THE LANGUAGE OF LGBTQ+ MINORITY STRESS EXPERIENCES ON SOCIAL MEDIA

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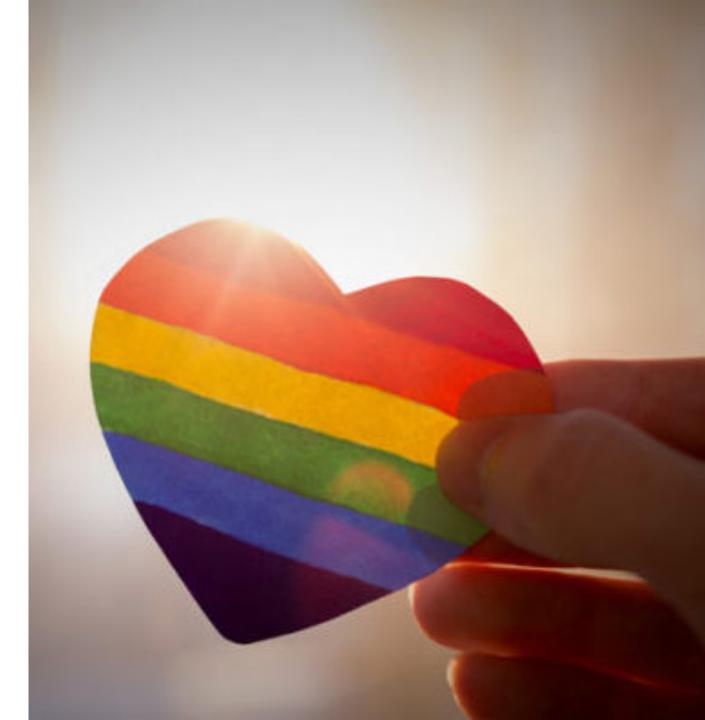
Georgia Tech

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The data was anonymized, and only paraphrased quotes of social media data are used.

Multiple coauthors hold different LGBTQ+ identities, enabling us to incorporate the sensitivity and contextualize our findings in the light of our lived experiences

LGBTQ+ is an acronym used to refer to individuals who use these sexual or gender labels as personally meaningful for them.

MENTAL HEALTH OF LGBTQ+ INDIVIDUALS

- **3 times** more likely than others to experience a mental health condition.

- **2.5 times** more likely to experience depression.

- **3 times** more likely to report suicidality and attempted suicide.

Mustanski et al., 2010

LGBTQ+ MINORITY STRESS

- Stigma, prejudice, and discrimination create hostile and stressful social environment

- Minority Stress Theory (proposed by Ilan H. Meyer in 1995)

Minority stress theory proposes that LGBTQ+ mental health disparities can be explained largely by stressors induced by a hostile, homophobic, and transphobic culture, which often leads to harassment, mistreatment, and victimization. This may ultimately impact access to care.

SOCIAL MEDIA

- Widespread prevalence of social media use among LGBTQ+

- Stigma, self-disclosure, and support-seeking on social media

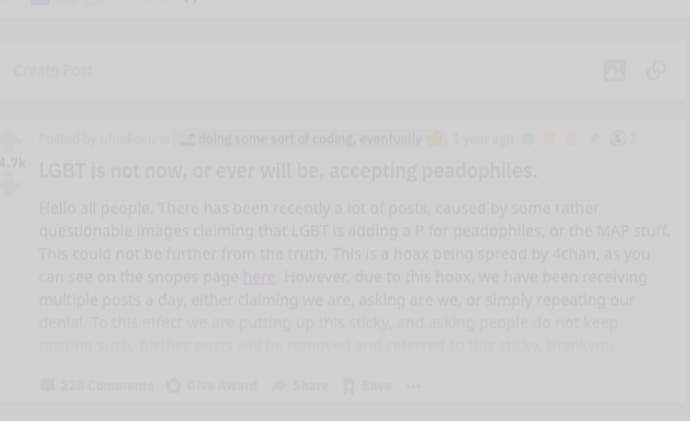- Anonymity, Audience, and Sense-of-Belonging in Community

OUR WORK

... a **codebook** to identify minority stressors in social media per Meyer's minority stress theory.

... a **machine learning classifier** to identify social media posts on minority stress

... a **lexicon** of social media language markers contextualized in minority stress theory

r/lgbt

DATA AND STUDY

- 12,645 posts on r/lgbt subreddit
  - January 2016 to May 2018

- **Codebook** on minority stress experiences on social media
  - 350 randomly sampled posts were qualitatively inspected

- Machine learning **classifier** on minority stress experiences on social media
  - Used to classify the entire sample of data

- **Linguistic Cues** associated with the language of minority stress

CODEBOOK: ANNOTATION APPROACH

Drawn from Meyer's Minority Stress Theory:

- Difference in time and context

- Differences in identity

- Differences in data and medium of communication

Prejudice Events	Perceived Stigma	Internalized LGBTphobia

PREJUDICE EVENTS

Explicit actions of rejection toward an individual related to their LGBTQ+ identity.

- Verbal and Physical Violence

- Legal Discrimination

- Anxiety / stress about discriminatory political powers

PERCEIVED STIGMA

Internalized fears and anxiety of expected rejection from others

- Individuals constantly monitoring their behavior: how one dresses, speaks, walks, and talks in contrast to expected social norms.

- Lying to cover up identity

- Thinking others do not or will not "accept" them

- Feelings of not "fitting in"

INTERNALIZED LGBT-PHOBIA

Internalization of negative societal attitudes and negative feelings that come from self about self.

- Self-hate for being a part of the LGBTQ+ community.

- Feelings of negativity rooted from LGBTQ+ identity.

- Feelings of isolation or of ending up alone.

- Hate/distaste for others within LGBTQ+ community

OBSERVATIONS

- We see a wide range of minority stressors

- Some minority stressors are perpetuated by some subsets of the LGBTQ+ population to other subsets,

- **Sense of belonging** within the **community**

Machine Learning Classifier

MACHINE LEARNING FEATURES

- Latent Semantics (Word Embeddings)

- Psycholinguistic Attributes (LIWC)

- Hate Lexicon

- Open Vocabulary (n-grams)

- Sentiment

- Mental Health Concerns (DASS: Depression, Anxiety, Stress, and Suicidal Ideation)

MACHINE LEARNING PERFORMANCE

Model	Pr.	Rc.	F1	AUC
Naive Bayes	0.70	0.49	0.53	0.54
Logistic Reg.	0.73	0.72	0.72	0.76
SVM (Linear)	0.74	0.74	0.74	0.77
Random F.	0.76	0.67	0.70	0.75
AdaBoost	0.73	0.72	0.72	0.77
MLP	0.75	0.74	0.75	0.80

Model	F1	Acc.	AUC
W2V	0.67	0.72	0.72
.+LIWC	0.71	0.71	0.75
.+.+HateLex	0.72	0.71	0.75
.+.+.+Ngrams	0.73	0.72	0.78
.+.+.+.+Senti	0.74	0.74	0.79
.+.+.+.+.+DASS	0.75	0.75	0.80

ANALYZING LANGUAGE CUES

- Use Minority Stress Classifier to infer the presence of minority stress in the entire dataset

- Obtain **discriminating keywords** of presence / absence of minority stress expressions using SAGE[1]

[1] Eisenstein, J., Ahmed, A., & Xing, E. P. (2011). Sparse Additive Generative Models of Text.

LINGUISTIC CUES: MINORITY STRESS

Keywords related to sharing and disclosing to those who are close to the discloser (e.g., *tell mom, telling people, started talking)*

"I'm a coward to be unable to tell my mom to her face that I'm gay."

LINGUISTIC CUES: MINORITY STRESS

Keywords that express self-experiences and life events (e.g., *started feeling*, *days later*, etc.)

"started feeling these issues when I was 16 or 17, and because of my parents, I was like, "No I won't do this", and shoved them back down again."

LINGUISTIC CUES: NO MINORITY STRESS

Keywords relating to friendliness and sense of community (e.g., *lgbtq community, lgbt friendly,* etc.)

"I thank the LGBTQ+ community for being together, through friends and social media."

ERROR ANALYSIS OF MINORITY STRESS CLASSIFIER

Precision	Recall	AUC
0.75	0.74	0.80

- Identify similar posts but contrasting outcomes on minority stress expressions

- Compare and contrast the similar posts

ERROR ANALYSIS: FALSE POSITIVES

- Non Self-Experiences ⟶ *"My best friend is a trans man who has been constantly abused [..] is now taking anxiety medication and have managed to survive thus far. Does someone know of any safe spaces for trans men who are recovering from abuse or from suicide?"*

- Past Experiences

- Seeking Relationship Advices

ERROR ANALYSIS: FALSE NEGATIVES

- Asking Question(s)

- Lack of context and non-explicit description of self-experience

- Typos and variants of slangs

Guys! I'm in need of a chest binder. I'm in extreme dysphoria that badly affects my daily life.

Discussion

ETHICS

- These automated approaches may reinforce stressors such as prejudice and stigma.

- Minority stress classifier could be misused by bad-actors.

- An individual may not be willing to have their minority stress be identified.

- Ethical complexity associated with using such classifier in non-anonymized platforms (Twitter, Facebook).

ETHICAL IMPLICATIONS

- An **opt-in approach**, where members of an online community are given the choice whether or not to participate in a mental health intervention (that uses their data).

- It is only meant to **complement** and **assist** human intervention.

- Any decision and interventions using our classification approach require **careful** and **in-depth supplemental ethical analysis**.

IMPLICATIONS

Social Media Interventions for LGBTQ+ individuals:

- Moderation and Support Matching Efforts
- Therapeutic Efforts (e.g., Journaling tools)

IMPLICATIONS

Public Health Implications:

- Clinical and Therapeutic Practice
- Minority Stress Research

TAKEAWAYS

- **Codebook** on minority stress in social media language

- A machine learning classifier to scalably identify minority stress in social media language

- **Lexicon** of minority stress language

  - Posts with minority stress contain **personal** and **self-experiences**

  - Posts with no minority stress are about **raising awareness**, and **less-personal** and **more-general issues**

Saha, K., Kim, S. C., Reddy, M. D., Carter, A. J., Sharma, E., Haimson, O. L., & De Choudhury, M. (2019). The Language of LGBTQ+ Minority Stress Experiences onSocial Media. *Proceedings of the ACM on Human-Computer Interaction*, *3*(CSCW), 89., https://dl.acm.org/citation.cfm?id=3361108

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Thank You

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