



Mental Health

Analyzing Mental Health Discourse
with The New York Times articles

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March 9, 2018

Overview

Objective:

- Analyzing context of Mental Health discourse, with time component

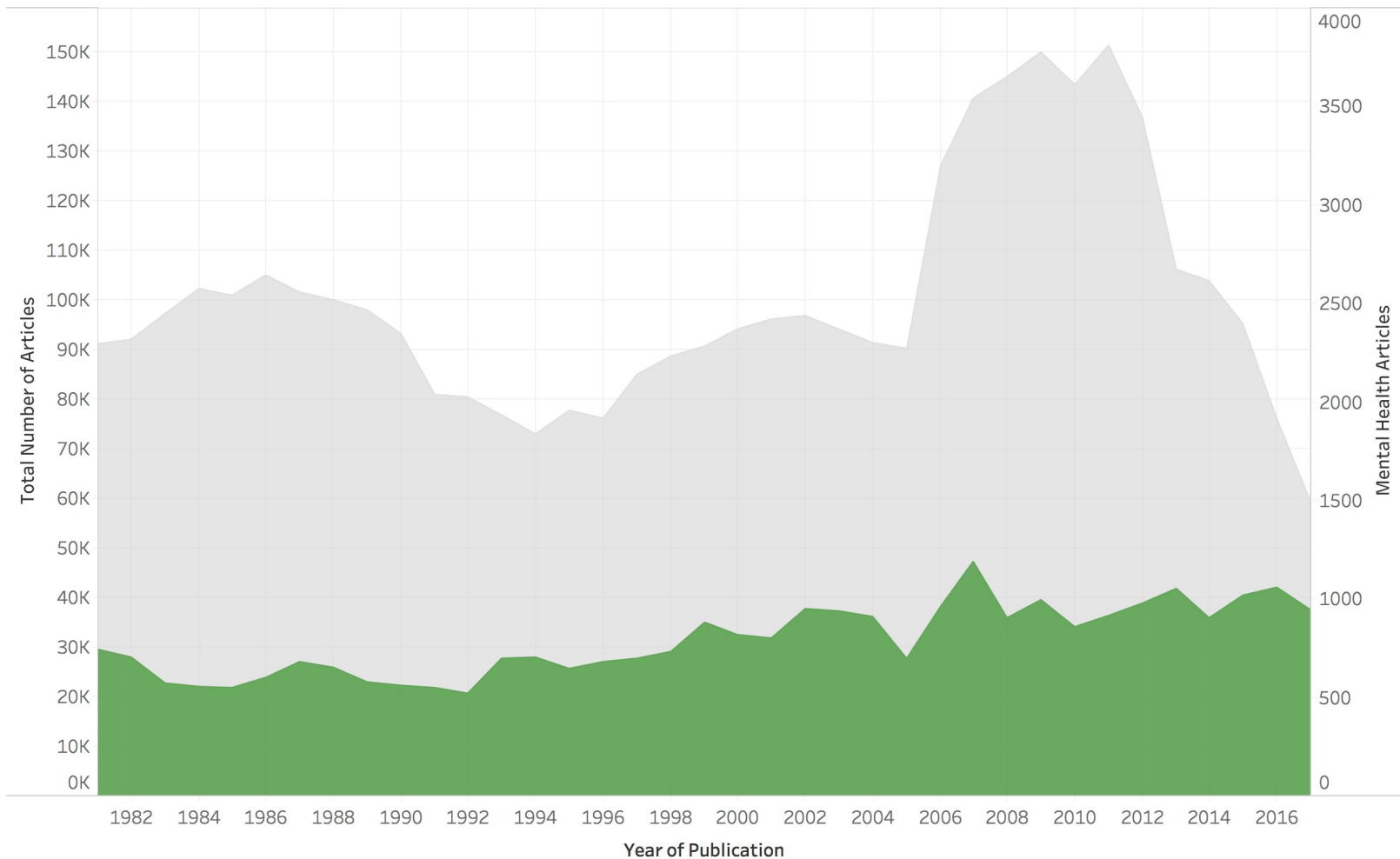
Data:

- New York Times, 1981-2018 → ~30k articles with 'mental health'

Approach:

- Topic Modeling

Articles on Mental Health vs. All Articles over Time



The Approach

Topic Modeling → Latent Dirichlet Allocation

- ✓ Assumes only a few topics per article
- ✓ Can learn the frequency of topics from data (alpha='auto')

LDA - Cleaning

- ✓ Tokenization, 1-grams
- ✓ Punctuation
- ✓ Capitalization
- ✓ Stopwords (2 built in lists, plus ~5 rounds of manual removal)
- ✓ Named Entity Removal (manual check, removed ~650 of 1000 most frequent ones)
- ✓ Lemmatization
- ✓ CountVectorizer

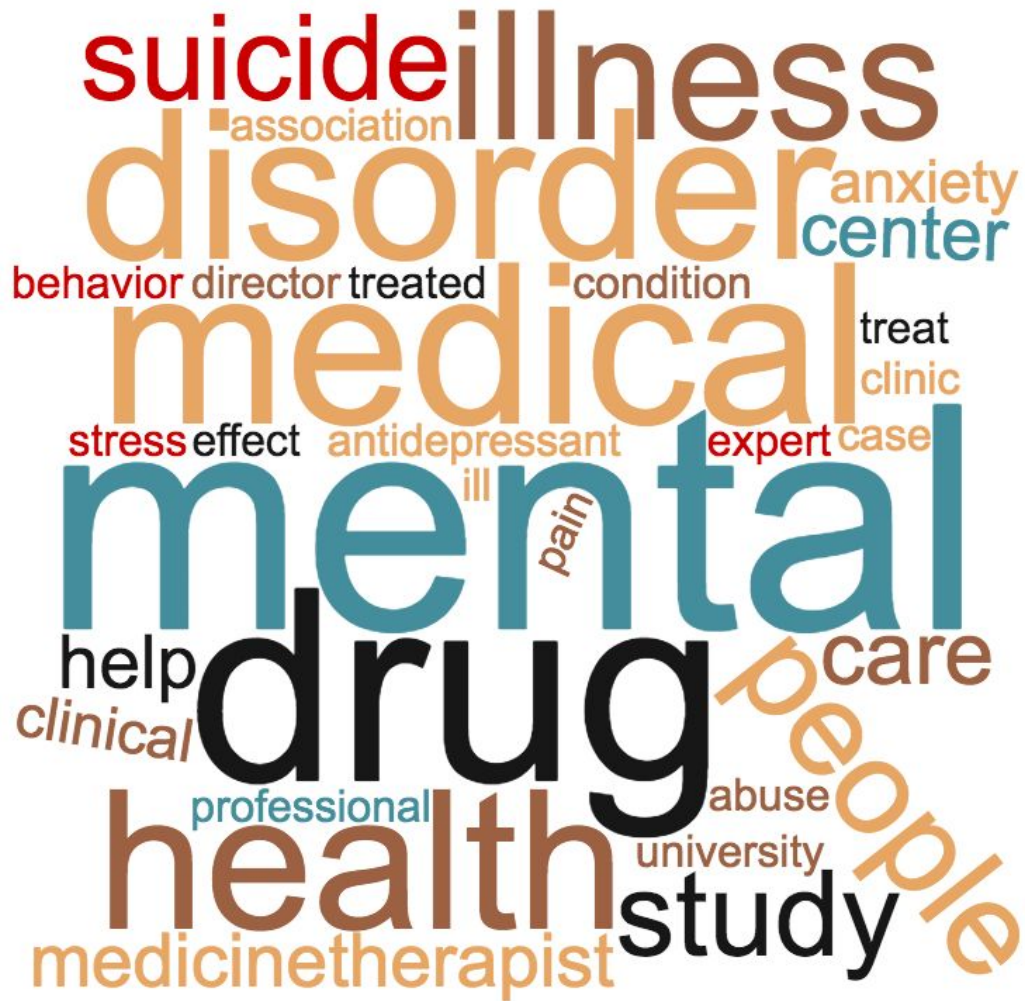
LDA - Modeling

- ✓ 5 - 25 topics, narrowing down and increasing passes each round of validation → 14 topics
 - ✓ Distinct enough topics
 - ✓ Manual checks of many articles over time
 - ✓ Check average topic weights for articles per model

LDA - Topics

```
topics = {  
  0: 'sports/games',  
  1: 'childhood/family/education',  
  2: 'family/home/work-life',  
  3: 'art/film/books',  
  4: 'government/politics',  
  5: 'justice-/penitentiary system',  
  6: 'violence/assault/abuse',  
  7: 'medical research',  
  8: 'therapy/treatment/medication',  
  9: 'community programs/services',  
  10: 'police/shootings/murder',  
  11: 'sociological trends',  
  12: 'veterans/military/war',  
  13: 'company/benefits/health insurance',  
}
```

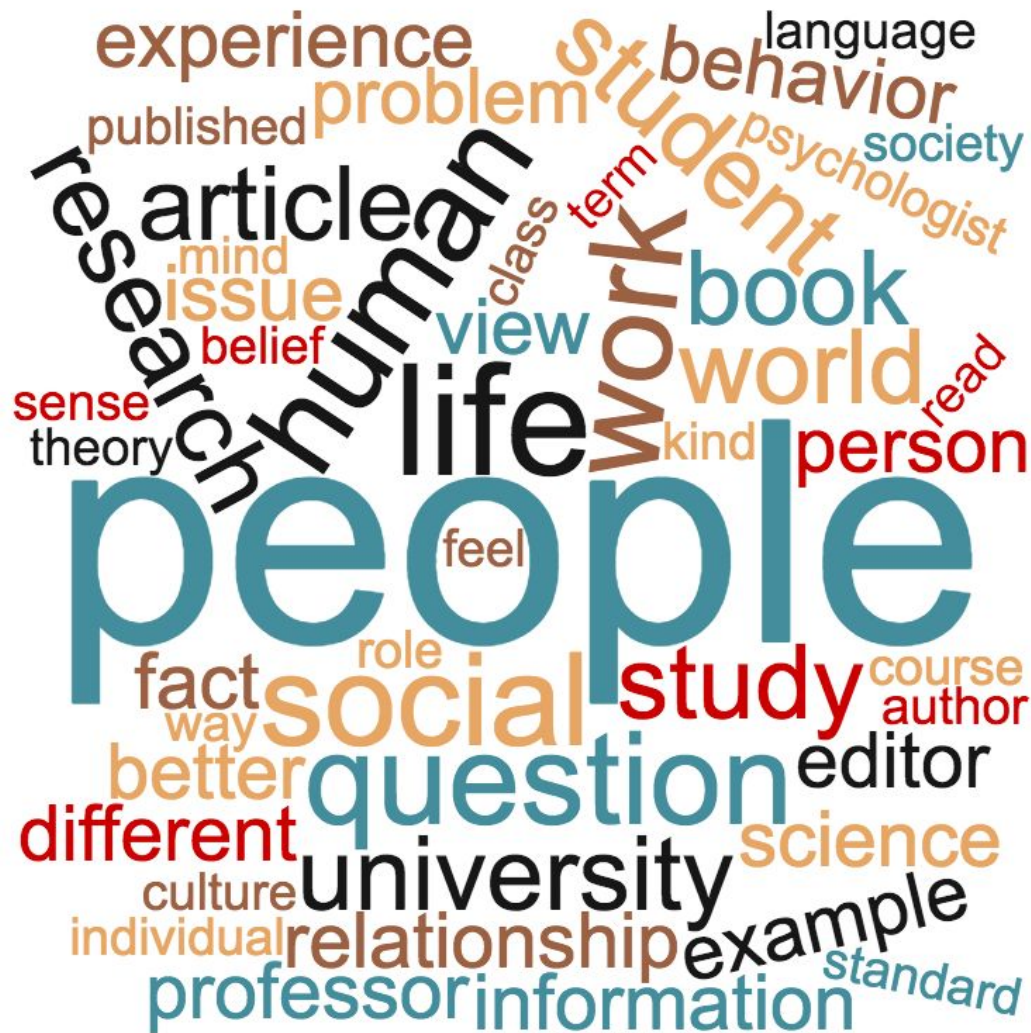
Therapy/treatment



Veterans/military/war



Sociological trends



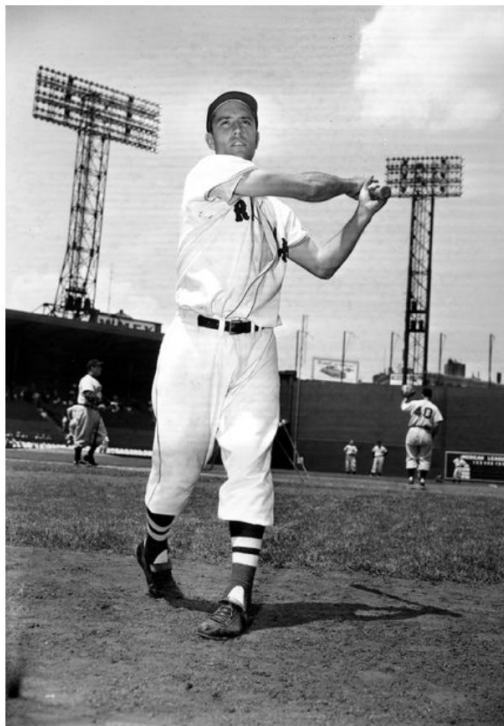
A word cloud shaped like the United States map, featuring terms related to gun violence and sexual assault. The words are in various colors and sizes, with 'woman', 'gun', 'sexual', 'abortion', 'men', 'violence', 'sex', 'law', 'people', 'shooting', 'gay', 'background', 'mental', 'public', 'measure', 'pregnancy', 'violent', 'safety', 'crime', 'ban', 'rape', 'abuse', 'rifle', 'control', 'school', 'weapon', 'criminal', 'member', 'church', 'enforcement', 'victim', 'issue', 'lesbian', 'mass', 'association', 'religious', 'firearm', 'report', 'state', 'health', 'check', 'assault', 'support', 'national', 'country', 'percent', 'sexually', 'homosexual', 'catholic', 'federal'.

LDA - Topics to Documents

- ✓ Keep topics with weight > 0.15
- ✓ Applied back to documents
- ✓ Resulted in max. 5 topics per document

Jimmy Piersall, Whose Mental Illness Was Portrayed in 'Fear Strikes Out,' Dies at 87

By RICHARD GOLDSTEIN JUNE 4, 2017



Jimmy Piersall, the often outrageous outfielder and broadcaster whose emotional breakdown while a rookie with the Boston Red Sox was portrayed in the 1957 movie [“Fear Strikes Out,”](#) a rare glimpse, for its time, at an athlete’s mental illness, died on Saturday in Wheaton, Ill. He was 87.

His death was announced by the Red Sox.

Piersall was an outstanding center fielder, a solid hitter and a two-time All-Star, playing in the major leagues for 17 seasons. But his career nearly ended just when it was getting underway.

Envisioned as the ultimate successor to

Topic shares:

- sports/games: 0.42
- family/home/work-life: 0.19
- art/film/books: 0.18

Primary and Secondary Topics

mental health (29...

art/film/books (1... sociological tren...
... 4 more

childhood/family/...

family/home/work-...
art/film/books (559)
therapy/treatment...
... 2 more

community program...

company/benefits/...
... 4 more

family/home/work-...

company/benefits/...
... 2 more

art/film/books (2...
therapy/treatment...
medical research ...
... 2 more

government/politi...

community program...
company/benefits/...
... 3 more

justice-/penitent...

police/shootings/...
community program...
therapy/treatment...
... 2 more

medical research ...

therapy/treatment...
sociological tren...
... 3 more

police/shootings/... ... 5 more

sociological tren... ... 4 more

sports/games (1298)

family/home/work-...
... 4 more

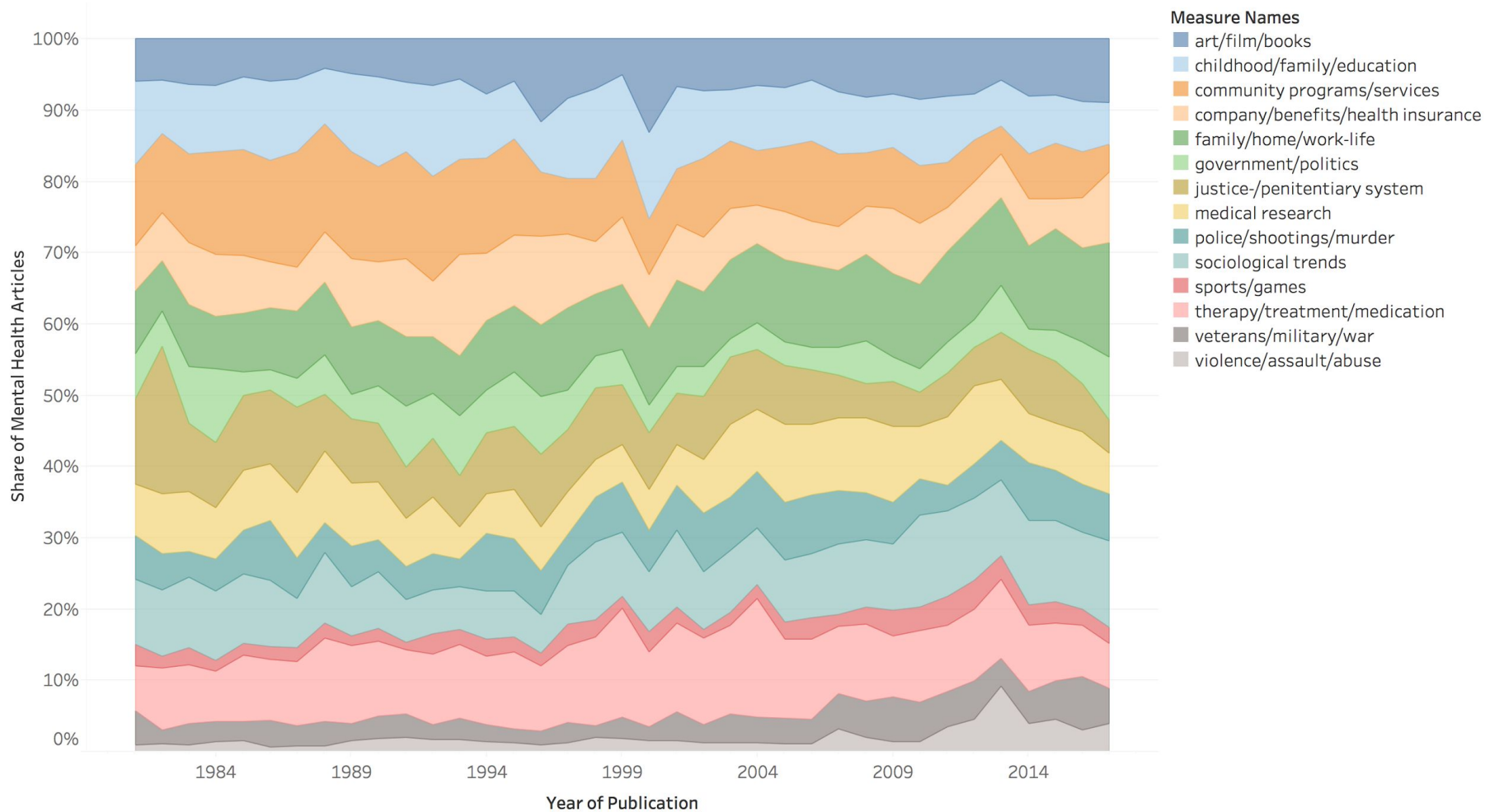
therapy/treatment...

sociological tren...
community program...
... 3 more

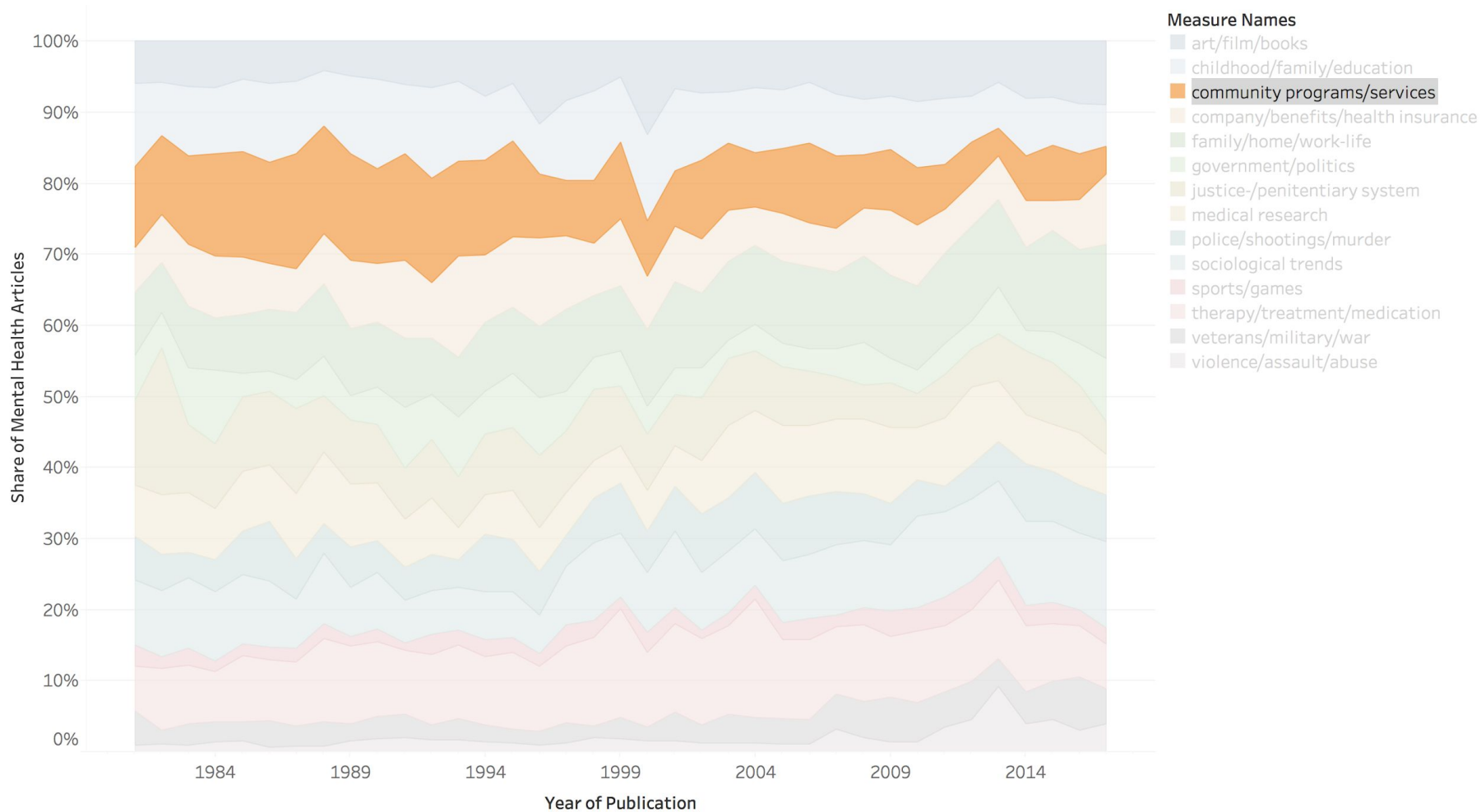
veterans/military... ... 3 more

violence/assault/... ... 5 more

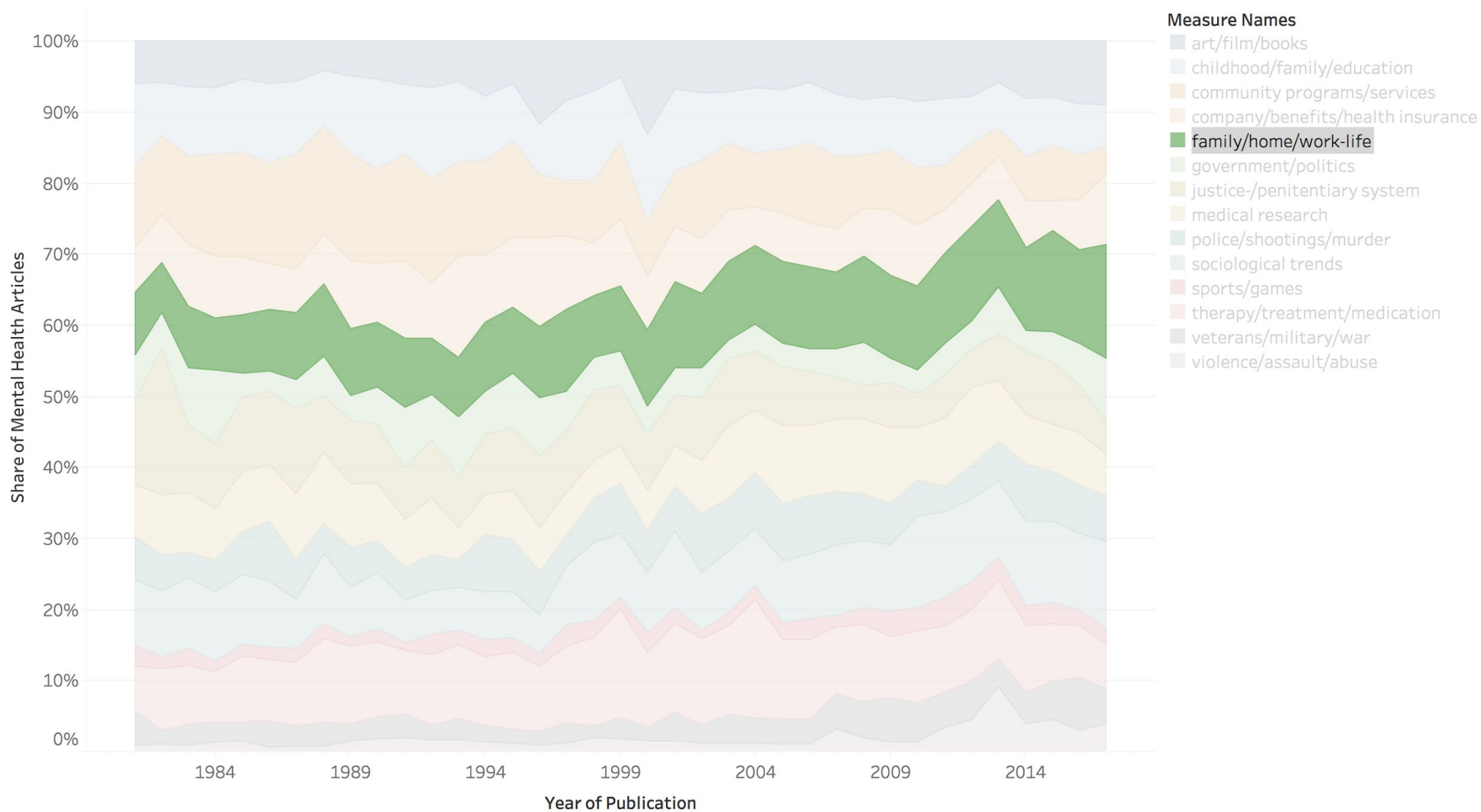
Topic Shares of Mental Health Articles over Time



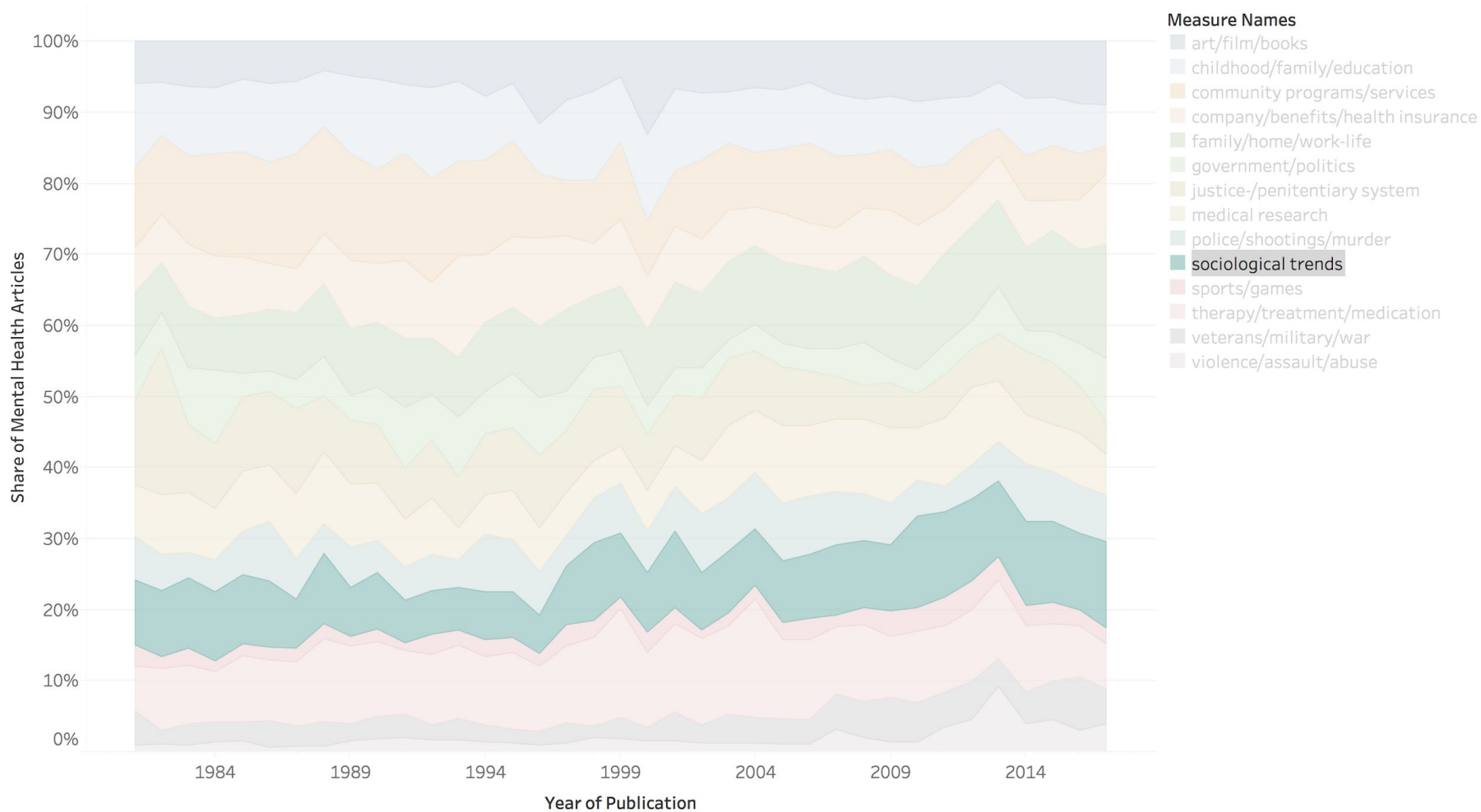
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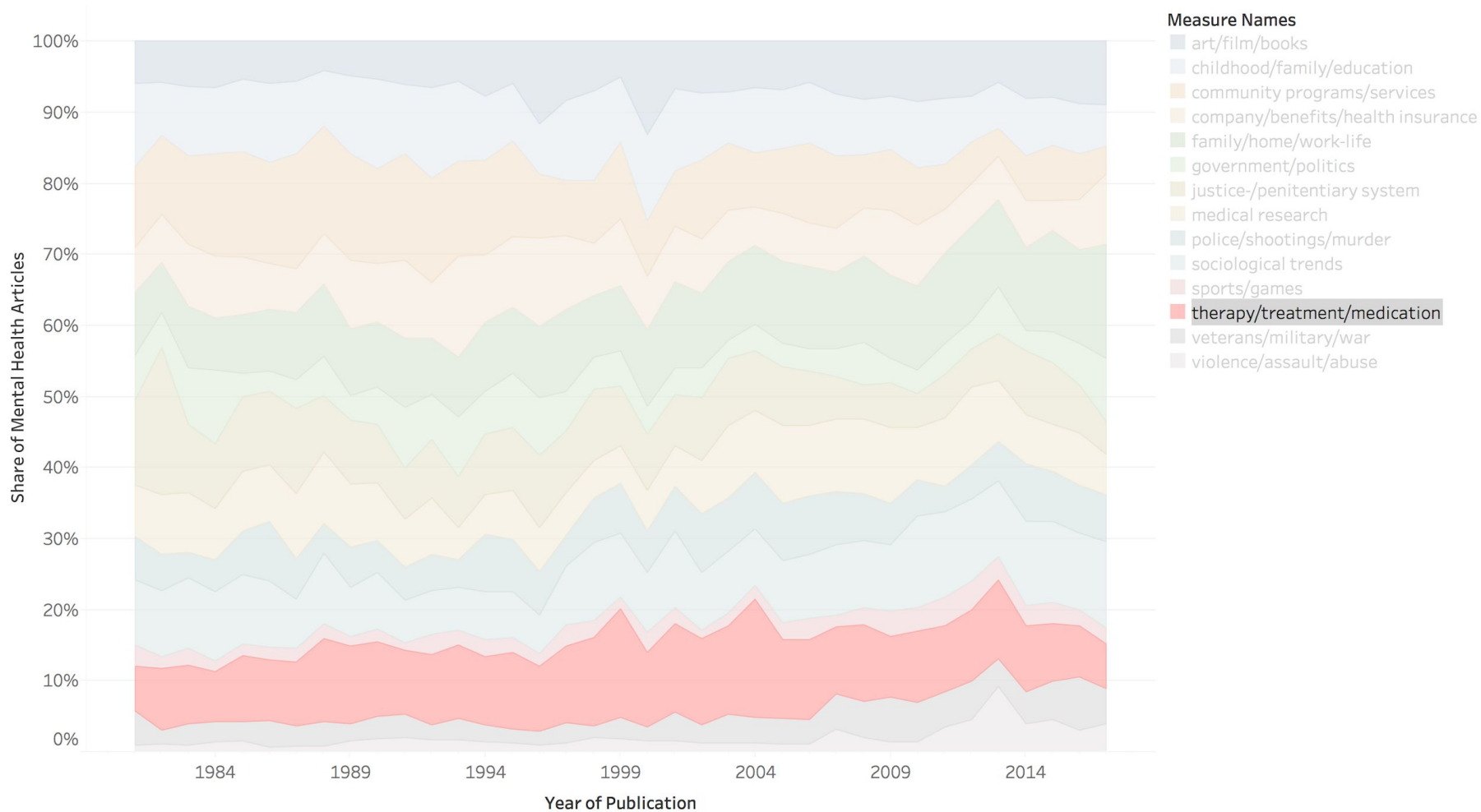
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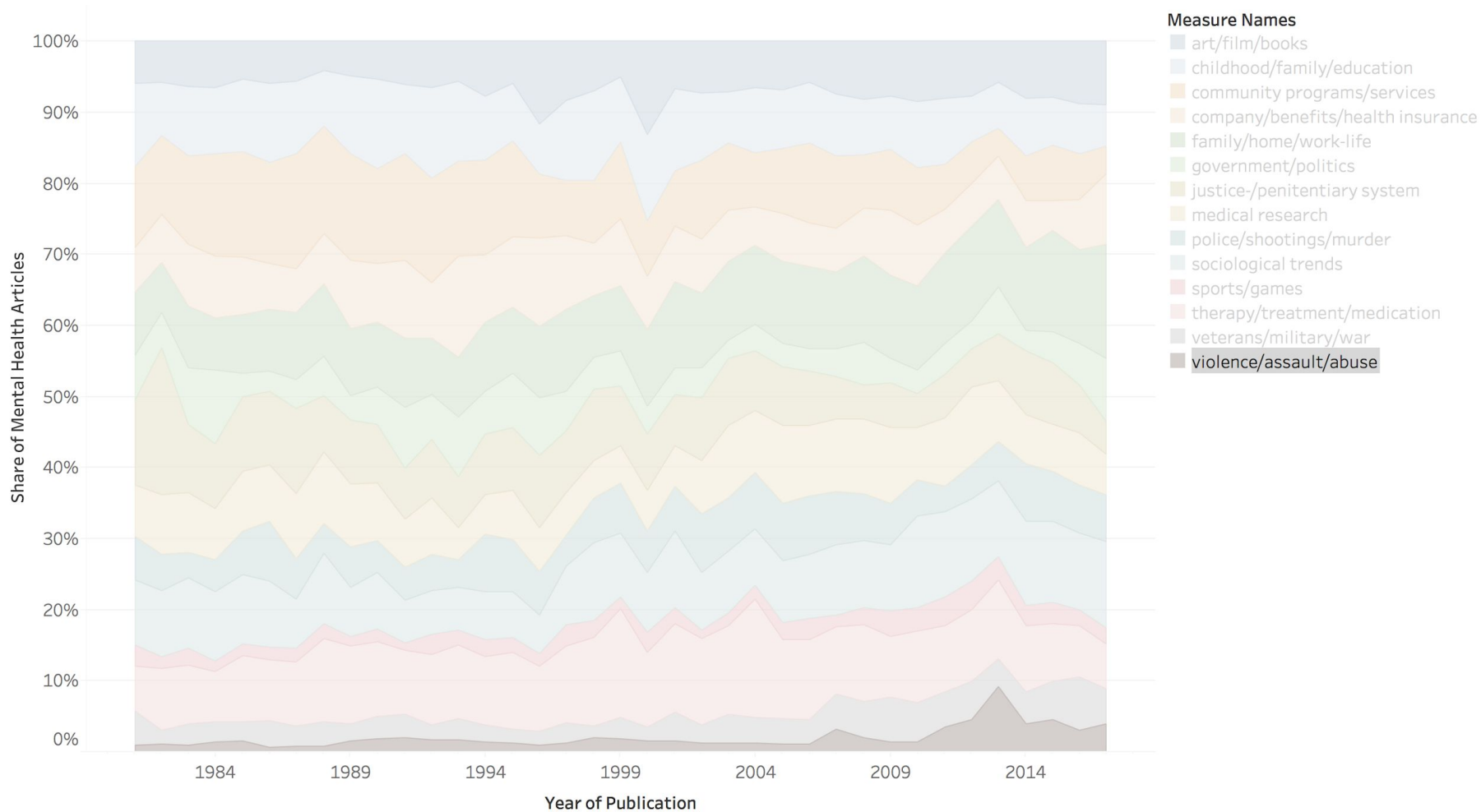
Topic Shares of Mental Health Articles over Time



Topic Shares of Mental Health Articles over Time



Topic Shares of Mental Health Articles over Time



Conclusions

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- Mental Health is slowly gaining presence
- Found some clear contexts in which mental health is referred to, which correspond to prior expectations of topics

Caveats

- We don't know the Sentiment of the discourse, meaning of in-/decreases
- Further stopword removal to clean up topics even more

Further Research

Deeper

- Sentiment Analysis on Discourse within Topics over Time
- Split up time interval to see different topics in different periods (more data)

Wider

- Expansion to other newspapers/-outlets + comparison