Assessment of Knowledge of Medical Students Regarding Female as Under Represented Group of Blood Donors

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ABSTRACT

Background: Globally male gender predominance is found in blood donation. Female gender participation in blood donation is subordinate. Particularly in Pakistan great proportion of blood donors were male.

Objectives: The aim of present study was to determine knowledge of medical students regarding female gender participation in blood donation. Participation of medical students in promoting female blood donation was also investigated.

Material and Methods: A cross sectional study was conducted in Jinnah Sindh Medical University during the period of May to August 2018. A total of 104 medical students were interviewed using structured questionnaire. Data analysis was performed in SPSS version 22.

Results: In present study 55 (96 .4%) male students and 2 (3.5 %) female students were blood donors (p = 0.00001). Majority of medical students 89 (85.5%) reported that most of the blood donors in Pakistan are males. Several factors restrict females to donate. Noticeable factors reported by participants includes post donation complications 88 (84.6%), pregnancy and lactation 76 (73.1%), anemia 46 (44.2%), lack of knowledge 51 (49.0%), fear of obtaining infections 16 (15.3%) and cultural and religious beliefs 12 (11.5%).

Conclusion: Knowledge of study group concerning female gender participation in blood donation is good. To improve participation of females in blood donation removal of donation barriers and misconceptions is essential. Medical students are good source of promoting female participation in blood donation. Medical students are efficient and accessible source for donor awareness programs, motivational campaigns and camping that are essential for recruitment of female donors.

Keywords: *Female; blood donors; underrepresented blood donors; medical students; knowledge.*

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INTRODUCTION

Blood donation is a course of collecting blood to attain transfusion requirements. Per annum eighty million pints of blood are donated universally.[1] As per commended by World Health Organization to accomplish transfusion needs 10% to 20% of blood for every 1000 population is needed to be acquired.[2] Contrary to this, in Pakistan 1.5 million units of blood is donated yearly. Only 25% of blood is from voluntary donors. While a significant proportion of blood about 65% is from substitutive donors and 10% of blood is from professional donors.[3] A study was held in Pakistan, concluded that for boosting voluntary blood donation educational campaign is significant.[4] Frequently recipients of blood from replacement and refunded donors suffer from blood transfusion acquired diseases.[5]

Globally male gender predominance is found in blood donation. While in some countries including Denmark, Finland and Netherland proportion of male and female donors are almost equal. Male dominancy in blood donation is present in European countries, Greece and Italy, where female donors are only about 33%.[6] A study conducted in Sokoto, north western Nigeria notified the percentage of male and female donors was 99.4% and 0.64% respectively.[8] In the study conducted in Pakistan, majority of blood donors were male, reported that 97% were males, 3% were females.[9] Another study conducted in Pakistan, where a total number of 1428 donors were present from that the most of donors approximately 97.05% were males.[10]

Several factors restrict women to donate blood and makes females as under representative group of blood donors. Noteworthy determinants were cultural and religious believes, lack of self-determination and reliance on men, imprecise believes like women are feeble also makes women scary and contributes to insignificant number of female donors. Loss of blood in menstrual cycle, pregnancy and lactation also hampers women to donate blood.[7,11,12]

The current study was aimed to determine knowledge of medical students regarding female gender participation in blood donation. Participation of medical students in promoting female blood donation was also investigated. Medical students were considered particularly in this study because they have enough knowledge and positive attitude of blood donation

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procedure.[13] Therefore, medical students are potential source to provide awareness, guidance and confidence to females that is essential for improving female participation in blood donation.

MATERIAL AND METHODS

This was a cross sectional study conducted in Sindh Medical College (SMC), Jinnah Sindh Medical University (JSMU) of Karachi during the period of May to August 2018. The study protocol was reviewed and ethically certified by Institutional Review Committee (IRB) of SMC, JSMU. All Consented MBBS students of SMC, JSMU were included in this study. We ruled out students enlisted in other faculties of SMC, JSMU.

Convenient sampling technique was done. Selection of study participants was voluntary. Sample size was calculated from WHO sample size calculator. Using anticipated population proportion of 0.64% [(7)], confidence level 95% with bound on the error 5%. Sample size obtained was 93. A total of 104 MBBS students of SMC, JSMU were included in this study. Medical students were divided into two groups, preclinical students of first and second year (n=52), clinical students of third, fourth and final year (n=52).

Self-administered questionnaire was composed by the authors after going through miscellaneous variables that were included in related studies. The fundamental areas of questionnaire included socio-demographic characteristics, knowledge of medical students pertaining to female gender participation in blood donation, restricting factors involve in insignificant participation of female in blood donation and participation of medical students in promoting female blood donation.

After ethical approval from Institutional Review Board of SMC, JSMU data was collected by project members. A total of 104 students were interviewed using structured questionnaire. The purpose of study was explained and written informed consent was obtained from all participants. Questionnaire was filled by each participant within university premises in their free time.

SPSS version 22 was used for data entry and analysis. Descriptive statistics was used to determine numerical variables. Frequency and percentages were used to describe categorical variables. Chi-square test was applied to knew statistically significant difference in blood donation rate between male and female students. P value of less than 0.05 is considered as significant

RESULTS

A total of 104 undergraduate medical students were included in current study. Gender wise distribution of participants in female and male was equal i.e. 50% in each group. Distribution of participants in preclinical years (first and second year) and clinical years (third, fourth and final year) was equal. Medical students included were 28 in first year, 24 in second year, 21 in third year, 18 in fourth year and 13 in final year.

Out of 104 medical students 57 (54.8%) medical students were blood donors further more among them 55 (96.4%) male students and 2 (3.5 %) female students were blood donors. Male verses female blood donors students were 96.4% and 3.5% respectively ($p = 0.00001$).

Table 1 displayed responses of students regarding female gender participation in blood donation. Feedback of students indicates that most of donors in blood banks of Pakistan are males. Majority of respondents were well aware of unequal participation of male and female in blood donation.

All students were queried regarding the factors that restrict women to donate blood and makes women as underrepresented group of blood donors. Most common factors reported by medical students were post donation complications, pregnancy, lactation, menstruation and anemia. Responses were summarized in table 1.

Beneficial strategic ways in order to promote female participation in blood donation were interviewed. Commonly reported ways were assistance of religious scholars, awareness programs and advertisement on social media. Detailed responses are depicted in table 2.

All students were asked related to providing awareness, guidance and confidence to females for increasing their participation in blood donation. Approximately 53(50.9%) participants showed positive response. (Table 2).

Table 1. Responses of participants regarding female gender participation in blood donation. (n=104)

Variables	**Responses, n (%)**
According to clinical exposure of medical students:	
In blood banks of Pakistan most of donors are: a) females b) male	 15(14.4%) 89(85.5%)
Male and female participate equally in blood donation: a) yes b) no	 8(7.6%) 96(92.3%)
Voluntary blood donations are commonly done by females of Pakistan: a) yes b) no	 37(35.5%) 67(64.4%)
Restricting factors:	
What are the factors that restrict women to donate blood?	
Post donation complications	88(84.6%)
Pregnancy and lactation	76(73.1%)
Anemia	46(44.2%)
Menstruation	29(27.8%)
Lack of knowledge	51(49.0%)
Women dependence on men	6(5.7%)
Fear of infections	16(15.3%)
Cultural and religious values	12(11.5%)
Age and weight	13(12.5%)

Table 2. Demonstrates responses of students regarding promotion of female participation in blood donation. (n=104)

Variables	**Responses, n (%)**
Strategic ways to improve female participation in blood donation:	
Awareness programs	66 (63.4%)
Assistance of religious scholars	58(55.7%)
Advertisement on media	23 (22.1%)
Motivational campaigns	15 (14.4%)
Camping	15(14.4%)
Participation of medical students in promoting female blood donation:	
Do you provide awareness, guidance and confidence to female donors for promoting female participation in blood donation?	53(50.9%)

DISCUSSION

Globally male gender predominance is commonly found in blood donation. Female contribution in blood donation is insignificant. In present study 55 (96 .4%) male students and 2 (3.5 %) female students were blood donors. Study conducted in Karachi, Pakistan notified that only 1 (0.8%) female medical student and 37 (29.6%) male medical students were blood donors.[14] Similarly another study stated that female medical students donates 65.7% least likely than male medical students. [15]

In current study, majority of medical students 89 (85.5%) reported that most of the blood donors in Pakistan are males. Study conducted in Pakistan by Waheed *et al.* mentioned that females constitute nearly 50% of Pakistani population yet female did not participate actively in blood donation.[16]

Several factors impede females to donate blood and make female as underrepresented group of blood donors. Approximately 88 (84%) participants mentioned that post donation complications hamper women to donate blood. Madrona *et al.* notified that women were more prone to post donation complications than men.[17] Approximately 46 (44.2%) participants reported anemia as noticeable hampering factor. Literature search revealed similar finding that females are more prone to iron deficiency anemia. Requirement of iron in females are heightened due to menstruation and pregnancy. Iron supplements are used as preventive measure in women. [18]

In current study, 51 (49.0%) students agreed that lack of knowledge interfered with female participation. This statistic was in contrast with a previous study, where 25.37% population was not donating due to lack of knowledge.[19] A previous report indicates that education, knowledge and awareness of issues associated with blood donation are important with regards to blood donation decisions.[20] Other noteworthy restricting factors reported by participants includes fear of obtaining infections 16 (15.3%), cultural and religious beliefs 12 (11.5%) .This finding has been corroborated by past study conducted in Nigeria.[21]

Beneficial ways to improve female participation in blood donation were suggested by participants. In this study, commonly reported measure was awareness programs 66 (63.4%). An Indian study concluded that awareness programs were necessary to increase knowledge, improve attitude and donation practices.[22]. Study conducted in Pakistan published misconceptions of females regarding blood donation.[23] Therefore donor awareness programs will be beneficial in recruitment of female donors.

Moreover, advertisement on social media 23 (22.1%) and assistance of religious scholars 58 (55.7%) also impact satisfactorily on female participation. Study conducted in Jordan revealed that media 198 (39.6%) and religion 173 (39.3%) were encouraging blood donors. [24] Participants also recommended blood donation campaigns 15 (14.4%) for increment of female donors. Nigerian study by Olaiya *et al.* also emphasized on motivational campaigns.[25]

Voluntary blood donation is subordinate in Pakistan. On mass disasters blood banks were failed to provide sufficient blood.[4,26] Female gender participation in blood donation will increase donor pool and significantly fulfill needs of blood banks. Recruitment of female donors requires active participation of medical students.

CONCLUSION

Knowledge of study group concerning female gender participation in blood donation is good. To improve participation of females in blood donation removal of donation barriers and misconceptions is essential. Medical students are good source of promoting female participation in blood donation. Medical students are efficient and accessible source for donor awareness programs, motivational campaigns and camping that are essential for recruitment of female donors.

Limitation

Due to restricted availability of resources, study population was from one of the public university therefore is a unicentral analysis and cannot be generalized to other population of country.

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