A blurred background image of a Twitter mobile interface. It shows the Twitter logo, the slogan "Twitter. It's what's happening", a search bar, and a URL bar displaying "https://twitter.com".

#Parenting Projects: Using Twitter to Understand Mothering and Fathering

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Methods Hour
April 5, 2019



Agenda

- Introduction and background
- Use of social media to study parenting
- Our project using Twitter data to study parenting self-disclosure online
- Challenges and opportunities using Twitter data to engage in parenting research & related discussions



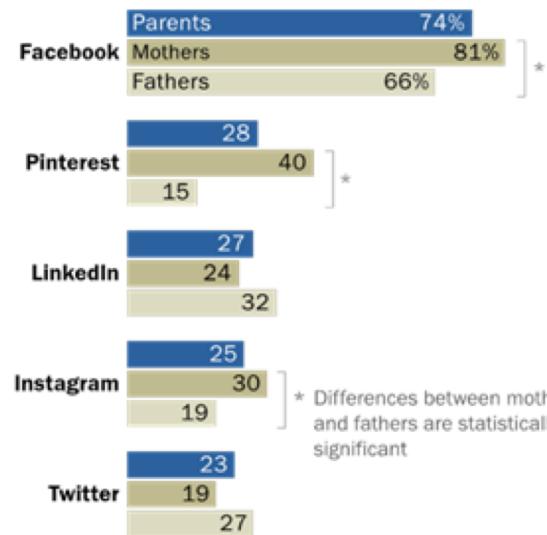
Introduction: Parents on Social Media

- Today's parents, especially those with young children, turn to the web and social media for parenting information
- Of them, 74% who use social media receive support
- Mothers more likely than fathers to seek parenting information and get social support from friends
- Parents use various social media platforms
 - More recently, parents turning to YouTube for children's content (Smith, Toor, & Kessel, 2018)

(Duggan, Lenhart, Lampe, & Ellison, 2015)

Parents Use a Range of Social Media Platforms; Facebook Tops the List

Among all internet users, the % of parents who use each social media platform

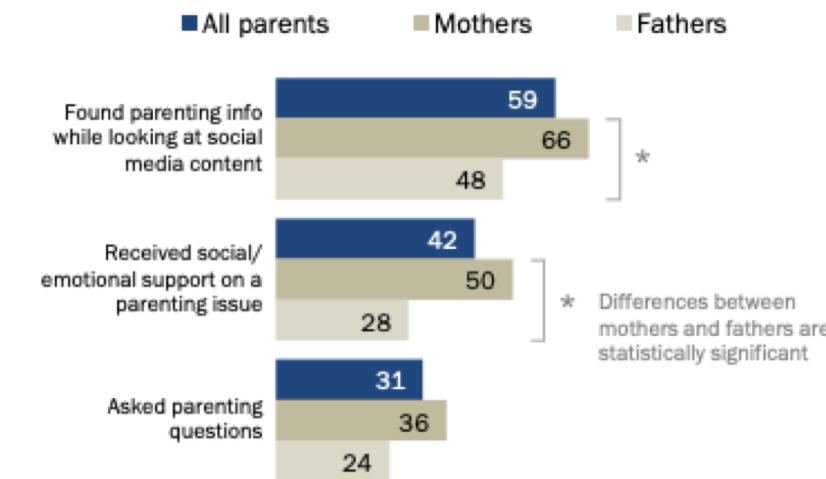


Source: Pew Research Center surveys, Sep. 11-14 and 18-21, 2014. N=1,597 internet users ages 18+. The margin of error for all internet users is +/- 2.9 percentage points. Parents in this survey were defined as those with children under age 18.

PEW RESEARCH CENTER

Social Media is One of Many Sources for Parenting Advice and Information

Among all parent social media users, the % who have done the following on social media over the previous month...



Source: Pew Research Center surveys, Sept. 11-14 and 18-21, 2014. N=241 parent social media users ages 18+. The margin of error for all parent social media users is +/- 7.4 percentage points. Parents in this survey were defined as those with children under age 18.

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Use of Social Media to Study Parenting

- Prior studies have used Facebook, Reddit, and parenting blogs to study parenting
- Our rationale for choosing Twitter to study mothering and fathering:
 - Open and public source of data
 - Parenting beliefs can be observed naturalistically, potentially addressing social desirability bias
 - Parents turning to Twitter for parenting information and social support

(Ammari et al., 2018; Bartholomew et al., 2012; Schoenebeck, 2013)



Our Project Using Twitter to Study Mothering and Fathering

- Sample focused on stay-at-home mothers and stay-at-home fathers
- Both stay-at-home mothers and fathers have increased in number in recent decades
 - Fathers: 1.1 million in 1989 to 2.0 million in 2012
- A group that possibly defies traditional gender norms
- Research has shown that stay-at-home parents experience social isolation and turn to social media for emotional support

(Cohn & Caumont, 2014; Lee & Lee, 2018; Livingston, 2014, 2018)



Our Project Using Twitter to Study Mothering and Fathering (cont.)

- Our three studies are largely exploratory in nature
- General theme focused on comparing stay-at-home fathers' and stay-at-home mothers' Tweets for similarities and differences
- Three main studies for this presentation:
 1. Modeling parenting topics
 2. Geocoding user-defined location
 3. Qualitative coding of spanking Tweets



Data Collection: Stay-At-Home Parents' Tweets

- Queried hashtags (e.g., #stayathomedad, #stayathomemom) for 30 days using Twitter API
- Used regular expressions on Twitter profiles to select self-identifying stay-at-home parents
- Utilized this seed dataset to engage in snowball sampling of followers for several iterations
- Cleaned up user data (e.g., eliminate duplicates)
- Total 697 unique father and 4,103 mother users



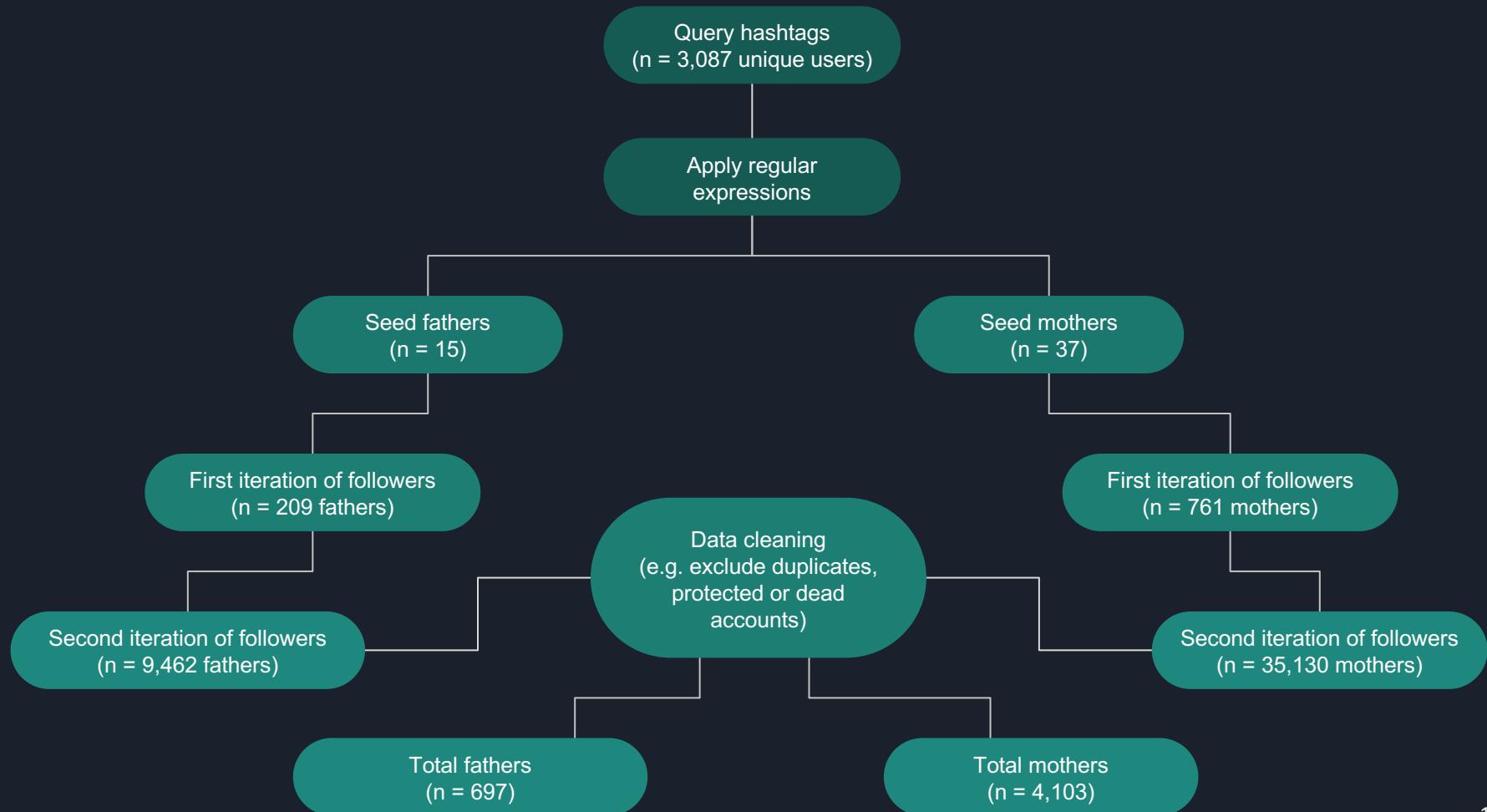
@ [REDACTED]
Husband to a most awesome woman.
Father of 3 amazing boys and 1 girl.
Foster Dad. Stay at Home Dad,
Beekeeper, I've been resisting since I
was born.



@ [REDACTED]
Just the every day occurrences in the life
of a stay at home mom with her toddler
and newborn ;)

[REDACTED]
@ [REDACTED]
Runner of 5k to 100 miles, cross country
& track coach, stay-at-home father of 3
boys & 2 girls, jack-of-all-trades. I
ferment things. Live with thadditude.

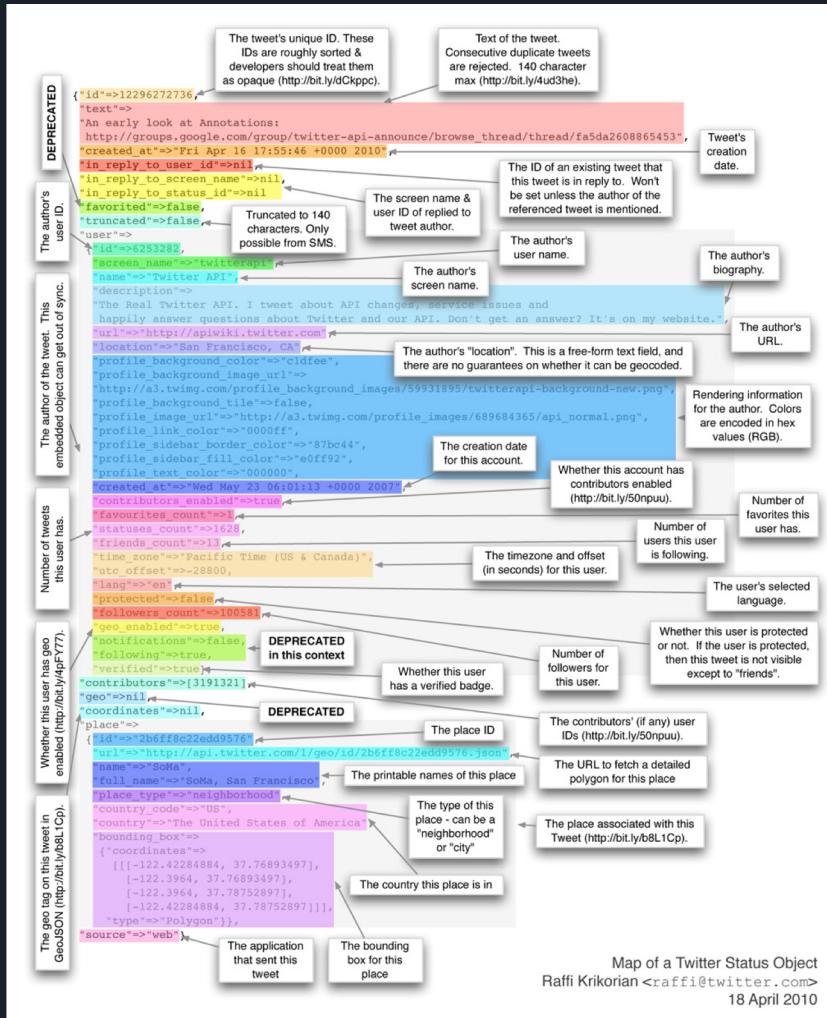
[REDACTED]
@ [REDACTED]
Stay at home mom to three girls, pixel
artist(GameMaker)believes that good
people exist despite overwhelming
evidence to the contrary. MomSquad





Data Collection: Stay-At-Home Parents

- Obtained stay-at-home parents' tweets using Twitter Resting API
 - Can get up to 3,200 most recent tweets
- Total 936,985 tweets from stay-at-home fathers
- Total 4,694,124 tweets from stay-at-home mothers
- Data cleaning involved eliminating punctuations, encoding emojis and symbols, lowercasing; collaboration with data scientists helpful



- A single tweet provides a ton of information or metadata
 - Screen name, user-defined location, language, number of followers, coordinates in which tweet is being posted
 - Twitter is constantly updating metadata features

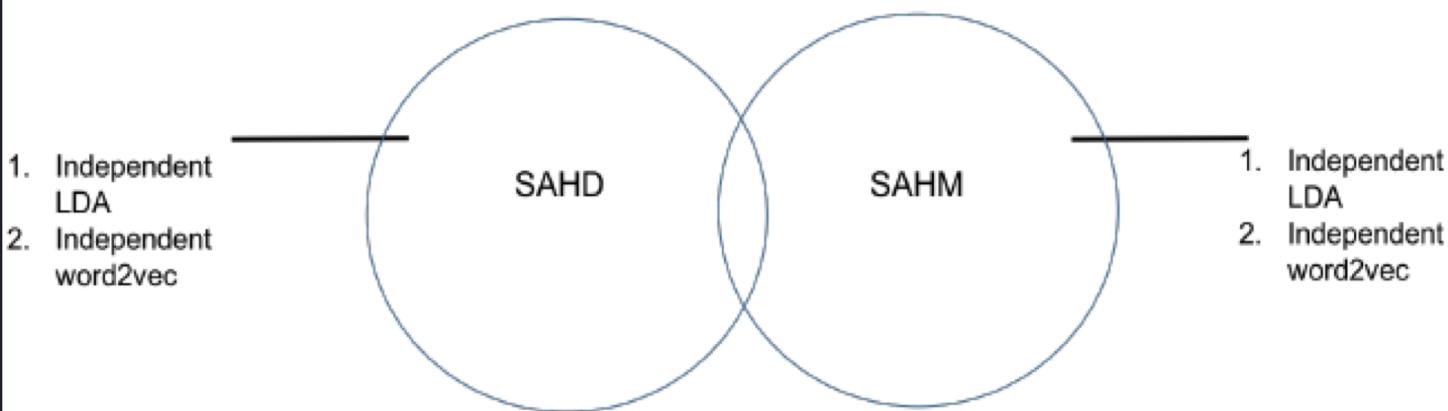


Project #1: Modeling Parenting Topics

- Purpose was to model parenting topics stay-at-home fathers and stay-at-home mothers discuss on Twitter
 - Comparing similarities and differences
- Each user's tweets was a corpus, a collection of texts
- Used Latent Dirichlet Allocation (LDA) for topic modeling
- Used Word2Vec word embeddings to help differentiate between topics stay-at-home fathers and stay-at-home mothers discuss on Twitter

Project #1: Modeling Parenting Topics (cont.)

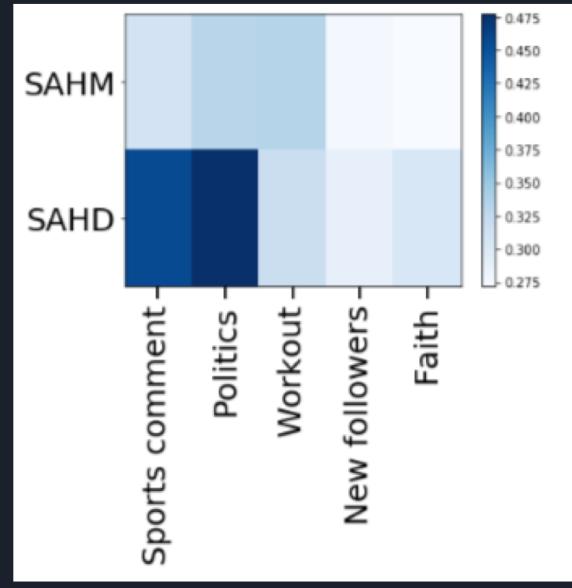
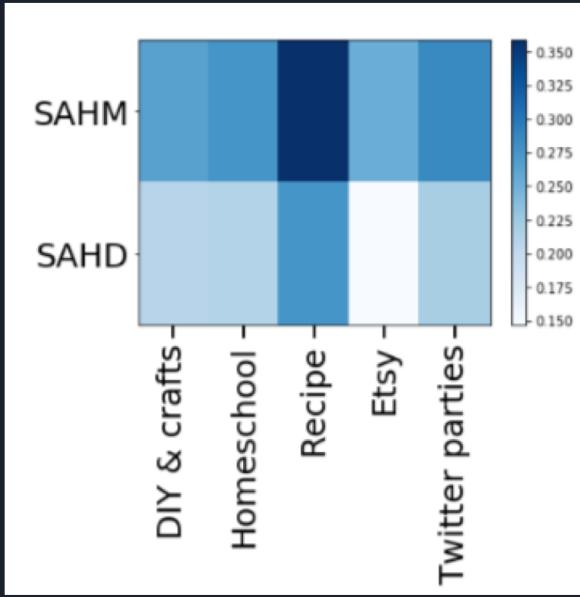
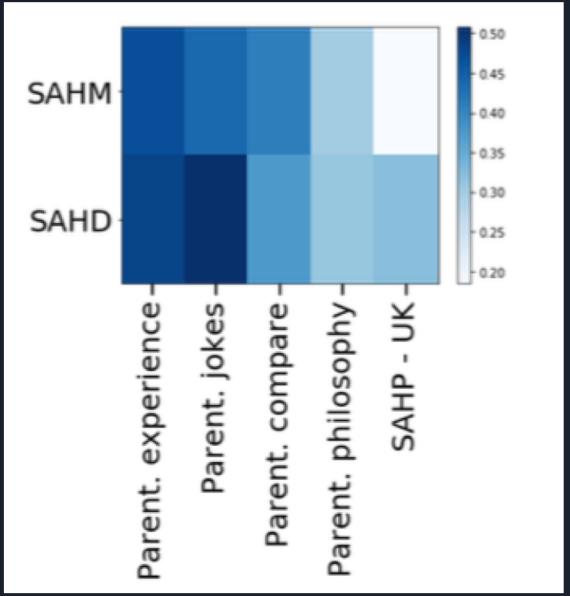
Aggregate LDA Model





Results from Project #1

- Examples of shared topics amongst stay-at-home fathers and stay-at-home mothers:
 - Parenting experiences
 - Parenting philosophy
 - Do-It-Yourself projects and crafts
 - Giveaways, shopping, and monetization



Results from Project #1 (cont.)

- Topics unique to fathers and mothers:

Topic #	Topic Name	KTG	Prob distribution	SAHD/SAHM
1	Fatherhood advocacy/support	[dad, kid, thank, par, follow, gre, dadsummit, lov, get, tim, sahd, ad, mom, day, fath, us, w, lik, amazonfamily, fam]	0.02	SAHD
2	Brewing	[badg, earn, gard, beer, level, al, brew, ip, drink, day, new, superst, plant, photo, post, lik, today, see, gre, ti]	0.01	SAHD
3	Weight loss/exercise	[cal, fitbit, step, travel, mil, minut, lbs, exerc, diary, fitstats, myfitnesspalburn, food, goal, fitst, weigh, lost, sint, far, walk, mp]	0.03	SAHM

Table 1. This table shows the three unique topics that were discovered from the independent LDA models trained on SAHD tweets vs. SAHM tweets.

Project #2: Geocoding Stay-At-Home Parents' Self-Defined Locations

- Purpose was to employ user-defined location to plot where stay-at-home parents are and prevalence of tweets from those locations
- User-defined location available on Twitter profiles

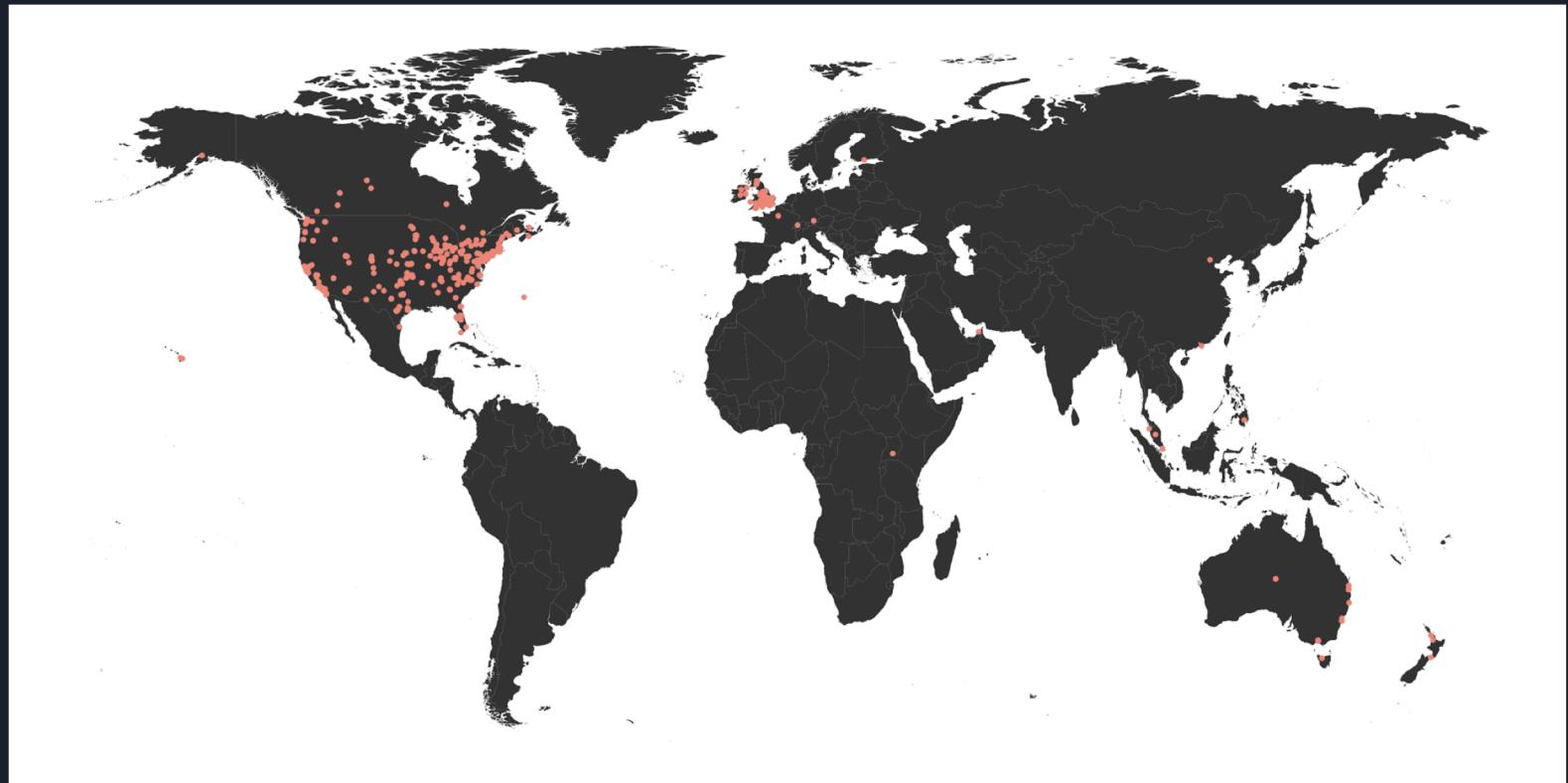




Project #2: Geocoding Stay-At-Home Parents' Self-Defined Locations (cont.)

- Methods primarily involved combining Twitter user-defined location metadata and Google API to identify latitudes and longitudes
- Deleted parents without user-defined location
- Plotting data points via data visualizations tools in R (i.e., ggplot2 and ggmap)

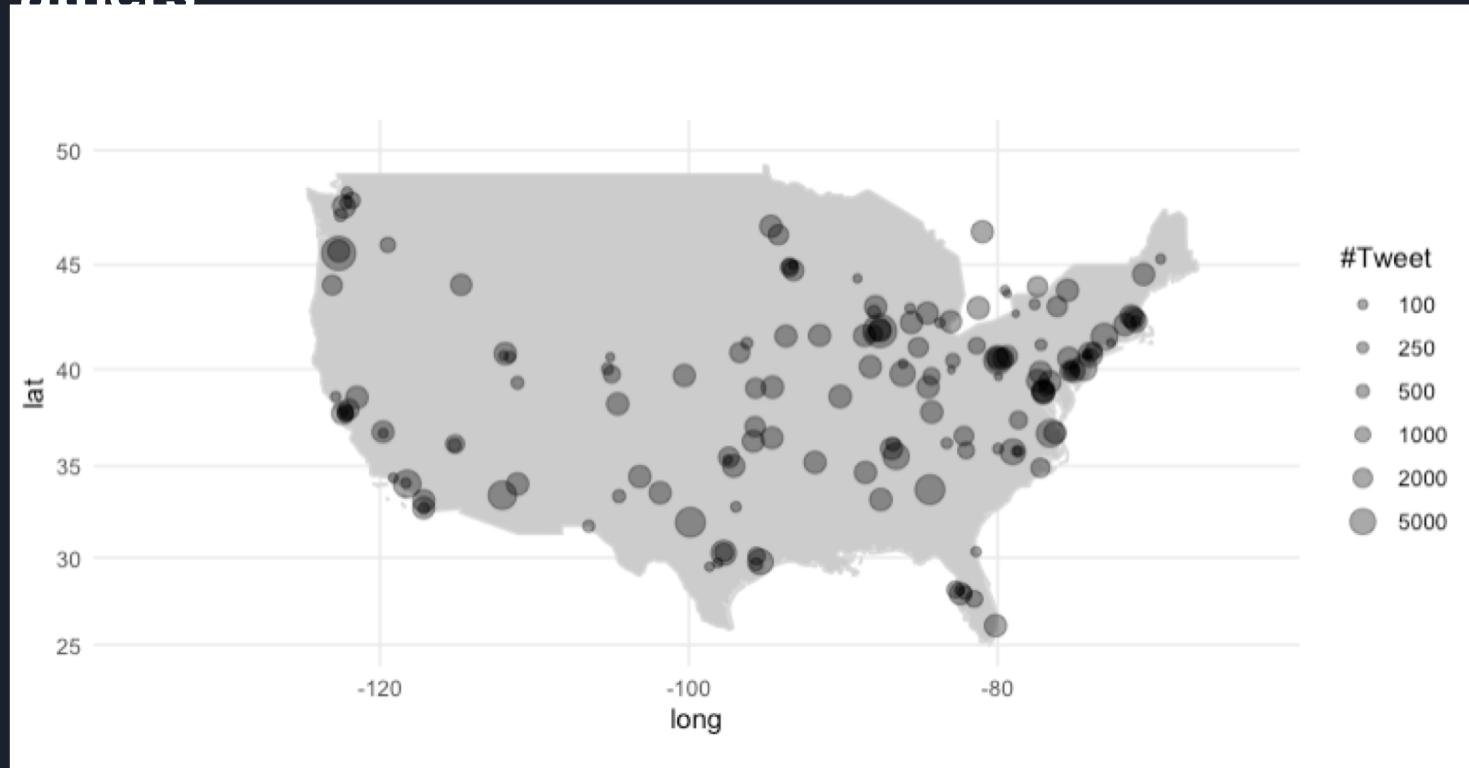
Stay-At-Home Fathers ($n = 553$)



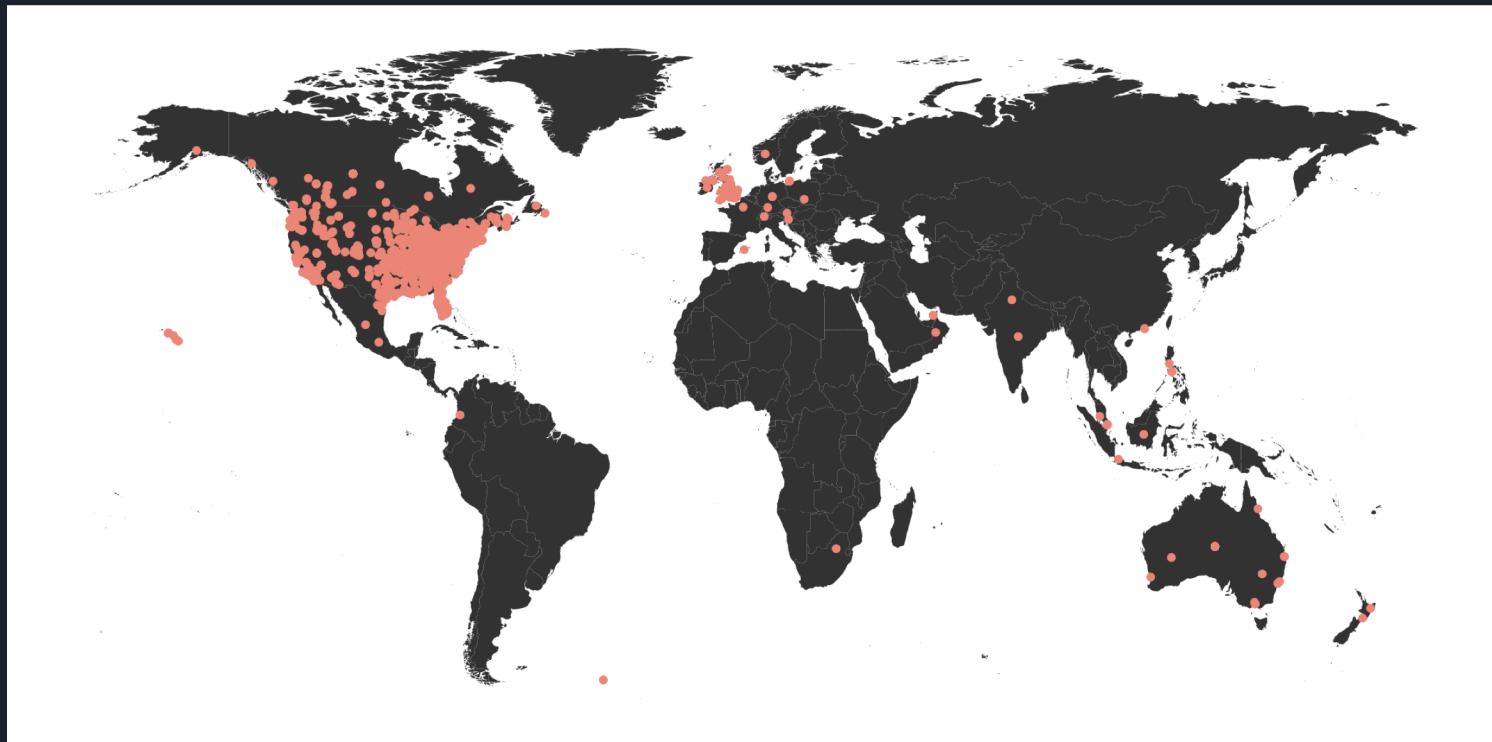
Narrowing in on U.S. Stay-At-Home Fathers



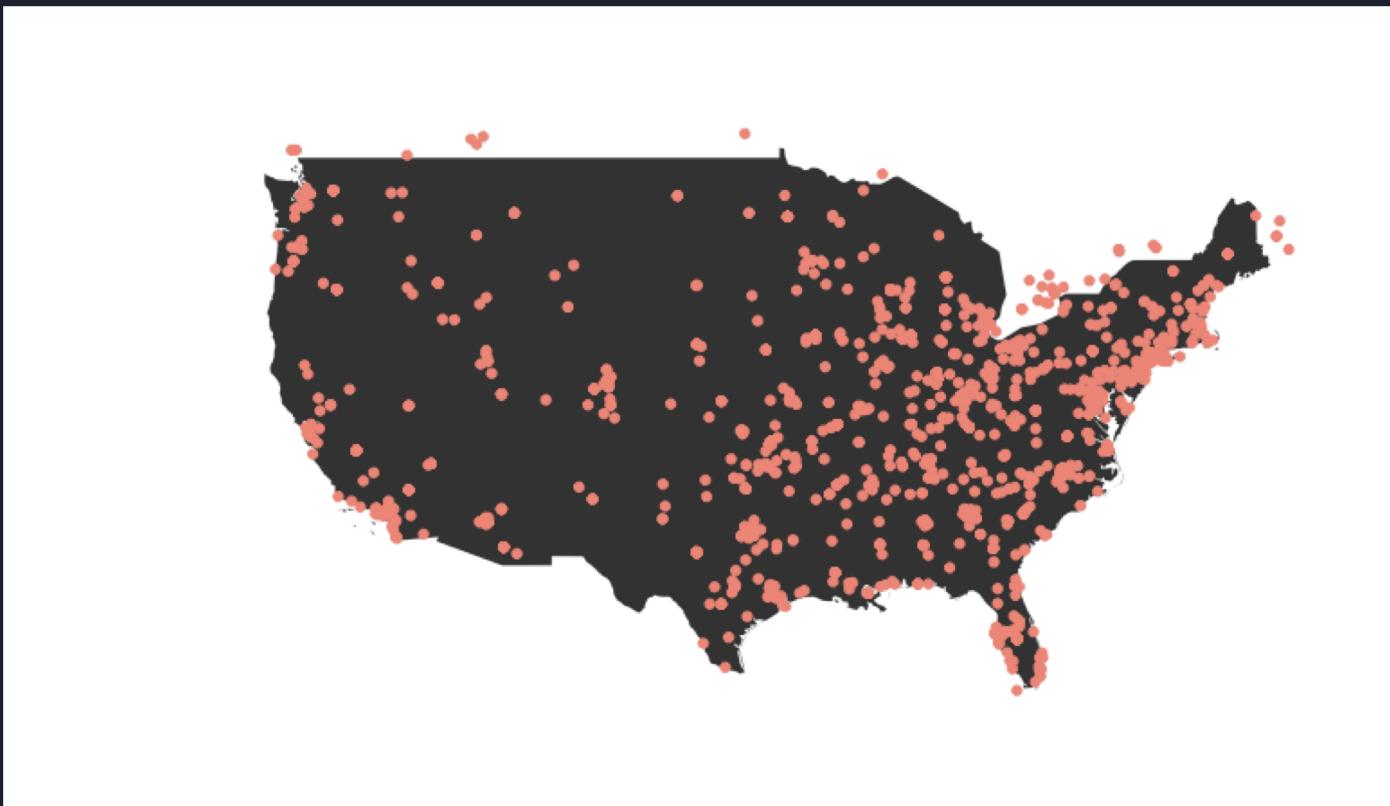
Proportion of Tweets by U.S. Stay-At-Home Fathers



Stay-At-Home Mothers ($n = 2,165$)



Narrowing in on U.S. Stay-At-Home Mothers



Proportion of Tweets by U.S. Stay-At-Home Mothers





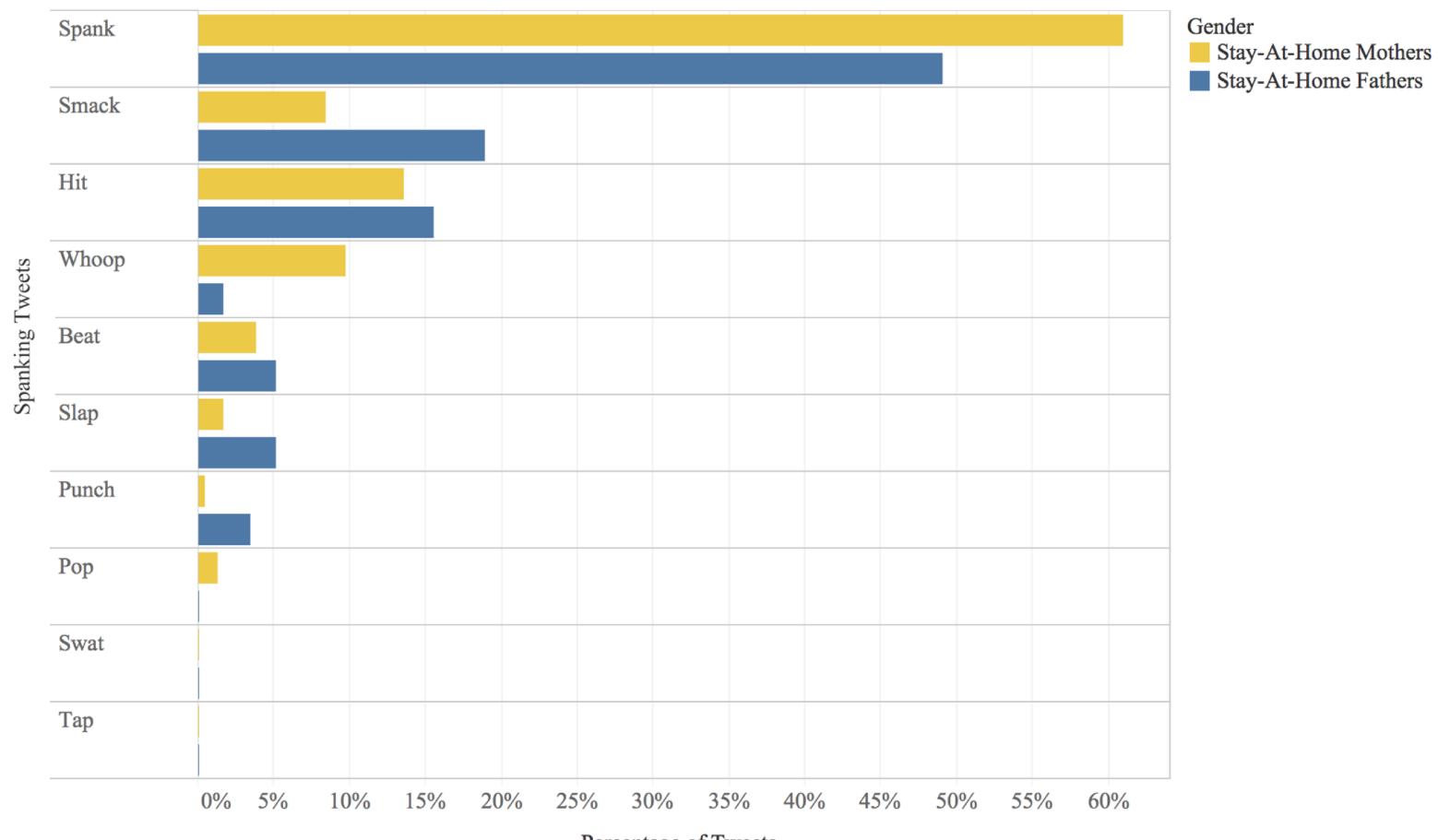
Project #3: Content Coding Stay-At-Home Parents' Spanking Tweets

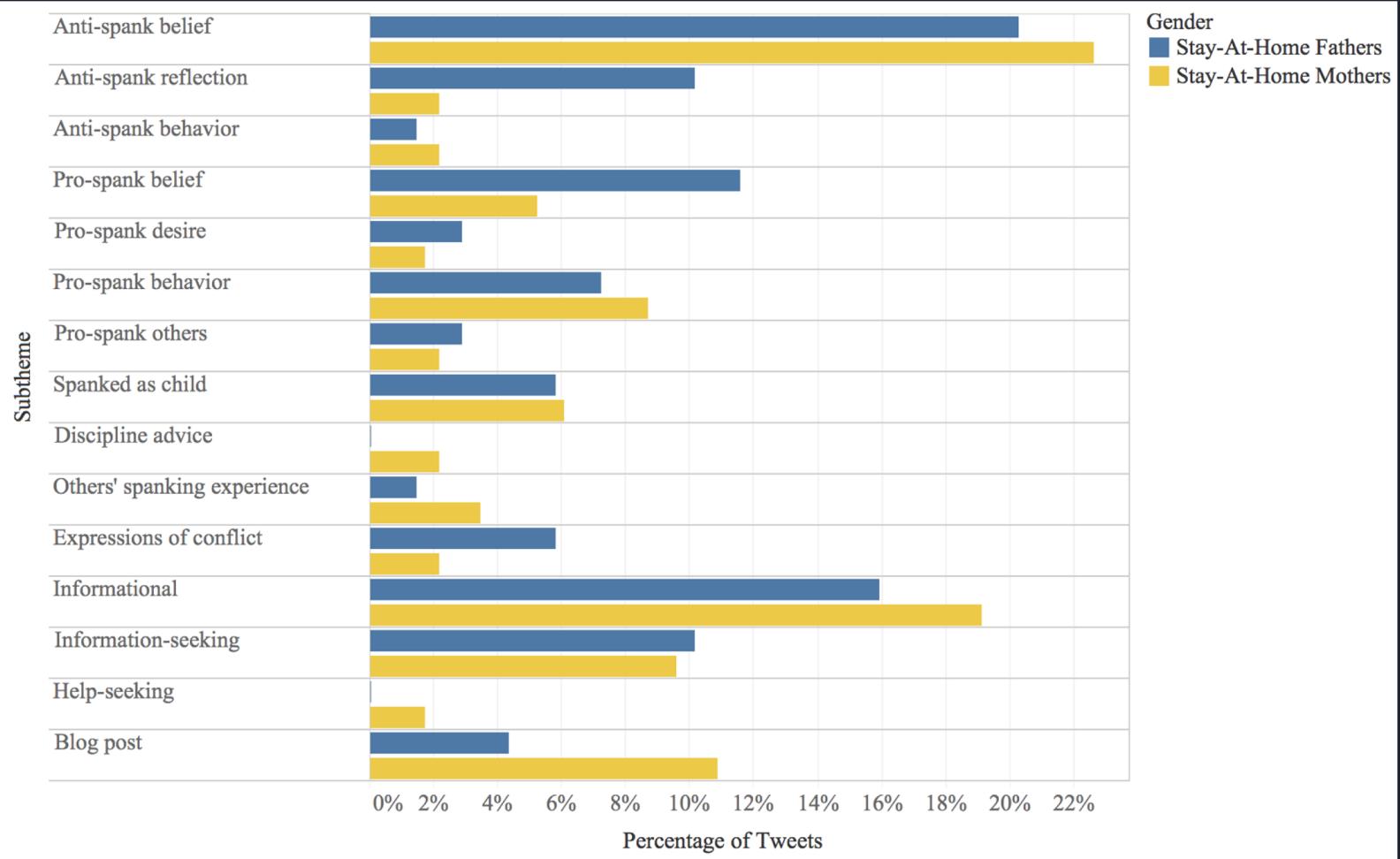
- Purpose was to examine stay-at-home mothers' and stay-at-home fathers' tweets concerning discipline, with a focus on spanking
- Involved combining both data science and qualitative coding methods
 - Used regular expressions to identify tweets that mention “spanking” and its variations (e.g., spanked)
 - Qualitative coding the tweets that were identified to look for emerging themes



Project #3: Content Coding Stay-At-Home Parents' Spanking Tweets (cont.)

- Also, looked for synonyms to spanking (e.g., beat, punch, slap, tap, whoop)
- Overall, found a very small set of tweets which suggests that stay-at-home parents may not readily discuss this parenting topic on Twitter
 - 69 tweets from fathers
 - 240 tweets from mothers







Results from Project #3

- Anti-spanking tweets common:
 - “If you spank my child, I will reign down my wrath on you. Other than that, I’m a pretty #chillaxdad” by @realsahd
- Substantial proportion of pro-spanking tweets:
 - “I believe there’s a difference between spanking & abusing and I see nothing wrong w/ the former as a last resort” by @savvymommy
- Information tweets quite common as well:
 - “RT children who are spanked have lower IQ’s compared to children who are not spanked according to new research. [link to article]” by @sahmlife



Challenges and Opportunities of Using Twitter Data in Parenting Research

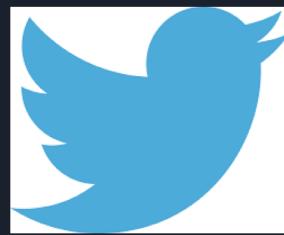
- Challenges
 - Ethics: Consent? Compensation?
 - Methodological: Demographics. Identifying parents. Generalizability.
 - Time when data collected and study published
- Opportunities
 - Lots of free data to collect (text, network, metadata)
 - Space for creativity and innovation
 - Twitter likes academics



Challenges and Opportunities of Using Twitter Data: Discussion Questions

- What other challenges and opportunities do you see when considering using Twitter data to conduct social science research?
- How might you use Twitter data in your own research and what research questions might you consider answering?
- What feedback might you anticipate from journal reviewers and how might we best address them?

Thank you!



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Acknowledgement: Many thanks to the other #Parenting members and faculty advisors, Drs. Pamela Davis-Kean and Andrew Grogan-Kaylor, for their feedback and support in preparing this presentation.



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