Calm Home 🐦

Business Plan

-- An Online Mental Counselling Community With Advanced NLP Technology

Team 7

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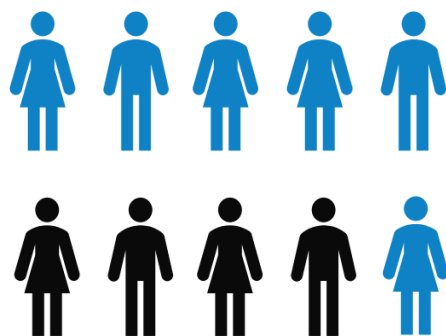Qingyue Lei
Xi Lu

Contents

01 Background & Motivation

People are having more negative emotions in the context of the COVID-19 pandemic

More than
Half (56%)

of young adults

have symptoms of

anxiety or depression

with **25%**

contemplating suicide

Existing Mental Health Concerns

- **Mental illnesses such as depression**

- **Vaccine anxiety**

- **Dissociation in the pandemic period**

- **Death/terminal illness of a loved one**

- **Aggressive behavior/mood changes**

- **......**

Freelancing workforce has become an essential pillar of the U.S. economy and the composition also changes
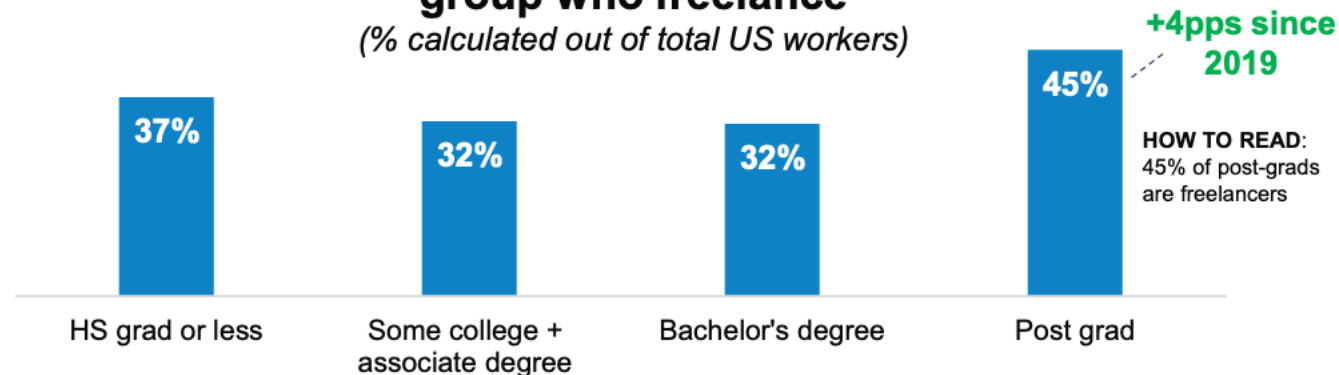
$1.2

trillion

in annual earnings from freelancing

(vs. $984 billion in annual earnings

reported in 2019)

Post-grads are most likely to freelance

Percentage of workers among each education group who freelance
(% calculated out of total US workers)

+4pps since 2019

37% — HS grad or less

32% — Some college + associate degree

32% — Bachelor's degree

45% — Post grad

HOW TO READ: 45% of post-grads are freelancers

They're becoming more "skilled"

Freelance work typically entails..
(% calculated out of total freelancers)

+5pps since 2019

50%	37%	28%	17%

- Providing skilled services
- Providing unskilled services
- Selling goods
- Other activities

02 Technology & Insights

Data & Methods

Technology & Insights

Tweets_COVID19.zip
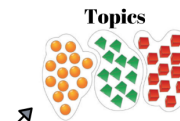(868,146 tweets)

Tweets_en.csv
(483,577 tweets)

Flair Model

Positive Tweets
(194,640 tweets)
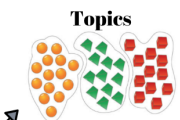
Negative Tweets
(288,937 tweets)

TOPIC MODELING

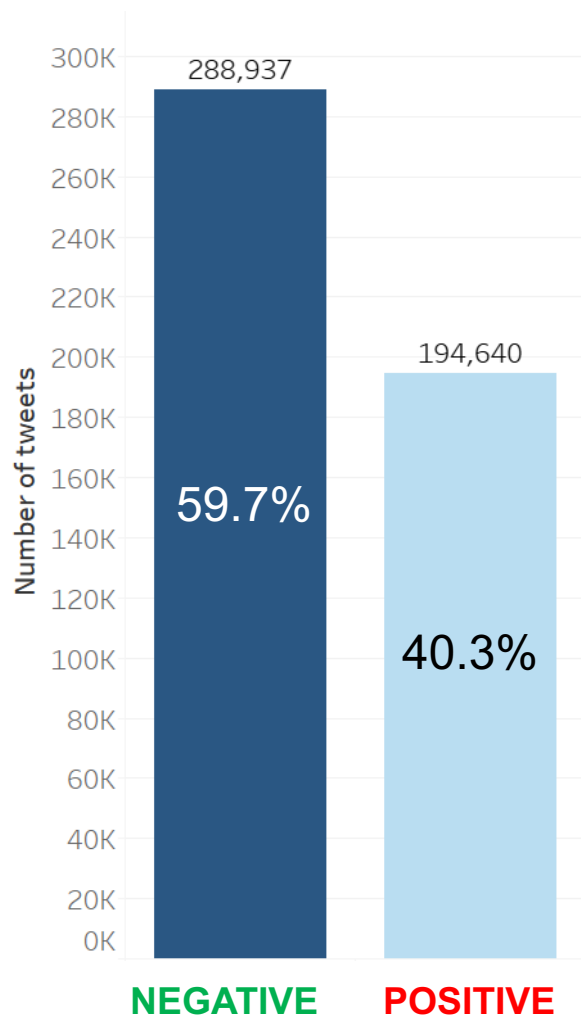Topics

Documents

Topic

Frequency of words

Word2vec

Insights

People tend to post NEGATIVE sentiment tweets during the epidemic

288,937

59.7%

194,640

40.3%

Number of tweets

NEGATIVE   POSITIVE

Topic Modeling with POSITIVE tweets

Topic 1:
vaccine, news first, thank, school, ead, dos, good, rollout, story

Topic 2:
world, country, million, u, amp, pm, effective, business, join, india

Topic 3:
health, dr, public, expert, goverment, uk, relief, another, information, call

Topic 4:
mask, impact, hospital, patient, real, back, market, global, face, trial

Topic 5:
latest, thanks, support, pandemic, data, open, must, response, event, canada

Topic Modeling with NEGATIVE tweets

Topic 1:
new, case, death, report, u, number, day, data, total, uk

Topic 2 :
shot, house, thats, come, people, fuck, tell, u, anyone, white

Topic 3 :
people, died, american, hospital, worker, care, patient, home, many, texas

Topic 4 :
vaccination, world, health, march, south, state, received, february, question, country

Topic 5 :
pandemic, please, read, amp, study, dose, find, public, response, health

Technology & Insights

Word2vec with NEGATIVE tweets

```
model.wv.most_similar('teen', topn=10)
```

confused

quarantine

refused

```
[('confused', 0.1565432846546173),
 ('airborne', 0.15027281641960144),
 ('interview', 0.13497668504714966),
 ('experiencing', 0.13437198102474213),
 ('great', 0.13280370831489563),
 ('quarantine', 0.12868383526802063),
 ('men', 0.12798649072647095),
 ('simply', 0.12667815387248993),
 ('refused', 0.12289239466190338),
 ('shown', 0.12152919173240662)]
```

```
model.wv.most_similar('suicide', topn=10)
```

fear

exposure

coronaviru

```
[('cover', 0.1647655963897705),
 ('fear', 0.13923564553260803),
 ('exposure', 0.13346679508686066),
 ('eight', 0.13176313042640686),
 ('survived', 0.12947416305541992),
 ('stopped', 0.12554675340652466),
 ('hidden', 0.12188473343849182),
 ('coronaviru', 0.12128478288650513),
 ('peopl', 0.11946859955787659),
 ('hi', 0.118579909205436')]
```

```
model.wv.most_similar('mental', topn=10)
```

pharmaceutical

exposed

```
[('top', 0.18067054450511932),
 ('traveller', 0.14431729912757874),
 ('beach', 0.13570551574230194),
 ('pharmaceutical', 0.13186854124069214),
 ('environment', 0.11916686594486237),
 ('always', 0.11903272569179535),
 ('exposed', 0.11592824757099152),
 ('future', 0.1119309514760971),
 ('regulation', 0.10904505848884583),
 ('base', 0.10846991837024689)]
```

```
model.wv.most_similar('crime', topn=10)
```

stupidity

hardest

sad

```
[('impact', 0.16571003198623657),
 ('stupidity', 0.16345487534999847),
 ('hardest', 0.13633908331394196),
 ('virtual', 0.13219857215881348),
 ('special', 0.13168060779571533),
 ('focus', 0.12749233841896057),
 ('sad', 0.12635135650634766),
 ('explained', 0.1255348026752472),
 ('skip', 0.12529143691062927),
 ('apart', 0.1213252991437912)]
```

03

Product

Product: Target Both Potential Patients and Therapists

Issues
▼
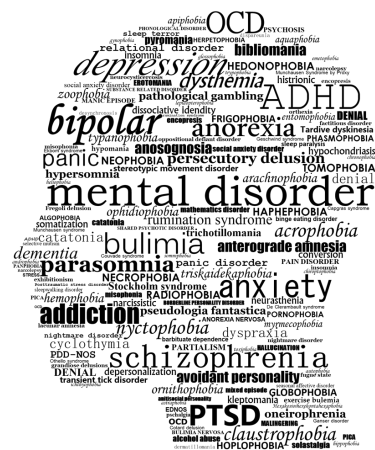
Type
▼

Device
▼

✓ Depression

✓ Stress and anxiety

✓ Grief

✓ Trauma

✓ …

✓ Individual therapy

✓ Group counseling

✓ Online therapy community
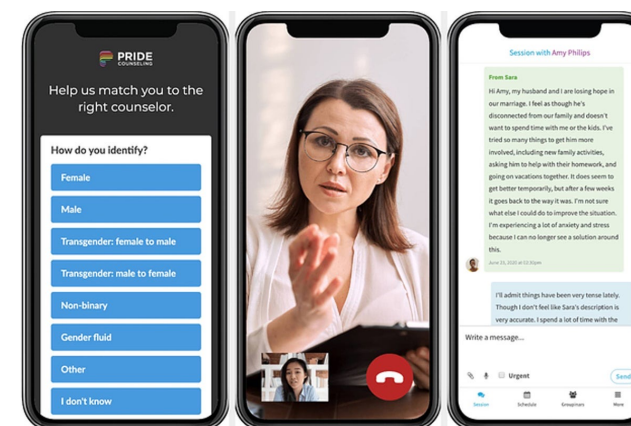
✓ Real-time chat

✓ Video chat

✓ Phone chat

04 **Company Future**

Commercialization

Initial Period

Focusing on building **COMMUNITY**
Revenue mainly from online consult

Growing

Membership System

Mature

Corporation –
Insurance company, paid online lectures

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Business Plan

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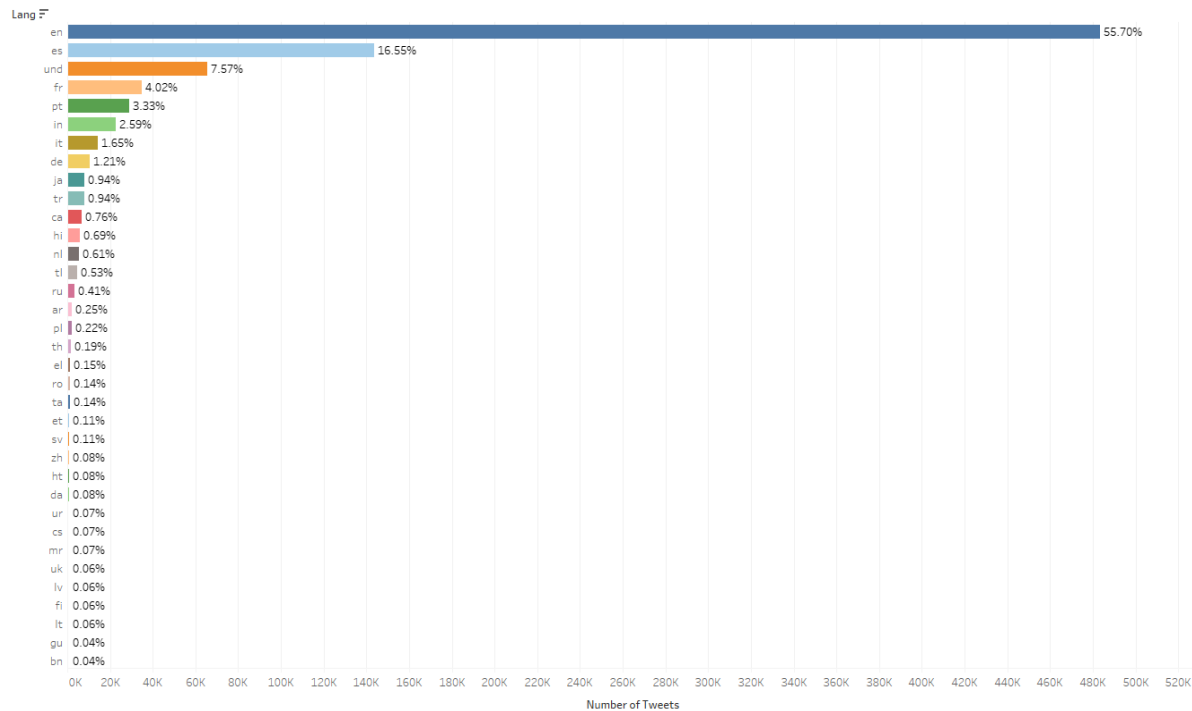Qingyue Lei   qlei@simon.rochester.edu
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Appendix

Appendix A: Data Exploration

Appendix B: Vader & Flair

	text	date	positive	negative	neutral	compound
0	Here is the CDP to Celebrate 17 Glorious Years...	2020/3/22	0.283	0.000	0.717	0.8360
1	Karnataka announces lockdown in 9 districts to...	2020/3/22	0.000	0.115	0.885	-0.2960
2	UK Government : Pay Self-Employed 80% of their...	2020/3/22	0.000	0.096	0.904	-0.1759
3	Guess he didn't want to be the single payer ht...	2020/3/23	0.000	0.120	0.880	-0.0572
4	Oh shit #covid19 https://t.co/YKbnrfGNz1	2020/3/22	0.000	0.545	0.455	-0.5574

Negative, Neutral and Positive. The marks are labeled by Negative, Neutral and Positive.

date	time	lang	tweet_c	reated	sourc	user_i	ser_n	r_loca	descr	pp_tei	sentiment	confidence
2020/3/22	7:28:57	en	0	Sun Mar 2	<a href="	7.31E+17	Pam Young	Edinburgh	QTVI trai	httpstco	POSITIVE	0.989396155
2020/3/22	11:39:02	en	0	Sun Mar 2	<a href="	1.19E+18	AA20		allu Arj	cdp celeb	POSITIVE	0.990596771
2020/3/22	11:24:42	en	0	Sun Mar 2	<a href="	96124223	anil lull	Bengaluru	Consultir	karnataka	NEGATIVE	0.810787976
2020/3/22	11:39:24	en	0	Sun Mar 2	<a href="	1.76E+08	Karvai Ts	UK	I take pi	uk goverr	NEGATIVE	0.972246528
2020/3/23	2:24:23	en	0	Mon Mar 2	<a href="	16653874	Tyler Fal	Lynchburg	Believer	guess dic	NEGATIVE	0.998752952
2020/3/22	17:53:03	en	0	Sun Mar 2	<a href="	2.45E+08	SanFOC			oh shit c	NEGATIVE	0.974466801
2020/3/22	15:13:40	en	0	Sun Mar 2	<a href="	9.99E+17	John Collins		Constitu	car died	NEGATIVE	0.999580562
2020/3/22	4:47:53	en	0	Sun Mar 2	<a href="	1.97E+09	Stefanrrr	José Mar	24	Árb liter	POSITIVE	0.924458027
2020/3/22	4:28:35	en	2	Sun Mar 2	<a href="	3.09E+08	AmeriKen	United St	A happily	margaret	POSITIVE	0.879706383
2020/3/22	1:09:29	en	131	Mon Mar 2	<a href="	27844479	British V	London	The offic	harrystyl	NEGATIVE	0.804068804
2020/3/22	19:37:20	en	0	Sun Mar 2	<a href="	33590010	FloridaDe	Florida	I am a Pr	rondesant	POSITIVE	0.998262942

Appendix

Appendix C: Topic Modeling with POSITIVE tweets

```
(0, '0.178*"vaccine" + 0.036*"news" + 0.023*"first" + 0.021*"thank" + 0.019*"school" + 0.013*"read" + 0.012*"dos" + 0.012*"good" + 0.012*"rollout" + 0.011*"story"')
(1, '0.033*"world" + 0.021*"country" + 0.021*"million" + 0.020*"u" + 0.019*"amp" + 0.015*"pm" + 0.015*"effective" + 0.014*"business" + 0.014*"join" + 0.014*"india"')
(2, '0.033*"health" + 0.029*"dr" + 0.022*"public" + 0.020*"expert" + 0.018*"government" + 0.018*"uk" + 0.014*"relief" + 0.014*"another" + 0.013*"information" + 0.013*"call"')
(3, '0.036*"mask" + 0.029*"impact" + 0.024*"hospital" + 0.022*"patient" + 0.019*"real" + 0.016*"back" + 0.014*"market" + 0.014*"global" + 0.013*"face" + 0.013*"trial"')
(4, '0.037*"latest" + 0.030*"thanks" + 0.030*"support" + 0.027*"pandemic" + 0.023*"data" + 0.022*"open" + 0.016*"must" + 0.016*"response" + 0.014*"event" + 0.014*"canada"')
(5, '0.030*"vaccination" + 0.026*"people" + 0.023*"know" + 0.023*"get" + 0.022*"go" + 0.021*"need" + 0.018*"im" + 0.016*"biden" + 0.016*"dont" + 0.015*"right"')
(6, '0.033*"test" + 0.020*"testing" + 0.020*"health" + 0.019*"help" + 0.018*"worker" + 0.016*"lockdown" + 0.016*"care" + 0.015*"use" + 0.015*"spread" + 0.014*"risk"')
(7, '0.037*"well" + 0.024*"johnson" + 0.021*"life" + 0.018*"amp" + 0.017*"family" + 0.017*"year" + 0.017*"like" + 0.017*"look" + 0.016*"may" + 0.016*"house"')
(8, '0.047*"great" + 0.033*"county" + 0.031*"good" + 0.031*"one" + 0.020*"best" + 0.017*"would" + 0.015*"see" + 0.014*"work" + 0.012*"job" + 0.011*"related"')
(9, '0.109*"new" + 0.095*"case" + 0.030*"day" + 0.028*"today" + 0.027*"death" + 0.021*"number" + 0.018*"variant" + 0.017*"report" + 0.014*"total" + 0.013*"state"')
```

Appendix D: Topic Modeling with NEGATIVE tweets

```
(0, '0.090*"new" + 0.087*"case" + 0.074*"death" + 0.025*"report" + 0.019*"u" + 0.019*"number" + 0.016*"day" + 0.014*"data" + 0.014*"total" + 0.014*"uk"')
(1, '0.017*"shot" + 0.016*"house" + 0.015*"thats" + 0.015*"come" + 0.013*"people" + 0.013*"fuck" + 0.013*"tell" + 0.012*"u" + 0.012*"anyone" + 0.011*"white"')
(2, '0.031*"people" + 0.019*"died" + 0.019*"american" + 0.017*"hospital" + 0.017*"worker" + 0.016*"care" + 0.015*"patient" + 0.014*"home" + 0.014*"many" + 0.014*"texas"')
(3, '0.048*"vaccination" + 0.024*"world" + 0.020*"health" + 0.016*"march" + 0.016*"south" + 0.015*"state" + 0.014*"received" + 0.013*"february" + 0.013*"question" + 0.013*"country"')
(4, '0.022*"pandemic" + 0.020*"please" + 0.018*"read" + 0.016*"amp" + 0.016*"study" + 0.015*"dose" + 0.013*"find" + 0.012*"public" + 0.012*"response" + 0.011*"health"')
(5, '0.042*"mask" + 0.031*"million" + 0.029*"school" + 0.027*"update" + 0.025*"reported" + 0.022*"live" + 0.021*"relief" + 0.020*"dos" + 0.017*"latest" + 0.014*"bill"')
(6, '0.033*"virus" + 0.026*"trump" + 0.025*"china" + 0.025*"biden" + 0.020*"restriction" + 0.017*"president" + 0.013*"second" + 0.011*"travel" + 0.010*"w" + 0.010*"youre"')
(7, '0.153*"vaccine" + 0.028*"variant" + 0.018*"get" + 0.017*"year" + 0.016*"say" + 0.014*"life" + 0.013*"first" + 0.013*"never" + 0.012*"johnson" + 0.010*"u"')
(8, '0.030*"get" + 0.026*"people" + 0.025*"dont" + 0.025*"like" + 0.019*"know" + 0.017*"want" + 0.015*"go" + 0.015*"one" + 0.014*"think" + 0.013*"need"')
(9, '0.042*"test" + 0.030*"positive" + 0.028*"week" + 0.023*"county" + 0.021*"two" + 0.020*"last" + 0.018*"news" + 0.016*"tested" + 0.014*"amid" + 0.011*"minister"')
```

Appendix E: Word2Vec Results

```
model.wv.most_similar('teen', topn=10)

[('confused', 0.1565432846546173),
 ('airborne', 0.15027281641960144),
 ('interview', 0.13497668504714966),
 ('experiencing', 0.13437198102474213),
 ('great', 0.13280370831489563),
 ('quarantine', 0.12868383526802063),
 ('men', 0.127986490726647095),
 ('simply', 0.12667815387248993),
 ('refused', 0.12289239466190338),
 ('shown', 0.1215291917324062)]
```

```
model.wv.most_similar('suicide', topn=10)

[('cover', 0.1647655963897705),
 ('fear', 0.13923564553260803),
 ('exposure', 0.13346679508686066),
 ('eight', 0.1317631304264068),
 ('survived', 0.12947416305541992),
 ('stopped', 0.12554675340652466),
 ('hidden', 0.12188473343849182),
 ('coronaviru', 0.12128478288650513),
 ('peopl', 0.11946859955787659),
 ('hi', 0.1185799092054367)]
```

```
model.wv.most_similar('mental', topn=10)

[('top', 0.18067054450511932),
 ('traveller', 0.14431729912757874),
 ('beach', 0.13570551574230194),
 ('pharmaceutical', 0.13186854124069214),
 ('environment', 0.11916686594486237),
 ('always', 0.11903272569179535),
 ('exposed', 0.11592824757099152),
 ('future', 0.1119309514760971),
 ('regulation', 0.10904505848884583),
 ('base', 0.10846991837024689)]
```

```
model.wv.most_similar('crime', topn=10)

[('impact', 0.16571003198623657),
 ('stupidity', 0.16345487534999847),
 ('hardest', 0.13633908331394196),
 ('virtual', 0.13219857215881348),
 ('special', 0.13168060779571533),
 ('focus', 0.12749233841896057),
 ('sad', 0.12635135650634766),
 ('explained', 0.1255348026752472),
 ('skip', 0.12529143691062927),
 ('apart', 0.1213252991437912)]
```

Appendix

Appendix F: Wordcloud

POSITIVE Tweets

NEGATIVE Tweets