Mental Health and Social Media

Social media has become more and more popular over the recent years, even with that being the case, this is a topic that has caused great controversy. It has not been present for so long, but it exists a lot of reports, news and research from doctors and psychologists that give their different points of view. According to Rhys Edmonds (Centre of Mental Health, 2008), by 2021, it is forecast that there will be around 3 billion active monthly users of social media. It is also mentioned that addiction to social media affects around 5% of young people and was recently described as potentially more addictive than alcohol and cigarettes.

There is a Netflix released a documentary called the "Social Dilemma" in which it explains how engineers are the ones responsible in making the social media platforms more addictive, to an extent that even themselves they cannot resist from touching their phones.

But what makes social media so addictive? If we really think about it, it is all about image, likes and comments, being "comments" the key word for this analysis. Mentioning words, there is a common word used by teenagers and by doctors that is the "Fear of Missing Out", I can even hear that from people that surround me. The term is about not wanting to miss on anything that someone else that you know is doing, this can be by viewing pictures, videos and receiving text messages on how someone else is having the time of their lives.

Words are a powerful tool, social media exploits the use of words in many ways, hashtags, comments, texts, are just some examples of how social media uses words to transmit a message. Teenagers are very susceptible to words which creates the problem of mental health and in the following analysis we will use words to create insights for multiple businesses which will help to create a more meaningful strategy to tackle mental health issues.

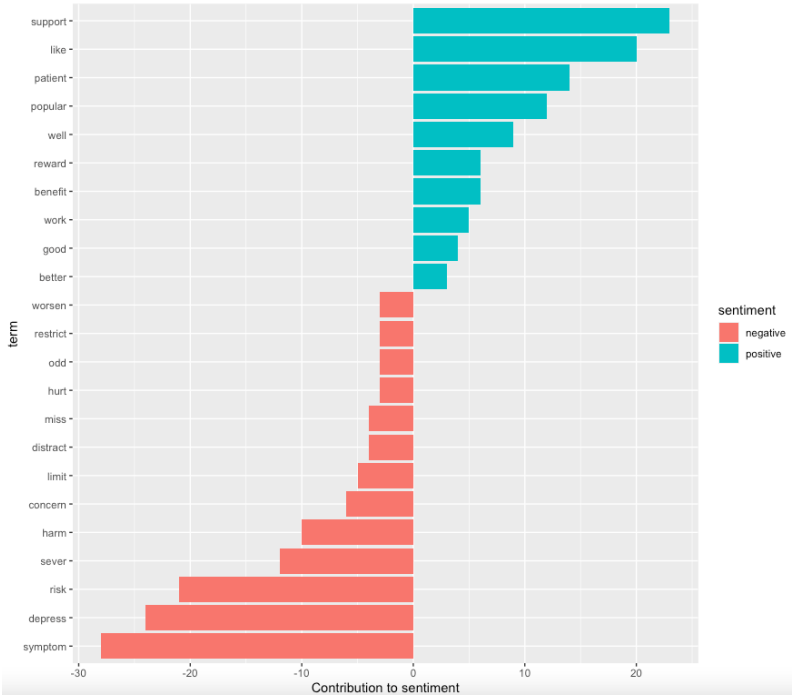
Analysis

-Gathering the Data

The first part of the study was first finding the proper research that was related to the topic of mental health and social media. I read multiple articles and I had to make sure that they were written by experts and that they were up to date, then I chose 2 pdf forms that I could download and work with them.

-Framework 1

I created a sentiment analysis to get the positive and negative for each word. Afterwards a chart to see the top words that are more meaningful in the analysis and that correspond to each positive and negative.



The plot shows that “support” is the most frequent word for positive, and “symptom” is the most frequent word for negative. What we can get from this chart is that the word “support” is used frequently by doctors and psychiatrists as a positive word to describe help for those that suffer from mental health. It is commonly used as “find support in your loved ones”, “build your support system”, “I can support you no matter what” ...

On the other hand, “symptom” is used commonly as a negative word because it can be used to describe “symptoms of mental health”, “not being aware of the symptoms”, “top 5 symptoms of mental health”, “symptoms might include” …

Like, patient, popular, work are also frequent words used positively. The word “Work” even if it is not in the top, it is a very frequent word used by specialists to build up the confidence and bring energy to a person with mental health because the whole idea is to distract the patient from using social media and focus more on themselves and in real life. It is commonly related to the fact on “working on themselves”.

Depress, severe, risk are words also used negatively. These words are more commonly used as adjectives, they are used to describe a person that suffers from mental health.

-Framework 2

I created a TF-IDF framework to analyze the table that contains the actual words with its respective frequency and logarithm transformation. It is easier to visualize the words that have lower count and are also meaningful.

Document	Term	Count	Tf	Idf	Tf_idf
The social dilemma.pdf	brain	1	0.0008635579	0.6931472	0.0005985727
The social dilemma.pdf	parents	1	0.0008635579	0.6931472	0.0005985727
Social Media and Mental Health.pdf	video	1	0.000352485	0.6931472	0.000244324
Social Media and Mental Health.pdf	supplement	1	0.000352485	0.6931472	0.000244324
Social Media and Mental Health.pdf	reject	1	0.000352485	0.6931472	0.000244324
Social Media and Mental Health.pdf	power	1	0.000352485	0.6931472	0.000244324

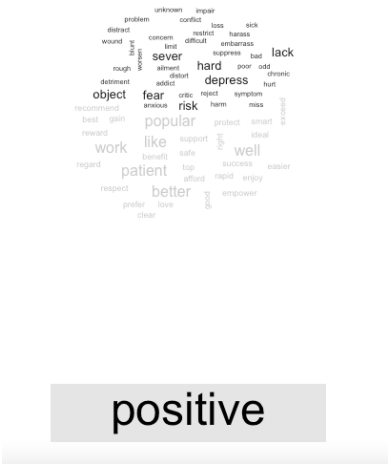
There are many other words that can bring many insights to this analysis but specially these ones only have a count of 1 and are strong words to describe this situation.

The word brain is very meaningful in this analysis probably the most important because according to Webmd (2005) connections between nerve cells along certain pathways or circuits in the brain can lead to problems with how the brain processes information and may result in abnormal mood, thinking, perception, or behavior. The brain works differently for every person and depending on how they perceive words, it can affect them in a different way. This can cause that a single word in a social media platform creates a mental health problem.

In the same way the other words are important, if we are talking about teenagers, parents are very important in the development of their children and they can either help or ignore the situation if their kids suffer from mental health or depression from social media. Video is important because videos like words are powerful in social media, a video can be transmitted and reproduced very quickly though social media and create all sorts of mental health problems.

-Framework 3

The last thing created was a word cloud using the positive and negative words just to have a better understanding of other used words to create better insights.



-Insights

- As mentioned in the beginning, this is an analysis that can used in many areas. It is a form that can be utilized by psychiatrists to treat patients with mental health problems. It creates a framework of structured words that are separated as negative and positive and that way the professional knows which words are better to use in a positive way to deal with this type of problem or even gather more information of the topic.
- It also can be useful for future writers of the topic, having this positive and negative words along with the words that create more impact can allow for the creation of a motivational book with only unique words that create impact on the topic. In the same way, it can also be a book for parents, since parents appeared as a unique word. With technology catching up and social media being the only form of entertainment nowadays, parents will need a form to select the correct words to create a positive impact on their children.

- The same way that Netflix has created many series and documents about social media and mental health. The tv industry can be able to create some meaningful scripts that targets the problem using research from experts and knowing the powerful words that can help fight the battle of mental health.

References

WebMD LLC (2005-2021). Retrieved from

https://www.webmd.com/mental-health/brain-mental-illness#:~:text=Connections%20between%20nerve%20cells%20along,thinking%2C%20perception%2C%20or%20behavior.

Rhys Edmonds (Centre of Mental Health, 2008). Retrieved from https://www.centreformentalhealth.org.uk/blogs/anxiety-loneliness-and-fear-missing-out-impact-social-media-young-peoples-mental-health

Appendix

Hult International Business School

Business Insights

Text Analytics and NLP

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```
# Install packages
install.packages("tm")  # for text mining
install.packages("NLP")  # for text mining
install.packages("SnowballC") # for text stemming
install.packages("wordcloud") # word-cloud generator
install.packages("RColorBrewer") # color palettes
install.packages("syuzhet") # for sentiment analysis
install.packages("ggplot2") # for plotting graphs
install.packages("pdftools") #for pdf_text

# Load libraries
library("NLP")
library("tm")
library("SnowballC")
library("wordcloud")
library("RColorBrewer")
library("syuzhet")
library("ggplot2")
library("pdftools") # we need this library to use pdf_text
library(dplyr)
library(tidytext)
```

```
#loading the pdf files
setwd("/Users/karenlarios/Desktop/Social Media")
files <- list.files(path="/Users/karenlarios/Desktop/Social Media")

#joining both files together
my_pdf_text <- lapply(files, pdf_text)


# creating the corpus
Rpdf <- readPDF(control = list(text = "-layout"))
data_corpus <- Corpus(URISource(files),
                      readerControl = list(reader = Rpdf))


# creating the DTM
BigramTokenizer <- function(x) NGramTokenizer(x, Weka_control(min = 2, max = 2))
data_dtm <- DocumentTermMatrix(data_corpus, control = list(tokenize="words",
                                                           removePunctuation = TRUE,
                                                           stopwords = stopwords("english"),
                                                           stemming = TRUE))
# Convert to tidy
data_td <- tidy(data_dtm)
data_td
```

```
#Perform sentiment analysis, getting the positive and negative for each word
data_sentiments <- data_td %>%
  inner_join(get_sentiments("bing"), by = c(term = "word"))

#Checking the data sentiments
data_sentiments

#Visualize which words most often contributed to positive or negative sentiment type of histogram
library(ggplot2)
data_sentiments %>%
  count(sentiment, term, wt = count) %>%
  ungroup() %>%
  filter(n >= 3) %>%
  mutate(n = ifelse(sentiment == "negative", -n, n)) %>%
  mutate(term = reorder(term, n)) %>%
  ggplot(aes(term, n, fill = sentiment)) +
  geom_bar(stat = "identity") +
  ylab("Contribution to sentiment") +
  coord_flip()
```

```
#Creating a tf-idf format
data_tf_idf <- data_td%>%
  bind_tf_idf(term, document, count) %>%
  arrange(desc(tf_idf))
data_tf_idf

#Creating a plot from the tf-idf format
data_tf_idf %>%
  arrange(desc(tf_idf)) %>%
  mutate(word=factor(term, levels=rev(unique(term)))) %>%
  group_by(document) %>%
  top_n(20) %>%
  ungroup %>%
  ggplot(aes(term, tf_idf, fill=document))+
  geom_col(show.legend=FALSE)+
  labs(x=NULL, y="tf-idf")+
  facet_wrap(~document, ncol=2, scales="free")+
  coord_flip()

# creating a wordcloud
#install.packages("reshape2")
library(reshape2)
data_sentiments%>%
  inner_join(get_sentiments("bing")) %>%
  count(term, sentiment, sort=TRUE) %>%
  acast(term ~sentiment, value.var="n", fill=0) %>%
  comparison.cloud(colors = c("gray10", "gray80"),
                   max.words=300, scale=c(1, 0.1), random.order = TRUE)
```