

Understanding r/Depression & r/SuicideWatch

Text Analytics

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A Leading Cause of Disability in U.S. Adults

Strongly
correlated with
anxiety and panic
disorders

Major Depressive Disorder

Typically characterized by an overwhelming
feeling of sadness or a loss of interest in
most activities > 2 weeks

Affects 16 M
American adults
every year

50% of suicide
victims suffer
from MDD

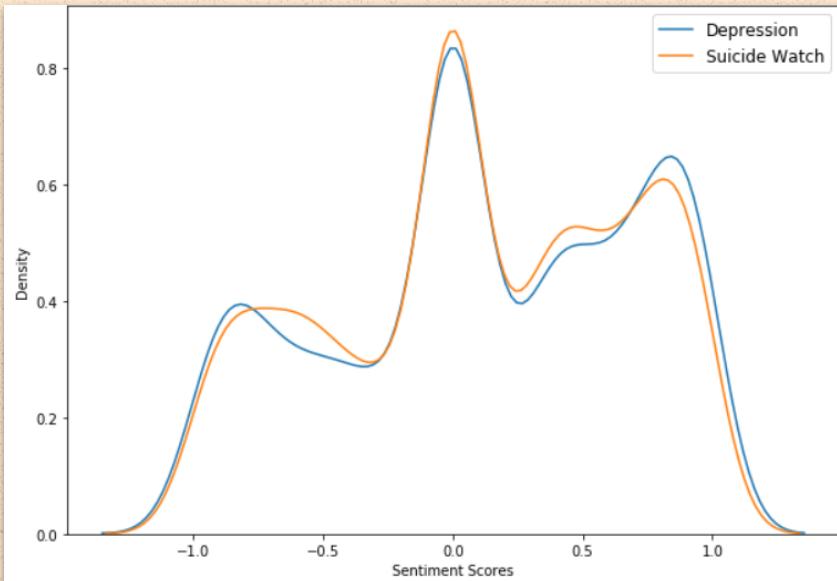
r/Depression and r/SuicideWatch

“This is a place of support”

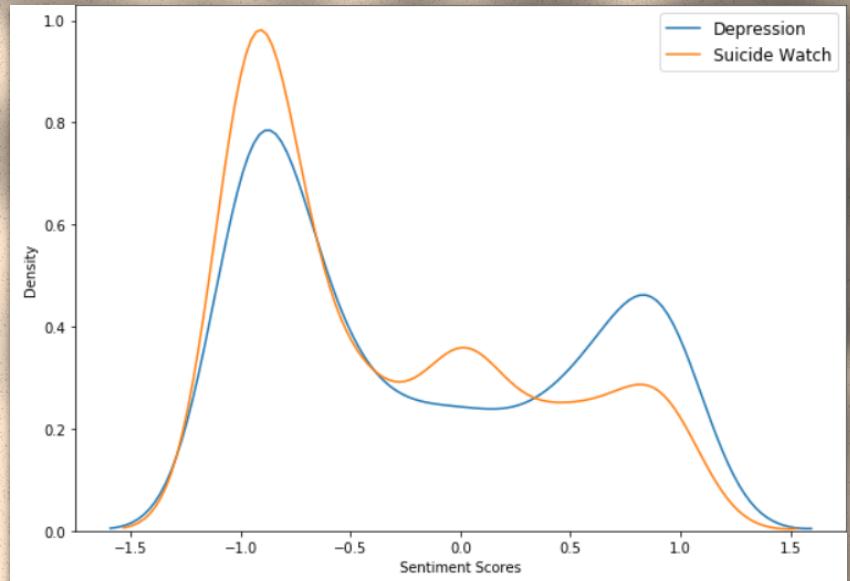
“A supportive space for anyone
struggling with depression”

Sentiment Analysis

Comments

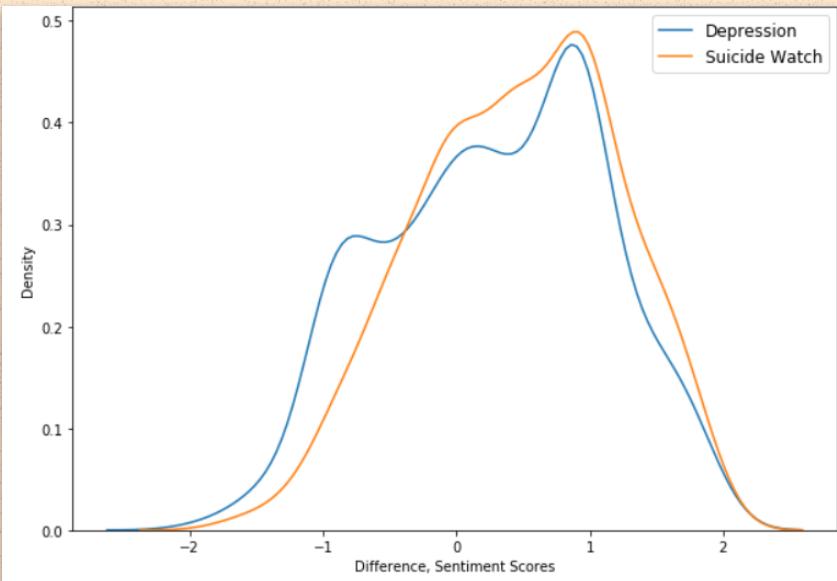


Posts

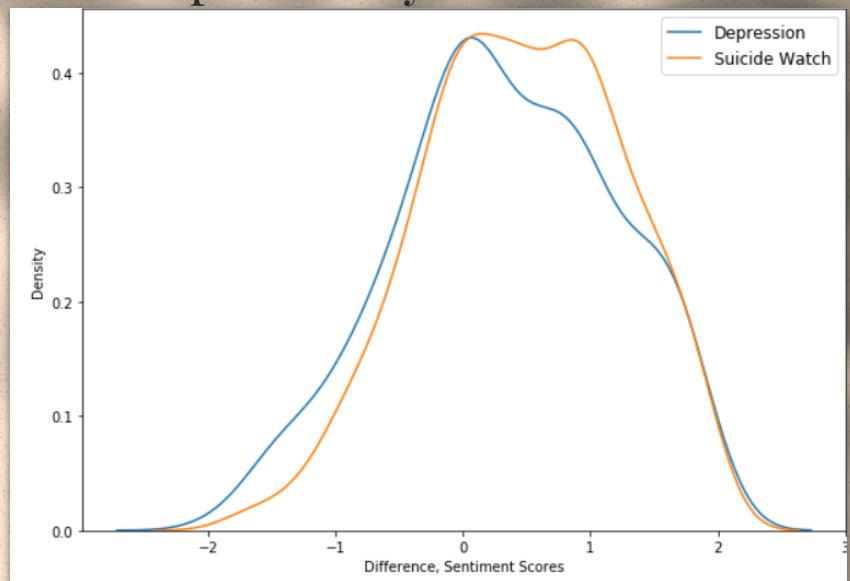


Comments' Median Sentiment and Post Sentiment

All Comments

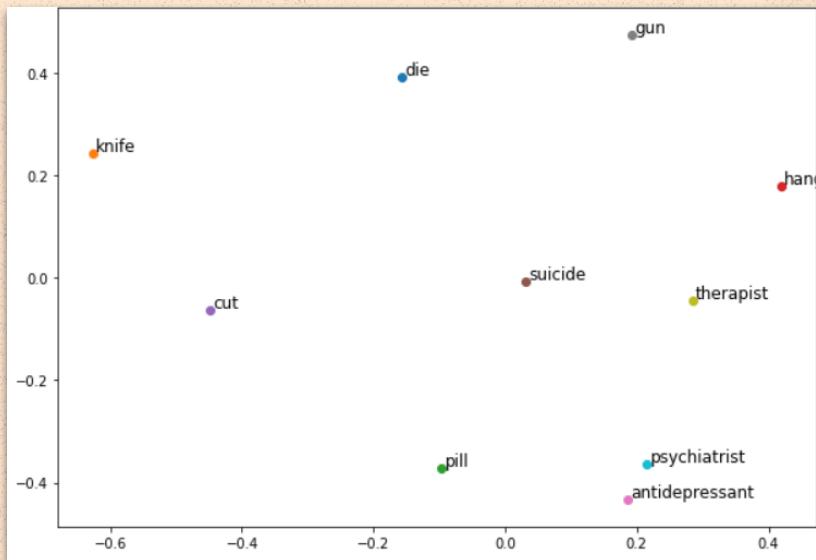


Post Replies Only

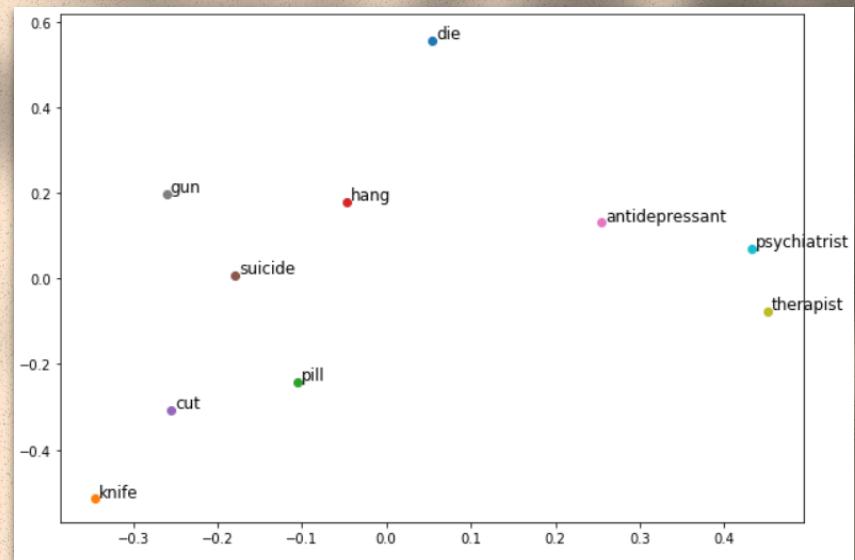


Lifts Among Medical and Suicide Act Terms

r/Depression

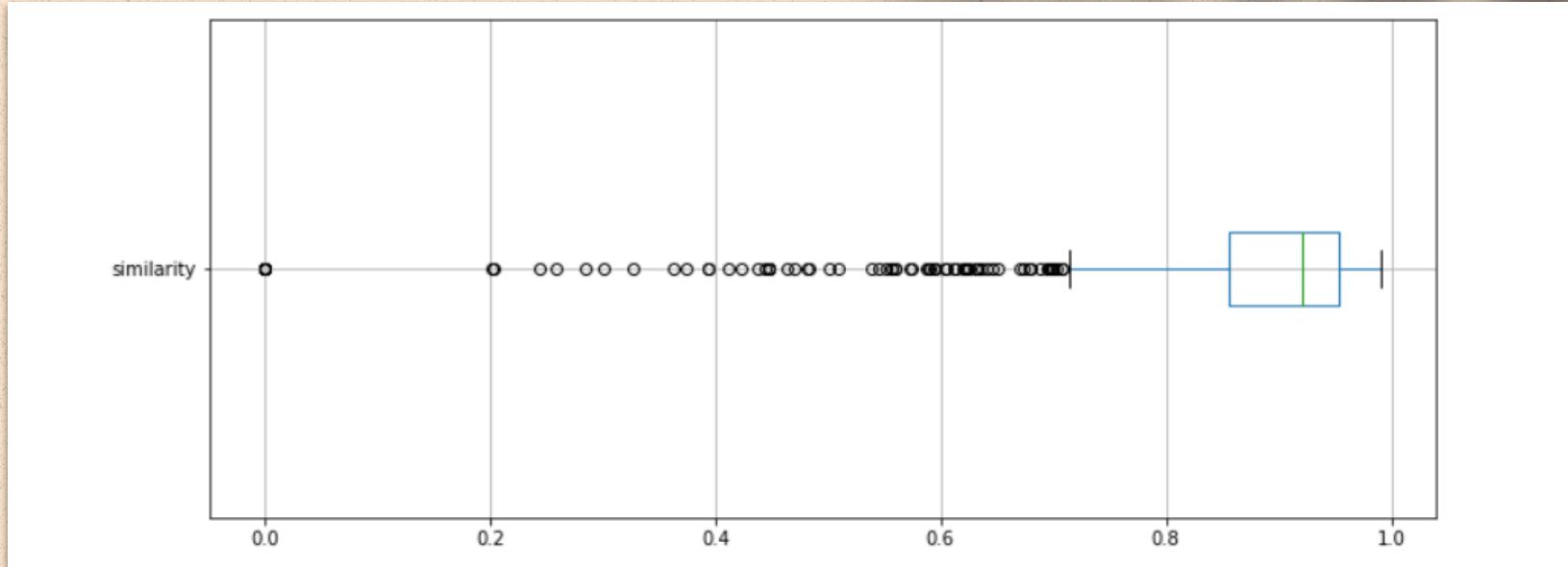


r/SuicideWatch



Cosine Similarity

- Top 500 words from r/Suicide by TF-IDF score and all r/Depression posts

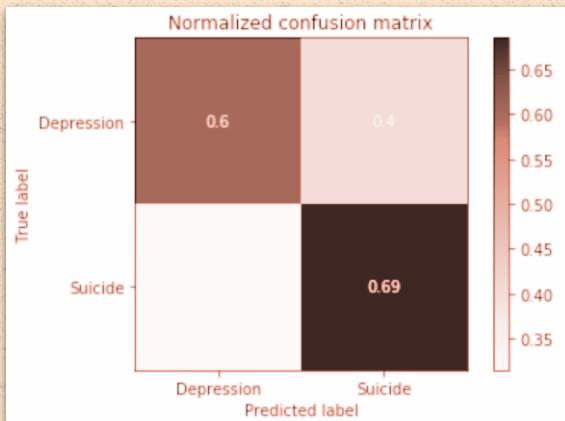


Classifying Comments - Logistic Regression

- Interpretable
- Top Accuracy: 65.2%
- Baseline: 51.2%

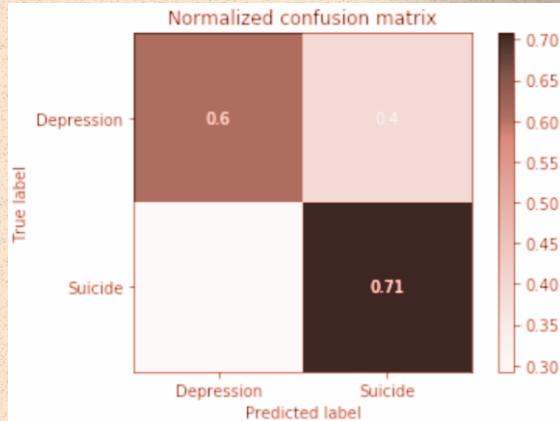
Unigrams

[[609 404]
[349 759]]



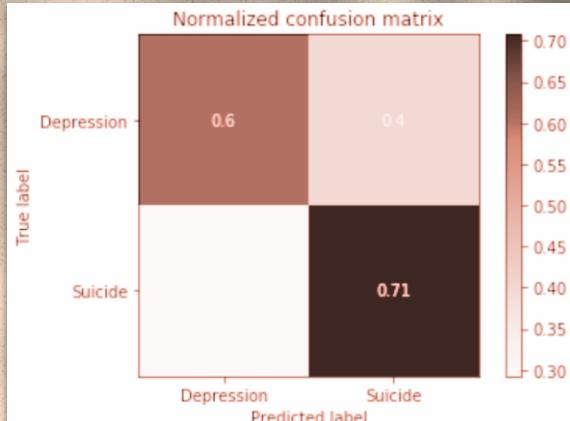
Unigrams and bigrams

[[612 401]
[324 784]]



Unigrams, bigrams, and trigrams

[[610 403]
[324 784]]



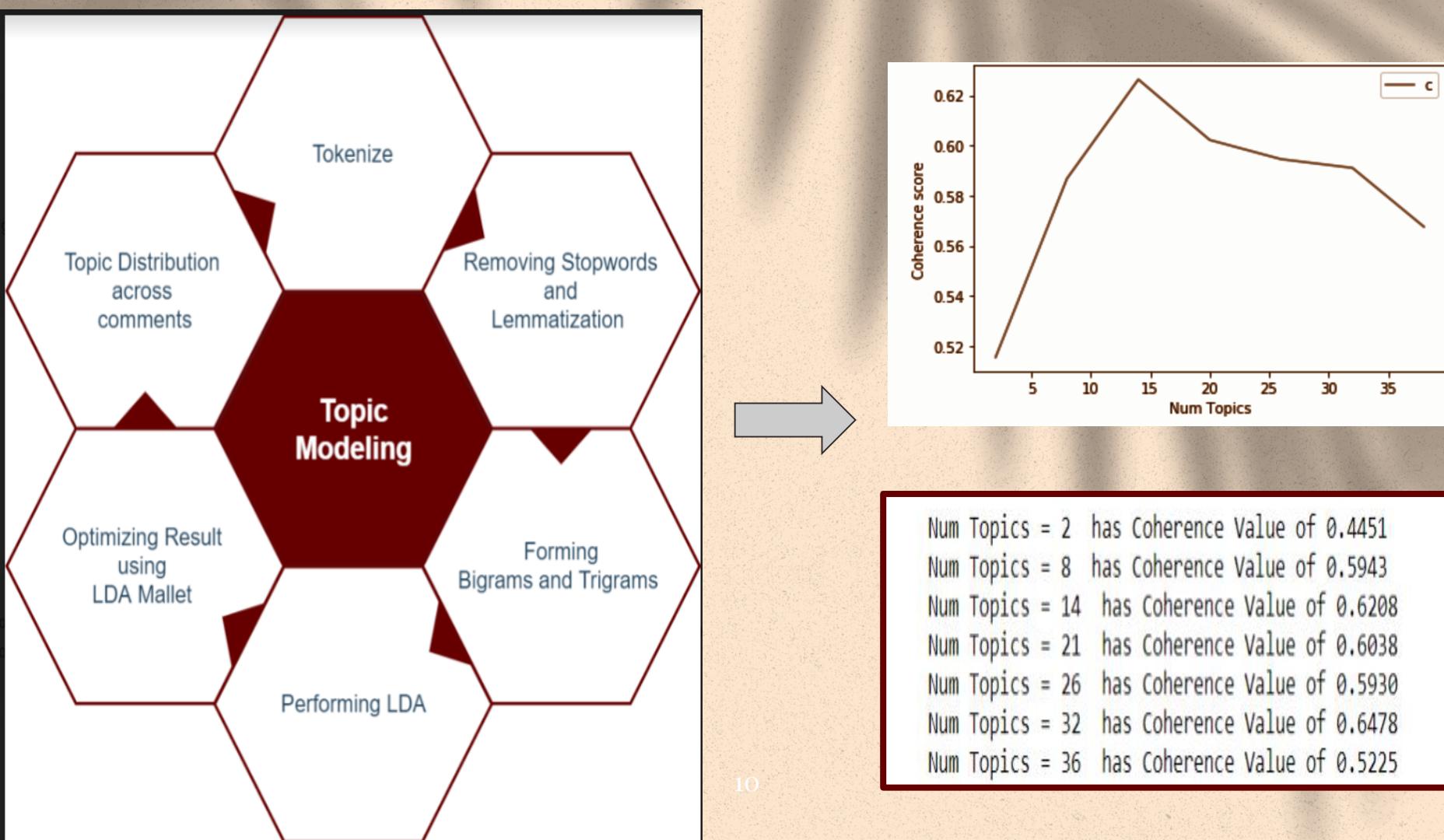
Top Comment Unigrams by TF-IDF Score

Top 5 unigrams in depression set

```
array(['escape', 'whatever', 'binge', 'helps', 'reminding'])
```

Top 5 unigrams in suicide set

```
array(['activities', 'complicated', 'unfair', 'sooner', 'stranger'])
```



Variation in Dominant Topics

Depression Posts

0.1045	feel, fuck, shit, hurt, pain, deserve, push, break, kill, suffer
0.1180	talk, stop, happy, cry, call, relate, kill, literally, kind, night
0.0691	family, love, leave, mom, fight, turn, fall, walk, give, hit
0.1906	feel, make, feeling, anymore, sad, emotion, idk, word, wanna, fake
0.1291	day, nan, hate, today, sleep, hour, tired, bed, wake, wait
0.0765	people, care, person, give, make, world, problem, show, realize, matter
0.0898	feel, make, feeling, anymore, sad, emotion, idk, word, wanna, fake
0.1866	friend, talk, relationship, close, suck, hang, nice, group, meet, social
0.0851	feel, make, feeling, anymore, sad, emotion, idk, word, wanna, fake
0.0686	make, post, experience, situation, point, hear, comment, sense, reach, delete
0.116	life, live, end, reason, parent, place, move, struggle, future, fact
0.0844	life, die, change, real, suicide, step, enjoy, easy, write, death
0.0961	lot, school, put, bit, class, learn, play, energy, thing, game
0.0901	feel, make, feeling, anymore, sad, emotion, idk, word, wanna, fake

Suicide Posts

0.1962	feel, talk, anymore, thing, doctor, wanna, hit, watch, hard, guess
0.0983	day, work, cry, today, happy, job, sleep, bed, dream, wake
0.0681	feel, make, hard, feeling, emotion, sense, worth, fake, absolutely, accept
0.0731	problem, therapist, thought, deal, therapy, lot, listen, sound, state, focus
0.1087	feel, talk, anymore, thing, doctor, wanna, hit, watch, hard, guess
0.0797	start, hurt, kill, break, pain, step, deserve, push, plan, fix
0.0686	good, find, hope, hear, nice, guess, type, force, delete, helpful
0.1085	work, school, hate, job, parent, back, college, class, pay, fail
0.0801	thing, give, change, easy, big, advice, energy, small, game, play
0.1014	work, school, hate, job, parent, back, college, class, pay, fail
0.1077	love, great, read, mind, enjoy, experience, write, future, study, share
0.0887	day, work, cry, today, happy, job, sleep, bed, dream, wake

Insights!

- Sentiment analysis shows evidence suggesting the suicide watch subreddit is a healthy/beneficial environment for people who are contemplating suicide and lack offline support
- TF-IDF shows top identifying words vary between suicide and depression
- LDA shows dominant topics vary between suicide and depression
 - **Depression** - Posts more focused on extreme emotions such as sadness, anger, hatred. Many self-harm mentions.
 - **Suicide** - Posts more resigned, stoic, and emphasize external influences on decisions

Questions?

Appendix

Example Posts

```
list(df_depression['comment'][1:1])
```

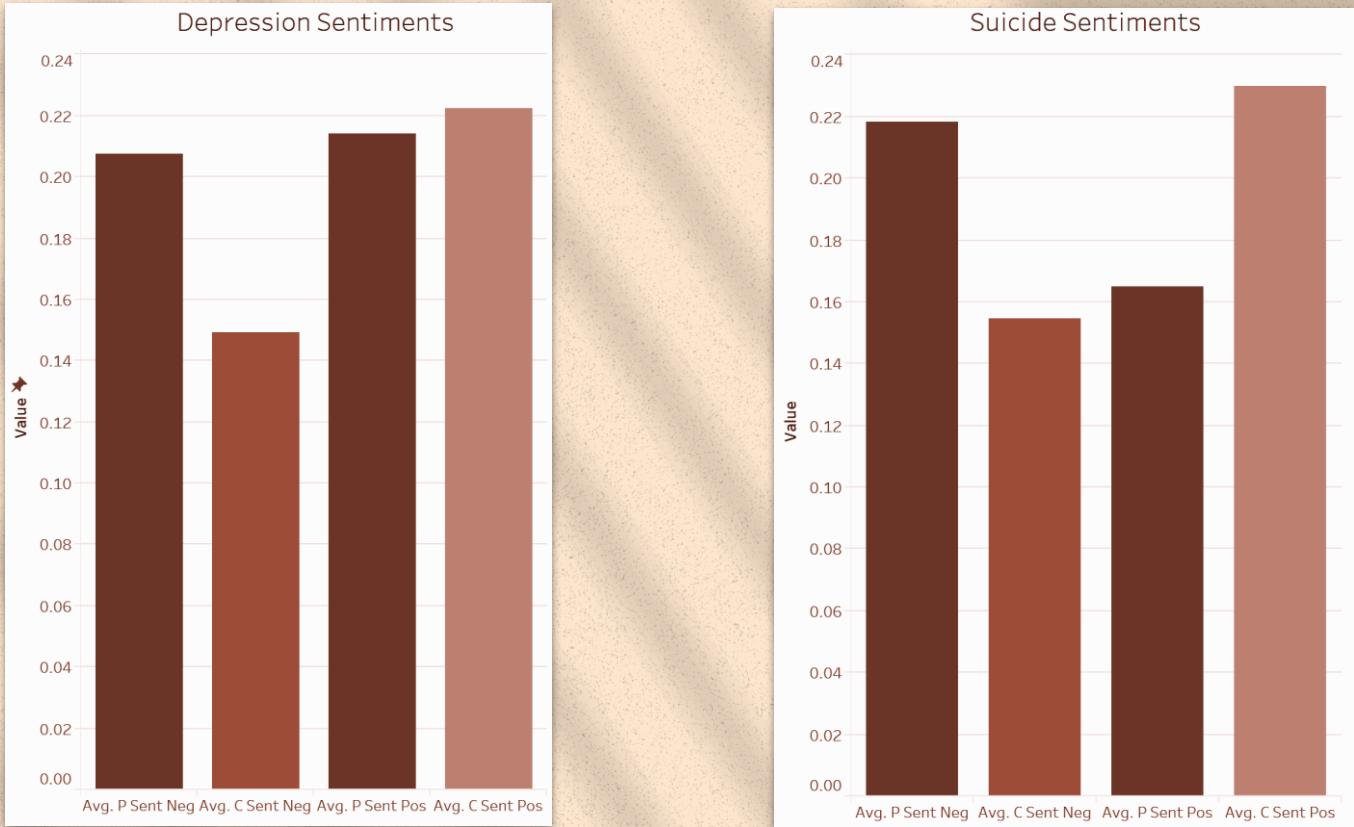
["I gave in to my depression and stayed home instead of going to an exam that made up 35% of my grade. Then I thought to myself what the fuck did I just do and I dragged my ass to office hours to beg for another chance and told my professor honestly why I didn't attend. \n\nHe was very sympathetic and told me he could tell I was having a hard time and said I could take it tomorrow. I don't feel like I deserve this chance, but I won't waste it."]

```
list(df_suicide['comment'][1:2])
```

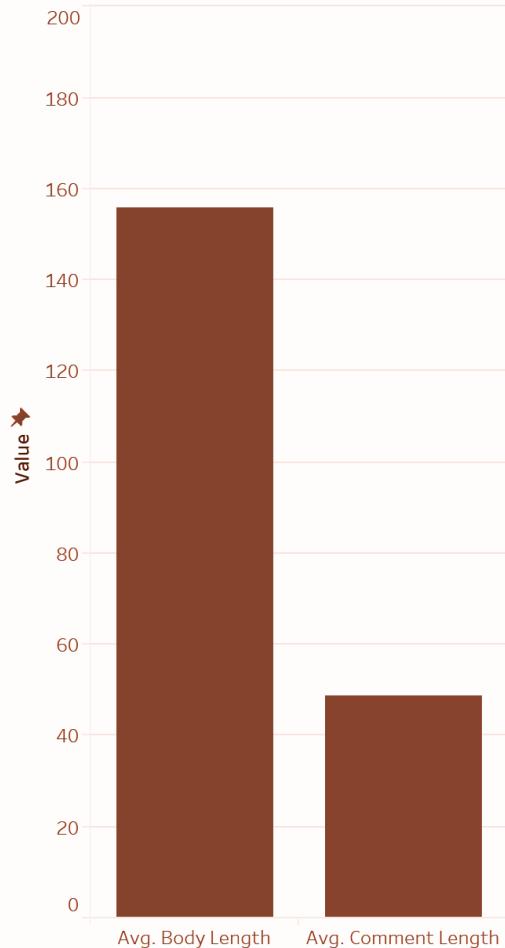
['I didn't necessarily see this addressed, perhaps I overlooked it. I personally think the whole "it gets better" campaign was BS. It's not 100% true, yay for those whose lives have improved and they can honestly look back and say wow, I'm really glad I didn't die. Is that little bandaid still discouraged? I hope so. Because as someone who has wanted to die (not necessarily kill myself) since I was probably at least 25, and I'm now 48 and at the lowest point I've been, it does not get better. And it can get worse. \n\nI would never encourage anyone to kill themselves. But if their mind is made up, I want them to know it's ok, I want them to be at peace because it's obviously not with them now. ']

Some of the Top 500 Words used in Cosine Similarity

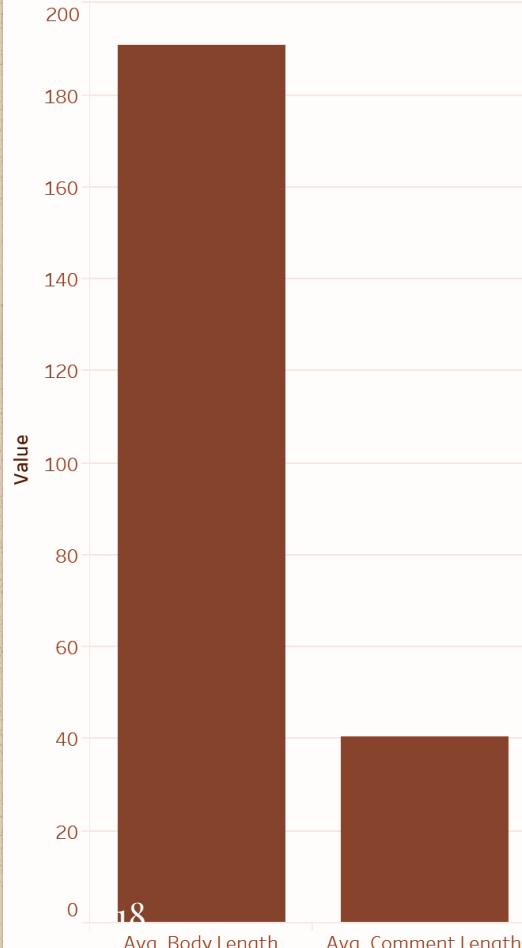
```
'go \n\n think life time know feel like get try people die kill year thing want friend bad live end day tell anymore help good way suicide care talk family need right leave find \n work fuck stop not come love well hate start shit make pain thought month school take fucking say hard person hurt lose happen long point reason have suicidal hope wish away parent depression lot today world week tired happy past self job look will maybe be give ago post ask mind home close break cry old actually matter to sorry sure head place plan change probably little anxiety let sleep night feeling mom thank hour see understand able fail problem dead attempt write death mean mental 2 college depressed alive read wake 3 turn wait guess therapy wrong couple new honestly stay finally cause keep body decide money relationship house hold bit high pretty sad lie suffer dad issue deal scared bed wanna cut heart literally hear far longer idea spend soon sit different constantly guy bring great support remember easy continue use young 5 future recently abuse worth deserve fall believe stuff call situation realize experience struggle act fight exist emotion fact hospital commit real room everyday miss pass dream fear eat stupid hell big health bear pill hang short afraid s
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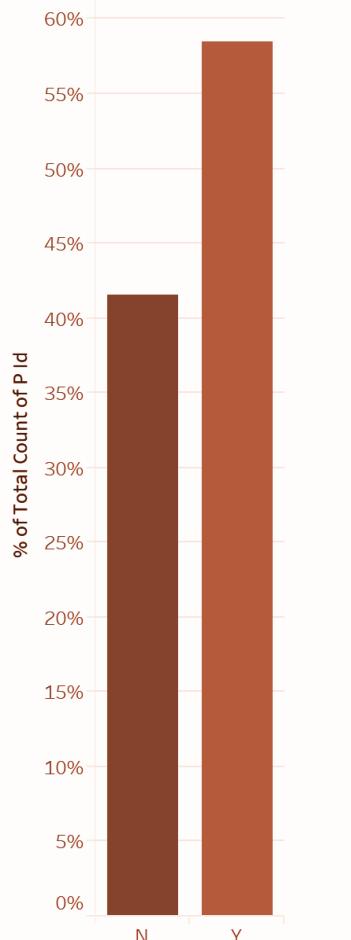
Depression Content Lengths



Suicide Content Lengths



Depression Post Replies



Suicide Post Replies

