Blood donors' knowledge and attitude towards blood donation at North Gondar district blood bank, Northwest Ethiopia: a cross-sectional study

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Research note

Keywords: Blood donation, Blood donors, Knowledge, Attitude, Gondar, Northwest Ethiopia

Posted Date: July 10th, 2019

DOI: https://doi.org/10.21203/rs.2.11218/v1

Version of Record: A version of this preprint was published on November 6th, 2019. See the published version at https://doi.org/10.1186/s13104-019-4776-0.

Abstract

Objective: Blood transfusion saves millions of lives. In Ethiopia, the need and the actual number of donations are not balanced. The actual reason is not clearly assessed however level of knowledge and attitude may be the main contributing factors. Thus, the current study aimed to assess blood donors' knowledge and attitude towards blood donation at North Gondar district blood bank. Results: Of 401 blood donors, 142 (35.4%) and 379 (94.5%) of them had adequate knowledge and positive attitude, respectively. About 343 (85.5%) of study participants had no previous experience of blood donation. Perceptions of fear of pain, medically unfitness to donate and lack of information on when, where and how to donate blood were mentioned as reason for not donating blood. Educational status and residence were significantly associated with knowledge while participants with secondary and higher education were more likely to have good attitude towards blood donation. Thus, blood banks and others should design strategies for health education regarding blood transfusion. Keywords: Blood donation, Blood donors, Knowledge, Attitude, Gondar, Northwest Ethiopia

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Introduction

Blood donation continues as a major source of blood and blood components. Even though extensive promising research have come up, a true substitute for blood and blood components is not available [1]. Donated blood is indispensable component in the medical management of many diseases. It can be lifesaving for individuals who have lost large volumes of blood from serious medical or hematologic conditions [2].

The major source for blood to be transfused relies on blood donors mainly on voluntary non-remunerated blood donors [3]. Even though over a million of blood units are collected every year, many more millions

still need to be collected to meet the global demand, ensure the sufficient and timely provision of blood [4]. However, the demand and supply are not being balanced; the demand is escalating. Despite recommendations that all blood donors should be voluntary and non-remunerated, replacement and paid donors are common throughout Sub-Saharan Africa [5].

Statistics showed that globally 112.5 million blood collected annually with half of these collected in high-income countries. The blood donation rate varies in different content of the world with 33.1, 11.7 and 4.6 donations per 1000 people in high-income, middle-income and low-income countries, respectively. Now day, majority of developed countries collect over 90% of their blood supply from voluntary blood donors. On the other hand, there are countries who collect more than 50% of their blood supply from family/replacement or paid donors [6].

Evidences showed that Ethiopia is a country with high maternal mortality 676/100,000 and high motor accident and with a large nonimmune population for malaria [7]. There has been gross inadequacy and in-equitability in access to blood. The national requirement for blood in Ethiopia is between 80,000-120,000 units per year, but only 43% is collected [8]. The percentage of blood collected from voluntary blood donors (VBD) and the average annual blood collection rate is extremely low. Out of the 44 WHO African countries, Ethiopia is classified among countries who have the least number of VBD (Group C, countries with <50% VBD); only 22% of blood is being donated from VBD [9].

The availability and safety of blood still remains inadequate to meet the increased demand of blood and blood components particularly in Sub-Saharan Africa like Ethiopia [5, 10]. As a result, these countries try to compensate their blood demand from family replacement or paid donors. But in this type of donors, higher rates of transfusion-transmitted infections have been documented [6]. It is explained that healthy voluntary donors donate their blood by their own free will without any pressure, whereas family replacement donors feel it is necessary to donate for fear of their relatives' death without considering their health status [11].

The actual reason why large proportion of the potentially eligible population do not actively donate blood is not clearly assessed in Sub-Saharan Africa. The attitude, beliefs, and level of knowledge of blood donors regarding blood donation may be a factor for the disposition of potential donors to blood donation. Thus, the current study aimed to assess of the level of knowledge and attitude of blood donors towards blood donation as a crucial step to settle an effective strategy for sustaining a safe and adequate supply of blood.

Methods

Study Setting and Population

A cross-sectional study was conducted on 401 blood donors at North Gondar Blood Bank district, Northwest Ethiopia. The blood bank is found at University of Gondar Hospital which is located in Gondar,

Amhara regional state, at 738 Km far from Addis Ababa, the capital city of Ethiopia. The blood bank gives serves for more than 5 million populations in the district.

Data Collection

The study participants were approached for face to face interview during blood donation after obtaining written informed consent. A structured pretested questioner was used for assessment of socio-demographic characteristics of study participants, knowledge and attitude towards blood donation, previous history of blood donation and reasons for not donating. To keep the quality of data, training was given to data collectors and consistency was checked.

Blood donors Knowledge assessment towards blood donation

Knowledge about blood donation was assessed using 9 general questions. Each response was scored as ‘1' for a correct response and ‘0' for an incorrect response and summed to give the total knowledge score. The scoring ranges from 9 (largest) to 0 (smallest) for knowledge. Participants who responded more than 50% of knowledge assessing questions were considered as having adequate knowledge while those who scored < 50% were considered as having inadequate knowledge towards blood donation.

Blood donors Attitude assessment towards blood donation

Attitude about blood donation was also assessed by using 8 attitudes related questions and the responses of each question were scored as ‘1’ for favorable attitude and ‘0’ for unfavorable attitude. Attitude scores for individuals were calculated and summed up to give the total attitude score. The attitude scoring ranges from 8 (largest) to 0 (smallest). Participants who score more than 50% of attitude assessing questions were considered as having a favorable attitude whereas those who scored ≤ 50% were considered as having an unfavorable attitude.

Data analysis and interpretation

Data were entered using Epi info 3.5.1 then cleaned, and analyzed using SPSS 20. Descriptive results were summarized and presented with tables. The association of the independent variable with the categorical outcome variable was measured by calculating odds ratio with 95% confidence interval using bivariate and multivariate logistic regression. A P value < 0.05 was taken as statistically significant.

Results

Sociodemographic characteristics of study participants

From a total of 401 study participants about two third 259 (64.6%) of them were males. The mean age of study participants was 26.2 ± 8.2 years ranging from 18 – 57 years old. The majority 212 (52.9%) of the study participants were in the age group of 18- 23 years. More than half 233 (58.6%) of the donors had

been attending higher education. Majority 188 (40.9%) and 281 (70.1%) of the study participants were students and single in marital status, respectively (Table 1).

Knowledge of study participants

From the total study participants, 142 (35.4%) had adequate knowledge towards blood donation. The mean knowledge score of the participants was 4.03 ± 1.44. All of study participants argued that the importance of blood donation is to save life. From the total study participants, 380 (94.8%) of them had information regarding screening of donated blood for infectious disease before transfusion. But only 20 (5.0%) of the study participants knew HIV, hepatitis virus and syphilis are considered as transfusion transmittable infections (additional file 1).

Attitude of the study participants

Nearly all (379 (94.5%)) of the study participants had favorable attitude towards blood donation. The mean attitude score of the participants was 7.48 ± 1.23. Majority 365 (91.0%) of the participants had a plan to donate blood voluntarily in the future and about 360 (89.8%) of the study participants had plan to become a regular blood donor. Majority 373 (93%) of the study participants had a perception of donation is not harmful to donors (additional file 1).

Previous practice of blood donation

Less than one quarter 58 (14.5%) of study participants had previous history of donation and more than half 229 (57.1%) of them study participants were replacement type of donor. Several factors have been mentioned as a reason for not donating blood. About 139 (40.5%) of the blood donors mentioned lack of information (when, where and how to donate) as the main reason for not donating blood previously. Fear of pain, perceptions of unfit to donate and consideration of donation as harmful practice had also been mentioned as a reason for not donating blood previously.

Factor associated with knowledge of blood donors

Bivariate and multivariate logistic regression analysis were done between knowledge and socio-demographic variables to determine the level of association. In bivariate logistic regression, all socio-demographic variables i.e. age, sex, educational status, occupation, residence and marital status were significantly associated with knowledge of study participants. While in multivariate logistic regression only educational status and residence were significantly associated. Study participants who attained higher education (AOR= 5.5, 95% CI: 1.3, 23.5) and those who lived in urban part of the country (AOR= 2.0, 95% CI: 1.0, 4.0) were more likely to have adequate knowledge towards blood donation (Table 2).

Factor associated with attitude of blood donors

Bivariate logistic regression showed that sex, educational status, occupation, residence and marital status were significantly associated with attitude of participants. While in multivariate logistic regression

only educational status remains statistically significant. Those study participants who attained secondary education (AOR =8.1, 95%CI: 1.7, 38.1) and those who attained higher education (AOR =73.9, 95% CI: 9.3, 584.8) were more likely to have favorable attitude towards blood donation compared to those who were unable to read and write (Table 3).

Discussion

In this study about 35.4% of blood donors had adequate knowledge regarding blood donation. The result was slightly higher than a study conducted in Jordan which reported that 28.6% of them had adequate knowledge towards blood donation [4]. The possible reason for this discrepancy might type of blood donors. In our study, the number of replacement type of blood donors was relatively low (229 Vs 348). It is strongly advocated that volunteer blood donors are more likely to have good knowledge towards blood donation compared to replacement type and it is considered as major contributing factor for blood donation. In this study from 172 voluntary blood donors, majority 105 (61%) of them had adequate knowledge towards blood donation. In contrast from a total 229 replacement type of blood donors, only 37 (16.2%) of them had adequate knowledge towards blood donation.

In the current study all 401 (100%) of the participants argued that the importance of blood donation is to save a life. But previous report from Gondar town showed a slight deviation with about 88.3% of them argued that the important of blood donation is to save life [12]. On the other hand it was higher than a study conducted in Democratic Republic of Congo showing that only 183 (44.1%) of the study participants strongly advocates the idea [13]. The difference might be due to variation in study subjects since the current study was conducted among blood donors who came to the blood bank for donation while study from previous study in Gondar anf Congo was among general population.

Multivariate logistic regression in the current study showed that educational status and residence were significantly associated with knowledge of the study participants. Participants who attained and had been attending higher education and study participants from urban part of the country were more likely to have adequate knowledge towards blood donation. Thus, level of education had a direct relationship with knowledge of study participants towards blood donation.

In this study nearly all (94.5%) of the respondents had a good attitude towards blood donation. The finding was slightly higher as compared to previous report from Gondar town which shows 82% of the study participants had good attitude [12]. The difference might be due to variation in study method and subjects since the current study was institutional based study conducted among the blood donors while study from Gondar was a community-based study.

In this study, multivariate logistic regression showed that educational status was the only variable significantly associated with the attitude of the participants. Those participants who attained and had been attending secondary and preparatory school and those who attained and had been attending higher education were more likely to have good attitude towards blood donation. Thus, being with educational

status of secondary, preparatory and higher educational status increase level of attitude towards blood donation.

Conclusion

Blood donors' attitude towards blood donation was good but their level of knowledge was inadequate. Educational background and residence were statistically associated with knowledge and attitude towards blood donation. To increase the level of knowledge, health education to the community is recommended.

Limitations

The findings in this study are from one district and only interview-based data were collected. There was no focus group discussion for further analysis of the knowledge and attitude of the participants.

Abbreviations

HBV: Hepatitis B virus; HCV: Hepatitis C virus, VBD: Voluntary blood donors; WHO: World Health organization; VNRBD: Voluntary non-remunerated blood donors

Declarations

Ethical approval and consent to participate

The research was conducted after securing ethical approval letter from Research and Ethical Review Committee of School of Biomedical and Laboratory Science, University of Gondar. Beside to this permission was asked from the head office of North Gondar District blood bank before the actual data collection was started. In addition, written informed consent have been obtained from each study participants. More over to ensure confidentiality of participants' information, anonymous typing was applied whereby the name of the participant and any identifier of participants were not written on the questionnaire, and during the interview to keep the privacy, they were interviewed alone.

Consent for publication

Not applicable.

Availability of data and materials

All data on which the conclusions of this manuscript are drawn are included in the main manuscript and tables herein.

Competing interest

The authors have declared that no competing interests exist.

Funding

The author(s) received no specific funding for this work.

Authors' Contributions

Bamlaku Enawgaw and Elias Shiferaw participated in designing the study, supervised the data collection, analyzed, interpret and write up the manuscript. Aregawi Yalew involve in proposal development, data collection and entry of data for analysis. Bamlaku Enawgaw and Elias Shiferaw are the joint first authors of the paper. All authors read and approved the final drafted manuscript.

Acknowledgements

The authors would like to express a great gratitude to staffs of North Gondar District Blood Bank for their contribution during the study period. The authors are also grateful to thank all the study participants and the University of Gondar for giving this opportunity to conduct this study.

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Additional Files

Additional files

Additional file 1: Knowledge and attitude of blood donors towards blood donation at North Gondar District Blood Bank, Northwest Ethiopia

Additional file 2: Blood donation practice of blood donors North Gondar District Blood Bank, Northwest Ethiopia

Tables

Due to technical limitations, tables 1 through 3 are only available as downloads in the supplemental files section.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- supplement1.pdf
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