



Motivators and deterrents of blood donation among migrants of Sub-Saharan African descent in Western countries

A literature review

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Bachelor's thesis

March 2024

Bachelor of Health Care, Nursing

jamk | Jyväskylän ammattikorkeakoulu
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Motivators and deterrents of blood donation among migrants of Sub-Saharan African descent in Western countries. A literature review.

Jyväskylä: Jamk University of Applied Sciences, March 2024, 40 pages.

Degree Programme in Nursing. Bachelor's thesis.

Permission for open access publication: Yes

Language of publication: English

Abstract

Background: there is a worldwide shortage of blood donations. Migration patterns result in an even more increased need for rare blood type donations from migrants of Sub-Saharan African background in Western countries to treat diseases such as sickle cell disease. More insight is needed about the motivation of the Sub-Saharan African migrants to donate blood as to have an influence on the blood donation shortage.

Aim: to gain insight into the motivators and deterrents of blood donation among people of Sub-Saharan African descent in Western countries.

Method: The method of literature review was applied. Data search was done using three scientific databases PubMed, Medline and CINAHL. Eight articles were included for analysis after screening and the critical appraisal method. Data were analyzed using content analysis.

Results: three categories were formed out of the findings: sociocultural factors, uncertainties, and empowering resources. Sociocultural factors were discussed in perspectives of culture and religion. Uncertainties were discussed in perspectives of health, fear, and stigma. Empowering resources were discussed in the perspective of information, accessibility, and incentives.

Conclusion: There is evidence that there is a tremendous number of factors that influence the willingness as well as the possibility of migrants from Sub-Saharan African descent to donate blood in Western countries. It should be aimed on international, national, and local level to enhance the existing motivating factors as well as overcome deterrent factors by using new technologies, educate (future) health care personnel in culturally sensitive nursing and establish different communication channels to provide information to the target group.

Keywords/tags (subjects)

Blood donation, blood donation shortage, sub-Saharan African migrants, nursing, literature review

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1 Introduction

Evidence shows that there is a worldwide shortage of blood donation. The highest relative number of blood donations are in high-income countries, with 31,5 donations per 1000 people. In upper-middle-income countries the blood donations are relatively lower, with 16,4 blood donations per 1000 persons. In the lower-middle income countries the number is about 6,6 donations per 1000 people. The lowest relative number of blood donations is in low-income countries, with 5 blood donations per 100 people. In total, blood donations add up to about 106 million globally (World Health Organization, 2022). While there are rare blood types existing among people of different ethnical backgrounds, the Finnish Red Cross (2022) explains that the ABO and Rh blood types are existing in every person unrelated to ethnical background.

Donated blood is used for different purposes for instance, the urgency of blood transfusion for a patient that is in a life-threatening situation due to severe blood loss (Finnish Red Cross, 2015). Another example of the purpose of blood donation is the replacement of blood components by periodic blood transfusion in patients with cancer, as chemotherapy drugs can impair the production of blood cell in the bone marrow. The periodic blood transfusion helps to increase the functions of the immune system (leukemia and lymphoma society, n.d.). Besides the need of donated blood in urgent cases, an amount of the donated blood is also needed for the processing of blood into medical products (Finnish Red Cross, 2015).

Globally, about 281 million people in 2020 were estimated to be international migrants (United Nations, 2022) and in the past 10 years the number of Sub-Saharan migrants has been growing immensely. From 2010 on, especially to number of people from Sub-Saharan Africa migrating to European countries has been growing (Pew Research Center, 2018). Research found that migration can cause an increase in the number of rare blood type donations. An increased number of migrations from countries where rare blood types are more common, leads to a higher number of potential blood donors of rare blood types. It is important to mention that the increase of rare blood type donation can only be realized when those donations are facilitated for the migrants and minority communities (Francis et al., 2017).

According to the Finnish Red Cross (2022) blood types and blood group combinations can differ between people from different ethnical backgrounds. Some blood types for example or not even existent in a particular ethnic group, while the same blood type is existent in another ethnic group.

Therefore, the importance of rare blood type donations from ethnic minorities is great. Unfortunately, ethnic minorities are underrepresented in blood donor populations in most developed countries. This underrepresentation is emphasized by Makin et al. (2019) as a problem for effective management of rare disorders such as sickle-cell disease, where type matching and multiple transfusions are required.

Research has shown that the shortage of blood donors not only impacts the effective management of diseases, but also leads to increased economic burden to both the patient and the healthcare resources as additional visits and procedures are taken place as a result from the blood product shortage (Gupta et al., 2022).

This thesis aims to gain insight into the motivators and deterrents of blood donation among people of Sub-Saharan African descent in Western countries. The purpose is to increase the number of blood donations of people of Sub-Saharan African descent in Western countries, with help of the gained insight.

2 Background

2.1 Migrants of Sub-Saharan descent

The International Organization for Migration (2023) defines a migrant as *'any person who is moving or has moved across an international border or within a State away from his/her habitual place of residence, regardless of (1) the person's legal status; (2) whether the movement is voluntary or involuntary; (3) what the causes for the movement are; or (4) what the length of the stay is.'*

It is estimated that there were globally around 272 million international migrants in 2019, which is equal to 3.5 percent of the global population (International Organization for Migration, 2023). In Europe there were living about 447.2 million persons in 2021, of whom 1.92 million persons had been immigrated to Europe from outside Europe (European Commission, 2022) and at least a million Sub-Saharan Africans moved to Europe since 2010 (Pew research center, 2018).

Between 2017 and 2010 the amount of Sub-Saharan African migrants in Europe has grown with about 420 000 people. The highest amount of these migrants live in the countries of the European Union, Norway and Switzerland and migrated from Nigeria, Ghana, and Kenya. Of those 420 000 migrants, about 210 000 migrated to Europe and were born in South Africa, Somalia, Senegal, Angola, the Democratic republic of Congo and Cameroon (Pew research center, 2018). Research has shown that here are different reasons for migration within the Sub-Saharan countries and moving from Sub-Saharan countries to outside the Sub-Saharan countries. Uneven wages, lack of safety, cultural- and environmental factors for example are mentioned as reasons for migration within the Sub-Saharan African countries. Economic opportunities are mentioned as the most important reasons for people from Sub-Saharan countries to migrate outside of the Sub-Saharan African countries (Gonzales-Garcia & Mlachila, 2016).

Not only the prospective of better economic opportunities results in an increase in migration. Warner et al. (2009) describe the effects of global climate warming as a reason for an increased migration number to Europe, as the effects of global climate warming would be less intense in Central Europe than in the other continents. Research suggests that the ratio of Sub-Saharan African migrants will increase from 0.4 percent in 2010 to 2.4 percent by 2050 (Gonzales-Garcia & Mlachila, 2016).

It is suggested that a decrease or increase of the migration number has a direct impact on the blood supply (Greinacher et al., 2017). Therefore, the migration numbers can be utilized to estimate the amount of donated blood need in future perspectives. Greinacher et al. (2017) predicts that the population in Europe and North America will be aging, this means that the population of the elderly is growing bigger than the number of young populations. This shift is caused by the increase of life expectancy and the decrease of birth rates. The demographical change of aging population in Finland for example, affect the amount of blood supply negatively. According to the Finnish Red Cross (2022b), a person over the age of 70 years old is not eligible to donate blood. As the older age group is growing in Finland, the level of blood supply from donations will shrink.

However, migration can be a positive factor in the blood supply. Ehling and Pötz (2010) suggest that a high level of migration would slow down the shrinking of the age group of potential blood donors. It must be emphasized that this phenomenon is hypothetical, as research has shown that it is a challenge to recruit new blood donors from immigrants. Polonsky et al. (2011) link this challenge with a perception of host country mistrust and discrimination towards the potential donor, which would make the immigrant deterrent to blood donation. Other challenges in recruiting new blood donors from immigrants are language barriers, lack of information, the experience of prejudice of health personnel, lack of experience of donation in the country of origin and ineligibility due to for example malaria risks (Raja et al, 2014).

As mentioned in the introduction, the migration flow of people from Sub-Saharan Africa to Europe and the United States has been rising since 2010 (Pew Research Center, 2018). The United Nations (2023) describes people of African descent as following: *“People of African descent may be defined as descendants of the African victims of the trans-Atlantic and Mediterranean Sea slave trade. Including those affected by the sub-Sahara slave trade. The definition must also include Africans and their descendants who emigrated to or went to work in Europe, Canada and the Middle East”*.

However, there is a geographical distinguish to be made between North Africa and Sub-Saharan Africa, as well as the presence of rare blood type in people from particularly Sub-Saharan African origin. According to the Finnish Red Cross (2022a) there are proportionally not enough blood donors of African origin Finland. This problem will be growing, as the number of migrants from

people of African ethnical background to Finland is also growing. This is a problem that occurs throughout multiple European countries.

Klinkenberg et al. (2019) explains that particularly Sub-Saharan Africans are under-represented in the blood donor population in Western high-income countries, as specific rare blood types are more common within the Sub-Saharan African people. According to the United Nations (2023a) Sub-Saharan Africa is the geographical area that lies south of the Sahara. This includes Eastern Africa, Middle Africa, Southern Africa and Western Africa. The United Nations describes furthermore the different countries and territories within the Sub-Saharan African areas as in the table below:

Table 1. Countries and territories within the Sub-Saharan African areas

Eastern Africa	Middle Africa	Southern Africa	Western Africa
Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, South Sudan, Uganda, Tanzania, Zambia and Zimbabwe	Angola, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Sao Tome and Principe	Botswana, Eswatini, Lesotho, Namibia and South Africa	Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.

Western countries in contrary, are not located within the borders of one continent. Boudreau et al (2023) explain that Europe is considered the birthplace of Western civilization. However, when talking about 'the West' it is argued that it is a concept that globally has been imaged, stereotyped, employed, and deployed (Bonnet, 2004). It can be concluded that the description of Western countries depends on the context.

As for this literature view the topic concerns migrants of Sub-Saharan African descent in Western countries, Western countries will be referred to as high-income countries that are influenced by the European culture and politics. These include the United Kingdom, the United States, Canada, Australia, New Zealand, as well as countries that are member states of the European Union (Boudreau et al, 2023). According to the Finnish Immigration Service (2024) the following countries are part of the European Union: *Finland, Austria, Belgium, Bulgaria, Croatia, Cyprus,*

Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden. The Finnish Immigration Service describes furthermore that the countries Iceland, Liechtenstein, Norway and Switzerland are comparable with the countries of the European Unions from a cultural and political perspective.

2.2 The blood donation process: from the donor to the patient

After blood is donated, the blood is distributed into different blood parts: red cells, platelets, and plasma. The red cells, platelets and plasma are produced into blood products for patient treatment (American Red Cross, 2023). National and international guidelines are laid down to guarantee the quality and safety of the blood parts and the blood donation process. The World Health Organization (2022) ensures the quality and safety in the blood donation process by recommending screening of blood donations for infections prior to use, for example testing the blood for HIV. In Europe the guidelines are laid down by the European Directorate for the Quality of Medicines & Healthcare of the Council of Europe (EDQM), guidelines are related to for example the used equipment and requirements for transportation of the blood components (EDQM, 2023). Guidelines are also laid down on a national level. The World Health Organization (2022) emphasizes the importance of adherence to country-specific guidelines.

The American Red Cross (2023) for example describes the blood donation duration as an hour, where the actual donation takes about 8-10 minutes, where about 470 ml of whole blood is taken. In Finland, women between 18 and 25 years old are recommended to donate blood for a maximum of once a year. Other women are recommended to donate blood for a maximum of 2-3 times a year. Men are recommended to donate blood for a maximum of 3-4 times a year (Finnish Red Cross, 2022b). While in the Netherlands women can also donate up to a maximum of 3 times a year, but men in the Netherlands can donate whole blood for a maximum of 5 times a year (Sanquin Dutch blood services, 2023).

Safety guidelines are also laid down for care after the blood donation. For example, guidelines regarding maintaining healthy levels of iron after blood donation. According to research of the National Institutes of Health (2015) the use of iron supplements after blood donation helps to return faster to pre-donation hemoglobin levels compared to donors without iron supplementation, 11 weeks versus more than 24 weeks. In a research of the National Institutes of Health (2015) the

importance of iron supplementation for the blood donation is emphasized: *'Maintaining healthy iron levels will allow donors to safely continue donating thereby ensuring a robust blood supply for patients in need.'*

Not everyone is suitable for blood donation. Prerequisites decide whether a person is eligible to donate blood or not. In Finland those prerequisites are set by the Finnish Red Cross, focused on overall health, age, weight, identification, hemoglobin levels, travel history, and lifestyle: sexual life, intoxication, and intravenous drug use. Hemoglobin levels for example are supposed to be at a minimum of 125g per liter for women and 135g per liter for men.

The identification prerequisite in Finland is that the donor must have an official photo identification and a Finnish identity code. Language comprehension is important, as the donor in Finland must be able to fill in the questionnaire either in Finnish, Swedish, or English (Finnish Red Cross, November 8). When all prerequisites are met according to the country's specific guidelines, the donor is eligible to donate.

After donation, the blood components are then further distributed for different purposes. In Finland the blood is divided into red cell products, platelet products, leukocyte products and plasma-derived preparations. The separated plasma is sent to Central Europe and will be used as raw material for medicines. The other blood products are produced at the Kivihaka Blood Service center in Helsinki (Finnish Red Cross, November 8).

Before the blood is transfused to a patient, the blood must be tested for blood type, Rh type and particular antibodies to prevent adverse transfusion reactions (the centers for disease control and Prevention, 2022). When the blood is tested and approved for donation, the blood can be transfused to the patient.

Red cell products are used in for example hip surgeries, cardiac operations, and organ transplants. Platelets are used for example in patients with leukaemia, as the cancer treatments cause an insufficient amount of platelet production in their bone marrow. Leukocytes are only prepared by order in Finland (Finnish Red Cross, November 8). Lymphocytes are taken from the bone marrow and are used in lymphocyte transfusion for the treatment of for example non-Hodgkin's lymphoma or relapsed acute leukemia (Schmid et al, 2021).

Plasma components are used for the production of medicines. The World Health Organization has listed several plasma-derived medical products as essential, effective, and safe medications to be used in the health system (The World Health Organization, 2021). Furthermore, frozen plasma is used as transfusion to replace coagulation factors in cases of hemorrhage (Lauronen et al., 2020).

Blood donation from people from different ethnical backgrounds are needed for the treatment of particular diseases. According to the National Health Service (n.d.), sickle cell disease affects people from black ethnical background more commonly. When a person has sickle cell disease, the red blood cells lose shape, will become hard and sticky and have shorter cell-life than the other red blood cells. This is caused by the hemoglobin inside the red blood cells. As a result, the person with sickle cell disease has a continuous shortage of red blood cell supply. Therefore, the dependence on rare blood type donation is high.

According to the national heart, lung, and blood institute (2022) there are several effective transfusions to aid patients with sickle cell disease and their complications related to the disease. Examples are acute transfusion in severe anemia, red blood cell transfusion to treat sickle hemoglobin, and regular or ongoing blood transfusion to lower the change of reoccurring stroke after a history of acute stroke.

2.3 Blood products and rare blood types

About seven percent of a person's body weight covers blood. There are differences in the amount of blood between women and men. On average, a woman's body over 18 years old consists of about 4,5 liters blood. A man's body over 18 years old consists of an average of 5,6 liters (Sanquin Dutch blood services, 2023).

Blood can be divided into three main components: plasma (55 percent of the blood), hematocrit (45 percent of the blood), and a buffy coat (1 percent of the blood). Furthermore, plasma can be divided into water (90 percent of the plasma) and a combination of vitamins, sugars, lipids, electrolytes, and proteins (10 percent of the plasma). The hematocrit consists of red blood cells, also called erythrocytes. The buffy coat consists of platelets and white blood cells, also called leukocytes (Clark et al, 2023). The aforementioned components have different functions in the human body. Leukocytes, also called white blood cells participate in the defense and immune systems of the body and are categorized as granulocytes (neutrophils, eosinophils, and basophils) and agranulocytes (monocytes and lymphocytes). (Moreau et al., 2002, p100-101).

Platelets are divided in three vital functions: the minimization of blood loss by contraction of damaged blood vessels, the formation of hemostatic plugs in injured blood vessels, and providing material that accelerates blood coagulation. Oxygen and carbon dioxide is transported in the body tissues by red blood cells. The blood is red colored because of the hemoglobin in the red blood cells and the blood type is determined by the antigens on the surface of the red blood cells. Plasma delivers nutrients, hormones, and other substances throughout the body, regulates blood pressure, and maintains a proper pH balance in the body (Moreau et al, 2002, p95).

A blood group can be distinguished in various ways. A widely used system is the ABO system (Finnish Red Cross, 2022). As explained in the paragraph above, a blood type is determined by the antigens on the surface of the red blood cells. This is also the case for distinguishing a blood group in the ABO system. Thereby are blood groups in the ABO system also distinguished by antibodies, which are described by the National Health Service (2020) as proteins found in plasma. The different combinations of antigens and antibodies lead to the following possible blood groups described by the Finnish Red Cross (2022): *'A RhD positive (A+), A Rhd negative (A-), B RhD positive (B+), B Rhd negative (B-), O RhD positive (O+), O Rhd negative (O-), AB RhD positive (AB+) and AB Rhd negative (AB-).'*

Some blood types are more prevalent than other blood types. According to Reesink et al (2018) a blood type is rare if it occurs in 4 or less out of 1000 people in the general population. Geralyn et al (2013) describes the acknowledging of a rare blood type in line with the criteria of the American Rare Donor Program. If one of the following criteria is met, it concerns a rare blood type: *'high-prevalence antigen negative, multiple common antigen negative or immunoglobulin A deficiency'*.

According to Vassalo (2004) a person being negative to high-prevalence antigen occurs when a body makes multiple antibodies to more than one red cell antigen. The combination of multiple antibodies makes compatible blood donation difficult to find. Lastly, Vassalo refers to immunoglobulin A (IgA) deficiency at a measurement less than 0.05 mg/dl IgA, tested on two separate occasions.

Research suggests that a person of Black African or Black Caribbean heritage is about ten times more likely to have the Ro subtype than someone of white heritage and sickle cell disease is more common in people from black ethnic background. As the number of people with sickle cell has increased, so the demand for Ro-type blood has grown (National Health service, n.d.).

According to Howes, et al. (2011), the Duffy negative phenotype FY (a-b-) is found frequently among individuals of the Sub-Saharan region of Africa but is rarely found among individuals of white European origin. As Höher et al. (2017) describe, persons with the Duffy negative phenotype FY (a-b-) have an increased risk of complications from underlying diseases, as they have a higher chance of developing an alloimmunization reaction (an immune response to foreign blood types). Matching blood type is therefore needed to ensure a safe blood transfusion.

2.4 The role of the nurse in blood donation

The report of the Serious Hazards of Transfusion (SHOT) report of the United Kingdom explains that the most common adverse incidents in blood transfusion are caused by errors (Talati et al., 2016). Brown and Brown (2023) emphasize the morbidity and mortality risks caused by transfusion errors. Brown and Brown describe that human factors, environmental factors, lack of education and training have a negative impact in the safety of blood transfusion. According to Watson and Hearnshaw (2010) raising awareness of local policies and procedures amongst nursing staff, assessment of nursing competence and offering transfusion training should help reduce the transfusion risks. It can be suggested that the nurses' knowledge and awareness of the blood donation and blood transfusion process is crucial for a safe process.

According to Heal et al (2019) the nursing tasks in blood donation include leading blood donation sessions, delivering high-quality care for donors and ensuring that the blood supply is safe for patients. It is mentioned by Heal et al that donor adverse events might occur, and the nurse needs to be competent to act according in such event. Examples for donor adverse events are nerve injuries, possible arterial punctures, or faints. Furthermore, the nurse's responsibilities in blood donor counselling described by the World Health Organization (2014) includes the following: obtaining informed consent from donors prior to blood donation, management of donors who are rejected for blood donation and cooperation with existing health-care services (for example referral to other health services for follow-up treatment).

While the nurse has a determining role in the safety of the blood donation process, the nurse also plays a crucial part in the promotion of blood donation and the motivation of potential blood donors. Dupin et al (2019) identify different donor mechanisms in order to facilitate nursing interventions to promote blood donor commitment. An important mechanism mentioned by Dupin et al is a good nurse-patient relationship, they suggest that a good nurse-relationship benefits to a

positive experience of blood donation. Which furthermore can result in attracting new blood donors as well as increasing the number of subsequential blood donors.

Another mechanism for blood promotion and increasing knowledge under nursing students is described by Martinez-santos et al (2010), they suggest that '*nursing students should be involved in the blood donation process from a theoretical and practical point of view through specific training programs.*' Asmaa et al (2020) suggest that the blood donation knowledge of nursing students can be increased by specific seminars and workshops and the introduction of a lecture taught to first year students about blood donation. The increased knowledge and awareness of blood donation amongst nursing students, could lead to increased promotion of blood donation and therefore an increase in blood donors.

3 Aim, purpose and research question

The aim of this literature review was to find out the motivating and deterring factors for blood donation among migrants of Sub-Saharan African descent. The purpose was to enhance participation of blood donation among migrants of Sub-Saharan African descent. This literature review answers to the question: What are the motivating and deterring factors for blood donation among migrants of Sub-Saharan African descent in Western countries?

4 Methods

4.1 Literature review

This study adopted a literature review as the methodological approach. In a literature review, current knowledge on the research topic is objectively reported and summarized from previously published studies (Baker, 2016). As Aveyard (2014) describes, a literature review is an important source of information for health professionals. It is within the health professional's duty to be up to date with recent developments and research in their field. A wide range of studies are done in the field of health care. A literature review gathers the findings of several studies to gain more insights on a particular topic and brings structure to a large amount of information.

The previously published studies used in this research, related to blood donation among migrants of African background, were chosen using the formulation of the PICO study and Prisma model for data selection. The research has analyzed the data, which are concluded in the results chapter. The research question described in chapter three is set in context with the introductory chapter. The method section of this literature review consists of the search strategy, the use of a critical appraisal tool by Hawker et al (2012), and the literature analyses. The method section leads to the presentation of results, discussion of results, and practice recommendations.

The literature review process was systematically conducted according to the three stages process described by Marshall (2010). The steps of the literature review are searching, critiquing, and synthesizing. These three steps of literature review are described in more detail in table 2 below.

Table 2. The three steps of literature review process

Step	Activities
Searching	<ul style="list-style-type: none"> - Defining inclusion- and exclusion criteria - Forming key search terms - Selecting electronic databases - Conducting the search and article selection
Critiquing	<ul style="list-style-type: none"> - Evaluation of the selected articles by using Hawker's critical appraisal tool
Synthesizing and writing	<ul style="list-style-type: none"> - Objective data analysis - Presentation of results and conclusions

4.2 Data search

Data were searched from the scientific databases CINAHL, Medline, and PubMed. Quality data that answered to the research question was found by employing the PICO study, forming inclusion and exclusion criteria, and the use of key search words related to the PICOs. The PICOs (Participants, interest, context, studies) were formulated to guide this literature review. The literature review only included participants as individuals of African background with an interest in their motivating and deterrent factors for blood donation in the context of Western countries. Studies included in the literature review were those published within a fifteen-year time frame, peer-reviewed, English language, full-text, and freely available for JAMK-university of applied sciences students. Table 1 below presents PICOs. Key search words were applied in accordance with the PICO's study. Boolean expanders 'and' and 'or' were applied.

Table 3. PICOs

P – Participants	Migrants of African origin
I – Interest	Motivators and deterrents of blood donation
Co – Context	Western countries
S – Studies	Published between 2007 – 2023, peer-reviewed, English language, full text available, free for JAMK students

This literature review only includes studies that have the research population as individuals of African background and their motivation and deterrents of blood donation in the Western (Europe, the United States, and Australia) context. These studies are only those that are peer-reviewed, published between 2007-2023 in the English language, have full text available, and are free for use. All other literature that does not meet the inclusion criteria will be eliminated. Table 4 below elaborates on the inclusion and exclusion criteria.

Table 4. Inclusion and exclusion criteria

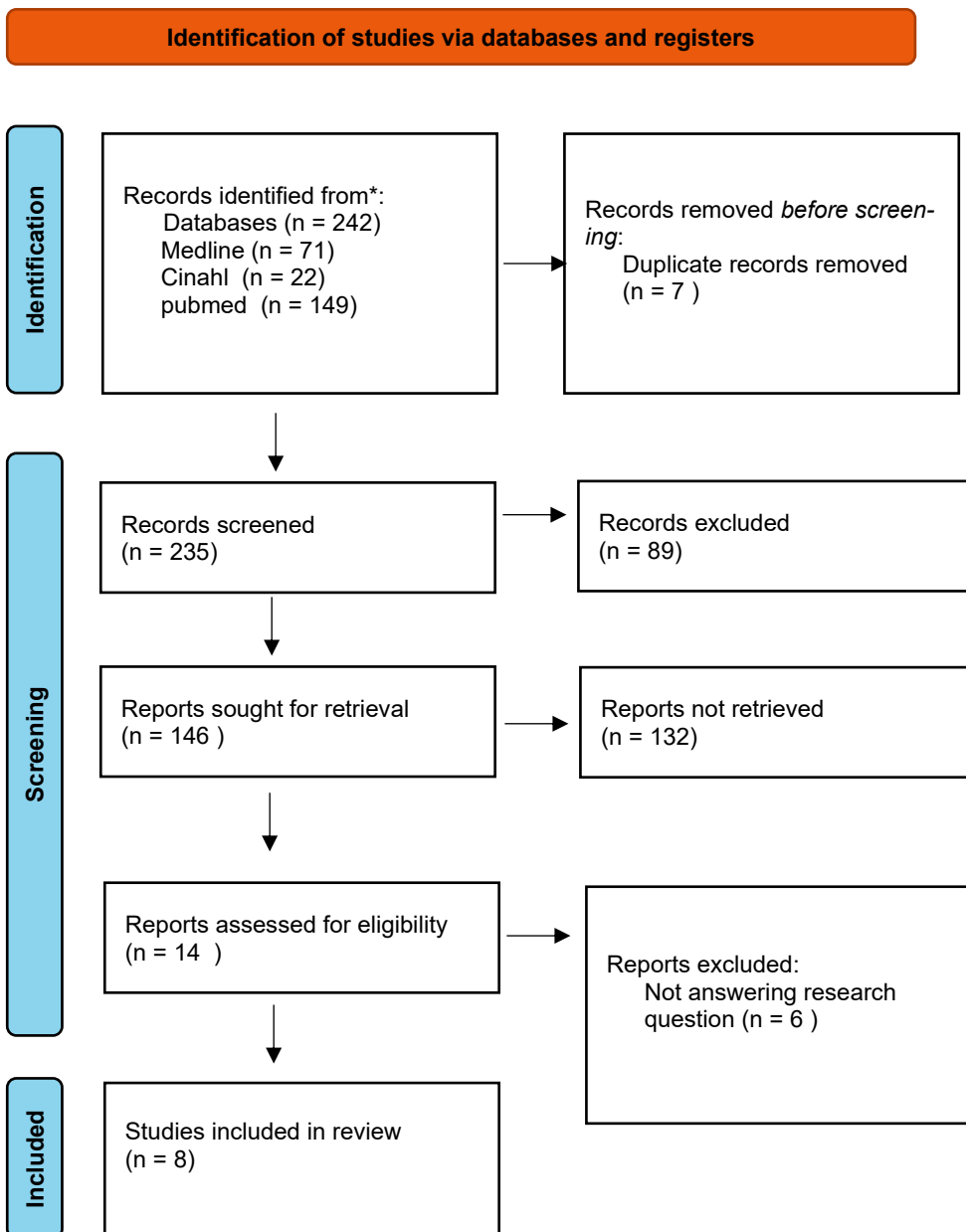
Inclusion criteria	Exclusion criteria
Individuals of African origin	Any other population except individuals of African origin
Motivators and deterrents of blood donation	Any other outcome that does not relate to motivators and deterrents of blood donation
Western countries	Any other context than Western countries
Published between 2007-2023, peer-reviewed, English language, full text available, free for JAMK students	All other studies that are not published between 2007-2023, not peer-reviewed, other language than English, full text not available and are not free for JAMK students

The articles were selected by the following key words: (African people or African descend or African background or Sub-Saharan or African descend or African immigrants or African refugee) and (factors or causes or influences or reasons or determinants) and (blood donation or giving blood or donating blood).

4.3 Data selection and quality appraisal

Data selection was done according to the PRISMA flow chart, shown in figure 1. Databases Medline, Cinahl and Pubmed were used for data selection. After using the PICO's studies in the data search, this led to N=242 (Medline N=71, Cinahl N=22 and Pubmed N=149). Duplicates had been removed from the initial result, leading to a total of N=235. The titles and abstracts from the 235 articles had been screened for relevancy to the research question. 89 Articles has been excluded because of irrelevancy to the research question, which led to N=146. Further data screening excluded another 132 articles, which led to N=14. These 14 articles had been screened full text for relevancy to the research question. 6 Articles had been excluded for not answering the research question. Concluded with the PRISMA model, the final result of selected articles is N=8.

Figure 1. Prisma flow chart



These final articles N=8 underwent critical appraisal, using the tool for critical appraisal by Hawker (2002). Described in the critical appraisal are the following: title of study, year of study, author, country, participants, context, methodology, and key findings (see appendix 1). The critical appraisal tool scores the articles on the quality of abstract and title, introduction and aims, method and data, sampling, data analysis, ethics and bias, results, transferability or generalizability, and implication and usefulness. These different aspects are then given a number, where the minimum score per aspect is 1 and the maximum score per aspect is 4. This can lead to a maximum overall score per article of 36 and a minimum overall score per article of 9 (Hawker, 2002). The 8 articles

being critically appraised and included due to the high quality have a minimum score of 28 points, of which the article scoring the highest has 36 points.

4.4 Data analysis

Content analysis is an effective tool to analyse information. It is a tool for the researcher that can be used to gain comprehend the data in a sufficient and organized manner. This is done by organizing the content into categories to get an overview (Cavanagh, 1997). The analysis of content in this research was done according to the steps described by Elo & Kyngäs (2008), these steps are open coding, creating categories and abstraction. Open coding means that the material is read through critically for multiple times, while remarks are noted down as to gain an overview and better understanding of all the aspects of the content. From these notes categories are created, which purpose is to describe the content and increase the understanding. Lastly, abstraction takes places. Abstraction is the formulation of a general description of the research topic through generating categories (Polit & Beck, 2004). The categories are referred to titles that are characteristic for the analysed content and are divided in main categories and sub-categories (Elo & Kyngäs, 2008).

The process of inductive analysis aims at producing new insights rather than the basic knowledge about a particular phenomenon (Graneheim et al., 2017; Kyngäs, 2020). The meaning unites in the analysis process were categorized into 72 open codes. 15 Subcategories were established and categorized into 8 categories and 3 main categories. These categories can be found in table 5 below.

Table 5. Categories and main categories

Categories	Main categories
Culture	Sociocultural factors
Religion	
Health	Uncertainties
Fear	
Stigma	Empowering resources
Information	
Accessibility	
Incentives	

5 Results

The analyzed research papers were published between 2007 and 2023, one each in (2007), (2009), (2011), (2015), (2019), (2020), (2022) and (2023). Six of the research papers were done using qualitative approach and two of the research papers were done using mixed-method studies. These studies were done in the follow locations: the Netherlands, Ireland, Australia, France, and the United States of America.

The findings that led from the content analysis resulted in eight categories, which were further put into three main categories 1) sociocultural factors 2) uncertainties and 3) empowering resources.

5.1 Sociocultural factors

Sociocultural factors are presented as the influence of culture and religion on the blood donor's motivation (Klinkenberg et al., May 2019; Klinkenberg et al., 2020; Fogarty et al., 2023; Polonsky et al., 2011; Polonsky et al., 2015; Gahan et al., 2022; Grassineau et al., 2007; Shaz et al., 2009).

In the case of a student culture, the involvement of the University in blood donation promotion was mentioned as a motivating factor (Shaz et al., 2009). Culture is mentioned as motivating factor in the case of a blood donation recruiter being of the same community as the potential donor (Klinkenberg et al., May 2019; Fogarty et al., 2023), being recruited within the same community (Polonsky et al., 2015; Gahan et al., 2022; Grassineau et al., 2007), or being recruited by someone from the same family (Fogarty et al., 2023). Also, the blood receiver being of the same family would be a motivating factor for blood donation (Klinkenberg et al., 2020). Having family or friends who already donate blood was mentioned as a factor to donate blood (Klinkenberg et al., 2020), as well as having family or friends to donate together with were seen as motivating factors (Klinkenberg et al., 2020; Polonsky et al., 2015). The role of the family can also be seen as a deterrent for blood donation. The role of the family was mentioned as a negative influence on blood donation, when the family discourage to donate blood (Klinkenberg et al., 2020; Polonsky et al., 2011; Polonsky et al., 2015).

Community improvement of the health of each fellow citizen was mentioned as a motivator for blood donation (Grassineau et al., 2007). In some cultures, blood and strength were also related to age and sex. Younger people for example would have 'stronger' blood than older people and therefore the younger population would be more motivated to donate blood than the older

population (Polonsky et al., 2011). In Comorian society the concept of blood was seen as a symbol of family relationship, the motivation to donate blood is present if the blood will be donated within the same family (Grassineau et al., 2007). However, in other cultures blood is not seen as a symbol of family relationship, but blood is perceived as belonging to oneself, as is the heart of existence. Therefore, blood donation was seen as not right (Polonsky et al., 2011).

Other cultural aspects were also seen as deterrents for blood motivation. A potential blood donor can expect from the culture in his or her country of birth to be approached for blood donation. In the current residing country however, the potential donor is not being approached, which is a deterrent for blood donation (Klinkenberg et al., May 2019). Language was believed as a barrier that prevents many people from donating blood (Gahan et al., 2022). It was also mentioned that blood donation is seen as only for the wealthy people, as less wealthy people would be lacking something they could not replace (Polonsky et al., 2011). It was mentioned that in the Malawi culture some might be scared of their donated blood being drunk or that something bad will happen to the donor (Polonsky et al., 2011).

Religious factors in blood donation were perceived if blood donation was suggested by a religious group or leader (Fogarty et al., 2023) and if the proximity of donation centers were close in relation to the places of worship (Fogarty et al., 2023). Thereby was religion mentioned as a motivating factor for blood donation in Christianity, as blood is seen as a bond between Jesus and the blood donor (Klinkenberg et al., May 2019). Religion has also been mentioned as a motivating factor for blood donation in Islam, it was explained that one should give when one is in need and the same rule would apply with blood donation (Gahan et al., 2022) and a verse in the Koran that was mentioned to interpreted as a recommendation of life-saving blood donation (Grassineau et al., 2007).

In contrary, Islam was also described as a deterrent for blood donation. It was described as religious theft of Allah's property (Grassineau et al., 2007). Blood donation and transfusion from someone other than being Muslim, was explained as the cause of hemolytic incompatibility, as the other blood was non-halal (Grassineau et al., 2007). Besides Islam, religion is also mentioned as deterring factor in the case of other religious beliefs (Klinkenberg et al., May 2019; Klinkenberg et al., 2020; Fogarty et al., 2023; Polonsky et al., 2015; Shaz et al., 2009), for example in the religion of Ghanaian Jehovah's witnesses (Klinkenberg et al., May 2019).

5.2 Uncertainties

Uncertainties are presented as the influence of health, fear, and stigma on the blood donor's motivation (Klinkenberg et al., May 2019; Klinkenberg et al., 2020; Fogarty et al., 2023; Polonsky et al., 2011; Polonsky et al., 2015; Grassineau et al., 2007; Shaz et al., 2009).

Receiving information about the health status was perceived as a motivating factor for blood donation (Klinkenberg et al., 2020; Polonsky et al., 2015), for example receiving infectious disease test results (Klinkenberg et al., 2020) or in particular to learn about their HIV status (Shaz et al., 2009). Having already the knowledge of being in a status of good health has also been mentioned as a motivator for blood donation (Polonsky et al., 2015) as well as having a rare blood type donation (Fogarty et al., 2023).

On the contrary, the health status is a deterrent for a potential blood donor when the person is not eligible for blood donation. Several health factors were mentioned as a deterrent for blood donation: Hepatitis B (Klinkenberg et al., May 2019), a low body weight (Shaz et al., 2009), a low hemoglobin level (Klinkenberg et al., May 2019; Fogarty et al., 2023; Shaz et al., 2009), a history of living in a malaria-endemic region (Fogarty et al., 2023), iron deficiency (Klinkenberg et al., May 2019; Fogarty et al., 2023) and temporary deferrals as piercings or tattoos (Fogarty et al., 2023; Shaz et al., 2009) are mentioned as barriers for blood donation. Not feeling healthy enough in general was mentioned as a deterring factor for blood donation, despite the person might be eligible for blood donation (Klinkenberg et al., 2020; Polonsky et al., 2015).

Fear was often mentioned as a deterrent for blood donation. On the contrary, fear can also be a motivator. This was the case when potential blood donors were confronted with the consequences regarding the unavailability of blood (Klinkenberg et al., May 2019). Different aspects related to fear were mentioned as a deterrent factor for blood donation: the fear of seeing blood (Klinkenberg et al., May 2019; Klinkenberg et al., May 2020, Fogarty et al., 2023; Gahan et al., 2022), the fear of losing too much blood (Klinkenberg et al., May 2020), the fear of needles (Klinkenberg et al., May 2019; Klinkenberg et al., 2020; Fogarty et al., 2023; Polonsky et al., 2015; Gahan et al., 2022; Shaz et al., 2009) and pain (Klinkenberg et al., May 2019; Klinkenberg et al., 2020; Fogarty et al., 2023; Polonsky et al., 2015; Shaz et al., 2009), the fear of feeling dizzy or to faint (Klinkenberg et al., 2020; Fogarty et al., 2023) the fear of contracting a disease (Klinkenberg et al., 2020), the fear of being treated badly (Klinkenberg et al., 2020), the fear of medical errors

(Klinkenberg et al., 2020). Also, the fear of finding out to have a disease was mentioned as a deterrent (Polonsky et al., 2015; Grassineau et al., 2007)

Stigma is a motivator for blood donation in the sense of positive portrayal. An example was given by a woman of Ghanaian background residing in the Netherlands, who perceived that everything is done right in the Netherlands and that the blood services would handle the donated blood according to the legislation. This positive portrayal of the host country increases trust in blood donation safety and therefore increases the motivation to donate blood (Klinkenberg et al (May, 2019).

Negative portrayals on the other hand deter blood donation. The blood donation health personnel was by some perceived as not expertized enough, and the motivation for blood donation advice by the doctor was preferred (Klinkenberg et al., May 2019). Disliking the policy or organization was mentioned as a reason for not donating blood (Klinkenberg et al., 2020; Polonsky et al., 2011) as well as the idea that the blood centers exaggerate the need for blood (Klinkenberg et al., 2020) or believing there is enough blood in the health care system (Fogarty et al., 2023). A general distrust of the healthcare system was also seen as a deterring factor (Fogarty et al., 2023; Polonsky et al., 2011; Shaz et al., 2009). For example, they believed that the post-colonialist French state would use the blood against the population for commercial or military purposes (Grassineau et al., 2022).

Barriers related to stigma were also experienced in the form of discrimination, as potential blood donors felt that their blood would be excluded from the donation pool based on their race (Polonsky et al., 2011). To overcome barriers related to stigma it was suggested to include racial representation of African people in public appeals for blood donation (Polonsky et al., 2011; Gahan et al., 2022), as well as promotion of multiracial forums where different cultures would come together (Polonsky et al., 2011). Blood donation was also described by some as a symbolic means of integration into the host country (Grassineau et al., 2007).

5.3 Empowering resources

Empowering resources are presented as the influence of information, accessibility, and incentives on the blood donor's motivation (Klinkenberg et al., May 2019; Klinkenberg et al., 2020; Fogarty et al., 2023; Polonsky et al., 2011; Polonsky et al., 2015; Gahan et al., 2022; Shaz et al., 2009).

Awareness and receiving information regarding blood donation were often mentioned. For example, being informed about the blood donation process in general (Gahan et al., 2022), being informed about what happens with donated blood (Klinkenberg et al., 2020; Polonsky et al., 2011), being informed about the blood shortage situation (Klinkenberg et al., 2020), being informed about the need for blood in conditions as sickle cell disease (Fogarty et al., 2023), being informed about the need of blood products in their community (Shaz et al., 2009) and being informed about the safety of the blood donation process (Klinkenberg et al., 2020).

The type of information communication influences the motivation: face-to-face recruitment motivates potential blood donors (Klinkenberg et al., May 2019, Fogarty et al., 2020; Shaz et al., 2009), as well as advertisements in the regular media and social media (Klinkenberg et al., May 2019, Fogarty et al., 2020). Information as a motivating factor was also perceived in the case of the blood donor having a professional background in the medical field (Gahan et al., 2022). The lack of information on the other hand, was often mentioned as a deterrent for blood donation (Klinkenberg et al., May 2019; Fogarty et al., 2023; Polonsky et al., 2011; Polonsky et al., 2015; Gahan et al., 2022). The lack of advertisements in social media, newspapers, and commercials on TV and radio influences the willingness to donate blood negatively (Klinkenberg et al., May 2019). Not being approached for blood donation was also mentioned as a deterrent by Klinkenberg et al (2020).

Several factors were determined as of importance in blood donation motivation: convenience of time (Klinkenberg et al., May 2019; Klinkenberg et al., 2020), convenience of place (Klinkenberg et al., May 2019; Klinkenberg et al., 2020; Fogarty et al., 2023; Gahan et al., 2022; Shaz et al., 2009), receiving donation requests from the blood bank (Klinkenberg et al., 2020), the possibility to make appointments through the internet/mobile devices (Klinkenberg et a., 2020), the availability of childcare at the donation center (Klinkenberg et al., 2020).

The inconvenience of location was mentioned as a deterring factor, the donation center was perceived as too far from home (Fogarty et al., 2023). Not having information about the location of the donation influences the willingness to donate negatively (Klinkenberg et al., 2020; Polonsky et al., 2015) as well as a perceived lack of time was described as a deterrent for blood donation (Shaz et al., 2009).

As well material incentives as non-material incentives were mentioned as a motivator for blood donation. Material incentives mentioned were money (Klinkenberg et al., May 2019), gifts

(Klinkenberg et al., 2020) and food (Klinkenberg et al., May 2019, Klinkenberg et al., 2020; Polonsky et al., 2015). Non-material incentives mentioned were saving someone's life (Klinkenberg et al., May 2019), meeting someone whose life was saved through blood donation (Polonsky et al., 2015), getting a positive feeling in return for helping others (Klinkenberg et al., May 2019) and to influence someone else's wellbeing positively (Klinkenberg et al., May 2019). Blood was mentioned as a gift of life, and therefore no financial gratification was needed, helping someone else was enough (Polonsky et al., 2011).

Incentives were also seen as a negative influencing factor on blood donation. It is thought to have negative consequences if one trades his or her blood for money (Klinkenberg et al., May 2019). It was also thought that the rewards of blood donation were not sufficient to donate (Polonsky et al., 2015).

6 Discussion

This study established that there is a wide variety of factors that influence the blood donation rate among migrants of Sub-Saharan African descent in Western countries. Establishing these factors are of importance for recruiting potential blood donors as well as for attracting subsequent donors. A study by Kasraian and Tavassoli (2013) emphasizes the importance of gaining insight into returning first-time donors so that effective measures and recruitment programs can be established to increase the amount of subsequent blood donors. Presented findings show that potential blood donors of Sub-Saharan African descent were influenced in their decision to blood donation by their perceived health status. This influence is further described by Hurk et al (2017) as donors with a perceived good health status were more likely to repeat blood donation than donors with perceived poorer health status.

Another key finding was that availability and access to information were important factors in the motivation for blood donation, whereas lack or misinterpretation of information is a deterrent for blood donation. The results show that information received face-to-face or digital is both seen as motivating factors. Research has suggested the nursing role to be crucial in motivating potential donors and current donors. Not only does an emphatic, positive, and calm attitude of the nurse reduce anxiety in the donor, but also the nurse's knowledge reduces this anxiety. A nurse has a key role in informing the patient about the donation procedure and educating them about the blood donation process, its risks, and its benefits (Giacomini et al, 2010). Research has shown that online motivational interviews before blood donation enhance donation intention (France & France, 2018). Furthermore, motivational interviews after the blood donation have also been suggested to enhance donation intention (Sinclair et al, 2011).

The presented research highlights the cultural factors influencing the level of blood donation motivation. It is suggested that the implementation of cultural sensitivity in nursing education is of great importance, as demographic changes in society ask for quality care for patients from different cultural backgrounds (Červený et al, 2022). This inclusion of eligible blood donors regardless of background, is in line with the sustainable development goal 10.2: *'by 2030, empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status'* (United Nations, n.d.).

The use of technological tools could be considered to overcome the described barriers of blood donation. As fear has been described as a deterrent by the Sub-Saharan migrant population, an example of an augmented reality project in blood donation could be copied to overcome fear. An onsite study conducted at the New York Blood Center in Brooklyn indicated positive feedback using augmented reality. Participants were wearing a mixed reality headset while donating blood. The device tracks the eyes of the donor and is hands-free in use. The donor is situated in an augmented reality, where he or she sees a beautiful garden and hears soothing music through the headset. 90 percent of the participants had positive feedback about blood donation and 94 percent of the participants told it to be likely to donate using augmented reality (Association for the Advancement of Blood & Biotherapies, 2023).

7 Ethical consideration

This literature review was done according to the following ethical principles in research: honesty, objectivity, integrity, carefulness, openness, transparency, accountability, and protecting intellectual property (Shamoo & Resnik, 2015). A thorough investigation was done on which articles to include or exclude from the literature review. Furthermore, the Hawker critical appraisal model has been used to ensure the quality, trustworthiness, and relevancy of the used articles (Gajbhiye et al, 2021).

APA guidelines have been followed throughout the literature review. Following the guidelines provides transparency and ensures that credit is given where due (American Psychological Association, 2023). While human subjects have not directly been used in this literature review, some of the article reviews do include the use of human subjects. Shamoo and Resnik (2015) emphasize the importance of protecting human subjects in research. To ensure the protection of the human subjects in the articles used, the chosen articles were critically scanned to follow ethical principles.

7 Conclusion

This literature review strived to understand the motivators and deterrents of blood donation among people of Sub-Saharan African descent in Western countries. There is evidence that there is a tremendous number of different factors that influence the internal- as well as the external motivations or possibilities to donate blood. One factor could be seen by a migrant as a deterrent, while another migrant would perceive that same factor as a motivating factor. Especially religion turned out to be a factor with opposite reasoning on whether to donate blood or not. Fear, inconvenience, and lack of information were mentioned to a broad extent as deterrents for blood donation among potential blood donors of Sub-Saharan African descent.

Furthermore, the perceived discrimination towards migrants is a deterrent for blood donation. It could be further researched through what channels potential donors could be reached the best, how technology can be utilized to enhance the positive experiences of blood donation, and how to minimize the perceived gap between migrants of Sub-Saharan descent and non-migrants to prevent discrimination and include donors from all backgrounds in the blood donation process. The current nurses as well as future nurses must be educated about the relevance of blood donation in societies and how to apply culturally sensitive nursing in the working field. The motivating factors from these findings can be used as a source of information to enhance the service, to attract new donors, and just as importantly to attract subsequent donors.

More research could be done on the community-based awareness on blood donation to attract more rare blood type donors and integrate a culturally sensitive approach to blood donation. Thereby could more research be done on the motivation of subsequent blood donors in comparison with first-time donors as to rise the number of subsequent blood donors.

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Appendices

Appendix 1. Critical appraisal

	Title of study, year, author/s and country	Participants	Context	Methodology	Key findings	Quality appraisal score (Hawker et al., 2002)
1	Barriers and motivators of Ghanaian and African-Surinamese migrants to donate blood. (2019). Klinkenberg EF, Huis In 't Veld EMJ, de Wit PD, de Kort WLAM & Fransen MP. The Netherlands	First and second generation African Surinamese (n = 20) and Ghanaian (n = 16) migrants living in the Netherlands.	Dutch healthcare context	Qualitative study, with semi-structured personal interviews	Main blood donation barriers from the participant group are misinformation, fear and issues related to health and non-eligibility to donate and main motivators are mainly of altruistic nature.	36
2	Blood donation among individuals of African origin in the Netherlands: how are barriers and motivators associated with intention? (2020). Klinkenberg EF, Fransen MP, de Kort WLAM, van Weer JCM & Huis in 't Veld EMJ. The Netherlands	300 Individuals of sub-Saharan African, Afro-Surinamese and Afro-Caribbean origin living in the Netherlands	Dutch healthcare context	Qualitative study, with online survey data	Barriers and motivators related to awareness, fears, practicalities, and non-monetary incentives are important and highly ranked factors that are associated with the intention to donate blood among individuals of African origin living in the Netherlands.	33
3	Motivators and barriers to blood donation among potential donors of African and Caucasian ethnicity. (2023). Fogarty H, Sardana M, Sheridan L & Chien P. Ireland	387 Individuals, of whom 311 non-donors (median age 25 years, 67% female). Ethnic backgrounds included: African or African Irish (59%), White or Caucasian (25%), Asian (8%), Hispanic or Latino (3%), Middle Eastern (3%), Multiracial or Biracial (2%)	St. James's Hospital in Dublin and local communities of Dublin	Qualitative study, with online survey data	Commonly identified overall barriers are related to lack of information on blood donation. African respondents report mostly lack of information and malaria-related barriers and religious or communal motivators. Awareness of sickle-cell disease is higher among the African respondents than the non-African respondents.	30
4	Barriers to blood donation in African communities in Australia: the role of home and host country culture and experience. (2011). Polonsky	88 Individuals (migrants and refugees) from Sub-Saharan African countries,	Health, religious and community organizations and local government services in the state of Victoria, Australia.	Qualitative study, with focus group discussions	Participants viewed blood donation as necessary for saving lives, help the needy and as a gift to be given for free. However, negative perception of the blood services in their home country in Africa often forms a barrier.	35

	MJ, Renzaho AMN & Brijnath B.	divided in 9 focus groups.			Other donation barriers for the participants are lack of knowledge about the Australian donation process, perception of host country mistrust and discrimination.	
	Australia					
5	Is removing blood donation barriers a donation facilitator? Australian African migrants' view. (2015). Polonksy M, Francis KL & Renzaho A.	483 Individuals of migrant communities in Australia.	The context of African communities in Victoria and South Australia	Mixed method study. The first phase was qualitative, and the second phase involved quantitative data collection.	Blood donation barriers are cultural society factors and facilitators are engagement and overcoming fear. The removal of cultural barriers did not facilitate increases in blood donation intentions.	34
	Australia					
6	Motivators, facilitators, and barriers to blood donation in Australia by people from ethnic minority groups: Perspectives of sub-Saharan African, East/South-East Asian, and Melanesian/Polynesian blood donors. (2022). Gahan L, Masser B, Mwangi C, Thorpe R & Davison T.	44 participants from ethnic minority groups in Australia.	The context of Australian health care	A qualitative study	The motivators, facilitators and barriers to blood donation do not vary much between the different ethnic minority groups of this study. For sub-Saharan participants barriers are language, privacy for female donors and motivators are altruistic reasons	31
	Australia					
7	Improving minority blood donation: anthropologic approach in a migrant community. (2007). Grassineau D, Papa K, Ducourneau A, Duboz P, Boëtsch G, and Chiaroni J.	92 Individuals of Comorian origin residing in France.	The context of a Sub-Saharan African migrant community in Marseilles, France.	Action study combined with qualitative study in the form of interviews	Dealing with the essence of a minority culture is needed to identify main barriers to blood donation, so that appropriate recruitment campaigns can be developed for minority communities.	28
	France					
8	Motivators and barriers to blood donation in African American college students. (2009). Shaz B; Demmons DG, Crittendend CP, Carnevale CV, Lee M, Burnett M, Easley K & Hillyer CD	364 Primarily female African American college students. African American in this research represents people of African descent living within the US.	Two Historically Black Colleges/Universities in the south-eastern US.	Qualitative study, with online survey data	The most important blood donation motivator was a convenient place to donate. Educational campaigns aimed at all college students designed to increase the knowledge of both the blood donation process and the blood supply should be an effective method to increase blood donation rates in African American college students	30
	United States of America					