

# Knowledge Attitudes, Practices and Factors Associated with Blood Donation in the Fatick Health District in 2019 (Senegal)

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## Abstract

**Introduction:** Timely availability of safe blood or blood products is essential for all health care facilities where transfusion occurs, but in many developing and transitional countries, there is still a considerable gap between the need for blood and the supply available. The overall objective was to study knowledge attitudes, practices, and factors influencing blood donation in the general population in Senegal. **Methods:** This was a cross-sectional descriptive and analytical study conducted among the Fatick health district population from April 1 to 15, 2019. Thus, the sample is based on a two-stage survey. Data collection was conducted through a questionnaire designed, pre-tested, and administered to 466 people by selected and trained enumerators. The data collected on the smartphone was analyzed using Epi Info 7.2.1.0 software. A descriptive and bivariate analysis was performed with a 5% risk of alpha error. **Results:** The average age of respondents was 35 years ( $\pm 13$ ), with 34 years ( $\pm 12$ ) for women and 38 years ( $\pm 15$ ) for men, and more than half of them between 20 and 40 years of age. A proportion of 87% of respondents lived in rural areas and had agriculture as their primary income source. More than half of the individuals (70%) were married, and 68% were educated. The level of knowledge of individuals about blood donation was low at 91.8%. On the other hand, more than half of them had good habits (53.65%). A proportion of 68.0% of individuals had an intention to donate in the future. However, only 24.68% of the population surveyed had already donated blood. Eighty percent of the donations were voluntary. However, 26.09% had repeated this practice. Factors that could influence the practice of blood donation were age, male sex (ORb = 2.18 [1.40 - 3.37]), high level of education, good knowledge

of blood donation (ORb = 2.14 [1.07 - 4.26]), the existence of a relatives donor (ORb = 3.4 [2.19 - 5.26]) and individuals who did not necessarily require permission from a parent or spouse (ORb = 3.37 [2.13 - 5.31]). **Conclusion:** It is necessary to develop mass communication and proximity strategies, also strengthen the blood bank in terms of human resources and logistics to increase voluntary blood donations in the district. An increase and better planning of mobile clinic outings can facilitate and improve voluntary blood donation by improving accessibility to this service.

### Keywords

Knowledge Attitudes and Practices, Associated Factors, Blood Donation, Fatick District, Senegal

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## 1. Introduction

Blood transfusion is an indispensable component of health care. It saves millions of lives every year in routine and emergencies, increasingly allows complex medical and surgical interventions, and dramatically improves patients' life expectancy and quality of life with all kinds of acute and chronic conditions. Timely availability of safe blood or blood products is essential for all health care facilities where transfusion is performed. However, there is still a considerable gap between the need for blood and blood availability in many developing and transitional countries [1].

Voluntary non-remunerated blood donation is recognized as essential to the safety and sustainability of the national blood supply. The World Health Organization recommends this type of voluntary and non-remunerated blood donation. Systems based on replacement donation by family or friends of patients in need of transfusion are rarely able to meet clinical demand. In contrast, remunerated donations pose severe threats to both recipients' and donors' health and safety [1].

Developed countries with well-structured health systems and blood transfusion services based on voluntary blood donation can generally meet blood and blood products' demand. On the other hand, in developing and transition countries, chronic blood shortages are common. Large urban centers may have sophisticated health care provision, but a large proportion of the population, particularly in rural areas, often have access to more limited health services where blood transfusion may be at risk or only unavailable [1].

There is a continuous growth in the need for blood products in Senegal, which means that the demand is greater than the supply. This situation is a factor of morbidity and mortality, especially among women in labor. Hemorrhages are responsible for a quarter of maternal deaths in Senegal [2].

This deficiency in blood products is observed to varying degrees in different geographical areas and is dependent on blood donation rates. In high-income

countries, the voluntary donation rate is 32.1‰ compared to 4.6‰ for low-income countries [3]. In Senegal, the rate is estimated at 6.2‰, with an estimated shortfall of 40% in 2017 [2].

In Fatick, the rate of blood donation in the overall population is evolving positively since the blood bank's opening in 2015. It thus went from 0.9‰ in 2015 to 2.9‰ in 2018. The evolution of donations in fixed cabins (volunteers who come to the bank) remains low, with rates ranging from 12% in 2015 to 16% in 2018. The mobile cabin trips collected 32 pockets per trip in 2015 and 49 bags in 2018 [4].

The WHO and the International Federation of Red Cross and Red Crescent Societies (IFRC) are committed to efforts to achieve 100% voluntary blood donation and have a long history of collaboration in the area of blood safety and availability [1].

Studies conducted elsewhere show a correlation between Knowledge, Attitudes, and Practices and voluntary blood donation [1] [5] [6]. Factors that may influence blood donation are age, with an increase in donors over 50 years of age [7] [8] [9] [10], while younger donors are declining in donations. The reasons young people donate blood are more likely to be related to external social pressures or promises of reward [11] [12]. Surveys in most Western countries indicate that more men than women donate blood [13] [14]. Men donate 30% more often than women [15]. In most non-Western countries, men donate more regularly than women [9] [12] [16] [17] [18].

Few studies have addressed the level of knowledge, attitudes, and practices of individuals and the factors influencing blood donation in the Fatick health district. The results of this study will provide solutions for the timely availability of blood and blood products in health facilities. Thus, the general objective is to study the knowledge, attitudes, practices, and factors associated with blood donation among people aged 18 to 65 in Fatick health district in Senegal.

## 2. Methods

A descriptive and analytical cross-sectional study was conducted among the health district of Fatick population from April 1 to 15, 2019. The study's target population consists of individuals aged 18 to 65 years old living in the health district of Fatick. From this population, all individuals aged 18 to 65 years old residing for at least 6 months in the Fatick health district and present at the survey time are included. In addition to these criteria are the criteria of non-inclusion that are non-consent and the status of health worker.

The sampling is based on two types of units: survey units, in this case, the concessions and statistical units represented by men and women aged 18 to 65. The study aims to produce results representing the Fatick health district, urban and rural areas, and the district's 09 communes. The sample was drawn stratum by stratum.

Thus, the sample is based on a stratified, two-stage survey. At the first stage, 17 strata (Primary Survey Units—UPS) were drawn from the list of Enumeration

Areas (EAs) established during the 2013 General Census of Population and Housing, Agriculture and Livestock (GCPHAL), using a systematic draw with probability proportional to size, the size of the UPS being the number of households. An enumeration of households in each of these strata provided a list of households. A sample of 22 households per cluster was drawn at the second stage, in urban and rural areas, with equal probability systematic sampling. A total of 384 households were selected. The concessions' selection is made randomly with the *alea* function in Excel and the selection of the concession households is carried out from the right.

The sample calculated according to Schwart's formula ( $n = (\varepsilon\alpha^2 \cdot p \cdot q) / i^2$ ) taking into account a *p* equal to 50% (the rate of blood donation in the district is not known), a precision of 5%, a cluster effect of 1.1 and a percentage of non-respondents of 10%, is 466 individuals.

Data are collected from a questionnaire developed from the literature review of studies dealing with voluntary blood donation. The questionnaire included socio-demographic characteristics, respondent behaviors, knowledge about blood donation, attitudes towards blood donation, and user satisfaction. The collection was done through individual interviews. The collection was made by interviewers, trained on the content of the questionnaire and the collection methodology. The questionnaire was pre-tested on a small sample.

Data analysis was done on Epi Info 7.2.1.0. A descriptive and analytical study was conducted. In the descriptive part, position and dispersion parameters were calculated for quantitative (mean, standard deviation, median) and qualitative (absolute and relative frequencies) variables. The bivariate analysis made it possible to assess the links between the variables and blood donation practice. The statistical tests of Pearson's Chi<sup>2</sup>, Fisher's test, and Student's test were required with a 5% risk of alpha error.

Variables like knowledge level were created from variables that describe knowledge. Thus a rating made it possible to calculate a score and to define the good, average and bad knowledge. The socio-economic level was assessed on the basis of the materials available in the household. A rating of these materials gave a cumulative score. The latter made it possible to create three classes corresponding to the level (high, medium, low) of economic well-being. The materials consisted of air conditioner, television, telephone, refrigerator, radio and also included the characteristics of the dwelling, the source of drinking water supply, energy for lighting and cooking.

Informed consent of study participants was obtained. The data collected is confidential and kept in a safe place.

### 3. Results and Tables

The study involved 466 people aged 18 and 65, with a 100% response rate.

#### 3.1. Socio-Demographic Characteristics

The average age of interviewed people was 35 years ( $\pm 13$  years) with a median of

33 years, The mean age for women was 34 ( $\pm 12$ ) and 38 ( $\pm 15$ ) for men, and The age group, 20 - 40 years, was the most represented with a proportion of 54.08%. The sex ratio was 2.2, predominantly female. Among those interviewed, 32.00% were uneducated. More than a third (35.00%) had only a secondary school education, and only 7.00% had higher education. The Serer ethnic group predominated at 79.40%, and 87.12% lived in rural areas. Muslims accounted for 90.56%. Married people were in the majority (69.53%) (**Table 1**).

### 3.2. Economic Characteristics

The study showed that 39.06% of those interviewed were unemployed. Farmers accounted for 16.09%. However, 11.16% of interviewees benefited from the government's Social Safety Nets program dedicated to low-income families. Monthly income was estimated at less than CFA francs 35,000 for nearly two-thirds of the sample (62.00%) (**Table 1**). According to the socio-economic level, class distribution was low at 74.03%, while the average and adequate levels represented 17.81% and 8.15%, respectively.

### 3.3. Lifestyle Characteristics

A proportion of 90.56% have never smoked, and 95.28% have never consumed alcohol. The sport was practiced regularly by 21.46% of the people. In terms of health care demand, 54.29% had recourse to traditional practitioners. Discussions with third parties about blood donation were often noted at 10.94%. However, 70% of those interviewed had never had a conversation about blood donation with other people (**Table 1**).

### 3.4. Knowledge about Blood Donation

More than 50% of those interviewed knew that blood bags are for free. More than half of both men and women (63.73% and 62.45% respectively) did not know the number of blood donations indicated in the year. The minimum age to donate blood was unknown for 42.92% of individuals. Otherwise, the maximum age for donating blood was unknown for almost half of the individuals (48.50%). Chronic non-infectious diseases should not be disqualified from donating blood for about two-thirds of individuals (65.67%).

On the other hand, the persons interviewed think that alcoholism and smoking should disqualify people from donating blood with 59.23% and 53.43% respectively. Concerning blood safety, 85.41% of the interviewees know that the blood collected is tested before use (**Table 2**). Among the people interviewed in the study, 71.00% had already received information about blood donation. The sources of information most often found were television (52.00%) and radio (42.00%). Social networks and newspapers represented 3.93% and 2.00%, respectively. Known collection sites were the hospital (66.20%), the health center (6.30%), and the health post (19.20%).

The level of knowledge, assessed based on a score, shows a low level of individuals' knowledge about blood donation at 91.85% (**Table 2**).

**Table 1.** Distribution of individuals according to socio-demographic, economic, and life-style factors (N = 466).

Features	Absolute frequency	Relative frequency
<b>Socio-demographic factors</b>		
<b>Sex</b>		
Female	321	68.88
Male	145	31.12
<b>Age range</b>		
Less than 20 years old	50	10.73
20 to 40 years old	252	54.08
40 to 60 years old	135	28.97
More than 60 years old	29	6.22
<b>Ethnicity</b>		
Diola	5	1.07
Pular	29	6.22
Serere	370	79.40
Wolof	46	9.87
Other(s)	16	3.44
<b>Marital status</b>		
Single	112	24.03
Divorced(e)	13	2.79
Married(e)	324	69.53
Widow (widower)	17	3.65
<b>Place of residence</b>		
Rural	406	87.12
Urban	60	12.88
<b>Religion</b>		
Christian	44	9.44
Muslim	422	90.56
<b>Household size</b>		
Less than or equal to 7 persons	166	35.62
More than 7 persons	300	64.38
<b>Socio-economic factors</b>		
<b>Type of income-generating activity</b>		
Agriculture	75	16.09
None	182	39.06
Breeding	4	0.85
Civil servant	22	4.72
Other(s)	183	39.27
<b>Social Safety Nets</b>		
No	414	88.84
Yes	52	11.16

**Continued**

<b>Monthly income</b>		
Between 35,000 and 70,000	100	22.00
Less than \$35,000	290	62.00
More than 70,000	76	16.00
<b>Lifestyle habits</b>		
<b>Tobacco consumption</b>		
Never	422	90.56
Occasionally	4	0.86
Rarely	10	2.14
Often	13	2.79
Very often	17	3.65
<b>Alcohol consumption</b>		
Never	444	95.28
Occasionally	7	1.50
Rarely	9	1.93
Often	6	1.29
<b>Sport Practice</b>		
Never	268	57.51
Occasionally	32	6.87
Rarely	66	14.16
Often	72	15.45
Very often	28	6.01
<b>Use traditional healers</b>		
Never	213	45.71
Occasionally	56	12.02
Rarely	132	28.32
Often	56	12.02
Very often	9	1.93
<b>Talk about blood donation with other people</b>		
Never	327	70.17
Occasionally	25	5.37
Rarely	59	12.66
Often	51	10.94
Very often	4	0.86

**3.5. Attitudes towards Blood Donation**

28.54% of interviewees were afraid of the biological control tests. A proportion of 81.55% thought that the donation should not be intended for family members only. Donating blood was not a source of illness (62.02%) and was beneficial (64.38%). Some 48 individuals, 10.30%, thought that blood donation should be remunerated, and 68.0% intended to donate in the future (**Table 3**). Individuals' attitudes were good for 53.65%, average for 36.05%, and bad for 10.30%.

**Table 2.** Awareness of blood donation by interviewed individuals (N = 466).

Knowledge about blood donation	Absolute frequency	Relative frequency
<b>Free blood bags</b>		
No	74	15.88
<b>DK (Doesn't Know)</b>		
Yes	248	53.22
<b>Number of times a man can donate blood in the year</b>		
1 time	43	9.23
2 times	91	19.53
3 times	26	5.58
4 times	9	1.93
DK	297	63.73
<b>Number of times a woman can donate blood in the year</b>		
1 time	119	25.54
2 times	42	9.01
3 times	12	2.58
4 times	2	0.43
DK	291	62.45
<b>Minimum interval between two donations</b>		
12 months	38	8.15
2 months	9	1.93
3 months	39	8.37
6 months	99	21.24
DK	281	60.30
<b>Minimum age to donate blood</b>		
16 years old	31	6.65
18 years old	192	41.20
35 years old	41	8.80
50 years old	2	0.43
DK	200	42.92
<b>Maximum age to donate blood</b>		
50 years old	151	32.40
60 years old	67	14.38
70 years old	19	4.08
DK	226	48.50
No maximum age	3	0.64
<b>Indications for donating blood</b>		
Public Road Accident	156	33.48
Hemorrhagic delivery	81	17.38
Anemia	157	33.69
Other(s) to be specified	24	5.15
DK	48	10.30

**Continued**

<b>Can a person with a chronic non-infectious disease donate blood?</b>		
No	306	65.67
DK	70	15.02
Yes	90	19.31
<b>Can a person who smokes give blood?</b>		
No	249	53.43
DK	105	22.53
Yes	112	24.03
<b>Can a person who drinks alcohol give blood?</b>		
No	276	59.23
DK	94	20.17
Yes	96	20.60
<b>Donated blood is tested for safety reasons?</b>		
No	23	4.94
DK	45	9.66
Yes	398	85.41
<b>Level of knowledge</b>		
Good	38	8.15
Low	428	91.85

**3.6. The Practice of Blood Donation**

In the study, 24.68% of the population interviewed had already donated blood. Of these donors, 80% have made voluntary non-remunerated donations. Donations for relatives (also non-remunerated) accounted for 8.70% of cases. Only 26.09% of individuals made 2 donations, and 60% had not renewed the act. It was found that 39.48% of the interviewees have a relative who has had to donate. Previous blood transfusion experiences were also documented among the interviewees (4.72%) or close relatives (22.75%). Among people who have never donated blood, the blocking factors were lack of information in 52.29%, medical contraindication in 5.43%, personal perception of the physical inability in 8.57%, lack of time in 6.57%, difficulty in accessing collection sites in 6.29%, fear of the announcement of test results in 6.57%, fear of unhealthy blood use in 1.14%, fear of injection needle in 0.29% and other factors in 17.43%. The permission of a parent or spouse is required for 50.43% of people who want to donate. Among the interviewed, 71.24% of them prefer a blood collection center. The hospital, currently the only collection site in the region, is selected by 6.22% of potential donors. We also note that the mobile collection units were among the preferences of the interviewed (18.45%).

**3.7. Factors Associated with Blood Donation**

The results of this are shown in **Table 4**. The mean age was 38 years ( $\pm 13$ ) for

**Table 3.** Surveyed individuals' attitudes toward blood donation (N = 466).

Attitudes towards-to-blood donation	Absolute frequency	Relative frequency
<b>Individuals afraid of biological control tests</b>		
No	264	56.65
Yes	133	28.54
Without notice	69	14.81
<b>Think that people should give blood to family members</b>		
No	380	81.55
Yes	69	14.81
Without notice	17	3.65
<b>Think that a person can get a disease from donating blood</b>		
No	289	62.02
Yes	110	23.60
Without notice	67	14.38
<b>Think that there are benefits to donating blood</b>		
No	111	23.82
Yes	300	64.38
Without notice	55	11.80
<b>Think that the blood donation process takes a long time</b>		
No	293	62.88
Yes	61	13.09
Without notice	112	24.03
<b>Think that blood donation should be remunerated</b>		
No	366	78.54
Yes	48	10.30
Without notice	52	11.16
<b>Planning to donate blood in the future</b>		
No	109	23.40
Yes	317	68.02
Maybe	40	8.58

donors and 34 years ( $\pm 13$ ) for those who had not donated blood with  $p = 0.0019$ . Blood donation use was three times higher among those aged 40 years over than those under 20 years of age. The study found no significant relationship between rural and urban blood donors. Individuals with the higher education level donated blood 3.33 times more (ORb = 3.33 [1.47 - 7.59]). Men donated blood 2.18 times more than women (ORb = 2.18 [1.40 - 3.37]). Individuals with a good level of knowledge about blood donation were 2.14 times more likely to donate blood (ORb = 2.14 [1.07 - 4.26]), as were those with good attitudes (ORb = 5.27 [1.83 - 15.18]). Other factors related to blood donation were monthly income, the existence of a relative-donor, and the need for permission from a parent or spouse.

**Table 4.** Factors associated with the practice of blood donation.

Factors	Frequency of blood donation n (%)		p-value	Raw gold (IC)
	Yes	No		
<b>Age range</b>				
Less than 20 years old	06 (12)	44		1
20 - 40 years old	60 (23.81)	192	0.03	2.29 [0.93 - 5.64]
40 - 60 years old (40 excluded)	40 (29.63)	95	0.006	3.09 [1.22 - 7.82]
More than 60 years old	09 (31.03)	20	0.0005	3.30 [1.03 - 10.53]
<b>Sex</b>				
Female	64 (19.94)	257	0.0003	1
Male	51 (35.17)	94		2.18 [1.40 - 3.37]
<b>Residence Environment</b>				
Rural	95 (23.40)	311	0.05	1
Urban	20 (33.33)	40		1.63 [0.91 - 2.93]
<b>Level of education</b>				
Not educated	24 (16.33)	123		1
Primary	33 (26.83)	90	0.019	1.88 [1.04 - 3.40]
Secondary	45 (27.61)	118	0.009	1.95 [1.12 - 3.41]
Superior	13 (39.39)	20	0.003	3.33 [1.47 - 7.59]
<b>Level of knowledge about blood donation</b>				
Bad	100 (23.36)	328	0.018	1
Good	15 (39.47)	23		2.14 [1.07 - 4.26]
<b>Attitudes about blood donation</b>				
Wrong	04 (8.33)	44		1
Average	30 (17.86)	138	0.053	2.39 [0.8 - 7.16]
Good	81 (32.40)	169	0.0001	5.27 [1.83 - 15.18]
<b>Monthly income (FCFA)</b>				
Less than \$35,000	60 (20.69)	230		1
From 35,000 to 70,000	29 (29.00)	71	0.014	2.31 [1.08 - 4.94]
More than 70,000	26 (34.21)	50	0.008	1.99 [1.14 - 3.46]
<b>Existence of a relative-donor</b>				
No	44 (15.60)	238	<0.001	1
Yes	77 (38.59)	113		3.4 [2.19 - 5.26]
<b>Need for authorization from a parent or spouse</b>				
Yes	33 (42.45)	202	<0.001	1
No	82 (71.30)	149		3.37 [2.13 - 5.31]

Individuals who had a close relative donor (38.59%) were 3.4 times more likely to donate blood than those without a close relative donor (15.6%),  $p \leq 0.001$ . Individuals who did not necessarily require permission from a parent or spouse were 3.37 times more likely to donate blood,  $p < 0.001$ .

#### 4. Discussion

This study's overall limitations were the lack of multivariate analysis, which would have made it possible to adjust for certain factors and eliminate con-

founding factors, and the design of cross-sectional study.

The level of knowledge of individuals about blood donation was low at 91.85%. However, they had good attitudes towards blood donation (53.65%). About a quarter of the people interviewed (24.68%) had already donated blood, 80% of whom had made voluntary non-remunerated donations. Factors associated with blood donation were age, sex, level of education, level of knowledge and attitude towards blood donation, monthly income, the existence of a relative's blood donor, and the need for authorization from a parent or spouse.

In the study, 24.68% of the population interviewed had already donated blood. These results are close to those of F. Mousavi *et al.* [10], who found a proportion of 26% in Iran in 2011. Akbovia *et al.* [19] found a proportion of 31.7% in Lomé. Different proportions in different countries (27.6% in China, 6.1% in Haiti, 42% in Moldova, 26.4% in Tanzania, 31.7% in Togo, and 38% in Uganda) were found in the general urban or rural population by E. Lownik *et al.* [20]. This indicates that less than half of the general populations engage in blood donation. Awareness-raising is needed to urge people to donate blood to remedy this situation. In our study 80% of cases were voluntary non-remunerated donations and the recipient was anonymous. These results confirm those found at the national level. Senegal has indeed reached the objective of 80% voluntary donations, set by the WHO-AFRO regional strategy. Significant progress has been made in the regions [21]. Donations were repeated at least once in 26.09% of cases. It is therefore important to target more first-time donors and to communicate on aspects related to retention.

The mean age was 38 years ( $\pm 13$ ) among donors and 34 years ( $\pm 13$ ) among those who had not donated blood with  $p = 0.0019$ . The study showed that age could influence blood donation. People over 40 years of age were 3 times more likely to donate blood. Duboz P *et al.* [12] found the same for this age group. F. Mousavi *et al.* [10] found 1.4 [1.05 - 1.86] (ORb) times and 1.6 [1.21 - 2.24] (ORa) times higher risk in people aged 35 - 65 years.

The proportion of female blood donors was 19.94%, and the proportion of male blood donors was 35.17%. This study shows that men donated blood more than women (ORb = 2.18 [1.40 - 3.37]). This trend towards masculinization of blood donation is not recent. H. Javadzadeh Shahshahani *et al.* [22] found similar results, with women in Yazd donating blood less than men; as did F. Mousavi *et al.* [10] in a fitted model. Studies in a majority of Western countries also claim that more men than women donate blood Piliavin and Callero [13], Marantidou *et al.* [14]. Men donate more often than women Cloutier & CoL [15]. Similarly, in most non-Western countries, men donate more regularly than women [9] [10] [17]. Physiological constitution and unavailability due to pregnancy are factors that hinder blood donation in women. Many women also stop donating when they become pregnant and do not return afterward. Problems with anemia, more intense physical reactions to blood donation, problems with minimum weight limits, cessation of pregnancy, and breastfeeding are the main rea-

sons cited for the relative absence of women in blood donation practice [23] [24] [25].

According to education levels, populations with higher levels of education were 3.33 [1.47 - 7.59] times more likely to donate, those with secondary education 1.95 [1.12 - 3.41], and those with primary education 1.88 [1.04 - 3.40] times more likely to donate. Thus, the higher level of education increases the practice of donating blood. The results are similar to those of F. Mousavi *et al.* [10]. Duboz P *et al.* [9] showed that higher education graduates were also more likely to be donors.

This study showed that the higher the level of knowledge about donating blood is, the more the person engages in the practice of donating blood (ORb = 2.14 [1.07 - 4.26]). Overall, the level of knowledge of the interviewees was low in 91.85% of the individuals. These results are in line with H. Javadzadeh Shahshahani *et al.* [22], who also found that 54.2% of the information on blood donation was obtained through radio and television. For our study, this value was estimated at 52.00% (television) and 42.00% (radio). K.-K. Agbovi *et al.* [19] found that men (41.7%) were more likely than women (20.7%) to be aware of the practice of blood donation, with the media (29.8%), friends (25.5%), and public awareness (23.4%) as sources of information. Similarly, good attitudes towards blood donation favor this practice (OR = 5.27 [1.83 - 15.18]).

The existence of a relative donor is a factor that can contribute to the practice of blood donation. Indeed, individuals with a close donor are more likely to donate blood (OR = 3.4 [2.19 - 5.26]). According to several surveys, family and friends' influence on the first donation significantly impacts [24] [26] [27] [28]. Moreover, studies show that one of the main reasons mentioned by non-donors for not having donated blood before is simply that no one invited them to do so [9] [24] [26].

The study objectified a relationship between the need for authorization or not from a third party (parent or spouse) to donate blood. Individuals who do not necessarily require parental or spousal permission are more likely to donate blood (OR = 3.37 [2.13 - 5.31]). The influence of a parent or spouse is often essential and decisive in health decisions in our regions.

## 5. Conclusion

This work's objective was to study the knowledge, attitudes, practices, and factors that influence voluntary blood donation in the Fatick health district. A problem was noted in the communication of blood donation for the communities. Some factors related to genders, such as age, sex, and education level, influenced the practice of blood donation. There was a statistically significant relationship between voluntary blood donation and the positive or negative influence of relatives. It is necessary to develop mass communication and outreach strategies and strengthen the blood bank in terms of human resources and logistics to increase the district's voluntary blood donations. More and better plan-

ning and coordination of mobile clinic outings with health development committees and the community network's use to integrate blood donation communication can facilitate and improve voluntary blood donation by improving accessibility to this service.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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