

## **Capstone Project Final Report**

Understanding the recruitment and loyalty of young blood donors through the analysis of social media engagement strategies (Data-Life 2021)

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## **Abstract**

Blood shortages are an urgent, global issue that can threaten the public health of a nation. Establishing blood donation habits in young people could be a strategy to sustain a sufficient blood supply. Our research seeks to learn how young people find out about blood donation opportunities, what drives them to participate, and the blood donation community. We will compare blood donation-related content on social media, Twitter and Instagram, and a survey distributed across two geographic locations, Milan and New York City. Findings from our research will contribute to providing engagement strategies to attract and inform young donors in understanding their essential role in blood donation.

## **Introduction**

Blood shortage is a global issue that continues to be a key challenge; recruiting new donors is critical in sustaining a sufficient blood supply. Almost 60% of donors are older than 40, and nearly 45% are older than 50 (Lawrence, 2021). Therefore, young people are vital in donation recruitment as they could be potential donors for a long time. This study defines young people as 20-30 years old and is the age group of interest to learn about behavior toward blood donations on social media.

Many aspects of human life are influenced by social media, from sharing personal information to promoting and advocating for a cause such as blood donation. Social media and survey data analysis will identify donation and engagement trends. Blood donation organizations, such as the New York Blood Center (NYBC) in the United States and AVIS in Italy, will benefit from this research since they play a fundamental role in organizing and promoting blood donation opportunities.

## **Literature review**

Due to a lack of donors, the global blood supply is insufficient to meet global demand, leading to critical shortages in most countries (Cassella, 2019). The US faces blood shortages, and the occurrence of natural disasters or emergencies will increase blood demand (McDonnell, 2019). About 40,000 blood drives have been canceled since July 2020, resulting in a million fewer blood donations this year (Satyavarapu and Wagle, 2020). Italy has a blood shortage problem as well. In 2017, many Italian hospitals had to reduce surgical operations because of the blood shortage (Ranucci, 2017). Furthermore, interviews with industry experts surfaced that the term “blood shortage” is used differently across the two regions (US and Italy) and is sometimes used as a marketing strategy to create a state of emergency to attract blood donors. Our work will

study the impact of emergencies, including blood shortages, on social media to determine if they incite more engagement than non-emergency blood donation posts.

Social media can also introduce a potential solution of finding blood donors on demand since blood donation requests are critical in saving lives and are time-sensitive (Abbasi et al. 2017). Analysis of survey data suggests that these platforms can reach a large percentage of the population to promote blood donation programs and shows the importance of a survey in measuring if potential donors have access to accurate information regarding blood donation (Alanzi et al. 2019). Our work will distribute a survey, specifically to our target group, University students in both locations (Milan and New York City), to better understand young people's knowledge of and motivation to donate blood.

Social media can also help determine the barriers to blood donation. Ramondt et al.'s (2020) analysis of Facebook and Twitter data demonstrates a link between donation barriers and dissatisfaction in social media messages. This study also found that people trust and pay more attention to negative rather than positive content and information from peers rather than institutions. In the online environment, this is both a threat and an opportunity for a stable donor pool. Our research will use social media and survey data to explore social media's significance in how blood donation barriers are addressed to improve recruitment and retention strategies.

## **Problem Statement**

Our goal is to understand how young people discover blood donation opportunities and what motivates them to participate by analyzing the existing landscape of blood donation-related content on social media and survey data across two regions, Milan and New York City. Unless encouraged by their surroundings, young people are not motivated to donate blood. So, what are the successful social media engagement strategies to recruit young people to donate blood? The

research questions below, informed by our literature review and interviews with industry experts, will guide our analysis.

*Unless encouraged by their surroundings, young people are not motivated to donate blood. What are the successful social media engagement strategies to recruit young people to donate?*

RESEARCH QUESTION	EXPECTED OUTCOME
1.) Do emergencies increase the posting of blood donation-related content on social media?	Determine if emergencies are a factor that influences a young person's decision to donate blood and how they are presented on social media.
2.) How do blood donation organizations behave on social media?	Determine if the following of an organization impacts its activity and engagement. Understand how the public perceives and interacts with these institutions on social media.
3.) Why do young people have poor knowledge about blood donation?	Determine whether young people lack access to sufficient and accurate information regarding blood donation.
4.) How does the blood community share interest for other social-ethical topics?	Determine if being a blood donor is correlated with interest in other social-ethical groups such as animal activism, environmentalism, social justice,etc.

## Data

Twitter and Instagram proved to be the best data sources for our analysis as each platform's users best match the ages of our definition of young people (20-30-year-olds). Data was acquired from these platforms using content-based entry points via online scrapers, twint for Twitter, and Instaloader for Instagram. The username, time, location, content, likes, replies, and retweets of each post with specific hashtags related to blood donation such as #donateblood or #donazionesangue was collected, see appendix E for the full list. Posts on both platforms made by and mentioning blood donation organizations were gathered as well as the number of followers of these accounts. Instagram comments were also collected to provide additional

insight into the blood donation conversation on social media and people's level of familiarity with this topic.

Since social media cannot provide definitive data regarding whether an individual has donated blood, we distributed a survey to students at New York University and Politecnico di Milano to gather additional information. We asked survey respondents about their social media use, knowledge of blood donation opportunities, likelihood of donating blood during an emergency, and social-ethical interests to explore the relationships between these variables, see Appendix F for survey questions. Survey data will complement our social media analysis by adding context to these findings to provide valuable engagement strategies. Before administering to NYU students, the survey had to be approved by the Institutional Review Board (IRB) since it includes human subjects. Additionally, due to IRB requirements, we can not share individual-respondent level data, and therefore survey data is only reported in aggregate.

## Methods

Social media and survey data were analyzed in Python and visualized in RawGraphs, a web-based browser tool, to detect trends across locations and platforms. The term "blood shortage" was analyzed by comparing engagement statistics for posts containing this term with those of all other blood donation-related posts. Then, the number of COVID cases was compared to the tweets and Instagram posts related to blood donation over time. Lastly, exploratory analysis revealed that #BoycottNYBC was the most popular blood donation-related hashtag. We further investigated this discovery to determine whether or not this occurrence was a tweet bomb, see details in Appendix A.

Then, the behavior of blood donation organizations on social media was analyzed by visualizing the frequency and engagement, measured by the number of likes, of posts made by

and mentioning the most prominent institutions, NYBC and AVIS, see Appendix D for the histories of these organizations. Afterward, the Python library, TextBlob, was used to determine the sentiment of posts mentioning each blood donation organization to evaluate the perception of these institutions on social media.

Young people's access to blood donation information was investigated by analyzing responses to survey questions related to how people find out about donation opportunities and how many donors they know. Target group<sup>1</sup> responses were compared to the control group<sup>2</sup> to determine differences in these groups based on their surroundings and network. A comments analysis of the most liked Instagrams posts was also conducted to further understand if misinformation or lack of information exists on social media. Lastly, a correlation analysis of survey responses regarding the the relevance of social-ethical topics, health habits, and donation status<sup>3</sup> was conducted to assess the relationship between these variables.

## Results

*Research Question 1: Do emergencies increase posting of blood donation-related content on social media?*

For all posts related to blood donation, Instagram shows more engagement, measured by the number of likes and comments, compared to Twitter. When the term “Blood Shortage” is present in these posts, engagement increases. Instagram’s average comments are 1.25 per post compared to 3.94 per post when the term “Blood shortage” is used; the average likes per post are 38 compared to 125 in the presence of the term “Blood Shortage”. The same trend is present for Twitter data, Table 1.

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<sup>1</sup> The target group includes respondents that have considered donating blood recently but have not yet volunteered.

<sup>2</sup> The control group includes respondents that have volunteered to donate blood.

<sup>3</sup> Donation status is the response to the survey question “Have you ever volunteered to donate blood?”

Type of post	Engagement Metric	Instagram	Twitter
All blood donation-related posts	Average comments	1.25	0.09
	Average likes	38	0.7
Posts with term “blood shortage”	Average comments	3.94	1.4
	Average likes	125	4.1

Table 1. Average likes and comments for all posts related to blood donation and those with the term “blood shortage” on social media.

To measure external events that impact the blood donation conversation, we analyzed both the effect of COVID-19 and #BoycottNYBC to measure the change in engagement for Twitter and Instagram. Comparing COVID-19 cases to posts and tweets related to blood donation, we saw that spikes of COVID-19 cases coincide with a large number of blood donation-related posts on both platforms, Figure 1.

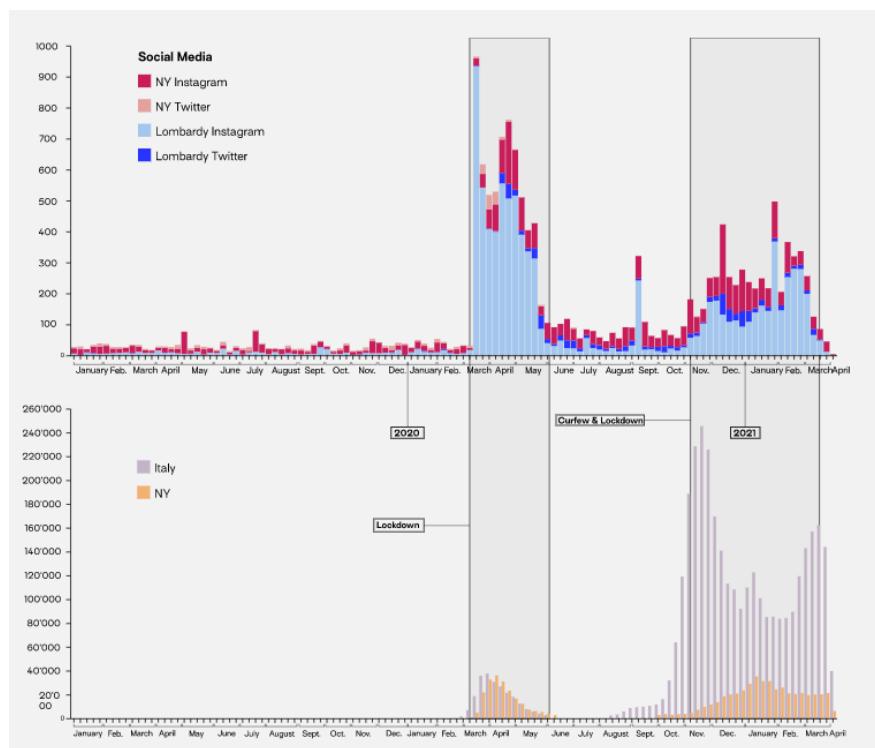


Figure 1. COVID-19 infection cases and posts about blood donation in Italy and New York.

Another external event we discovered was the popularity of #BoycottNYBC, the most used hashtag referencing the organization, see appendix A for more information regarding the #BoycottNYBC Twitter Bomb. However, despite its prevalence, #BoycottNYBC tweets generate less engagement than the NYBC related tweets, Table 2.

Type of tweets	Average replies per tweet	Average retweets per tweet	Average likes per tweet
NYBC related tweets	0.385	4.108	5.274
#BoycottNYBC	0.016	0.407	0.174

Table 2. Comparison of engagement metrics for tweets related to the NYBC and #BoycottNYBC.

*Research question 2: What is the behavior of blood donation organizations on social media?*

Before analyzing the behavior of each blood donation organization on social media, we measured the magnitude of their followings to determine the most prominent institutions in both locations. We found that AVIS' Instagram following was the largest and significantly larger than its Twitter following, Figure 2. Contrarily, NYBC, the organization with the largest following in the US, has a similar number of followers on Twitter and Instagram. Despite its large following on the platform, AVIS does not post or is mentioned on Instagram as frequently every month as NYBC, see Appendix B.

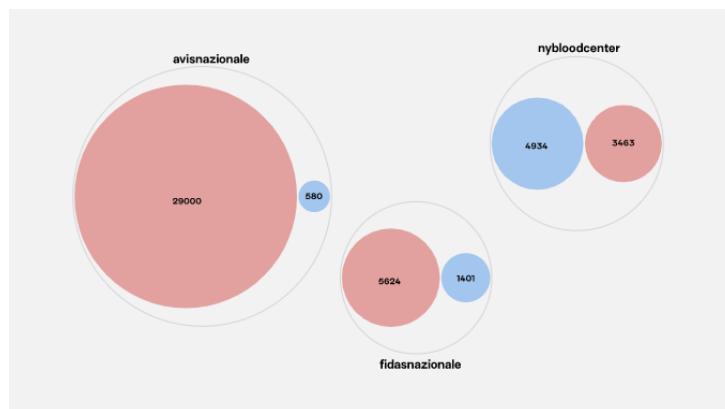


Figure 2: Followers for different blood banks on Twitter and Instagram.

Engagement appears to be related to the number of followers for each platform. Though AVIS posts less frequently than NYBC on Instagram, each post generates more likes. Twitter posts show a different pattern; AVIS posts more frequently and generates more likes per post. We also conducted a sentiment analysis of Instagram and Twitter posts mentioning each blood donation organization to see if posts generating lots of engagement were negative, positive, or neutral. Overall, Instagram posts mentioning NYBC are positive, and posts mentioning AVIS are neutral, Figure 3. Twitter posts mentioning every blood donation organization are even more neutral than Instagram posts, Figure 4. The overwhelming neutrality of posts may be due to the sentiment algorithm recognizing ‘blood’ as a negative word. Therefore, positive posts might be classified as neutral due to the negative sentiment score of the word blood.

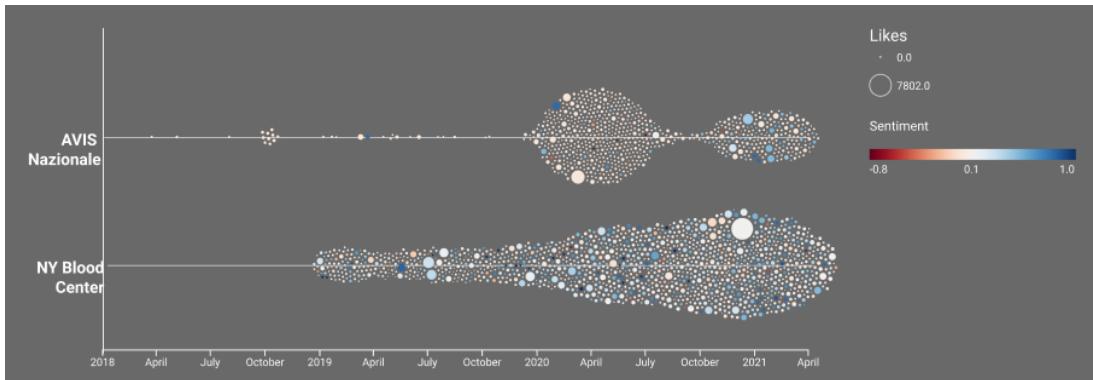


Figure 3: Sentiment and engagement over time of Instagram posts mentioning NYBC and AVIS.

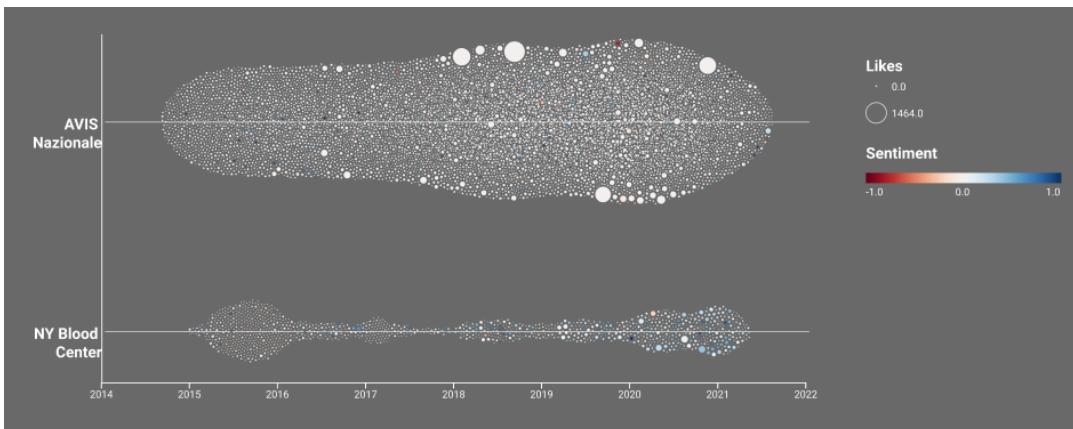


Figure 4: Sentiment and engagement over time of Twitter posts mentioning NYBC and AVIS.

Similar to what we found from our social media analysis, survey results indicated that Italian respondents in our target group<sup>4</sup> are three times more likely to follow the blood donation organizations in their area compared to American respondents in the same group. However, less than 20% of respondents in both locations follow their local blood donation organization on social media.

*Research Question 3: Why do young people have poor knowledge about blood donation?*

Survey results indicated the most common donation barrier in both regions (Milan and NYC) is difficulty finding a place and time to donate, followed by the category of 'other' which consisted of being anemic, weighing under 50 Kg for women, cleanliness concerns, and parental influence. Furthermore, the results showed various misinformations as barriers to donation such as the reuse of needles, disregard of safety measures, blood donation causing weakness and decrease in athletic performance, and inability to donate blood permanently if you have tattoos or piercings.

We also asked survey respondents where they first got information about donating blood to understand existing information regarding blood donation opportunities. Comparing our target group to prior volunteers, for both groups, friends and/or relatives are the most common source of information for Italy, Figure 5, and school or employer is the most common source of information for the US, Figure 6.

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<sup>4</sup> The target group includes respondents that have considered donating blood recently but have not yet volunteered.

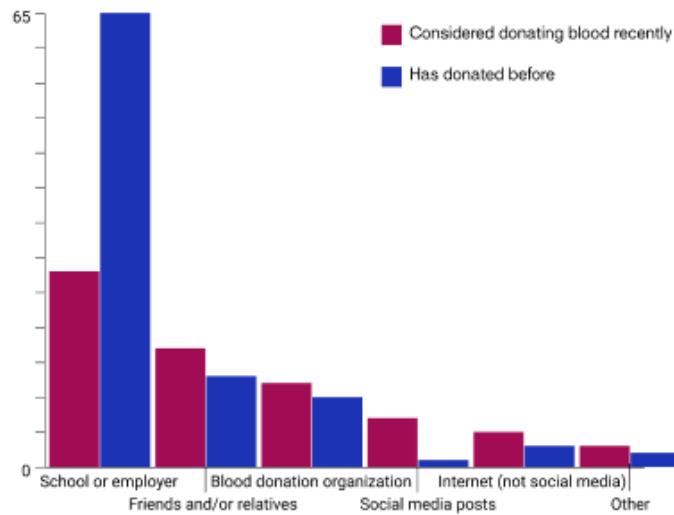


Figure 5: Comparing target and control group responses from Italy to the question “Where did you first get information about donating blood?”

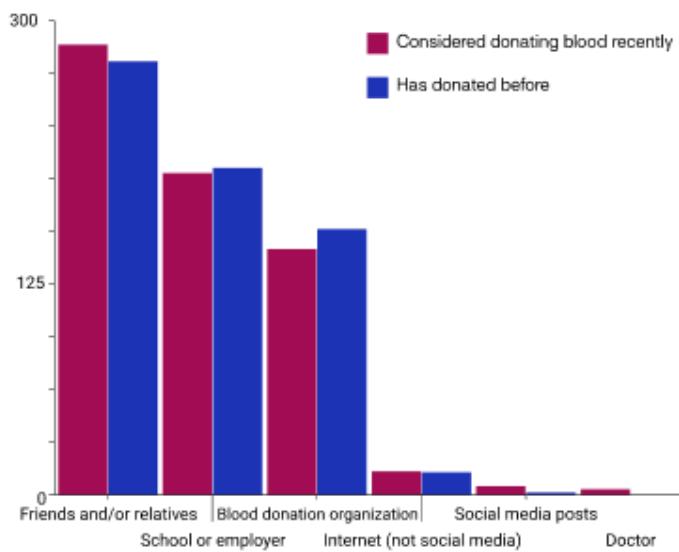


Figure 6: Comparing target and control group responses from the US to the question “Where did you first get information about donating blood?”

Although our survey results revealed social media was not the primary source for first receiving blood donation information, we performed a comment analysis to see how social media users interact with the most engaging posts on these platforms. The most engaging post on Twitter showed that one out of four replies supported blood donations and requested more

information. Analyzing the top 20 most engaging posts on Instagram showed positive support and negative feedback for the cause, and there were questions and misinformation present.

*Research question 4: How does the blood community share interest for other social-ethical topics?*

Starting from a qualitative analysis on social media studying archetypal<sup>5</sup> users, we found that those active in the blood donation conversation also care about social issues. Correlation analysis of survey responses regarding social issues, health habits, and donation status shows a relationship between respondents' interest in social-ethical topics such as women's rights (feminism), LGBT+ rights, fight against racism, environmentalism and climate change, and animal rights, Figure 7. In both locations, there is not a strong relationship between health habits, such as whether an individual is a smoker, vegan/vegetarian and if they exercise frequently and the relevance of social-ethical issues in their life. There is a slight positive correlation between donors and social-ethical topics.

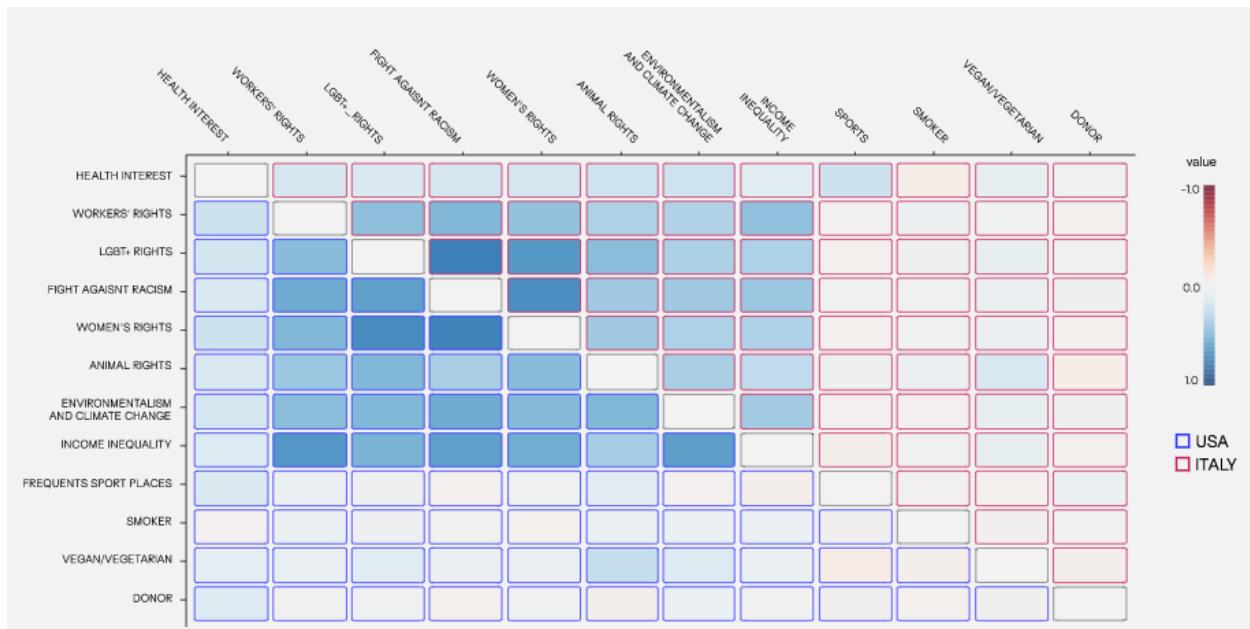


Figure 7: Correlation map of social ethical interests, health habits and donation status for survey respondents in Italy and the US.

<sup>5</sup> Archetypes are steeped in user behavior, and they contain details from user interviews around a group's needs, motivations and pain-points.

## **Conclusion**

Our findings provide valuable insights for how to use social media as a strategy to recruit new donors and encourage existing donors to continue donating. Analysis of emergencies as a tactic to recruit donors on social media showed posts that include terms like ‘Blood Shortage’ and during times of emergencies, such as COVID-19, generate more engagement and posts. Therefore, times of emergency may be ideal for posts related to blood donation since the public may be more likely to be motivated to donate blood during this time. The behavior of blood donation organizations on social media showed that the engagement is related to the magnitude of their following on a particular platform. Survey results also indicated less than 20 percent of respondents follow the blood donation organizations in their area. Therefore, targeted efforts to increase the number of blood donation organization followers on social media platforms could increase the visibility of these institutions and generate more engagement which in turn, may result in recruiting more donors.

Assessing survey results related to the barriers of blood donation revealed that young people may not be aware of opportunities due to their limited interaction with blood donation organizations or active donors. Blood donation organizations can ask donors to share their experience on social media to promote the cause amongst their network so that more young people become aware of opportunities through individuals and institutions they trust. Social media influencers could be leveraged as ambassadors to remind and encourage more young people to donate blood. Analysis of the most engaging posts on Instagram and survey results show that individual accounts may be best suited to promote blood donation in Italy whereas individual accounts are better for the United States. In both locations, political accounts should

be avoided as influencers since they tend to spread negative information and shift the conversation away from blood donation.

Lastly, we found that there is a slight positive correlation between donors and social-ethical causes. Therefore, posts related to social-ethical topics could be helpful content to target potential donors. Future work could explore the success of these social media strategy suggestions to see which resonates the most with young people. Additional work could also be dedicated to establishing a proxy for donor recruitment. Our research used social media engagement in the absence of donor-level data but a more reliable way to measure donor conversion could strengthen the value of social media engagement strategies to recruit blood donors.

#### *Limitations*

One limitation of our research is that the survey data exhibits convenience sampling because it was distributed to a select group of people the student group had access to, university students in Milan and New York City. Therefore, the results are not representative of the entire population and contain an undercoverage bias (Bhandari, 2021). Another limitation of our work is that our social media and survey data reflect two different sample pools. While the two datasets were not linked, these two sources represent two distinct groups of people and must be considered when interpreting our results (Lohr & Raghunathan, 2017).

## **Team Roles**

<b>New York University</b>	
Lina Kasem	Question research and results
Yichen Li	Question research and results
Rachel Provost	Survey distribution and analysis, data visualization

<b>Politecnico di Milano</b>	
Davide Calabò	Data scraping and analysis
Stefano Fedeli	Data scraping and analysis
Marco Valli	Data visualization and presentation

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## Appendix A

Example of ‘Blood Shortage’ Instagram post:



After donating 500cc or 2 units of pRBCs of automated blood cell, you should treat yourself with some salty delicious Japanese Bento boxes. Please donate blood to **#newyorkbloodcenter** because there is a critical shortage of blood for those who need it. Who can make an automated red cell donation?

To qualify as an automated red cell donor, males need to be at least 5'1 and weigh at least 130 lbs. Females must be at least 5'5" and weigh at least 150 lbs. This is because men and women have different total blood volumes and because of this difference, the Food and Drug Administration (FDA) has established different donor requirements. You can make an automated red blood cell donation every 112 days or 16 weeks.

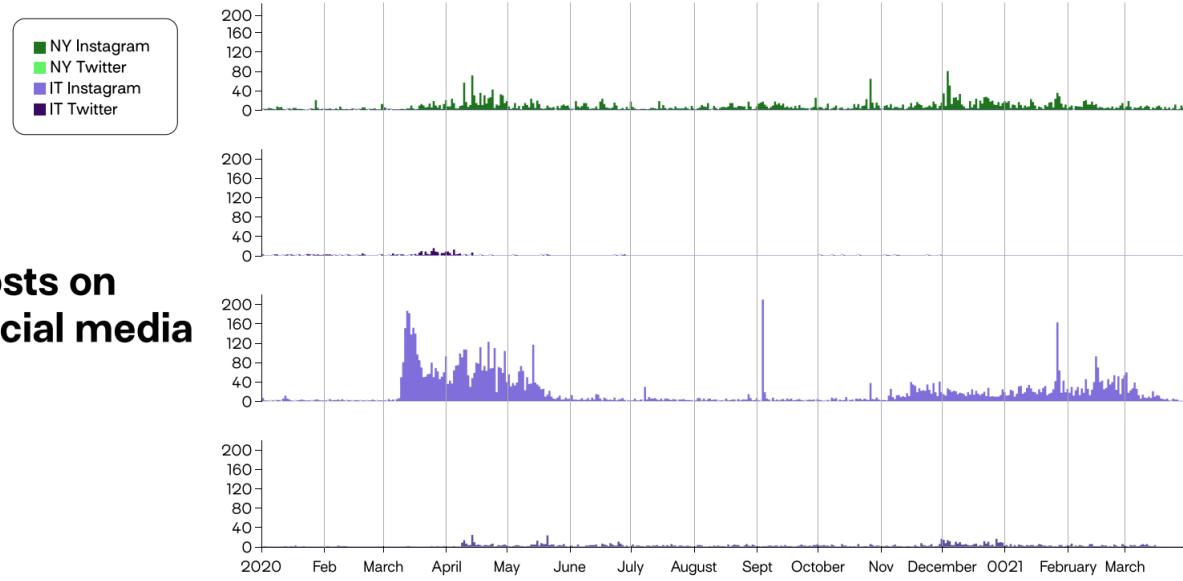
#donateblood #sunrisemart #bentobox #katsudon #nybloodcenter #grandcentralstation  
#donatelife #newyorkcity #japanesefood

Useful information to start donating blood

Example of ‘Blood Shortage’ Twitter post:



1 reply out of 4 was in support of Blood donation the others were offensive



## Posts on social media

### The BoycottNYBC Analysis

We searched for tweets which contain those hashtags or keywords:

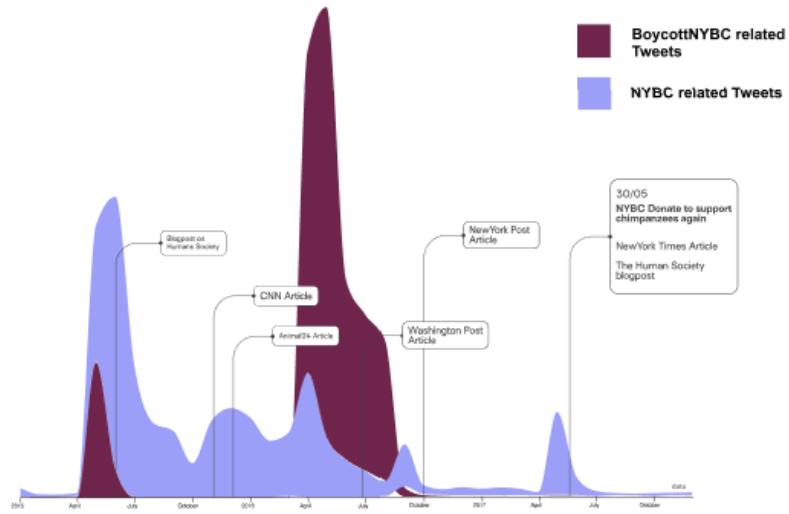
#### Hashtags

#BoycottNYBC  
 #NYBCDoTheRightThing  
 #Ponso

#### Keywords

“Chimps New York Blood Center”  
 “Chimps NYBC”  
 “Chimpanzees New York Blood Center”  
 “Chimpanzees NYBC”  
 “Liberia New York Blood Center”  
 “Liberia NYBC”

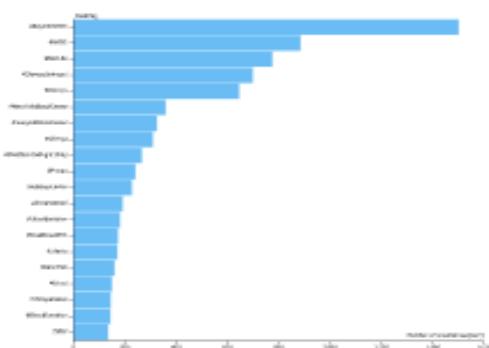
The #BoycottNYBC Timeline:



The appearance of the #BoycottNYBC:

During the Twitter data analysis, the presence of an unexpected hashtag was discovered

### #BoycottNYBC

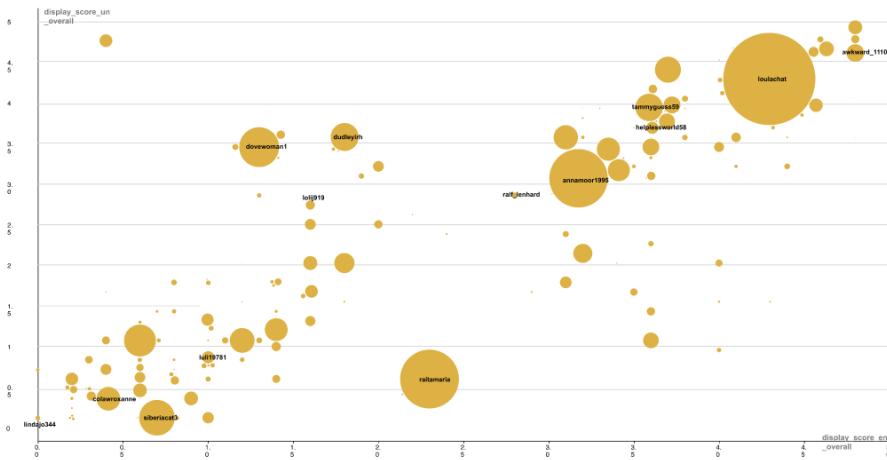


### Defining A Twitter Bomb

According to Mary et al. (2012) “A Twitter Bomb (aka Tweet Bomb or Tweet Storm) is the process of flooding the micro-blogging site Twitter with similar hashtags, keywords and links using multiple accounts with the objective of attracting more viewers to a website, product, service or idea.”

After a review by hand of the accounts classified as “true profiles”, **about 79% (165 out of 209)** of accounts are fake profiles.

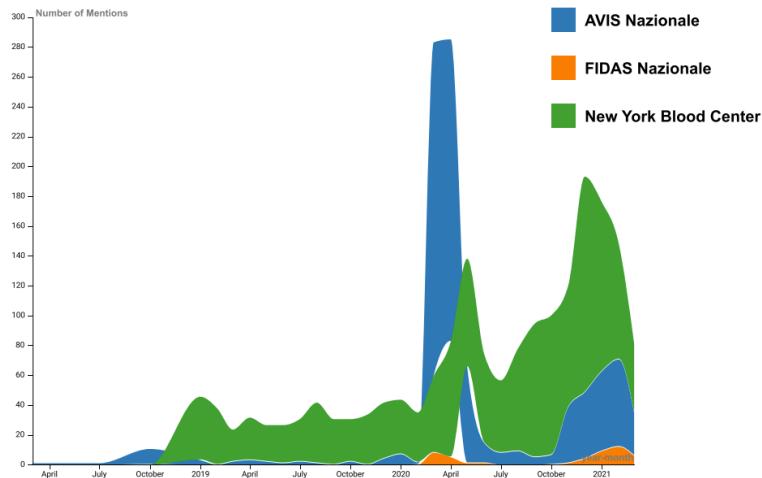
	E	F	G	H	I
146	19:45:19	lindajo344	FreeSpirit ,ùà,ù§	#TaijiFishern	
147	19:45:13	lindajo344	FreeSpirit ,ùà,ù§	Taiji dolphin	
148	19:45:06	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU I	
149	19:44:55	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU I	
150	19:44:48	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU I	
151	19:44:42	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU I	
152	19:44:29	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
153	19:44:23	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
154	19:44:14	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU I	
155	19:44:06	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU I	
156	19:44:00	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
157	19:43:53	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
158	19:43:44	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
159	19:43:32	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
160	19:43:24	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU I	
161	19:43:07	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
162	19:43:00	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
163	19:42:52	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
164	19:42:45	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
165	19:42:34	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU :	
166	19:42:27	lindajo344	FreeSpirit ,ùà,ù§	@UNEP_EU I	



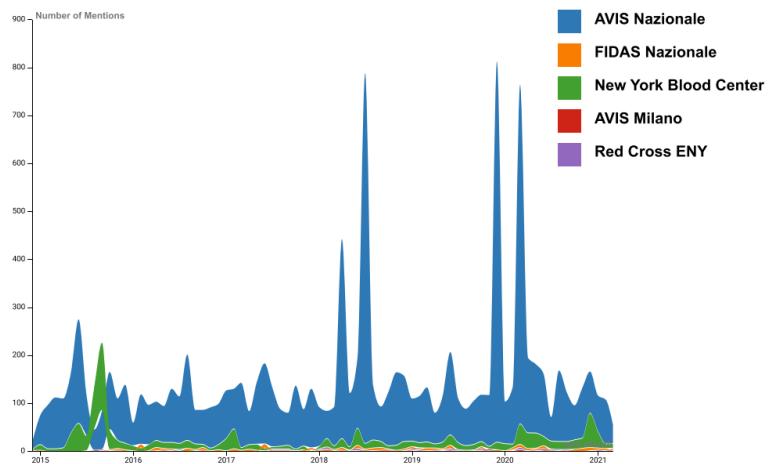
## Appendix B

Examples of Instagram posts during monthly spike (March 2020):





Monthly Instagram posts mentioning each blood donation organization.



Monthly Twitter posts mentioning each blood donation organization.

## Appendix C

The most liked Instagram posts for each blood donation organization.

The most liked Instagram post made by NYBC with 289 likes dated September 3rd, 2020. This is also the most replied to post made by the organization with 17 replies.



The most liked Instagram post made by AVIS nazionale with 1478 likes dated March 15th, 2020. This is the third most replied to post made by the organization with 22 replies.



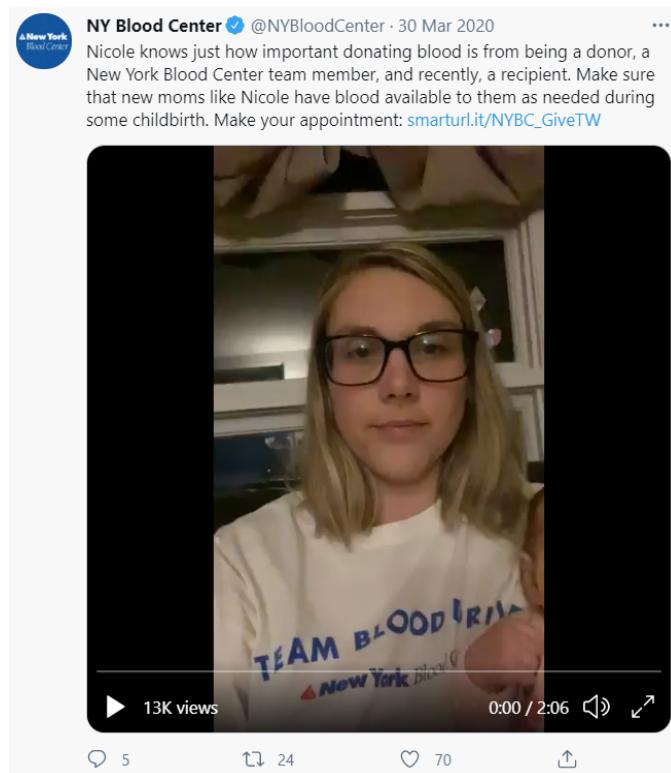
Translation: #AVIS has 3400 offices throughout the country, all managed by volunteers (with the help, in the larger ones, of some employees). People who have decided to dedicate part of their free time to AVIS also in the time of #coronavirus. To all of them goes our immense gratitude. Without them Avis would not exist. #WeWeAvis #escosoloperdonare #donation #blood #plasma #platelets #ig\_avis

The most liked Instagram post made by FIDAS nazionale with 131 likes dated on January 15th, 2020. This is the second most replied to post made by the organization with 2 replies.



Translation: Health Minister Roberto Speranza called on all citizens to consider donating blood as a personal goal for 2020. Read the full text on the website: fidas.it#fidas #giovaniFIDAS #donavita #donasangue #donacionesangue#donasanguedonavita #ministerodellasalute#Repost @ministerosalute • • • Donating blood is important all year round. It means giving concrete form to solidarity and offering precious help to those who really need it. In this early 2020 you decide to make a gesture that is good for you and good for others: become a donor!

The most liked Twitter post was made by NYBC with 70 likes. This is the fifth most replied to post made by the organization with 5 replies. Note: this post is a video urging people to donate blood.



The most liked Twitter post was made by AVIS Nazionale with 434 likes. This is also the most

replied to post made by the organization with 19 replies.

 avisnazionale @avisnazionale · 14 Jul 2018 ...  
Promuovere il #dono anche in una stagione di carenza come l'estate. Con questo spirito ieri abbiamo incontrato il Ministro e donatore @matteosalvinimi, che si impegnerà a sensibilizzare i cittadini, anche attraverso un coinvolgimento delle Prefetture e di @comuni\_anci.



19 91 427

Translation: Promote #giving even in a shortage season like summer. With this spirit yesterday we met the Minister and donor @matteosalvinimi, which will undertake to raise awareness among citizens, also through the involvement of the Prefectures and @comuni\_anci.

The most liked Twitter post made by FIDAS Nazionale with 32 likes. This is the most replied to post made by the organization with 3 replies.

 FIDAS Nazionale @FIDASNazionale · 28 Feb 2020 ...  
Questa notte ci ha lasciati il nostro amato Presidente, Aldo Ozino Caligaris. Un abbraccio da parte di tutta la "grande famiglia FIDAS", come amava chiamarla lui, giunga a sua moglie e ai suoi figli.  
#FIDAS #AldoOzinoCaligaris

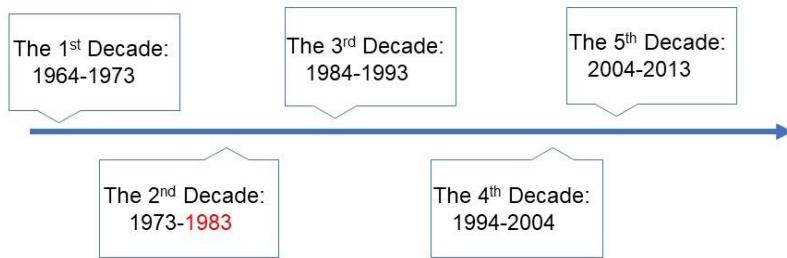


3 19 32

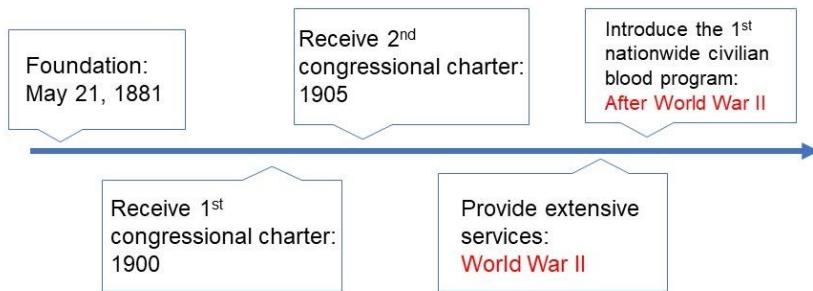
Translation: Our beloved President, Aldo Ozino Caligaris, passed away this night. A hug from the whole "big FIDAS family", as he loved to call it, reaches his wife and children.

## Appendix D

The NYBC is more concentrated on blood donation than the Red Cross, and AVIS is a local organization in Milan.



## History of NYBC



## History of Red Cross



## History of AVIS

### Appendix E

List of hashtags for scraping Twitter and Instagram posts.

#### Italy

#avismilano  
#aviscomunalemilano  
#donatoridisangue  
#donazionesangue

#donaresangue  
#donatoriavis  
#donazioneplasma  
#escosoloperdonare  
#fidas  
#donazione  
#sangue  
#plasma  
#iodono  
#donatori  
#donaspesso  
#rossosangue  
#emergenzasangue  
#avisnazionale  
#avisgiovani  
#donaora

## USA

#blooddonation  
#blooddrive  
#donarsangre  
#blooddonor  
#donateblood  
#donatebloodsavelives  
#bloodtransfusion  
#bloodforlife  
#bloodcenter  
#blooddonorsneeded  
#givebloodnyc  
#newyorkbloodcenter  
#nybloodcenter

## **Appendix F**

Survey questions.

Question	Answer Choice
1. Gender	<ul style="list-style-type: none"><li>• Male</li><li>• Female</li></ul>
2. How old are you?	<ul style="list-style-type: none"><li>• Between 19 and 22 years old</li><li>• Between 23 and 25 years old</li><li>• Between 26 and 30 years old</li></ul>

	<ul style="list-style-type: none"> <li>• More than 30 years old</li> </ul>
3. What is your educational level?	<ul style="list-style-type: none"> <li>• Middle school</li> <li>• High school</li> <li>• Bachelor degree</li> <li>• Master degree</li> <li>• PhD</li> <li>• Other [respondent type-in]</li> </ul>
4. Do you currently live in Milan/New York City?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
5. If you do not live in Milan/New York City, where do you currently live?	[respondent type-in]
6. Are you or have you ever been a student of New York University/Politecnico di Milano?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
7. How interested are you in issues related to physical and mental well-being? <i>An example is attention to physical activity, to the condition of one's body and mind, etc.</i>	[respondent chooses level from 1 to 10, 10 is extremely interested, 1 is not interested at all]
8. How often do you exercise on average?	<ul style="list-style-type: none"> <li>• One per week</li> <li>• Twice per week</li> <li>• Three times per week</li> <li>• More than three times per week</li> </ul>
9. Do you frequent places for sporting or recreational activity? <i>For example: gyms, sports centers, dance schools,...</i>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
10. Do you smoke?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
11. Are you vegan/vegetarian?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
12. Have you ever volunteered to donate blood?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
13. When was the last time you volunteered to donate blood?	<ul style="list-style-type: none"> <li>• I donate whenever I am eligible</li> <li>• Within the past 6 months</li> <li>• Within the past year</li> <li>• Within the past two years</li> <li>• Within the past three years</li> <li>• Over three years ago</li> </ul>

14. Is there a specific reason why you chose not to donate blood? <i>More than one answer is possible</i>	<ul style="list-style-type: none"> <li>● I'm too busy</li> <li>● It is difficult to organize a place and time to donate</li> <li>● I'm afraid I'll feel faint or unwell during or after the donation</li> <li>● I cannot due to religion reasons</li> <li>● Other [respondent type-in]</li> </ul>
15. Where did you first get information about donating blood?	<ul style="list-style-type: none"> <li>● Through school or an employer</li> <li>● Through the organization that manages the collection of donations (ex: New York Blood Center, AVIS)</li> <li>● Through friends and/or relatives</li> <li>● Through the doctor</li> <li>● Through social media posts</li> <li>● Through the internet (not social media)</li> <li>● Other [respondent type-in]</li> </ul>
16. Have you ever been advised not to donate blood for medical reasons?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
17. If so, can you tell us why?	[respondent type-in]
18. What is your feeling about blood donation?	<ul style="list-style-type: none"> <li>● Positive</li> <li>● Negative</li> <li>● Doubtful</li> <li>● I'm not interested</li> </ul>
19. Have you considered donating blood recently (in 2020, during the COVID-19 pandemic)?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
20. In your opinion, where can you easily find information about upcoming blood donations?	<ul style="list-style-type: none"> <li>● Local community</li> <li>● Social media</li> <li>● Friends and/or relatives</li> <li>● School and/or workplace</li> <li>● Other [respondent type-in]</li> </ul>
21. Do you know how much time, on average, is needed to donate blood?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
22. If so, what is the average time for a donation, considering the time elapsed between entering and leaving the collection center?	<ul style="list-style-type: none"> <li>● Less than 30 minutes</li> <li>● Between 30 and 60 minutes</li> <li>● Between 1 and 2 hours</li> <li>● More than 2 hours</li> </ul>
23. Do you feel more motivated to donate blood in an emergency? <i>By emergency we mean an emergency of a social nature, not a personal one. An example is the COVID-19</i>	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> <li>● Maybe</li> </ul>

<i>pandemic, in which the shortage of blood donors has become a problem causing difficulties in obtaining super-immune plasma.</i>	
24. How many blood donors do you know?	<ul style="list-style-type: none"> <li>● 0</li> <li>● 1</li> <li>● 2</li> <li>● 3</li> <li>● More than 3</li> </ul>
25. Have you seen an increase in online blood donation content with the current COVID-19 pandemic?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> <li>● I don't know</li> </ul>
26. Do you see or share content about donating blood in everyday social media use?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
27. Which social media platform do you use most often? <i>It is possible not to select an option if you do not use social media</i>	<ul style="list-style-type: none"> <li>● Twitter</li> <li>● Facebook</li> <li>● TikTok</li> <li>● LinkedIn</li> <li>● Snapchat</li> <li>● Other [respondent type-in]</li> </ul>
28. How often do you use your social media accounts?	<ul style="list-style-type: none"> <li>● Less than 1 hour per day</li> <li>● Between 1 and 2 hours per day</li> <li>● Between 2 and 3 hours per day</li> <li>● More than 3 hours per day</li> </ul>
29. On which of the following social media platforms have you seen online content or advertising regarding blood donation? <i>Multiple choice. It is possible not to select any option if you have never seen any advertising or sponsored content regarding blood donation</i>	<ul style="list-style-type: none"> <li>● Twitter</li> <li>● Facebook</li> <li>● TikTok</li> <li>● LinkedIn</li> <li>● Snapchat</li> <li>● Other [respondent type-in]</li> </ul>
30. If you saw sponsored posts related to blood donation on social media, would you open the link to get more information?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> <li>● Maybe</li> </ul>
31. Have you seen your friends and/or followers sharing their blood donation experience?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
32. Do you follow the blood donation center in your area on social media?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>

	<ul style="list-style-type: none"> <li>• Maybe</li> </ul>
33. Would you be incentivized to donate blood if blood samples were taken directly at school and/or in the workplace?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Maybe</li> </ul>
34. How relevant do you consider the following ethical and social issues in your life on a scale of 1 to 5? <i>Scale 1: not relevant at all 5: extremely relevant</i>	<ul style="list-style-type: none"> <li>• Workers rights</li> <li>• LGBT+ rights</li> <li>• Fight against racism</li> <li>• Women's rights</li> <li>• Animal rights</li> <li>• Environmentalism and climate change</li> <li>• Income inequality</li> </ul>
35. Are there any other ethical and social issues that you find particularly relevant in your life?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Rather no answer</li> </ul>
36. If so, can you tell us which ones?	[respondent type-in]
37. Do you follow any social media accounts of organizations/ sponsors/testimonials/influencers regarding previous ethical and social topics? In this case we mean both <i>social profiles of associations that deal with these issues and social profiles of famous people and influencers who carry out an active and evident commitment to these issues.</i>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Rather no answer</li> </ul>
38. If so, can you tell us which ones?	[respondent type-in]
39. Would you be enticed to donate blood or would you do it more frequently if there was a platform for sharing donations? A "sharing platform" means <i>an online environment created specifically for blood donations in which a user can share a post about the donation made, be actively informed and participate in events and challenges.</i>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
40. Would you be encouraged to donate or would you do it more frequently if there were benefits, such as discounts or coupons, upon reaching a certain number of donations made?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>

41. Would you be encouraged to donate or would you do so more frequently if blood collection organizations were more active on social media? Single choice. <i>By "blood collection organizations" we mean institutions such as New York Blood Center and the Red Cross</i>	<ul style="list-style-type: none"><li>● Yes</li><li>● No</li></ul>
42. Please provide any considerations or advice that you think would be helpful in increasing the number of blood donors.	[respondent type-in]