 14273 (93.12%) followed by male voluntary 7582 (73.71%). (Table1)

Table 1. Distribution of blood donors by donor type and gender in 10 years.

Year	Voluntary Collection		Replacement Collection		Total
	Male	Female	Male	Female	
2009/10	314 (64.08%)	176 (35.91%)	271 (83.90%)	52 (16.09%)	813
2010/11	562 (67.79%)	267 (32.20%)	480 (90.25%)	73 (9.7%)	1382
2011/12	509 (75.18%)	168 (24.81%)	807 (87.71%)	113 (12.28%)	1597
2012/13	604 (69.90%)	260 (30.09%)	968 (89.21%)	117 (10.78%)	1949
2013/14	668 (73.00%)	247 (26.99%)	1039 (86.15%)	167 (13.84%)	2121
2014/15	1711 (77.77%)	489 (22.22%)	1338 (89.37%)	159 (10.62%)	3697

2015/16	709 (78.60%)	193 (21.39%)	2348 (92.29%)	196 (7.7%)	3446
2016/17	960 (77.04%)	286 (22.95%)	2707 (94.15%)	168 (5.84%)	4121
2017/18	697 (70.90%)	250 (29.09%)	2305 (94.77%)	127 (5.22%)	3379
2018/19	931 (71.72%)	367 (28.27%)	2010 (94.36%)	120 (5.63%)	3428
Total	7665	2703	14273	1292	25,933

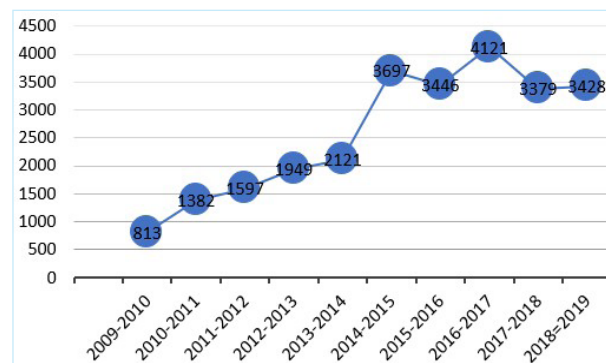


Figure 1. Year-wise distribution of blood donors.

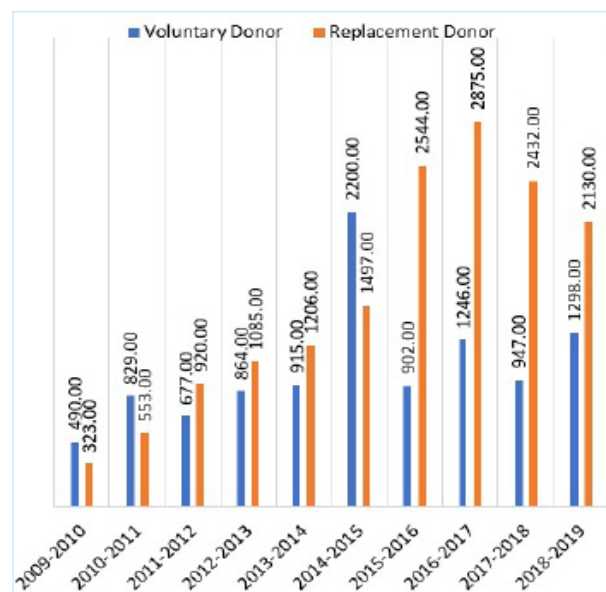


Figure 2. Year wise comparison of voluntary non remunerated donor and replacement donors.

During these 10 years, we observed that there is an increasing trend in total blood donation. When comparing VNRD with RD we can see there is an increasing trend of replacement donor. We also observed that voluntary non remunerated donor is greater than replacement donor in years 2009/10, 2010/11 and 2014/15. And in all the rest years replacement donors are more than voluntary donors.

DISCUSSION

To our knowledge, this kind of study was not done previously in our national level. The findings of this study showed that the frequency of VNRD is comparatively lesser than RD in tertiary care hospital over 10 years period. In the present study, RDs constituted 60.02 per cent majority of all donors, and a shift towards the replacement donor was noted during the study period as has been reported earlier.^{4,7} However, the preponderance of VNRDs was noted in many other studies internationally.⁸⁻¹¹ Although WHO has put its goal that there should be ideally 100 % VNRDs,¹² still a significantly large number of bloods was collected from replacement donors. However, due to the lack of awareness and understanding amongst the general population about the health and importance of voluntary blood donation, the involvement of people in blood donation programs is not overwhelming. Ministry of Health and Population has policies, plans and programs to raise the level of health awareness, educate people and the community about voluntary blood donation. But the crucial and difficult part is the implementation and monitoring of tasks.

In our study, gender-wise greater proportion of the blood donors were males (84.59%) than the female (15.40%) counterparts. These findings are almost comparable with the Indian study conducted in Ahmedabad where 95.48% were males and 4.52% were females and in Hyderabad where 97.73% were males and 2.27% were females.¹³ Furthermore, our study is also comparable with Gulf countries like Bahrain, Kuwait, Yemen, Qatar etc. while in western countries like Australia and Finland male donor are higher than females donor which is almost same proportion as ours.¹⁴

Previous research has reported that female experience up to 70% more deferrals from donation than male, greater deferrals rate in female is due to low hemoglobin, less healthcare visit, pregnancy, infectious disease like cold and sore throat, Tattoo, vasovagal reaction, and elevated temperature.¹⁵⁻¹⁷ Fear is the one of the major reason for not donating blood reported by previous studies.^{18,19} Studies show that the female population are underrepresented among regular donors.²⁰⁻²⁴ Majority of the studies within India have also described a large number of male donors compared to female donors.^{25,26} In a developing country like Nepal, because of social taboo, cultural habits, lack of motivation and fear of blood donation female donors were very less. Other various factors such as illiteracy, social and religious beliefs and certain physical issues are the reasons to be reluctant to

donate blood. Females should be educated to improve their health by taking a nutritious and balanced diet and taking iron and folic acid to prevent anemia. The female-male population ratio of Nepal is approximately equal so females can contribute to blood donation more effectively and save lives. Being a developing country; Nepal is facing challenges but working hard to provide a quality blood transfusion service to the people.

In our study, number of female VNRD is 2703 (67.65 %) is higher than female RD 1292 (32.34 %). Some women social organizers organize blood donations programs resulting more volunteer female participation in blood donation.

During this 10 year, we observed that there is increasing trend in total blood donation. When comparing VNRD with RD, we can see that there was increasing trend of replacement donor. We also observed that voluntary non remunerated donor is greater than replacement donor in year 2009/10, 2010/11 and 2014/15. And in all the rest year replacement donors are more than voluntary donors. In 2014/15 two distinctive features are clearly observed. There is significant increase in blood collection from previous year. Another prominent difference is the volunteer blood donors number is greater than the replacement blood donors. Number of VNRD 2200 (59.50 %) is greater than RD 1497 (40.49 %). It might be due to a deadliest earthquake occurred in Nepal killing approximately 8000 people injuring huge population and damaging every aspect of life. Hospitals were filled with injured people. A large volume of blood was required for the injured people. People voluntarily came to blood transfusion service to donate blood and contribute for saving lives. This was the reason of increase in voluntary blood donors in that particular year.

CONCLUSIONS

To achieve safe and sufficient blood and blood products for patients, voluntary blood donor should be increased to meet the target of 100% VNRDs. The present study shows that percentage of voluntary non-remunerated blood donors is significantly low compared to replacement donors. Family replacement donors should be motivated and encouraged to convert to voluntary non-remunerated blood donors. More number of blood voluntary blood donation camps should be conducted to increase VNRD and female donors should be motivated.

CONFLICT OF INTEREST

The authors declare no conflict of interest

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