

Special Article: Transfusion Medicine

Motivational Factors in Blood Donation - A Systematic Review

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Received: December 01, 2023

Accepted: January 06, 2024

Published: January 13, 2024

Introduction

Blood has played a significant role throughout the history of humanity, being associated with life, and expressed through myths and symbols in different cultures. The history of blood transfusion can be divided into three distinct periods: prehistoric, pre-scientific, and scientific. The scientific period was marked by the discovery of blood groups in the early 20th century. Over time, blood transfusion became an essential therapeutic practice for saving lives, leading to the emergence and organization of hemotherapy [1].

In Brazil, the first blood banks emerged in 1940, and since then, the act of donating blood has acquired meaning not only culturally but also religious, economic, social, and even political significance. Over time, people have developed motivations and impediments related to this practice [2]. In the 1940s, the use of blood and its derivatives had a high market value and was considered a profit-oriented act. Consequently, it led to an increase in the number of blood donations in Brazil [3]. However, this practice was prohibited by the Brazilian Society of Hematology and Hemotherapy and the Brazilian Medical Association in 1979, making blood donation strictly a voluntary act. This deci-

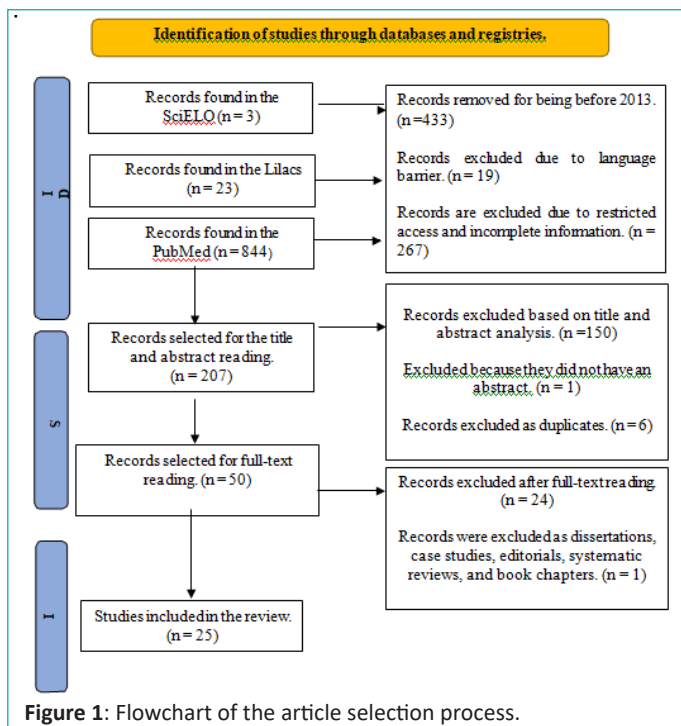
Abstract

The primary motivating factor for blood donation is altruism and its derivatives, such as empathy and social responsibility. However, no conclusive answers were obtained from the analysis of these articles, indicating the need for further studies focused on this topic. In Brazil, blood donation is voluntary, unpaid, and anonymous. Despite being a reference in Latin America for improving voluntary donation rates and expanding the age range of potential donors, there are still many challenges related to this practice, as only 1.9% of the Brazilian population are blood donors. This article aims to identify, through a literature review, the main motivations for blood donation. For this purpose, a systematic review was conducted, including studies published in English, Portuguese, and Spanish between 2013 and 2023, from the PubMed, SciELO, and LILACS databases, using *MeSH* queries with the descriptors "blood donors," "donor motivation," and "motivation." Original articles and review articles were included. A total of 207 articles were identified in February and March 2023, and after applying the inclusion criteria, 25 articles were selected for the study. This study was registered in the International Prospective Register of Systematic Reviews (PROSPERO- CRD42023431808) and concluded that the main motivator for blood donation was altruism and its "derivatives," such as empathy and social responsibility. No conclusive answers were obtained from the analysis of these articles, which necessitates further studies on this topic.

Keywords: Blood donors; Motivation; Donor motivation

sion was made because the increase in the number of people who began donating blood for monetary gain made it difficult to control the donors' identity and compromised the donor's viability. As a result, the donor pool became non-specific¹. Therefore, since donation became a voluntary act in the country, the number of donors experiences significant instability, highlighting the need for strategies to attract donors to meet blood banks' demands [2].

The World Health Organization (WHO) estimates that 3% to 5% of the population should be blood donors, which is not the reality in most countries [4], especially in those where donation is a voluntary act. The National Blood Donor Program (PNDS) has set goals to mobilize society towards the need for spontaneous and regular blood donation, aiming to ensure an adequate supply to meet the country's demand and improve the quality of blood, its components, and its derivatives. If these objectives are achieved, they will gradually foster a new culture of blood donation in Brazilian society, resulting in a gradual increase in voluntary donations, donor loyalty, and an increase in the coverage percentage of blood components. This, in turn,



will reduce the final cost due to a decrease in clinical and serological ineligibility rates [5].

In countries where donation is voluntary, the search for donors is a challenging process as there is often a deficit in the number of donors and maintaining an adequate blood supply, which impacts the ability to perform surgeries and puts lives at risk [6]. Several studies are underway to understand the motivations and obstacles within society regarding the blood donation process. The authors conducted a literature review and presented in this study the compiled data from Brazil and international literature on the motivational factors of blood donation.

Material and Methods

This review included original research articles and review articles available in English, Portuguese, and Spanish from the years 2013 to 2023. The articles were required to be fully accessible and free of charge, and they had to address the pre-established PICO (Population, Intervention, Comparison, Outcome) criteria. We opted to conduct a systematic literature review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This study was registered in the International Prospective Register of Systematic Reviews (PROSPERO-CRD42023431808). The literature search was performed using the PICO approach.

P (population): Blood donors.

I (intervention): Factors that motivate donors. C (comparison): Different types of motivations.

O (outcome): Identification of the main motivations for blood donation.

A search was conducted in the LILACS (Latin American and Caribbean Health Sciences Literature), SciELO (Scientific Electronic Library Online), and PubMed databases during the months of February and March 2023. The following keywords were used: "blood donors," "motivation," and "donor motivation," as per the *Medical Subject Headings (MeSH)*. The Boolean operator "AND" was used to connect these keywords.

The following criteria were used for the exclusion of studies

works that did not belong to the theme, studies involving other types of donations, studies without an abstract, and those that did not include at least two of the descriptors addressed in this review in the title or abstract. Additionally, books, book chapters, editorials, experiential reports, correspondences, letters to the editor, comments, opinion articles, and guidelines were excluded as it was not possible to verify the peer review process, as is the case with scientific articles.

Results

The study selection was conducted in stages by the reviewers. In the first stage, the titles and abstracts of the 207 references identified through the search strategy were evaluated. After removing duplicates, only studies from the PubMed and SciELO databases remained. Potentially eligible studies were pre-selected, and duplicates were excluded.

In the second stage, the 50 pre-selected studies were evaluated and read in full to confirm their eligibility. After applying the inclusion and exclusion criteria, 25 articles were selected to be included in the scope of this study (Table 1). With these articles, the third phase of the Systematic Review began, represented by the detailed analysis of each article organized in a synoptic framework with specificities of each publication, such as article title, objective, database, and results that allowed analysis with bibliometric characteristics.

Discussion

Blood donation is a crucial aspect of the functioning of healthcare services worldwide. However, the blood donation rate varies considerably among countries and often falls short of demand. The systematic analysis of articles revealed both positive and negative factors influencing blood donation motivation. Among them, altruism was consistently identified as the main factor, as observed by Finck R *et al.* (2016) [12], Greffin K *et al.* (2021) [13], Charbonneau J *et al.* (2015) [15], Yu C *et al.* (2013) [23], and Noriega-Mendoza EDY *et al.* (2023) [27]. Additionally, Weidmann C *et al.* (2022) [8] cited "safety" as a key motivator, Charbonneau J *et al.* (2015) [11] and Elisabeth MJ Huis In 't Veld *et al.* (2019) [26] found "helping others" as a result, Mohammed S *et al.* (2018) [14] identified "desire to help someone known" as an important factor, and Tripathi PP *et al.* (2022) [16] stated that a direct patient request to donate would be the primary motivation, followed by the need of family/friends and social media campaigns. Furthermore, Anwer MO *et al.* (2016) [17] highlighted "self-satisfaction," Sadler A *et al.* (2018) [20] found "external incentives," and Tanja Z Zanin *et al.* (2016) [24] identified "local traditions and cultures" as factors responsible for motivation.

On the other hand, negative aspects related to the practice of donation were also found, such as "fear," as exposed by Barboza SIS *et al.* (2014) [7], as well as sociocultural forces and government policies for pandemic prevention, as mentioned by Siu JY *et al.* (2022) [9]. Some authors did not reach a consensus, such as Alanzi T *et al.* (2019) [22], who stated that health condition was the main inhibitor, while human solidarity was the most important incentive, also mentioned by TN Muthivhi *et al.* (2015) [25], who, despite this, highlighted fear, and skepticism as negative factors. Greffin K *et al.* (2021) [13] cited "social responsibility" and "charity" as major motivators, but also noted that "health status," "age," and "lack of time" were reasons that hindered donation. On the other hand, France CR *et al.* (2022) [28], in their study conducted in the United States, where finan-

Table 1: List of titles of the articles, objective, database, and results.

Article Title	Objective	Database	Results
Social marketing of blood donation: an analysis of new donors' predisposition. ⁷	To understand the motivational factors that influence individuals to donate blood, to support social marketing actions aimed at recruiting new donors.	SciELO®	It was found that fear has a negative influence and reference group has a positive influence on people's predisposition to donate blood. This indicates that marketing actions are more effective in encouraging new donors if they focus on these two factors.
Motivation, blood donor satisfaction and intention to return during the COVID-19 pandemic. ⁸	To describe the reasons, donation experiences, and intention to return for future donations among German whole blood donors who donated at the onset of the COVID-19 pandemic.	PubMed®	More than half of the participants wanted to contribute to the fight against the pandemic by donating blood. The majority were satisfied with their last donation experience and felt safe. However, some donors would like more information on how to deal with the pandemic. The intention to return was strongly associated with overall satisfaction and a feeling of safety during the donation.
Motivations and deterrents of blood donation among blood donors during the COVID-19 pandemic in Hong Kong. ⁹	Investigate the motivators and demotivators for blood donation among current blood donors during the COVID-19 pandemic.	PubMed®	Most participants were demotivated to donate blood during the COVID-19 pandemic. The data revealed that sociocultural forces and government policies for pandemic prevention strongly influenced the participants' motivations.
Defining and measuring blood donor altruism: a theoretical approach from biology, economics, and psychology. ¹⁰	A psychometric evaluation derived theoretically from altruism is developed in this study and can be used to help inform our understanding of the altruistic motives of blood donors and recruitment intervention strategies.	PubMed®	The results show that altruism in the context of blood donation is multifaceted and complex and does not solely reflect pure altruism. This has implications for recruitment campaigns that solely focus on pure altruism.
Whole blood and apheresis donors in Quebec, Canada: Demographic differences and motivations to donate. ¹¹	Compare demographic data and donation motivations between plasma/platelet donors and whole blood donors in a voluntary and non- remunerated context.	PubMed®	The belief that helping others is inherent in their nature is more prevalent among plasma/platelet donors. Four other motivators distinguish this group from whole blood donors.
Motivating Factors and Potential Deterrents to Blood Donation in High School Aged Blood Donors. ¹²	Understanding the factors that motivate and hinder individuals from donating can help centers develop targeted recruitment campaigns.	PubMed®	Motivating factors that reflect pro-social, empathetic, and altruistic thoughts and beliefs were highly rated by the students. However, some incentives were also evaluated as appealing.
"Blood for Blood"? Personal Motives and Deterrents for Blood Donation in the German Population. ¹³	To investigate the prevalence and sociodemographic pattern of blood donation throughout the lifespan.	PubMed®	The most cited reasons for blood donation were "altruism," "social responsibility," and "charity," while the most cited barriers were "health condition," "age," and "lack of time."
Motivational factors for blood donation, potential barriers, and knowledge about blood donation in first-time and repeat blood donors. ¹⁴	The aim is to understand the motivators and barriers of donors to recruit and retain suitable regular unpaid voluntary blood donors, as well as their knowledge regarding blood donation.	PubMed®	Nearly all donors indicated that they were motivated to donate when someone they knew needed blood. Additionally, the positive attitude of the staff and the desire to help were also relevant motivators.
Motivational Differences between Whole Blood and Apheresis Donors in Quebec, Canada: A Questionnaire-Based Survey in a Voluntary Nonremunerated Context. ¹⁵	Providing a quantitative analysis of motivations among regular plasma/platelet donors compared to regular whole blood donors.	PubMed®	The motivator chosen by most donors, regardless of the type of donor, was the altruistic motivation of "my blood can save lives."
Donor's Perspectives on Blood Donation During Covid-19 Pandemic. ¹⁶	To understand the knowledge, attitudes, and perceptions of blood donors during the Covid-19 pandemic.	PubMed®	The three main motivational factors for blood donation were direct requests from patients to donate, followed by the need of family/friends, and social media campaigns.
Attitude toward blood donation among medical and nonmedical students across Karachi. ¹⁷	To evaluate the factors that motivate and discourage medical and non-medical students from voluntary blood donation, as well as to assess the level of awareness and knowledge about blood donation.	PubMed®	The most important motivating factor among medical students was the sense of self-satisfaction, while among non-medical students, it was the need for blood transfusion by family/friends.
Blood donation among individuals of African origin in the Netherlands: how are barriers and motivators associated with Intention? ¹⁸	To understand the barriers and motivators of blood donation among individuals of African origin and evaluate how they are associated to donate blood.	PubMed®	The highest-ranked barriers and motivators were not necessarily the best predictors of donation intention.
Knowledge, attitude, and practice towards blood donation and associated factors among adults in Debre Markos town, Northwest Ethiopia. ¹⁹	To assess knowledge, attitude, and practice regarding blood donation and its associated factors.	PubMed®	The prevalence of knowledge and practice of blood donation is higher compared to a similar study conducted in Mekelle, while the level of attitude is lower.
Incentives for Blood Donation: A Discrete Choice Experiment to Analyze Extrinsic Motivation. ²⁰	To contribute to the discussion on how to increase donation rates.	PubMed®	Most of the sample responded positively to incentives and expressed willingness to accept incentives.

Knowledge, Misconceptions, and Motivations Towards Blood Donation Among University Students in KSA. ²¹	To determine the knowledge, misconceptions, and motivations for blood donation among university students in KSA.	PubMed®	The knowledge about blood donation is not adequate, and there are many misconceptions among young students at Saudi University.
Use of social media in the Blood Donation Process in Saudi Arabia. ²²	Evaluate inhibitors, motivations, and the possibility of using social media to enhance blood donation practice in this country.	PubMed®	Human solidarity was the most important motivation for blood donation, while health condition was the main inhibitor. Social media can help improve blood donation practice.
Institutional Incentives for Altruism: gifting blood in China. ²³	Investigate the nature and outcomes of some institutionalized mechanisms.	PubMed®	Blood donation was not solely driven by altruism but also carried a system of benefits and rewards for donors and their families.
Tapping into a vital resource: Understanding the motivators and barriers to blood donation in Sub-Saharan Africa. ²⁴	Analyze the current literature on blood donation in ASS to identify motivators and barriers to donation and highlight specific interventions that have increased the number of donors in this region.	PubMed®	Due to the scarcity of research on this topic, the understanding of blood donor behavior in ASS is limited. However, it is concluded that local traditions and cultures closely shape individuals' propensity for the donation process.
Motivators and deterrents to blood donation among Black South Africans: a qualitative analysis of focus group data. ²⁵	Identifying culturally specific factors that affect donor motivation in South Africa	PubMed®	Pro-social motivation (altruism) was the most mentioned individual motivator, and as reported by many authors, fear and lack of awareness were strong barriers. However, skepticism arising from perceived racial discrimination in blood collection was unique to the South African context.
Determinants of blood donation willingness in the European Union: a cross-country perspective on perceived transfusion safety, concerns, and incentives. ²⁶	To examine whether the willingness to donate blood is associated with attitudes towards blood transfusion, personal motivations, and incentives, and to determine if these factors vary among European Union (EU) countries.	PubMed®	The willingness to donate varied among countries and was associated with the perception of safety. Helping people was the most powerful motivator in all countries. The number of participants willing to donate to alleviate shortages or contribute to research varied widely among countries. The desire to receive specific incentives does not appear to be related to the willingness to donate.
Systematization of interviews with altruistic blood donors during the mobile campaign. ²⁷	Identifying sociocultural characteristics that enhance or hinder voluntary or altruistic blood donation.	PubMed®	Most interviewed donors approached the blood donation tent without targeted promotion. Healthcare professionals showed greater identification with altruistic blood donation. They considered accessibility to the blood donation tent as a determining factor for altruistic blood donation.
What would it take to convince you to donate? A survey study of the relationship between motivators, barriers, and payment for whole blood, plasma, and platelet donation. ²⁸	Examine the level of payment needed to motivate whole blood, plasma, and platelet donation based on donation history, sample, and gender, as well as the association between donation motivators, barriers, and payment level.	PubMed®	Despite reporting a strong commitment to non-remunerated blood donation, many interviewees with and without a history of blood donation indicated that money would convince them to engage in whole blood, plasma, and platelet donation.
Motivators, barriers and communication channels for blood donation in relation to students at a university in Spain. ²⁹	To know the motivators, barriers, and preferred communication channels for blood donation among university students, and to determine the factors that explain why donors donate blood.	PubMed®	The study identified differences in motivators, barriers, and choice of communication channels among university students regarding blood donation, as well as the factors that explain blood donation.
Knowledge Level, Motivators and Barriers of Blood Donation among Students at Qatar University. ³¹	To evaluate the level of awareness and knowledge about blood donation and identify the factors contributing to the willingness to donate blood among young adults.	PubMed®	Increasing awareness about blood donation, along with the provision of more mobile blood donation units in public locations, will help increase the frequency of blood donation among young adults.
Attitudes and behaviours of Greeks concerning blood donation: recruitment and retention campaigns should be focused on need rather than altruism. ³¹	To determine the opinions of Greeks regarding blood donation, to identify the reasons for the lack of motivation to donate, and enable experts to establish better recruitment campaigns to enrich the pool of donors.	PubMed®	The significant percentages of occasional and rare donors compared to the low proportion of active donors in the Greek donor pool indicate that "need" is a more important motivation for blood donation than altruism in Greece.

cial compensation for donating is allowed, concluded that most respondents were influenced by financial compensation, which does not apply to the context of blood donation in Brazil and, therefore, becomes irrelevant for the analysis at hand.

Some researchers have further analyzed specific motivators, such as Evans R *et al.* (2014) [10], who defined altruism as "multifaceted," meaning it does not have a single definition but is characterized as a set of attitudes. Research studies like Klinkenberg EF *et al.* (2021) [18] stated that barriers and motivations were not necessarily the best predictors of donation intention, while Jemberu YA *et al.* (2016) [19] found that knowledge level about the subject was higher than the attitude toward donating itself. However, Baig M *et al.* (2013) [21] highlighted that

knowledge about blood donation among young students was inadequate. Padilla-Garrido N *et al.* (2021) [29], Ibrahim AA *et al.* (2021) [30], and Kalargirou AA *et al.* (2014) [31] only analyzed the act of donation and the need to raise awareness and increase the number of active donors.

Based on the obtained results, we found evidence that altruism stands out as the primary motivational factor for blood donation, followed by the desire to help others, whether anonymous or known (such as friends and family), as well as the feeling of safety during the donation process. However, despite the many positive findings in the literature, many articles did not define a specific factor as an enabler or inhibitor; they merely mentioned them to emphasize the need to raise awareness and

find regular donors to increase the blood and blood derivative supply.

As a suggestion for future studies, it is important to explore factors beyond altruism and delve deeper into understanding this motivational factor and its other definitions to advance research in this area. Most of the articles analyzed aimed to investigate, describe, or understand the factors that motivate donation and return, with the goal of fostering donor loyalty for blood and blood derivative products.

Conclusions

This analytical study provided an overview of the literature and aimed to identify the possible motivations among blood donation candidates and donors based on scientific sources.

Altruism and its "derivatives" were observed as the main motivational factors mentioned in the studies to justify the act of donating blood. It can be observed that donors' behavior cannot be solely defined by individual desires to do well or help others. Cultural, social, demographic, and even incentive contexts are capable of shaping and modifying donors and, as a result, their motivations.

Further investigation into donor motivations is needed. More studies focused on this topic are necessary to better understand donor behavior, enabling blood banks to develop better strategies for blood collection, donor recruitment, and retention, ultimately ensuring an adequate blood supply in the future.

Author Statements

Declaration

Declaration of Generative AI and AI assisted technologies in the writing process: during the preparation of this work the authors used "chat GPT" in order to check the translate the article into English. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Author Contributions

The project was designed by DOWR. BAB, CBSM, DOWR, and RL researched and wrote the review. BAB assembled and organized the table. MEMS and HSB made the corrections and editorial changes. Finally, all authors participated sufficiently in the work, read, and approved the final manuscript.

Funding

This research received no external funding.

References

- Junqueira PC, Rosenblit J, Hamerschlag N. History of hemotherapy in Brazil. *Rev Bras Hematol Hemoter.* 2005; 27: 201-7.
- Freitas KML. Collecting blood: an intense and fundamental work to guarantee life [dissertation]. Rio de Janeiro: Escola Nacional de Saúde Pública Sergio Arouca. 2011; 89.
- Santos LAC, Moraes C, Coelho VSP. Hemotherapy in Brazil from 64 to 80. *Physis Rev Saúde Colet.* 1991; 1: 161-82.
- Ministry of Health. Management of blood centers: reports of practices developed in Brazil. 2018.
- Guidelines Manual for the Promotion of Voluntary Blood Donation / Ministry of Health, Department of Specialized and Thematic Care. - 1st Ed., 1st Reprint. - Brasília: Ministry of Health. 2015.
- Mohammed S, Essel HB. Motivational factors for blood donation, potential barriers, and knowledge about blood donation in first-time and repeat blood donors. *BMC Hematol.* 2018; 18: 36.
- Barboza SI, Costa FJ. Marketing social para doação de sangue: análise da predisposição de novos doadores [Social marketing of blood donation: an analysis of new donors' predisposition. *Cad Saúde Publ.* 2014; 30: 1463-74.
- Weidmann C, Derstroff M, Klüter H, Oesterer M, Müller-Steinhardt M. Motivation, blood donor satisfaction and intention to return during the COVID-19 pandemic. *Vox Sang.* 2022; 117: 488-94.
- Siu JY, Chan EA, Li AS, Lee YM. Motivations and deterrents of blood donation among blood donors during the COVID-19 pandemic in Hong Kong. *Health Expect.* 2022; 25: 3192-201.
- Evans R, Ferguson E. Defining and measuring blood donor altruism: a theoretical approach from biology, economics and psychology. *Vox Sang.* 2014; 106: 118-26.
- Charbonneau J, Cloutier MS, Carrier É. Whole blood and apheresis donors in Quebec, Canada: demographic differences and motivations to donate. *Transfus Apher Sci.* 2015; 53: 320-8.
- Finck R, Ziman A, Hoffman M, Phan-Tang M, Yuan S. Motivating factors and potential deterrents to blood donation in high school aged blood donors. *J Blood Transfus.* 2016; 2016: 8624230.
- Greffin K, Schmidt S, Schönborn L, Muehlan H. 'Blood for Blood'? Personal motives and deterrents for blood donation in the German population. *Int J Environ Res Public Health.* 2021; 18: 4238.
- Mohammed S, Essel HB. Motivational factors for blood donation, potential barriers, and knowledge about blood donation in first-time and repeat blood donors. *BMC Hematol.* 2018; 18: 36.
- Charbonneau J, Cloutier MS, Carrier É. Motivational differences between whole blood and apheresis donors in Quebec, Canada: A questionnaire-based survey in a voluntary nonremunerated context. *J Blood Transfus.* 2015; 2015: 568259.
- Tripathi PP, Kumawat V, Patidar GK. Donor's perspectives on blood donation during Covid-19 pandemic. *Indian J Hematol Blood Transfus.* 2022; 38: 536-45.
- Anwer MO, UI Fawwad SH, Anwer S, Ali A. Attitude toward blood donation among medical and nonmedical students across Karachi. *Asian J Transfus Sci.* 2016; 10: 113-7.
- Klinkenberg EF, Fransen MP, de Kort WLAM, van Weert JCM, Huis In 't Veld EMJ. Blood donation among individuals of African origin in the Netherlands: how are barriers and motivators associated with intention? *Blood Transfus.* 2021; 19: 24-33.
- Jemberu YA, Esmael A, Ahmed KY. Knowledge, attitude and practice towards blood donation and associated factors among adults in Debre Markos town, Northwest Ethiopia. *BMC Hematol.* 2016; 16: 23.
- Sadler A, Shi L, Bethge S, Mühlbacher A. Incentives for blood donation: A discrete choice experiment to analyze extrinsic motivation. *Transfus Med Hemother.* 2018; 45: 116-24.
- Baig M, Habib H, H Haji A, T Alsharief F, M Noor A, G Makki R. Knowledge, misconceptions and motivations towards blood donation among university students in KSA. *Pak J Med Sci.* 2013; 29: 1295-9.
- Alanzi T, Alsaheed B. Use of social media in the blood donation process in Saudi Arabia. *J Blood Med.* 2019; 10: 417-23.
- Yu C, Holroyd E, Cheng Y, Lau JT. Institutional incentives for altruism: gifting blood in China. *BMC Public Health.* 2013; 13: 524.

24. Zanin TZ, Hersey DP, Cone DC, Agrawal P. Tapping into a vital resource: understanding the motivators and barriers to blood donation in Sub-Saharan Africa. *Afr J Emerg Med.* 2016; 6: 70-9.
25. Muthivhi TN, Olmsted MG, Park H, Sha M, Raju V, Mokoena T, et al. Motivators and deterrents to blood donation among Black South Africans: a qualitative analysis of focus group data. *Transfus Med.* 2015; 25: 249-58.
26. Huis In 't Veld EMJ, de Kort WLAM, Merz EM. Determinants of blood donation willingness in the European Union: a cross-country perspective on perceived transfusion safety, concerns, and incentives. *Transfusion.* 2019; 59: 1273-82.
27. Noriega-Mendoza EDY, Lira-Arriaga P, Benítez-Arvizu G. Sistematización de entrevistas a donantes altruistas de sangre durante campaña móvil [Systematization of interviews with altruistic blood donors during mobile campaign]. *Rev Med Inst Mex Seguro Soc.* 2023; 61: 19-27.
28. France CR, France JL, Himawan LK. What would it take to convince you to donate? A survey study of the relationship between motivators, barriers, and payment for whole blood, plasma, and platelet donation. *Transfusion.* 2022; 62: 1251-60.
29. Padilla-Garrido N, Fernández-Herrera MD, Aguado-Correa F, Rabadán-Martín I. Motivators, barriers and communication channels for blood donation in relation to students at a university in Spain. *Transfus Apher Sci.* 2021; 60: 103270.
30. Ibrahim AA, Koç M, Abdallah AM. Knowledge level, motivators and barriers of blood donation among students at Qatar University. *Healthcare (Basel).* 2021; 9: 926.
31. Kalargirou AA, Beloukas AI, Kosma AG, Nanou CI, Saridi MI, Kriebardis AG. Attitudes and behaviours of Greeks concerning blood donation: recruitment and retention campaigns should be focused on need rather than altruism. *Blood Transfus.* 2014; 12: 320-9.