

ANALYSIS OF BLOOD DONATION IN SINGAPORE



CLIENT

SINGAPORE RED CROSS

Appointed national blood donor recruiter as of April 2001

BUSINESS PROBLEMS

- How can we increase the reach of call out programmes?
- What is the public's perception on donating blood and why are donors not returning to donate multiple times?

DATA SOURCES



SENTIMENT ANALYSIS

REDDIT

Post	Sentiment, score	Post	Sentiment, score
"I just donated last month. Really want to donate again"	Positive, 0.1513	"yeah had a bad experience with the staff so i've stopped donating for the foreseeable future"	Negative, -0.539
"Good going everyone. I was there late Nov so should be able to donate again soon. For anyone curious it's a largely painless process (really), and quite pleasant since you're just sitting there watching TV or playing with your phone for 20 mins. They also feed you with a snack and drink later, like a curry puff. Really enjoyed it the first time a year or so ago when my company organized this and have been back every time since. Edit: Oh damn I can't donate for another several months, had a bout of dengue in Jan."	Positive, 0.9347	"Sufficient bloodbank is different crisis from dataleak. Not the fault of the doctors who require the blood bank to pin dataleak on them. Data leak is a mistake and should be improved on, but insufficient blood in bloodbank is dangerous. At a critical moment, that lack of the blood type is seriously dangerous for the person needing it."	Negative, -0.9503

POSITIVE sentiment scoring on Singapore's blood donation

NEGATIVE sentiment scoring on Singapore's blood donation

Insights:

- + Incentives are the driving force that push people to donate blood
- A negative experience will deter even regular donors from donating again

GOOGLE REVIEWS

Post	Sentiment, score	Post	Sentiment, score
"Great job! so far! Staff are very cheerful there. Good job n well done guys!"	Positive, 0.9292	"I had to wait nearly 2 hours today! Cannot believe it! They should give priority to those who made an apt. I'm very disappointed. The h2o wasn't enough to relieve the horrendous waiting time."	Negative, -0.8716
"The service crew is good and knowledgeable when I am donating my blood"	Positive, 0.4404	"Very bad waiting experience of 2.5 hours on a Friday night."	Negative, -0.5849

POSITIVE sentiment scoring on Singapore's blood donation

NEGATIVE sentiment scoring on Singapore's blood donation

Insights:

- + Staff's attitude affects the entire experience for donors
- People are unwilling to wait for a long time for their turn

HARDWARE ZONE

Posts	Sentiment, Score	Posts	Sentiment, Score
"Steve, Jim wrote: oh my god, gt free shirt. kao, like tat i miss out alot since i done 38time and on average a yr i sure have 3 donation want. steeve, jim power! Lets aim 50 count by age of 40 The Apheresis suite very efficient hor, my next appointment already booked by them even before i was done with my first double red cell apheresis. But i just dont like the feeling of getting some liquid returned back to me"	Positive, 0.9384	"Sick no test. Sick again no test. Gonna die then test. Gold standard indeed myyang wrote: Gold standard Sent from By Baba yaga At Your Pigu Dong using GAGT"	Negative, -0.9393
"Do a good deed during this festive session. Donate Blood. Happy chinese new year Huat ah"	Positive, 0.8779	"Moi scared pain leh..."	Negative, -0.7351

POSITIVE sentiment scoring on Singapore's blood donation

NEGATIVE sentiment scoring on Singapore's blood donation

Insights:

- + People were supportive and encouraged others to donate blood for a good cause
- People were afraid of the pain

OVERALL WORD CLOUD OF SINGAPORE



POSITIVE sentiments



NEGATIVE sentiments

SOLUTIONS

1ST ITERATION: IMPROVE OVERALL EXPERIENCE & SENTIMENTS

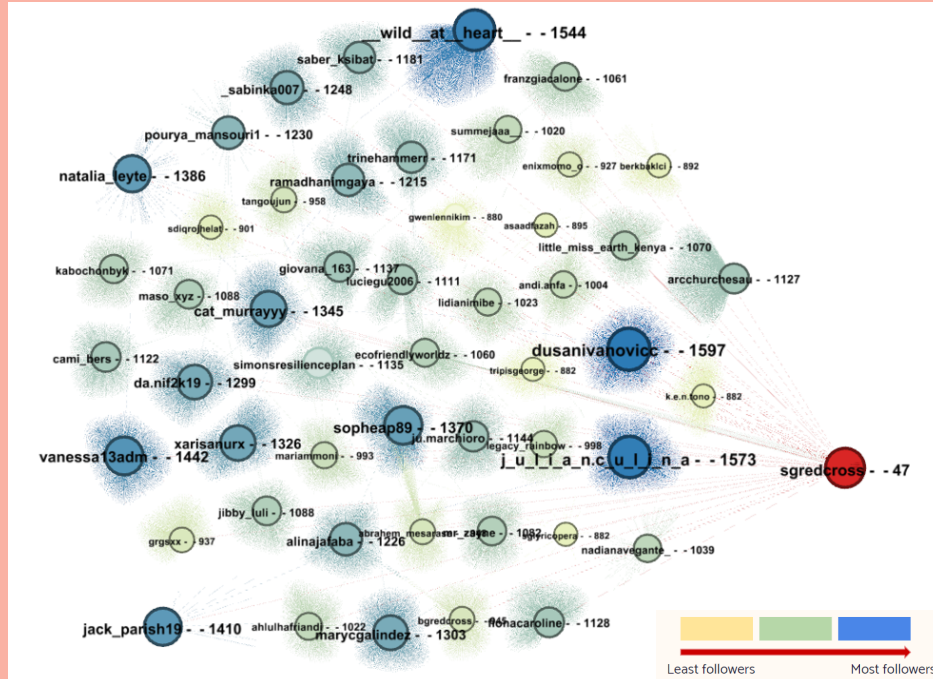
- Reduce waiting time of donors**
Real-time feed of the number of people in queue
- Improve staff capabilities by performing stricter training**
Ensure that donors will have a painless experience as bad experiences have been proven to dissuade people from returning to donate.
- Provide better incentives that invoke emphatic emotions**
Donors are appreciative of the after care & the attitude of the staff are the main factors that affects a donor's experience in the blood bank - UK reviews

2ND ITERATION: MARKETING STRATEGY

- Gather SRC social network**
Understand the spread-ability of their callouts for any social media platform
- Social Media marketing campaign based on clusters**
Identify and cluster users based on their posts
- Identify possible campaign influencers**
Reach out with these influencers to educate their followers

NETWORK ANALYSIS

INSTAGRAM (@SGREDCROSS)



Singapore Red Cross' Instagram profile has 12,050 followers as of 26th March 2020.

Top 5 Based on 1st degree	
Username	Number of followers
dusanivanovic	1,594
j_u_l_i_a_n_c_u_l_i_n_a	1,575
_wild_at_heart_	1,545
vanessa13adm	1,440
jack_parish19	1,410

The general network of the top 50 followers of Red Cross with the highest degree centrality was mapped. The top 5 most influential followers are as shown on the left, with the highest degree centrality being 0.028.

TOPIC MODELLING

Topic modelling was performed on the posts of top 50 Instagram profiles to allow us to understand what topics followers post about. Accounts that were non-English were removed, leaving 18 users with 5 topics each.

CLUSTER ANALYSIS

Based on the 20 topics uncovered in topic modelling, k-means clustering was performed to find the optimal number of clusters. The results was 6 clusters.

Cluster 1
Learning to forgive

Cluster 2
Positive Outlooks of the Future

Cluster 3
Positive Emotion for everyday life

Cluster 4
Environmental Issues

Cluster 5
Interest

Cluster 6
Others

TWITTER (@SGREDCROSS)

Singapore Red Cross' Twitter profile has 5,460 followers as of 16 March 2020 and 17,850,313 nodes for the second degree; making it difficult to map on Gephi.

Top 5 Hubs based on 1st degree

user_id	Number of Followers
6519522	4,422,491
85289376	1,354,376
138708473	1,171,874
14282672	1,148,859
54541128	1,037,586

The followers with the highest influential power on Twitter are shown above, with the top user having the highest degree centrality of 0.248

TOPIC MODELLING

Topic modelling was performed on the posts of top 50 Instagram profiles to allow us to understand what topics followers post about. Accounts that were non-English were removed, leaving 31 users with 5 topics each.

CLUSTER ANALYSIS

Based on the 155 topics uncovered in topic modelling, k-means clustering was performed to find the optimal number of clusters. The results was 6 clusters.

Cluster 1
Hospital emergency posts

Cluster 2
Appreciation of donation/volunteer service

Cluster 3
Education and economics

Cluster 4
Humanitarian aid volunteering

Cluster 5
Country issues and entrepreneur

Cluster 6
Others

LIMITATIONS & CHALLENGES

- User privacy issues with social media APIs
- Takes too long to scrape 3rd degree
- Additional stopwords choice could defer according to social networks
- Gephi is --unable to plot huge networks
- Tweets/Captions are in various languages
- Inaccuracy due to incorrect sentence structure in Vader

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