

Individual and Socio-demographic factors influencing voluntary blood donation among medical laboratory students at Mildmay Institute of Health Sciences. A cross-sectional study

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Abstract

Background: Voluntary blood donation among medical laboratory students is influenced by individual and socio-demographic factors such as knowledge, attitudes, and year of study. This study aims to determine the Individual and Socio-demographic factors influencing voluntary blood donation among medical laboratory students at Mildmay Institute of Health Sciences.

Methodology: A cross-sectional quantitative study design was used among 100 medical laboratory students selected using stratified sampling. Data were collected using self-administered structured questionnaires and analysed using descriptive statistics, including frequencies and percentages.

Results: The findings showed that 56 (56%) of respondents agreed that male students are more likely to donate blood, suggesting that gender-related perceptions and cultural beliefs may influence participation, while 32 (32%) reported no difference. 68 (68%) identified students above 22 years and those from urban areas as more likely to donate blood, whereas 8 (8%) reported that students from rural areas were more likely to donate. 52 (52%) agreed that higher socio-economic status combined with religion influences blood donation, while 22 (22%) reported no effect. 74 (74%) agreed that knowledge does not always translate into practice, compared with 26 (26%) who disagreed. The main barrier to blood donation was fear of weakness, reported by 58 (58%) of respondents, followed by lack of interest at 16 (16%) and transport challenges at 14 (14%). 80 (80%) agreed that trust in the safety of blood donation influences willingness to donate, while 20 (20%) reported having no trust in the safety of the process, highlighting the importance of confidence in blood donation safety.

Conclusion: Both individual and socio-demographic factors influence voluntary blood donation among medical laboratory students, with fear of weakness, lack of interest, and limited accessibility being key barriers.

Recommendation: The institution should strengthen blood donation education, counselling, awareness campaigns, and regular on-campus donation drives to address barriers and increase student participation.

Keywords: Voluntary blood donation, medical laboratory students, individual factors, blood donation practices.

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Background of the study

Individual factors play an important role in determining whether a person participates in voluntary blood donation. These factors include knowledge about blood donation, attitudes, motivation, fear, misconceptions, perceived health risks, previous donation experience, and willingness to donate. Among medical laboratory students, adequate knowledge and positive attitudes may encourage blood donation, while fear of needles, fear of infection, concerns about weakness, and misconceptions about blood loss may discourage participation.

Knowledge about blood donation is an important factor influencing donation practices. Students who understand the importance of blood donation, donor eligibility requirements, the safety of the donation process, and the need for adequate blood supplies may be more willing to donate. A study among undergraduate medical students in Uganda found that students had varying levels of knowledge and perceptions regarding blood donation, and that knowledge and exposure to blood transfusion information were associated with donation practices (Kagoya et al., 2024). Similarly, studies among university students in Tanzania have shown that knowledge and awareness of blood donation are important factors in determining donation practices (Elias et al., 2016).

Attitudes and personal motivation also influence voluntary blood donation. Individuals may donate because they want to save the lives of patients, feel a sense

of social responsibility, or have previously seen someone benefit from blood transfusion. Among Ugandan medical students, the desire to save a life was reported as an important motivation for blood donation (Kagoya et al., 2024). Positive attitudes towards voluntary donation can therefore encourage students to translate their knowledge into actual donation practices.

Fear and misconceptions may, however, act as barriers to donation. Some students may fear needles, pain, fainting, excessive blood loss, or becoming weak after donating. Others may incorrectly believe that blood donation can cause long-term health problems or reduce their immunity. Such concerns can discourage eligible individuals from donating even when they understand the importance of blood donation. Elias et al. (2016) reported that fear, lack of information, and misconceptions were among factors affecting blood donation among university students in Tanzania.

Previous experience with blood donation may also influence an individual's willingness to donate again. Students who have previously donated and experienced a safe and satisfactory donation process may be more likely to donate in the future. Conversely, negative experiences such as pain, dizziness, inadequate counselling, or fear during a previous donation may discourage subsequent participation. Providing accurate information and appropriate pre- and post-donation counselling may

therefore help address individual concerns and improve students' confidence in the donation process.

Despite being medical laboratory students, some individuals may still have misconceptions or fears that affect their participation in blood donation. Therefore, this study aims to determine the Individual and Socio-demographic factors influencing voluntary blood donation among medical laboratory students at Mildmay Institute of Health Sciences.

Methodology

Study design

A cross-sectional study design employing quantitative methods was adopted for the study. It was a cross-sectional survey because it involved administering the online Google Forms questionnaire to the respondents, and data collection was done in a specified time period with no follow-up of respondents.

Study Area

The study was conducted at Mild Institute of Health Sciences. The institute was situated in Lweza on Naziba Hill, along the Entebbe Road, approximately 12 km south of Kampala, Uganda's capital city. It had a physical address at 12 km Entebbe Road, Naziba Hill, Lweza, Kampala – Uganda. Being near Kampala, where major health services and blood donation coordination organisations (such as the Uganda Blood Transfusion Services and other NGOs) operated, meant students were exposed to blood donation campaigns, education, and services. This exposure influenced their knowledge and attitudes.

Study Population

The study population consisted of medical laboratory students at Mildmay Institute of Health Sciences. This group was selected because they represented a key potential pool of voluntary blood donors due to their background in health sciences, exposure to clinical knowledge, and awareness of the importance of blood donation.

Sample Size Determination

The Mugenda formula was used to determine the sample size, with the total population (N), which was estimated to be the number of people, and the sample size (n). This was calculated as shown below;

$$N = n / (1 + N(e^2))$$

Where n is the estimated sample size, N is the total population (134), and e is the margin of error (0.05)

$$n = 134 / (1 + 134(0.05^2)) = 134 / 1.3375 = 100$$

Therefore, the number of respondents was 100 to participate in the study

Sampling technique

Stratified convenience sampling was used. Students were first grouped according to their year of study (Year I, Year II, Year III). Proportionate sampling was then applied to ensure fair representation from each year. Simple random sampling was used within each stratum to select participants. This technique ensured representation of all academic levels and reduced sampling bias.

Sampling Procedure

The sampling procedure began by obtaining a list of all eligible medical laboratory students at Mildmay Institute of Health Sciences. The students were then grouped into

three strata according to their year of study, namely Year I, Year II, and Year III. After stratification, the sample size was proportionally allocated to each stratum based on the number of students in each academic year to ensure fair representation.

Within each stratum, participants were selected using convenience sampling, where only those who were readily available and willing to participate at the time of data collection were included until the required number for each stratum was achieved. The selected participants from all strata were then combined to form the final study sample, ensuring representation of all academic levels while maintaining feasibility and time efficiency.

Data Collection Method

Data were collected using a structured self-administered online questionnaire which was created via Google Forms. The questionnaire assessed socio-demographic characteristics, knowledge, and attitudes among medical laboratory students.

Data Collection Procedure

The data collection procedure involved first obtaining permission from the administration of Mildmay Institute of Health Sciences, followed by the creation of a link via Google Forms. This contained a questionnaire with a consent form, which only allowed those who consented to continue responding. The link was then submitted to medical laboratory students at Mildmay Institute of Health Sciences, and data were collected.

Study Variables

Independent Variable: Institutional factors

Dependent Variable: Voluntary blood donation

Quality control: Pretesting of research tool

The questionnaire was pretested at Kampala Institute of Health Sciences to assess clarity, relevance, validity, and reliability. Necessary corrections were made before actual data collection.

Inclusion and Exclusion criteria

Inclusion criteria

All those who consented were included in the research study.

Students who were registered and actively pursuing the Medical Laboratory Science program at MIHS during the study period.

Students who were connected to the internet at the time of data collection

Exclusion criteria

Students who were not connected to the internet at the time of data collection

Students who were on leave, suspended, or not actively enrolled during the study period.

Data analysis and presentation

This was done under five subheadings, including editing, data storage, coding, and data analysis and presentation.

The research instrument was first checked for errors and omissions so as to ensure consistency, completeness and accuracy in filling the questionnaire. Data storage. Data was automatically stored in the secure Google Drive Account. Data was then exported to Microsoft Excel for cleaning and analysis. Analysis. Quantitative data were analysed using Microsoft Excel; descriptive statistics like frequencies, tables, and percentages were used to

summarise. Data presentation. The findings were presented using tables, figures, graphs and figures where applicable.

Ethical consideration

The researcher obtained an introductory letter from Mildmay Institute of Health Sciences, and the letter was used by the researcher to seek permission from the principal of Mildmay Institute of Health Sciences to allow the researcher to carry out the study on “Factors influencing blood donation among medical laboratory students at Mildmay Institute of Health Sciences”.

Before data collection, prospective respondents were given an explanation of the nature and objectives of the study explained that participation was voluntary and that respondents had the right to decline or withdraw from the study at any time if they wished. Privacy and confidentiality were ensured by avoiding the collection of unnecessary personal identifiers like names, phone numbers, and registration numbers and the Google Form settings were adjusted to limit access to only intended participants and the researcher. No names of clients were

Results

Socio-demographic factors influencing voluntary blood donation

Table 1

Socio-demographic factors influencing voluntary blood donation (n = 100)

Variable	Category	Frequency	Percentage
Gender influence	Yes (males more likely)	56	56%
	No difference	32	32%
	Rural only	6	6%
	First-year only	6	6%
Age & residence	Under 20 years	10	10%
	Rural residence	8	8%
	Above 22 & urban	68	68%
	Sports participation	14	14%
Socio-economic status	No effect	22	22%
	Yes (with religion)	52	52%
	Mandatory campaigns	14	14%
	First-year only	12	12%

Table1 shows that the majority, 56(56%), of respondents agreed that male students are more likely to donate blood, suggesting gender-related perceptions and cultural beliefs still influence participation. However, minority32 (32%) reported no difference, indicating a gradual shift toward gender neutrality. A majority, 68(68%), identified students above 22 years and those in urban areas as more likely to

written against their responses. All respondents were assured that participation in the study did not directly or indirectly expose them to any risk.

Study limitations

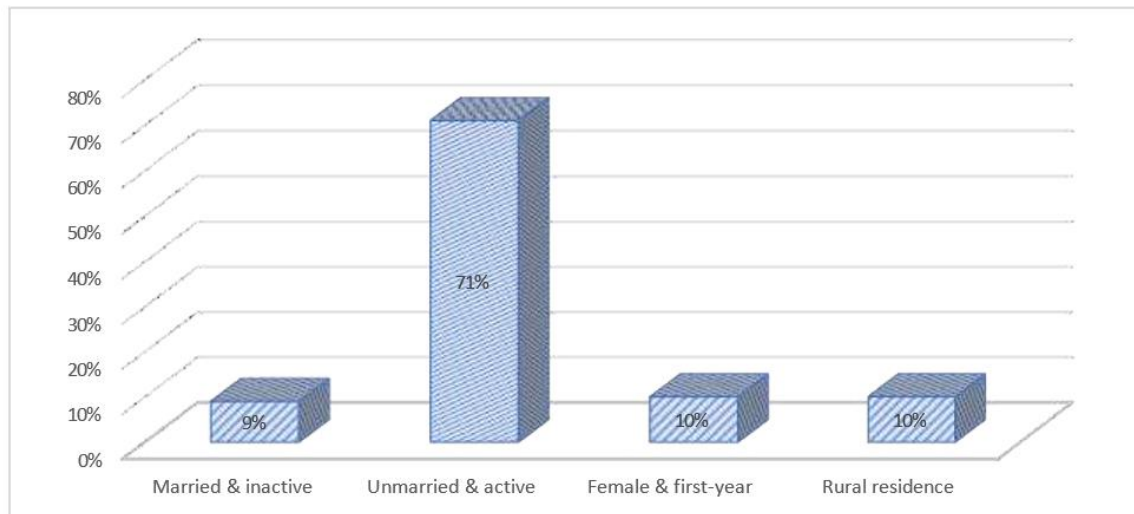
The results of this study were not fully generalizable because the research was conducted in only one institution, which may not represent the characteristics of other settings. Differences in institutional policies, student demographics, and exposure to health programs in other institutions may have limited the applicability of the findings to a wider population. Additionally, the study relied on self-reported data, which may have been subject to recall bias and social desirability bias, potentially affecting the accuracy of responses.

Furthermore, the study was limited by non-response or incomplete questionnaires from some participants, which reduced the sample size and affected the representativeness of the findings.

donate blood, and the minority, 8(8%), were staying in rural areas. Regarding socio-economic factors, the majority, 52(52%), agreed that higher socio-economic status combined with religion influences donation, while a minority, 22(22%), believed it has no effect, indicating mixed perceptions.

Figure 1: A bar graph showing the marital engagement of the participants.

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From Figure 1, the study further revealed that actively engaged students as more likely to donate, while most 71(71%) of respondents identified unmarried and the least 5(5%) were married and inactive.

Figure 2: A pie-chart showing the language abilities of the participants.

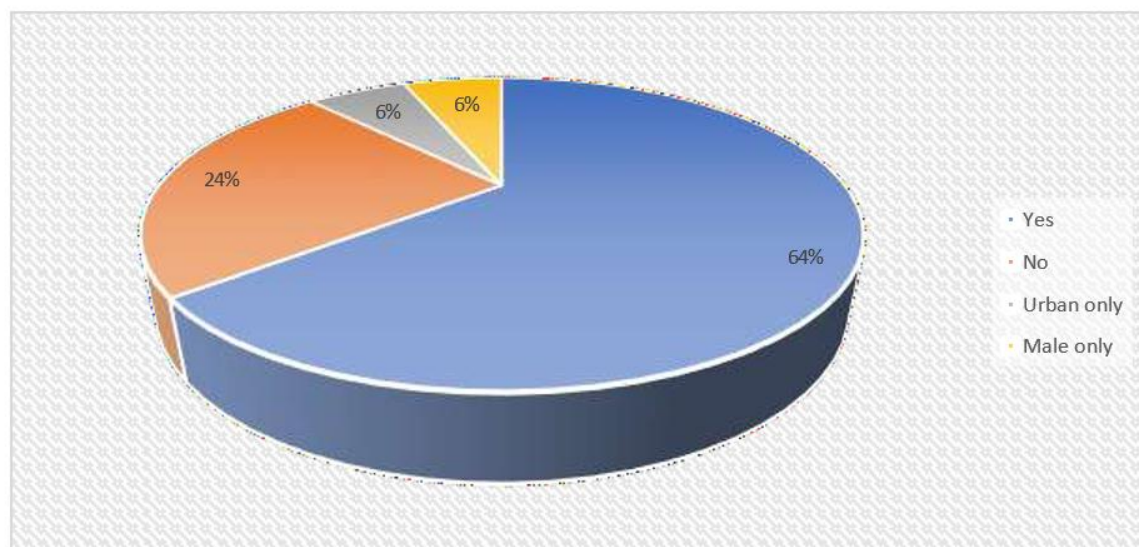


Figure 2 shows that 64(64%) reported that language barriers affect participation, and the minority 6(6%) were both male only and lived only in urban areas, suggesting

that students who do not understand the language used in campaigns are less likely to donate.

Individual Factors influencing voluntary blood donation

Table 2

Individual factors influencing voluntary blood donation (n = 100)

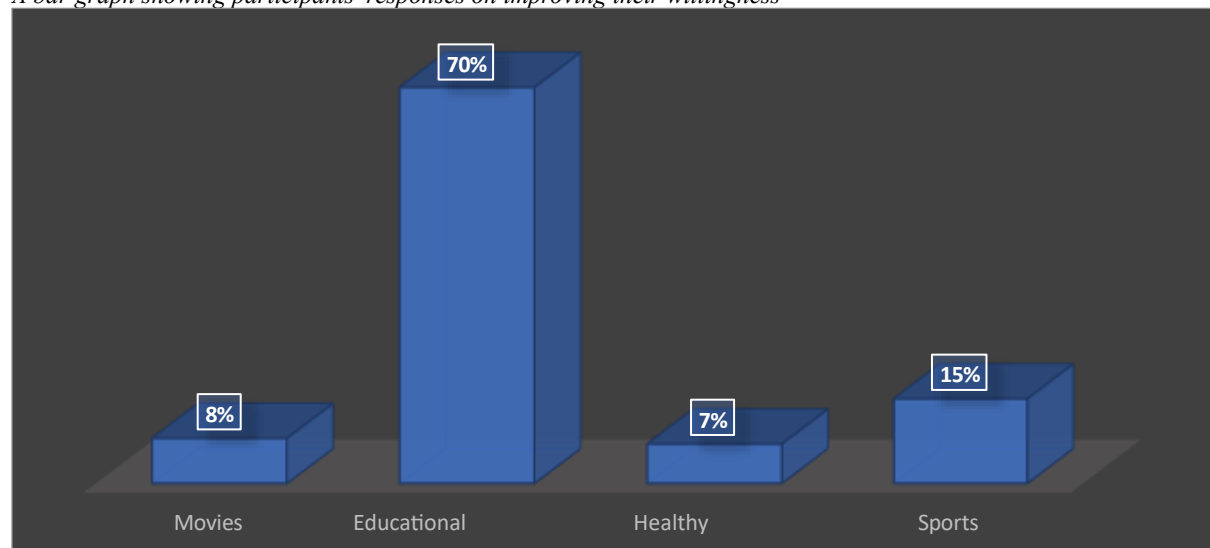
Variable	Category	Frequency	Percentage
Knowledge vs practice	Yes	26	26%
	No	74	74%
Reasons for not donating	Lack of transport	14	14%
	Fear of weakness	58	58%
	Lack of interest	16	16%
	Exams	12	12%
Trust in safety	Yes	80	80%
	No	20	20%

Table 2 shows that the results indicate that the majority, 74(74%), of respondents agreed that knowledge does not always translate into practice, while 26(26%) of the respondents disagreed. The main barrier identified was fear of weakness, as a majority 58(58%), followed by lack of interest 16(16%) and transport challenges 14(14%). A

large proportion, 80(80%), agreed that trust in the safety of blood donation influences willingness, and the minority, 20(20%), confirmed that they had no trust in safety, indicating the importance of confidence in the process.

Figure 3

A bar graph showing participants' responses on improving their willingness

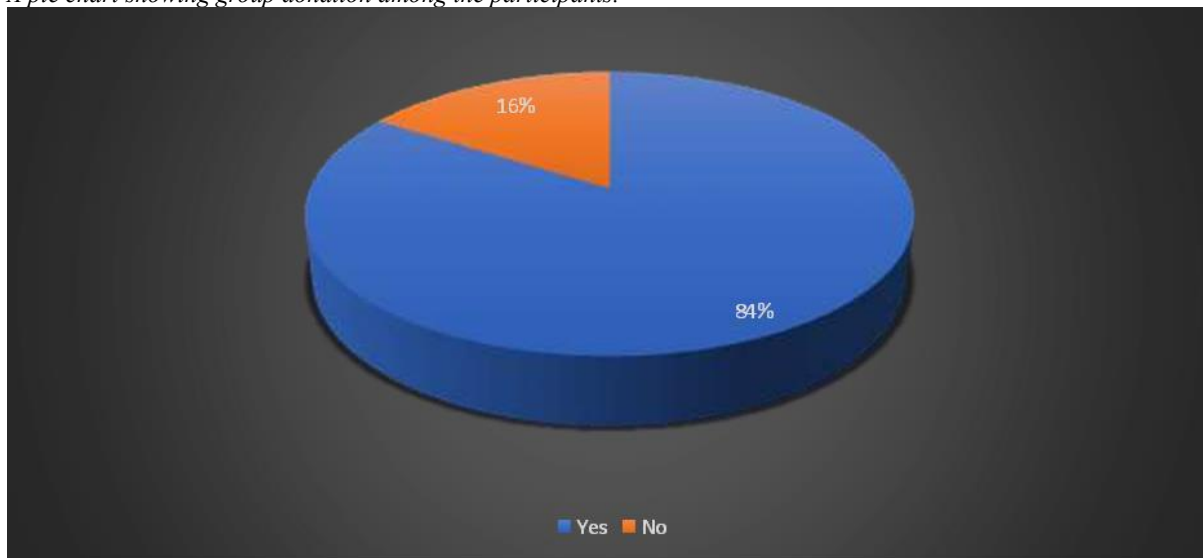


From Figure 3, majority70 (70%) reported that educational programs improve willingness to donate, while, 7(7%), said healthy eating.

Figure 4

A pie chart showing group donation among the participants.

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From Figure 4, majority 84(84%) agreed that group donation activities reduce fear, while, 16(16%), of them didn't agree.

Discussion

Socio-demographic factors influencing voluntary blood donation practices

The study found that 56% of respondents reported that male students are more likely to donate blood compared to females. This indicates that gender still influences blood donation practices among students, suggesting the presence of gender-based perceptions affecting participation. This implies that female students may have lower participation due to fear of weakness or cultural beliefs. This is probably because female students may associate blood donation with physical weakness, dizziness, or cultural misconceptions about menstruation and blood loss. This finding partially agrees with literature showing that male students had higher donation rates of 48.7% compared to 23.3% for females, although the gap in this study is less pronounced, indicating a narrowing gender difference among students. (Tadesse et al., 2023)

The study also revealed that 68% of respondents indicated that students above 22 years and those from urban areas were more likely to donate blood. This indicates that age and residence significantly influence donation practices, suggesting that maturity and accessibility enhance participation. This implies that older and urban students are more exposed to health information and donation opportunities. This is probably because urban areas provide easier access to blood donation campaigns, while older students have higher responsibility and awareness. This finding agrees with literature showing that 57% of older students above 22 years and urban-based students had higher donation rates, confirming the role of accessibility and maturity in donation behaviour. (Alotaibi et al., 2023). Furthermore, 52% of respondents indicated that socio-economic status combined with religion influences blood donation practices. This suggests that financial and cultural background shapes students' willingness to donate blood. This implies that socio-

economic and religious beliefs affect motivation and participation levels. This is probably because students from higher socio-economic backgrounds have better access to health information and fewer financial barriers. This finding partially agrees with literature where 54% of higher socio-economic students and religious groups showed higher donation rates, although the influence in this study is slightly lower, indicating moderate relevance of socio-economic factors in this context. (Singh & Chatterjee, 2024). The study further found that 71% of respondents reported that unmarried and socially active students are more likely to donate blood. This indicates that marital status and social engagement influence participation, suggesting that social interaction increases donation behaviour. This implies that students with fewer family responsibilities are more active in donation activities. This is probably because unmarried students have more time for campus engagement and peer influence. This finding agrees with literature showing that 60% of socially active and unmarried students were more likely to donate blood, confirming the strong influence of social engagement on donation behaviour. (Obi et al., 2023) In addition, 64% of respondents reported that language barriers affect blood donation participation. This indicates that communication plays an important role in influencing donation practices, suggesting that misunderstanding reduces participation. This implies that poor communication limits awareness and understanding of donation messages. This is probably because students who do not understand the language used in campaigns fail to interpret information correctly. This finding partially agrees with literature where 21.3%–30% language-related barriers were reported, showing that although language is a factor in both studies, it is more strongly perceived in this study. (Naidoo & Pillay, 2024)

Individual factors influencing voluntary blood donation practices

The study found that 74% of respondents reported that knowledge does not always translate into actual blood donation practice. This indicates a gap between awareness

and behaviour, suggesting that awareness alone is not sufficient to change practice. This implies that psychological and emotional factors influence decision-making more than knowledge. This is probably because fear, misconceptions, and anxiety prevent students from donating blood despite awareness. This finding agrees with literature where 46.2% of knowledgeable students still did not donate blood, confirming that knowledge alone does not ensure practice. (Nguyen et al., 2023)

The study further revealed that 58% of respondents identified fear of weakness as the main barrier to blood donation. This indicates that psychological fear is the strongest barrier, suggesting that emotional concerns outweigh motivation. This implies that fear discourages students from participating in donation activities. This is probably because students fear dizziness, fainting, and weakness after donation. This finding agrees with literature where 42.8%–44.1% of students reported fear of fainting and weakness as barriers, confirming fear as a dominant constraint. (Murphy et al., 2023). Additionally, 80% of respondents reported that trust in the safety of blood donation influences willingness to donate. This indicates that confidence in safety systems increases participation, suggesting that trust is a key motivator. This implies that students are more likely to donate when they feel protected. This is probably because trust in screening procedures reduces fear of infection. This finding agrees with literature where 58.4%–64.8% of students trusted safe systems and were more willing to donate, confirming the importance of trust in influencing behaviour. (Karaman & Ozsoy, 2023)

The study also found that 70% of respondents reported that educational programs improve willingness to donate blood. This indicates that awareness campaigns positively influence behaviour, suggesting that education improves attitudes. This implies that structured learning enhances willingness to participate. This is probably because education corrects misconceptions and increases awareness. This finding agrees with the literature, where 71.5% of students exposed to educational sessions showed increased willingness to donate blood. (Hashim et al., 2023). Furthermore, 84% of respondents agreed that group donation reduces fear. This indicates that peer influence encourages participation, suggesting that social support reduces anxiety. This implies that collective participation improves confidence. This is probably because students feel safer when donating in groups. This finding partially agrees with literature where a 46.7%

reduction in fear was reported among group participants, although this study shows a stronger effect, indicating stronger local influence of peer support. (Murphy et al., 2023).

Conclusion

Both individual and socio-demographic factors influence voluntary blood donation among medical laboratory students at Mildmay Institute of Health Sciences. Gender, age, place of residence, socio-economic status, and religion were perceived to influence donation practices. Although most respondents recognised the importance of knowledge, this did not always translate into actual blood donation. Fear of weakness, lack of interest, and transport challenges were important barriers, while trust in the safety of blood donation was a major factor influencing willingness to donate. Therefore, addressing misconceptions, fears, and accessibility challenges may help improve voluntary blood donation among students.

Recommendation

The institution should strengthen blood donation education and awareness programmes to address misconceptions and fears, particularly concerns about weakness and the safety of donation. Regular blood donation drives should be organized on campus in collaboration with blood transfusion services, with adequate counselling and convenient transport or donation points. Students should also be encouraged through peer education and health promotion activities to translate their knowledge into regular voluntary blood donation practices.

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List of Abbreviations

Abbreviation	Full Meaning
MIHS:	Mildmay Institute of Health Sciences
UBTS:	Uganda Blood Transfusion Service
WHO:	World Health Organization
MOH:	Ministry of Health
VBD:	Voluntary Blood Donation
KAP:	Knowledge, Attitudes, and Practices
SPSS:	Statistical Package for the Social Sciences
MLSS:	Medical Laboratory Science Students
KAB:	Knowledge, Attitude, Behaviour
IRB:	Institutional Review Board

Source of funding: The study did not receive any external funding.

Conflict of interest: The author did not declare any conflict of interest.

Data availability: The data are available upon request.

Informed consent: Written informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

Author contributions

MN: Conceptualisation, Methodology, Investigation, Writing – original draft, Data curation, Formal analysis, Visualisation

JFN: Project administration

HN: Supervision, Validation

FS: Project administration

All authors: Approved the final version of the manuscript and agreed to be accountable for the work.

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Mariane Nabaluga is a researcher at Health from Mildmay Institute of Health Sciences.

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Hasifah Nansereko is the chairperson of the Institutional Review Council (IRC)

Immaculate Prosperia Naggulu and Jane Frank Nalubega are tutors at Mildmay Institute of Health Sciences.

References

1. Alotaibi, A. A., et al. (2021). Usage and acceptability of the Wateen application among the population of Saudi Arabia. *Journal of Multidisciplinary Healthcare*, 14, 2569-2577. <https://doi.org/10.2147/JMDH.S324463>
2. Duy, D. H., Trung, V. Q., Pol, N. V., Nhat, N. H., Nguyet, H. T., Nam, N. P., & Tram, N. T. H. (2023). Knowledge of blood donation of medical students in 2023: A cross-sectional study in Ho Chi Minh City. *T?p Ch? Y h?c C?ng ??ng*, 64(13). <https://doi.org/10.52163/yhc.v64i13.859>
<https://doi.org/10.52163/yhc.v64i13.859>
3. Elias, E., Mauka, W., Philemon, R. N., Damian, D. J., Mahande, M. J., & Msuya, S. E. (2016). Knowledge, attitudes, practices, and factors associated with voluntary blood donation among university students in Kilimanjaro, Tanzania. *Journal of Blood Transfusion*, 2016, 8546803. <https://doi.org/10.1155/2016/8546803>
4. Kagoya, C., Gavamukulya, Y., & Soita, D. J. (2024). Knowledge, perceptions and practices towards blood donation among undergraduate medical students in an upcountry Ugandan university: A mixed methods study. *Global Public Health*, 19(1), 2311679. <https://doi.org/10.1080/17441692.2024.2311679>
5. Karaman, S., & Ozsoy, S. (2023). Blood safety knowledge and willingness to donate among undergraduate health students in Turkey. *Transfusion Clinique et Biologique*, 30(2), 153-160.
6. Murphy, H. R., Klein, E. A., & Daniels, J. S. (2023). Attitudinal barriers to blood donation among biomedical students in the United States. *Transfusion*, 63(1), 54-62.
7. Naidoo, T., & Pillay, K. (2024). Attitudes and barriers to blood donation among healthcare students in South Africa. *African Journal of Health Professions Education*, 16(1), 14-19.
8. Nguyen, T. T., Tran, H. V., & Lee, S. W. (2023). Knowledge and willingness to donate blood among medical laboratory science students in Australia. *BMC Medical Education*, 23, 156.
9. Obi, C. N., Okocha, E. C., & Onyema, G. O. (2023). Determinants of blood donation practice among medical laboratory students in Nigerian tertiary institutions. *Journal of Blood Transfusion*, 2023, 5792417.
10. Rahman, M. M., & Hashim, J. (2023). Knowledge, attitude and self-efficacy towards blood donation among university students: An online

intervention study. Trends in Undergraduate Research, 6(1), i1-i18.
<https://doi.org/10.33736/tur.5048.2023>

11. Tadesse, W., Ayalew, Y., Yisma, E., Liben, M. L., & Wudu, M. (2018). Knowledge, attitude, practice and associated factors towards voluntary blood donation among regular health science students of Samara University, Ethiopia. Health Science Journal, 12(1).
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