

A Social Media Based Examination of the Effects of Counseling Recommendations After Student Deaths on College Campuses

Koustuv Saha¹, Ingmar Weber², Munmun De Choudhury¹

¹Georgia Tech, ²Qatar Computing Research Institute

Crisis on College Campuses: Student Deaths

- Two in every 1000 U.S. college students die every year
- 18% of undergraduate and 5% of graduate students have had lifetime thoughts of attempting a suicide
- Affects the general psychological wellbeing of campuses



Koustuv Saha <koustuv.saha@gmail.com>

Remembering [REDACTED]

[REDACTED] <studentlife@gatech.edu>
Reply-To: studentlife@gatech.edu
To: "git-all@lists.gatech.edu" <git-all@lists.gatech.edu>

Dear students, staff, and faculty of Georgia Tech,

The sudden and tragic death due to a [REDACTED], of an undergraduate student, [REDACTED], has been devastating news to the Georgia Tech community, and in particular to all who knew him. For members of the School of [REDACTED] community, and for faculty who had [REDACTED] enrolled in their classes, the shock and grief are particularly acute. Counselors from the Georgia Tech Counseling Center are available to assist if needed.

Adam will be remembered at next semester's [REDACTED].

Georgia Tech is committed to providing resources for the mental, emotional, and physical well-being of our entire campus community. Please remember that Georgia Tech offers multiple services and resources in support of the community during this time of loss and grief:

- **The Georgia Tech Counseling Center** (www.counseling.gatech.edu) is staffed by psychologists and mental health counselors. They offer brief, confidential counseling and crisis intervention services to students. The Counseling Center also offers an after-hours on-call counselor to speak and consult with students in crisis. In addition, they sponsor a series of workshops for managing stress.
- **Stamps Health Services** (<http://health.gatech.edu/services/Pages/Psychiatry.aspx>) is open to students and their spouses. Students interested in scheduling an appointment may call 404-894-2585 or visit the second floor of the Stamps Health Services Building.
- **Division of Student Life and the Office of the Vice President and Dean of Students** has a referral option if you are concerned about a student (www.studentlife.gatech.edu).
- **The Georgia Crisis & Access Line** (1-800-715-4225) is staffed with professional social workers and counselors 24 hours per day, every day, to assist those with urgent and emergency needs. www.mygcal.com.

It is our hope that anyone who needs these services will be able to take full advantage of them. At times like these, we are reminded of the importance of coming together in support, understanding, and care for one another.

[REDACTED]
Vice President for Student Life and Dean of Students

Counseling Recommendations

- **Objective:** To reduce the psychological effects of crises
- **Means:** Public service announcements (PSAs) (via email, social media)
- **Contains:** Pointers to student-counseling services and resources on campuses
- **Effectiveness of Counseling Recommendations?**

Our Work

Examine the effectiveness of counseling recommendations after student deaths:

- Social Media Data
- Causal Inference Framework

Situate our findings with crisis and expressive writing

[/r/gatech](#)[HOT](#)[NEW](#)[TOP](#)[/r/gatech chat here](#)

15

15

15

15

67

67

67

24

24

24

30

30

30

30

30

30

7

7

7

7

7

7

0

0

0

Missed Julie Gordon White's AMA? Catch up here and learn how to grow your small business into an empire.

Promoted by Intuit_QuickBooks

1 promoted save report

Congrats! You just got in! 2018 Regular Decision Megathread

Submitted 1 month ago by [REDACTED] CS - 0x7E3 M - announcement

224 comments share save hide report crosspost

Phase One Megathread: Summer/Fall 2018 Edition

Submitted 12 days ago by [REDACTED] ME - 2019? M - announcement

244 comments share save hide report crosspost

What do i do about a professor who threatened me?

self.gatech

Submitted 6 hours ago * by [deleted]

32 comments share save hide report crosspost

Are there any body fat percentage monitors on campus?

Submitted an hour ago by [REDACTED] AE - 2018

comment share save hide report crosspost

Question for cyclists on campus

self.gatech

Submitted 3 hours ago by [REDACTED]

4 comments share save hide report crosspost

Do you think you would have missed out going to your state school instead of GT?

self.gatech

Submitted 37 minutes ago by [REDACTED]

1 comment share save hide report crosspost

Changing Threads in CS

self.gatech

Submitted 3 hours ago by [REDACTED]

2 comments share save hide report crosspost

Submit new content



gatech

14,196 readers, 272 here
(edit flair)



Hey there Techies, join the rally for procrastination. Long live reddit.

Useful Links

- GT FAQ
- Official GT iOS App
- GT IRC
- GT Buses for iOS for Android
- GT Homepage
- GT Protips
- /r/Atlanta
- /r/ACC
- /r/RamblinWreck for GT Sports

Subreddit Rules:

- Don't be a jerk.
- Don't troll or flame
- In order to avoid redundant posts:

Dean [REDACTED] letter to Students. self.gatech

Submitted [REDACTED] No_Flair_Selected

Students, staff, and faculty of Georgia Tech,

The sudden and tragic death of an undergraduate student, [REDACTED], has been devastating news to the Georgia Tech community, and in particular to all who knew [REDACTED]. For members of the [REDACTED] [REDACTED], the [REDACTED], and for faculty who had him enrolled in their classes, the shock and grief are particularly acute.

A remembrance ceremony has been planned for [REDACTED], in the lobby of the Ferst Center for the Arts. Counselors from the Georgia Tech Counseling Center and campus chaplains will be on hand at this event.

We are committed to providing resources for the mental, emotional, and physical well-being of our entire campus community. Please remember that Georgia Tech offers multiple services and resources in support of the community during this time of loss and grief:

- The Georgia Tech Counseling Center (<http://www.counseling.gatech.edu>) is staffed by psychologists and mental health counselors. They offer brief, confidential counseling and crisis intervention services to students. The Counseling Center also offers an after-hours on-call counselor to speak and consult with students in crisis. In addition, they sponsor a series of workshops for managing stress.
- Stamps Health Services (<http://health.gatech.edu/services/Pages/Psychiatry.aspx>) is open to students and their spouses. Students interested in scheduling an appointment may call 404-894-2585 or visit the second floor of the Stamps Health Services Building.
- Division of Student Life and the Office of the Vice President and Dean of Students has a referral option if you are concerned about a student (<http://www.studentlife.gatech.edu>).
- The Georgia Crisis & Access Line (1-800-715-4225) is staffed with professional social workers and counselors 24 hours per day, every day, to assist those with urgent and emergency needs. www.mygcal.com.
- Georgia Tech has contracted with EAP Consultants, LLC to provide employees and their family members with a comprehensive Employee Assistance Program (EAP). All healthcare benefits eligible employees and their families have access to the program. (<http://health-and-wellbeing.gatech.edu/eap>)

It is our hope that anyone who needs these services will be able to take full advantage of them. At times like these, we are reminded of the importance of coming together in support, understanding, and care for one another.

[REDACTED] Vice President and Dean of Students



Counseling Recommendations

Data Source

174 U.S. College Subreddits

- *U.S. News and snoopsnoo.com*
- *Eg: r/gatech, r/uiuc, r/Berkeley, r/UTAustin, etc*

Datasets

- Datasets of College PSAs: CR and Baselines
- Generic keywords (“*death*”, “*suicide*”, “*counsel**”, “*rip*”, “*therapy*”, “*dean*”...)
- Campus-specific keywords (college officials, counseling body)
- Timeline data of all the users who commented on these posts

| PSAs | Student Death | NO Student Death |
|------------------------------|-------------------|------------------|
| Counseling Recommendation | CR (229 Posts) | B2 |
| NO Counseling Recommendation | B3 (0 Post) | B1 |

| Dataset | #Users | #Posts |
|---------|--------|--------|
| CR | 842 | 3.1M |
| B1 | 2,215 | 6.8M |
| B2 | 321 | 1.2M |
| B3 | - | - |

Causal Framework

Observational Data

Treatment: Exposure to
Counseling Recommendation

Outcome:

- ❖ Affective changes
- ❖ Behavioral changes
- ❖ Cognitive changes

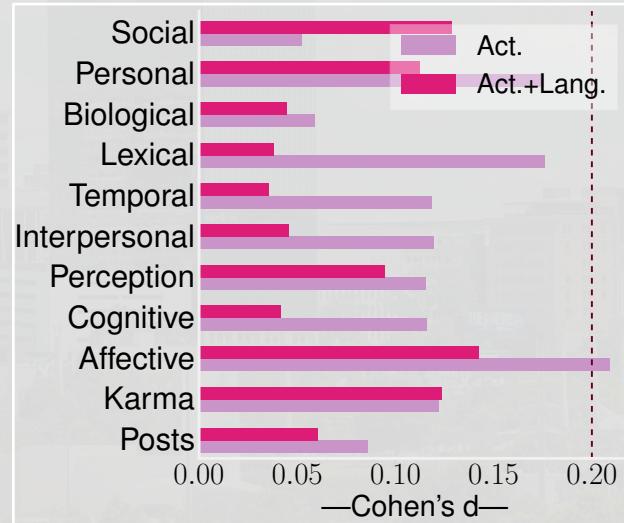
Causal Analysis Framework

The sudden and tragic death of an undergraduate student, [REDACTED], has been devastating news to the Georgia Tech community, and in particular to all who knew [REDACTED]. For members of the [REDACTED] the [REDACTED], and for faculty who had him enrolled in their classes, the shock and grief are particularly acute.

A remembrance ceremony has been planned for [REDACTED], in the lobby of the Ferst Center for the Arts. Counselors from the Georgia Tech Counseling Center and campus chaplains will be on hand at this event. We are committed to providing resources for the mental, emotional, and physical well-being of our entire campus community. Please remember that Georgia Tech offers multiple services and resources in support of the community during this time of loss and grief:

- The Georgia Tech Counseling Center (<http://www.counseling.gatech.edu>) is staffed by psychologists and mental health counselors. They offer brief, confidential counseling and crisis intervention services to students. The Counseling Center also offers an after-hours on-call counselor to speak and consult with students in crisis. In addition, they sponsor a series of workshops for managing stress.
- Stamps Health Services (<http://health.gatech.edu/services/Pages/Psychiatry.aspx>) is open to students and their spouses. Students interested in scheduling an appointment may call 404-894-2585 or visit the second floor of the Stamps Health Services Building.
- Division of Student Life and the Office of the Vice President and Dean of Students has a referral option if you are concerned about a student (<http://www.studentlife.gatech.edu>).
- The Georgia Crisis & Access Line (1-800-715-4225) is staffed with professional social workers and counselors 24 hours per day, every day, to assist those with urgent and emergency needs. www.mygal.com.
- Georgia Tech has contracted with EAP Consultants, LLC to provide employees and their family members with a comprehensive Employee Assistance Program (EAP). All healthcare benefit eligible employees and their families have access to the program. (<http://health-and-wellbeing.gatech.edu/eap>)

Observational Data



Matching

Covariates:

Offline: Same college campus

Online Behavioral: #Posts,

Tenure, Karma on Platform

Online PsychoLinguistic: LIWC
occurrences

2-Tier Matching:

Propensity Score Matching
(Offline and Behavioral)

Mahalanobis Distance

Matching (Psycholinguistic)

Exposure to Counseling Recommendations

Treatment

Exposed Group

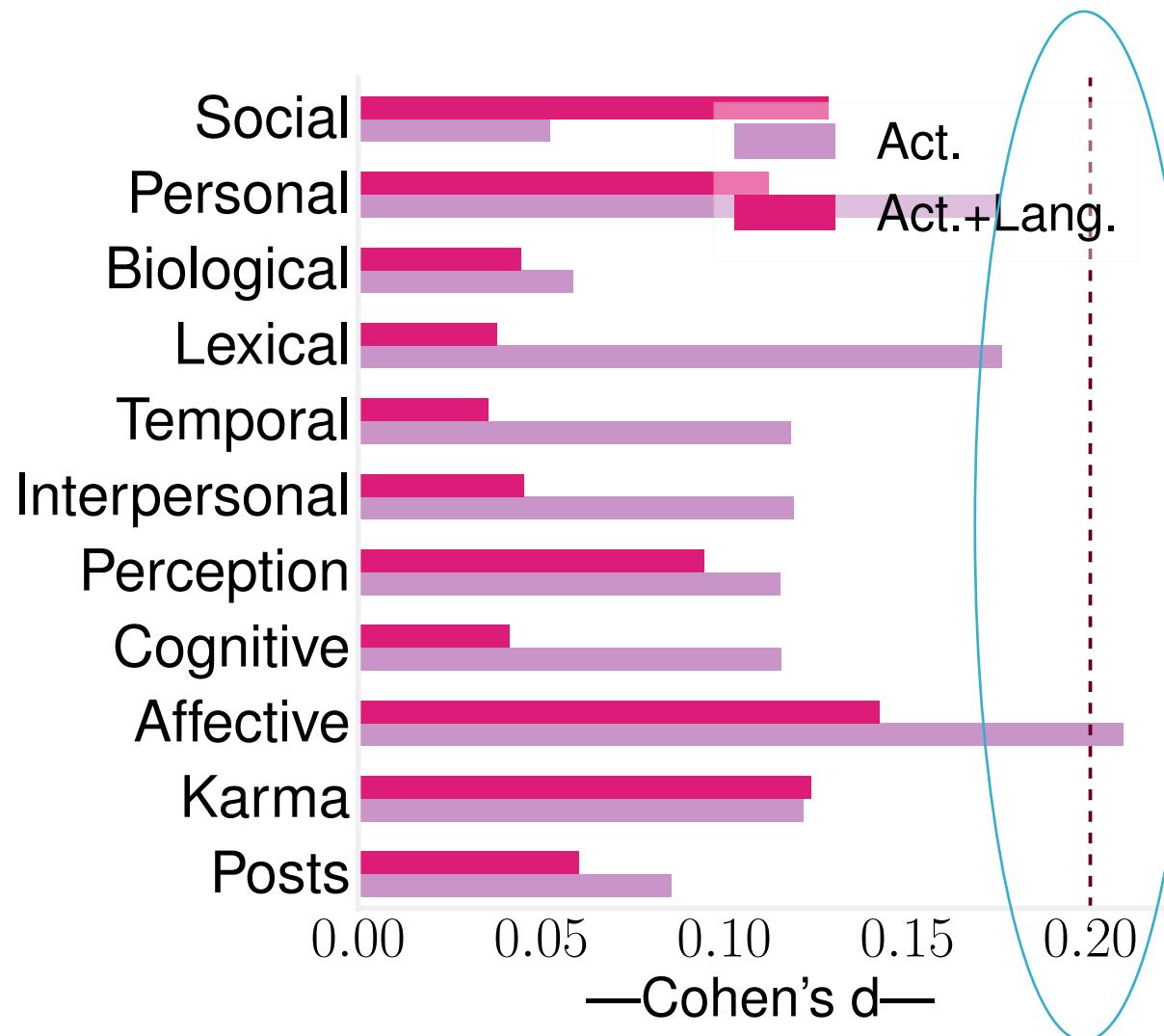
Non-Exposed

Matching

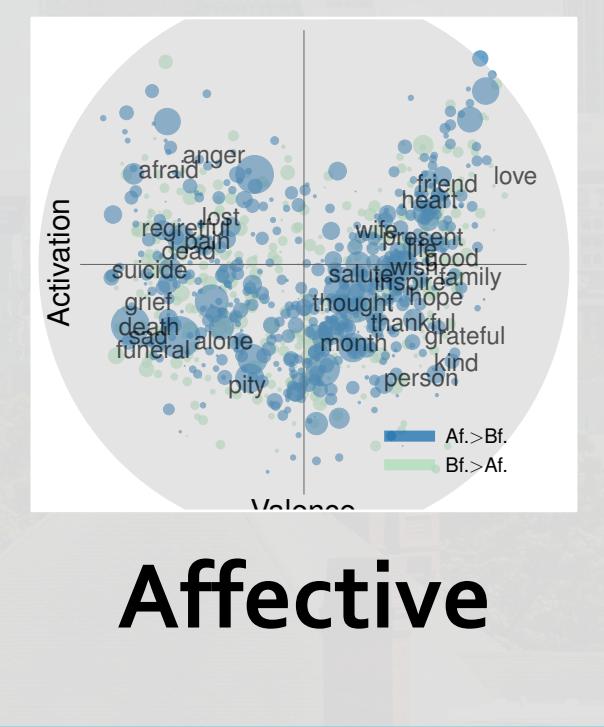
Treatment Group

Control Group

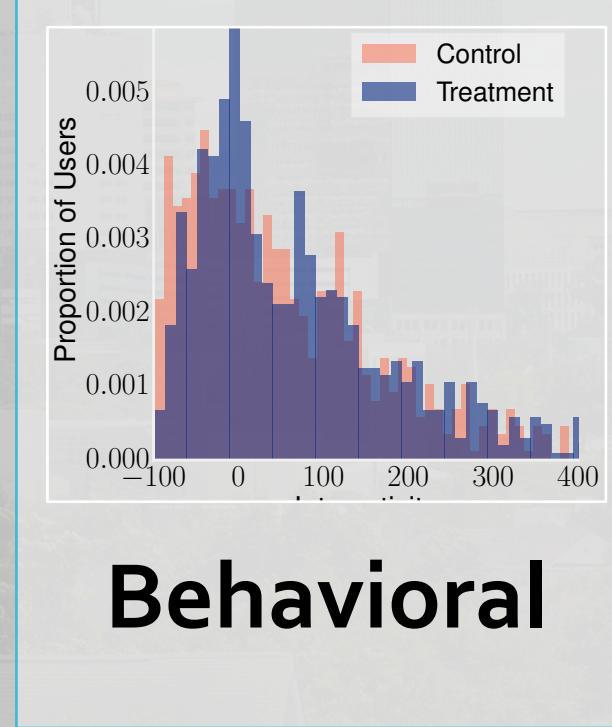
Matching Balance



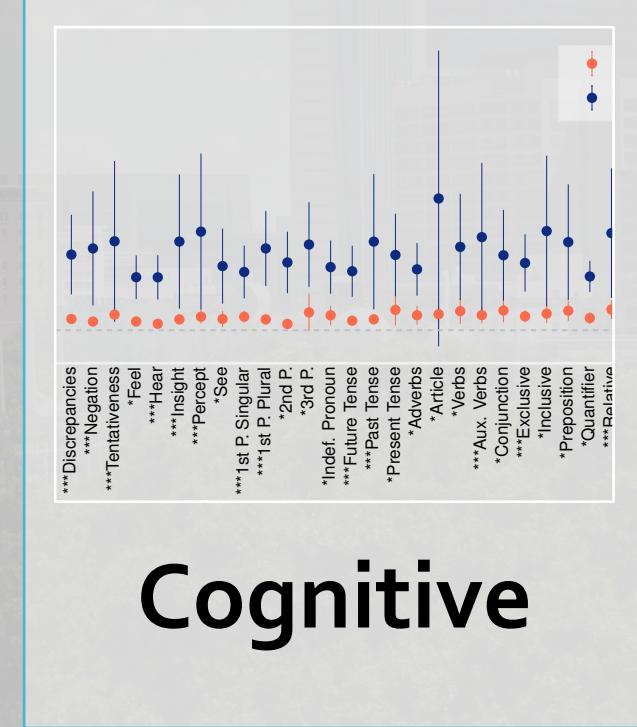
- Cohen's d metric
 - <0.2 : small differences
- 2-Tier matching improves covariate imbalance



Affective



Behavioral



Cognitive

Examining the Outcomes

Affective Changes

- **Grief:**
 - Response following loss of someone
 - Conflicting feelings and a wide range of emotions
- Model grief in social media language

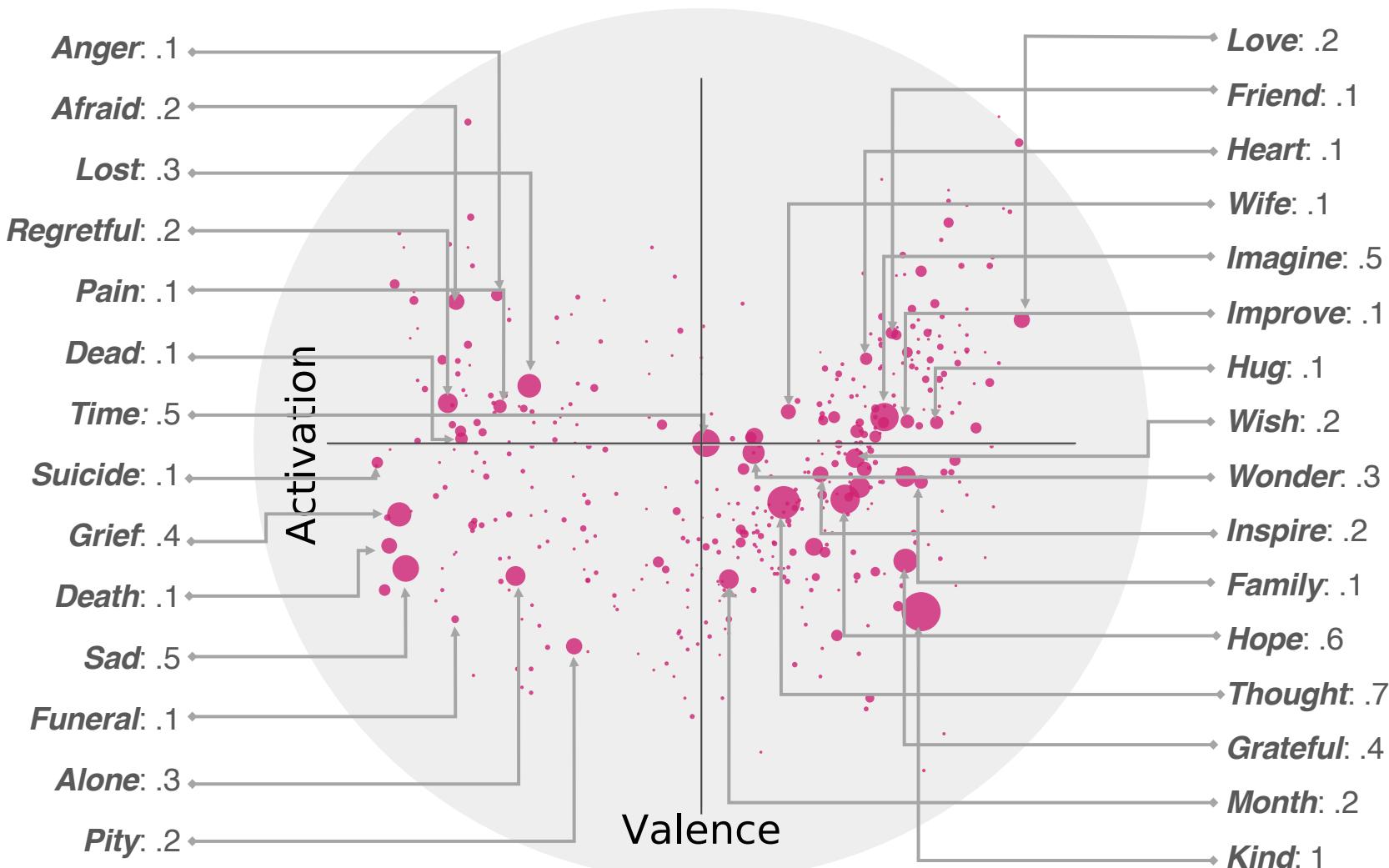
Modeling Grief on Social Media Language

Building a Grief Lexicon:

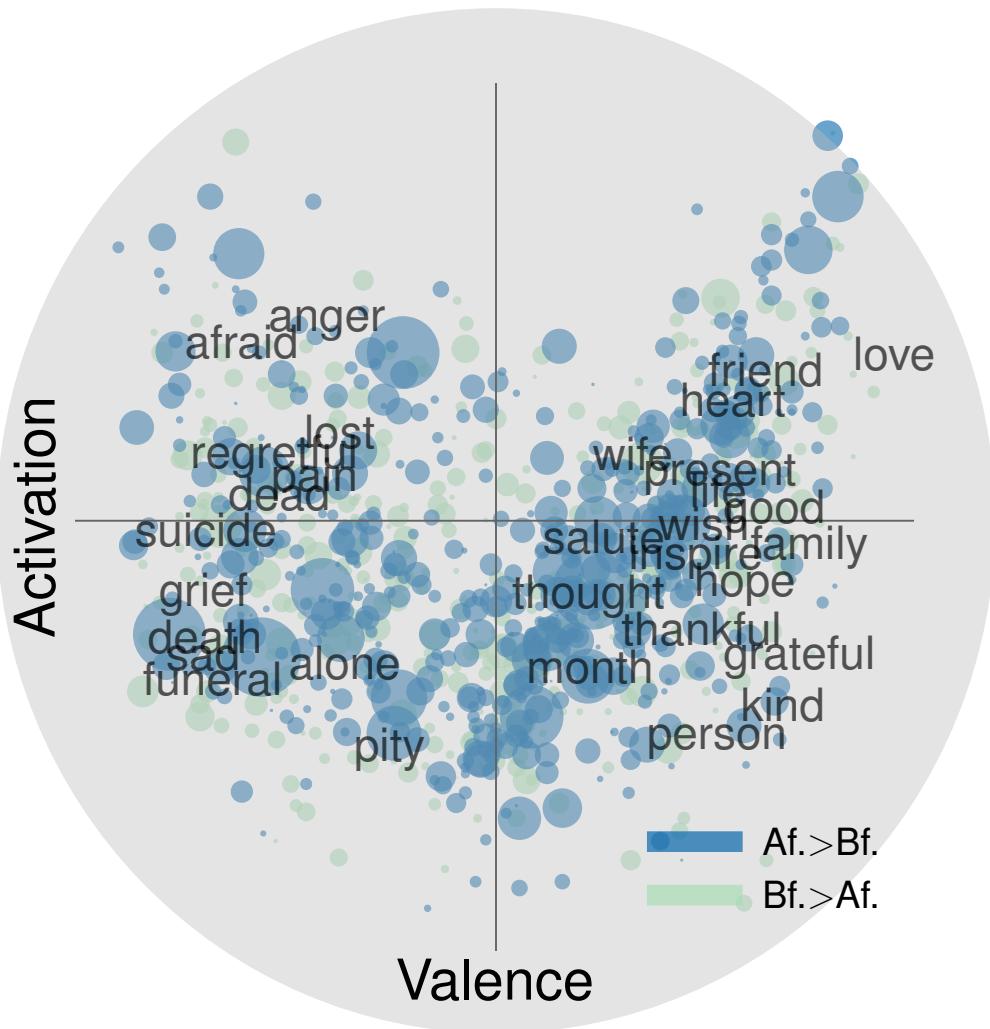
- Open-vocabulary based method
- Based on the Russel's Circumplex Model¹ of Affect
- Grief communities on Reddit:
 - *r/grief, rGriefSupport, r/bereavement, etc.*
- Log-likelihood ratio based measure:
 - Finds discriminating grief words compared to a Reddit control dataset
- ANEW² (Affective Norms for English Words):
 - Word Embedding based similarity on Grief Lexicon:
 - Obtains **Valence** and **Activation** dimensions of the Grief Lexicon
 - 2,357 Grief n-grams mapped to 459 ANEW categories

¹Russel (1980), ²Nielsen (2011)

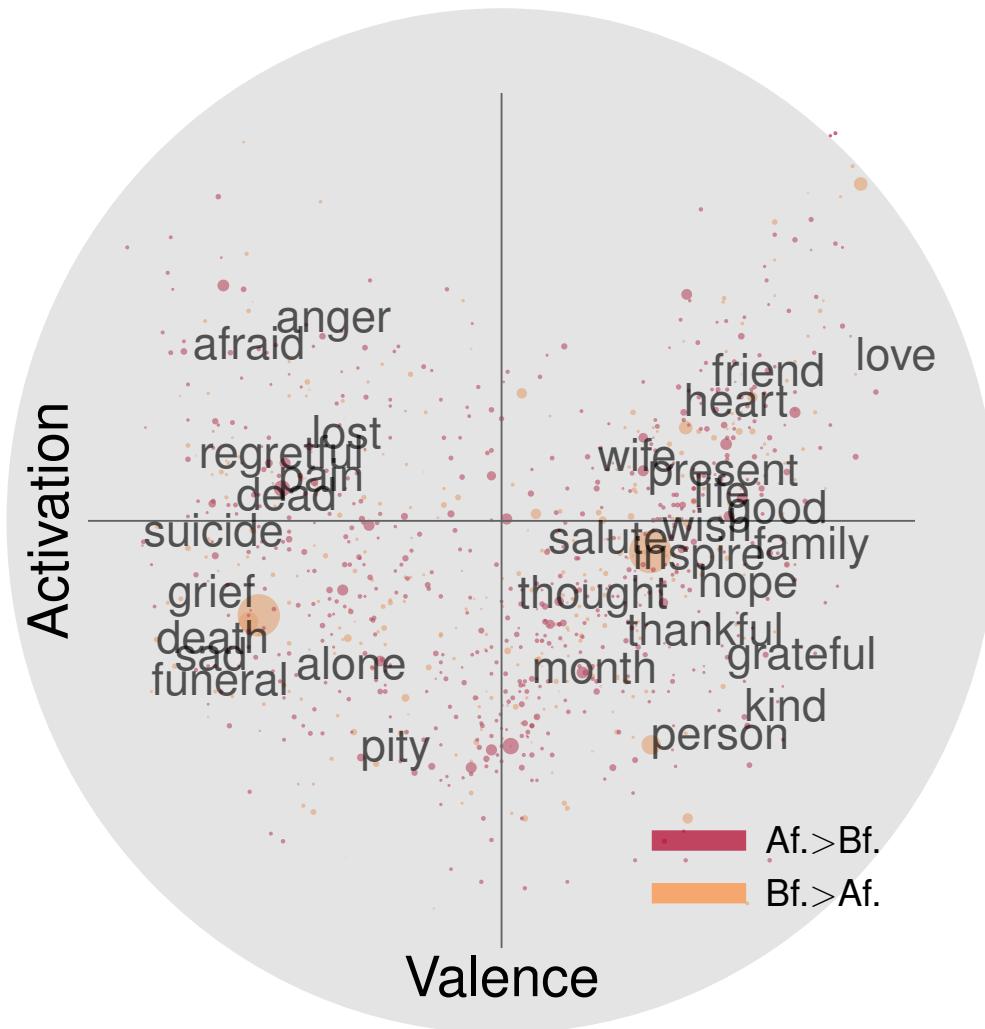
Grief Lexicon



Affective Changes of Grief



Treatment

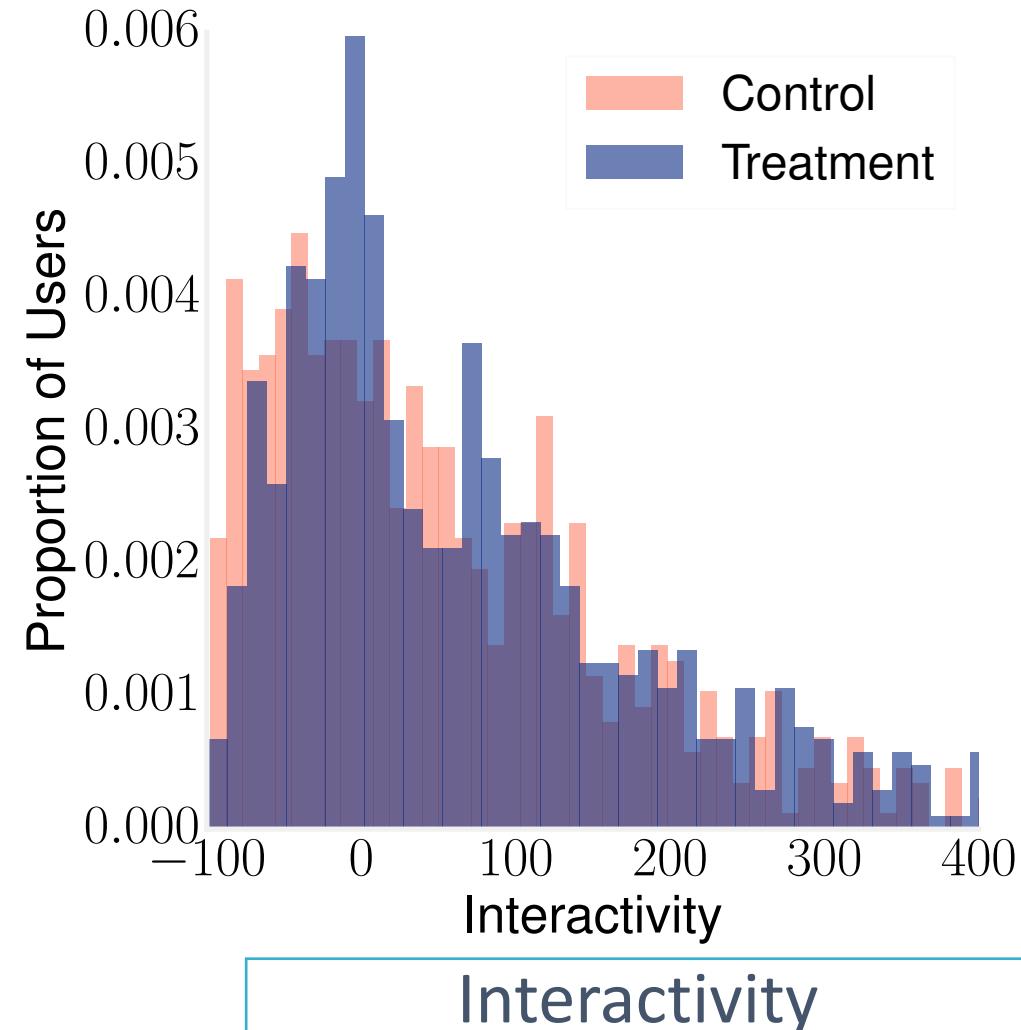
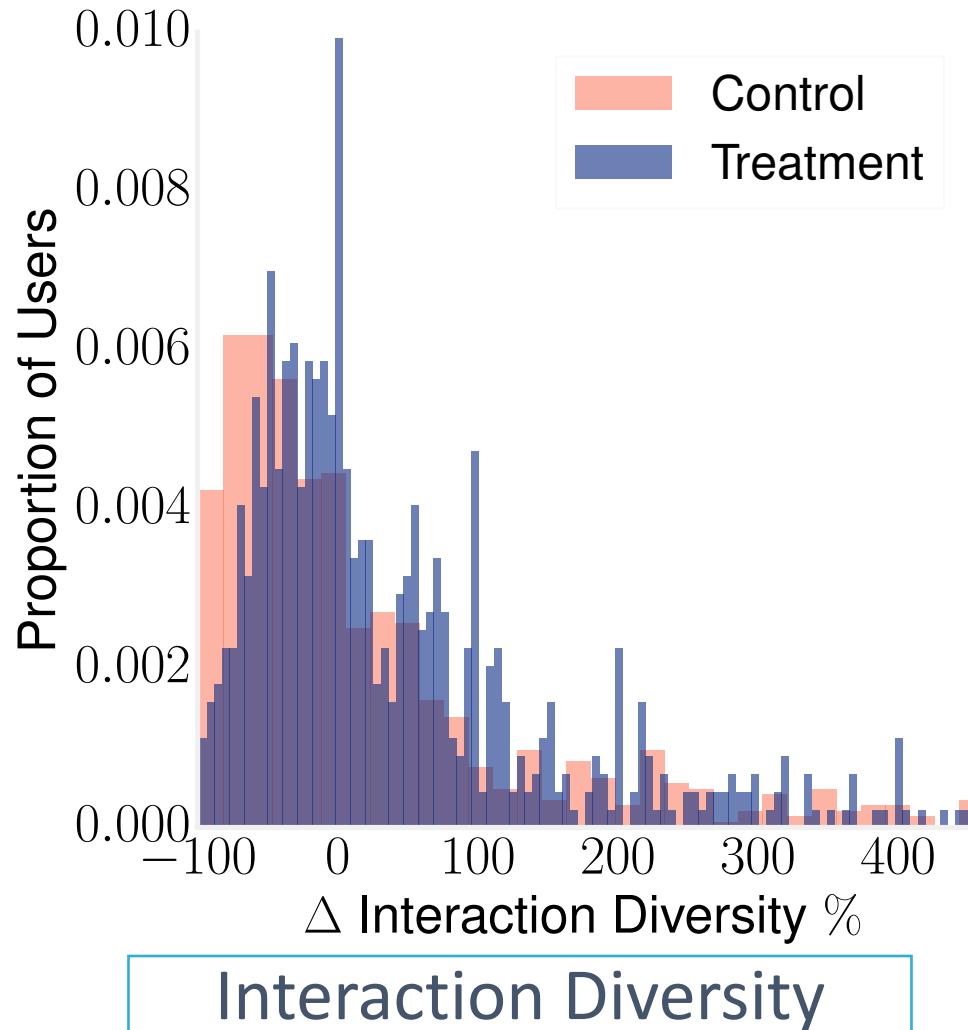


Control

Behavioral Changes

- Activity
- Interaction Diversity
- Interactivity

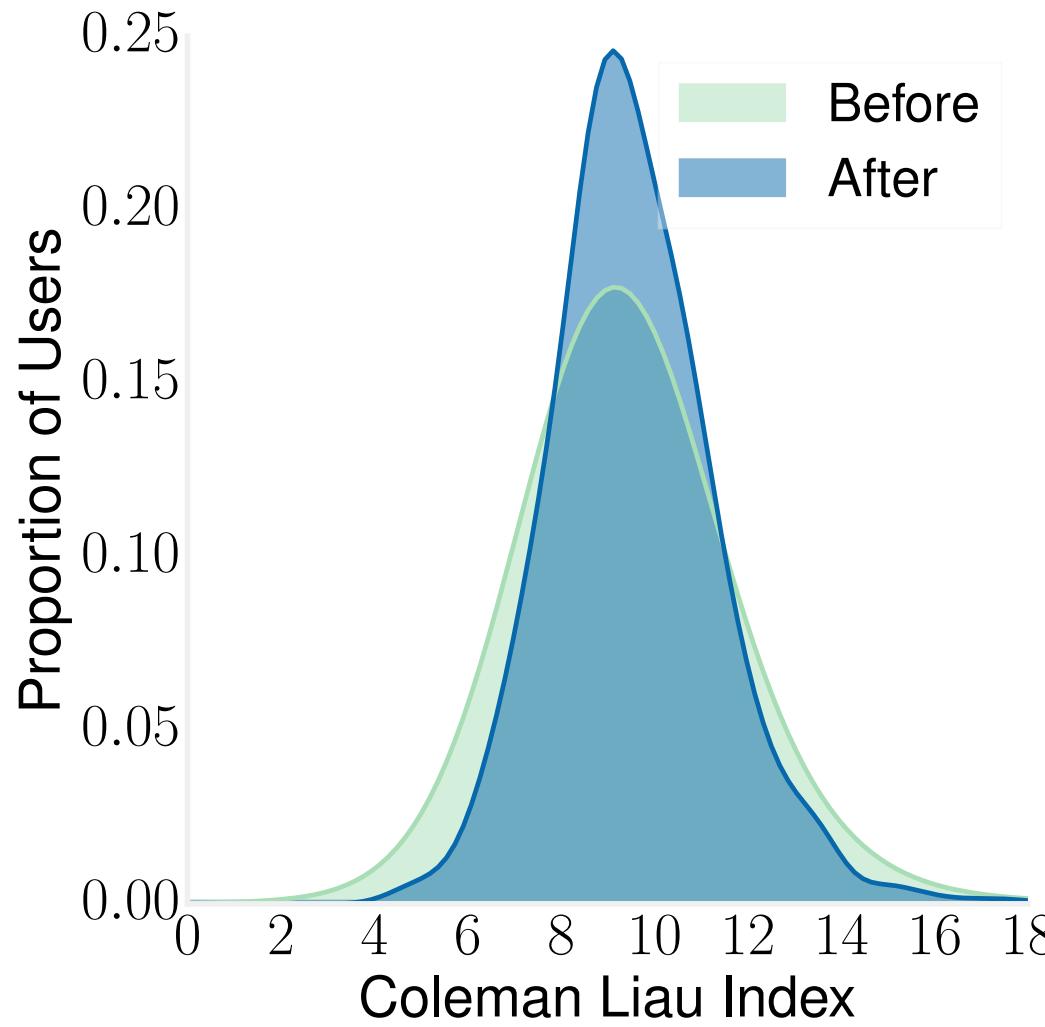
Behavioral Changes



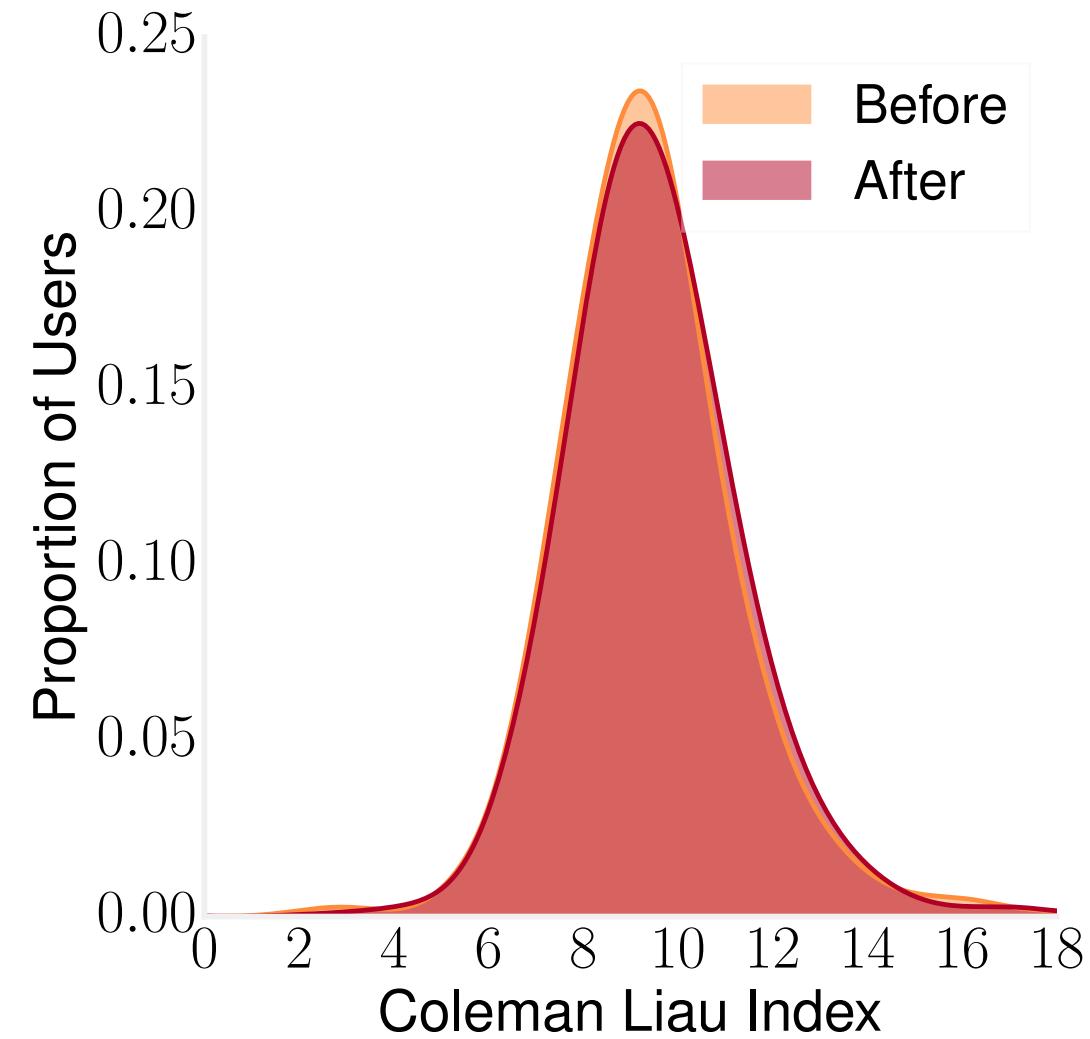
Cognitive Changes

- Readability
- Repeatability
- Complexity
- Linguistic Style
- Cognition and Perception
- Social Context

Cognitive Changes: Readability

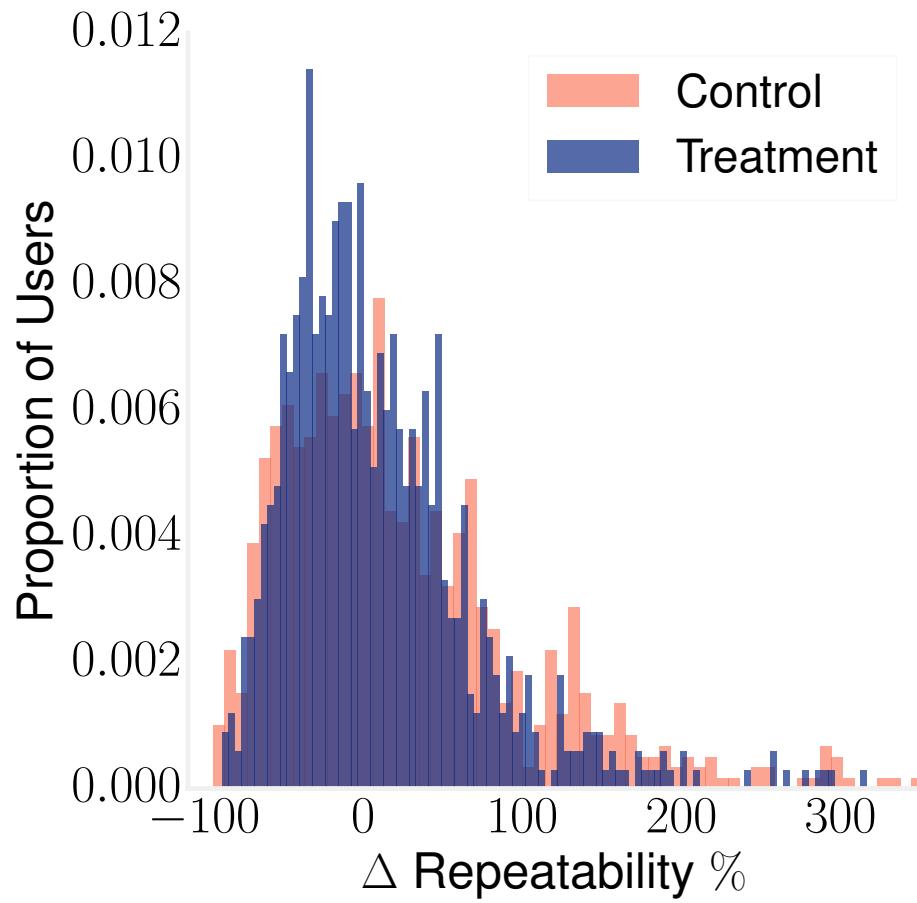


Treatment

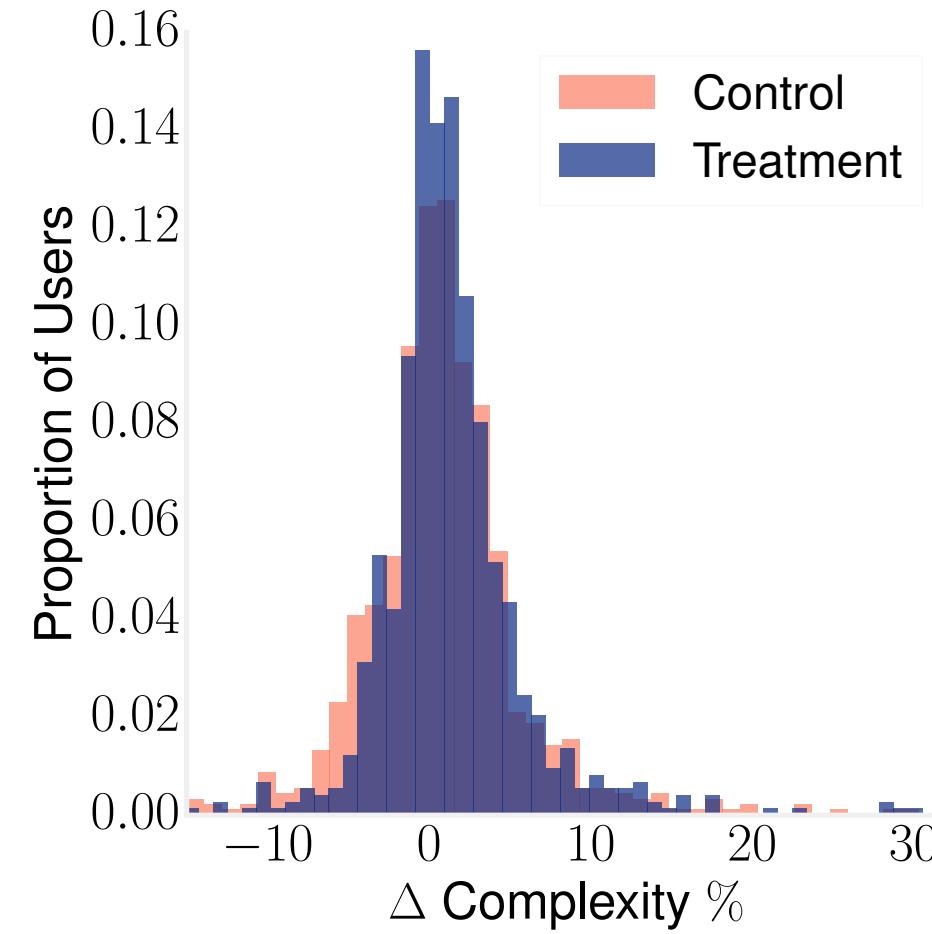


Control

Cognitive Changes: Repeatability & Complexity

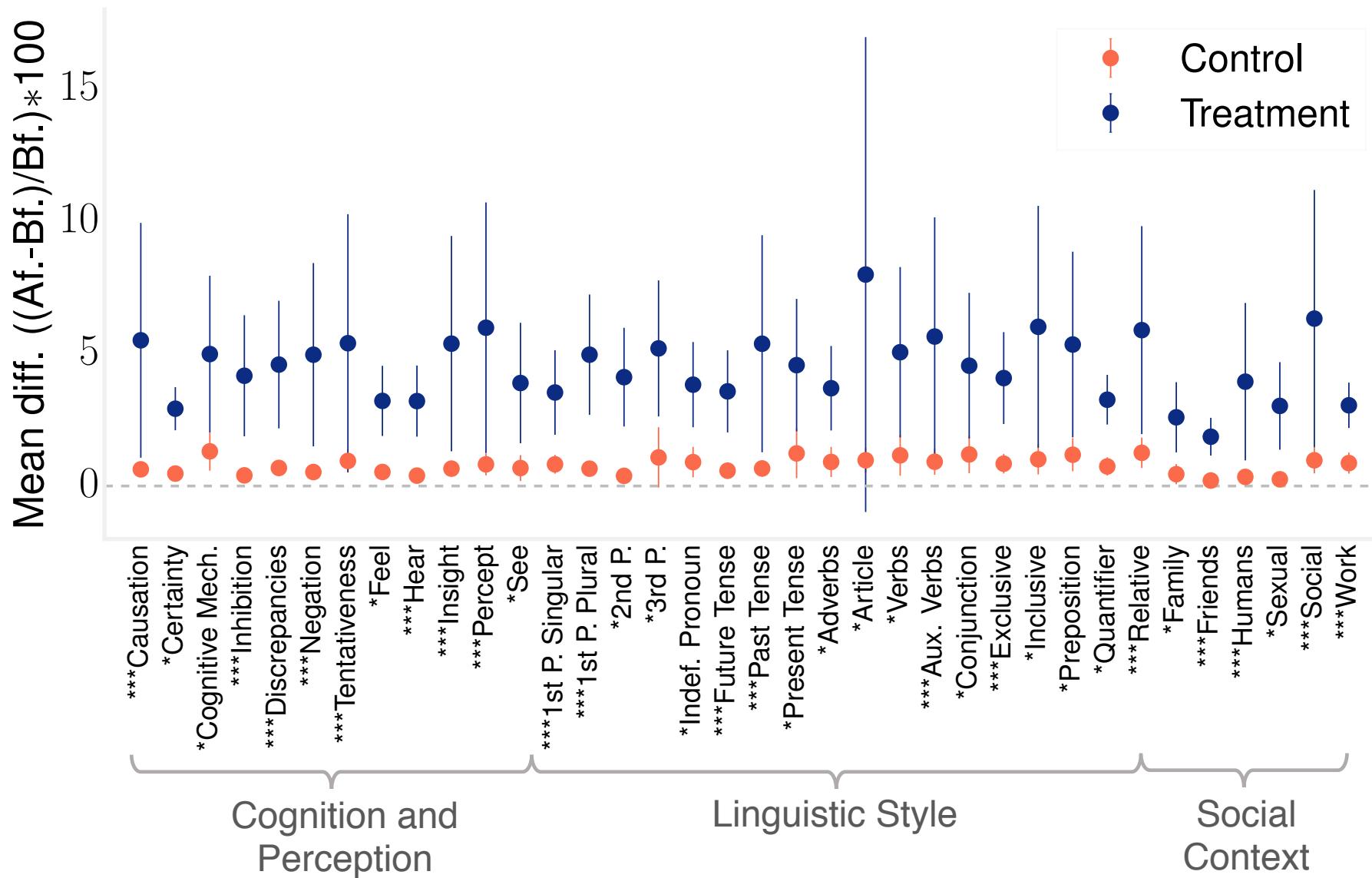


Repeatability



Complexity

Cognitive Changes: LIWC



Summary

| Data → | CR | |
|---------------------------|-------------|-------------|
| Measure ↓ | ΔTr | ΔCt |
| <i>Affective Changes</i> | | |
| Grief: Activation | 15 | -1 |
| Grief: Valence | 9 | -1 |
| <i>Behavioral Changes</i> | | |
| Activity | - | - |
| Interaction Diversity | 9 | 8 |
| Interactivity | 29 | -1 |
| <i>Cognitive Changes</i> | | |
| Readability | 14 | 11 |
| Complexity | 1.3 | .7 |
| Repeatability | -3 | 9 |
| Linguistic Style | 481 | 92 |
| Cognition & Perception | 457 | 70 |
| Social Context | 382 | 49 |

- Psychosocial improvements across changes in affect, behavior, and cognition
- Greater expressivity associated with psychological wellbeing status
- No significant changes in any of the other baseline scenarios:
 - Observed effects are characteristic of student death related crisis
 - Counseling recommendations following student deaths improve wellbeing

Implications

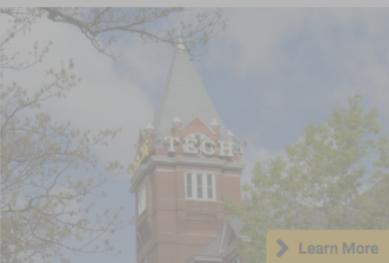
Our work bears the potential to...

- quantify the effects of counseling recommendations following student deaths on college campuses
- complement methods to assess effectiveness of post-crisis intervention efforts
- assist counseling services in employing proactive intervention measures

Saha, K., Weber, I., & De Choudhury, M. (2018, June). A social media based examination of the effects of counseling recommendations after student deaths on college campuses. In *Twelfth International AAAI Conference on Web and Social Media.*, <https://www.aaai.org/ocs/index.php/ICWSM/ICWSM18/paper/viewPaper/17855>

Tech Ends Suicide Together

A Campus Initiative



[Learn More](#)

How You Can Help



[Learn More](#)

The Toolkit



[Learn More](#)

Learn more about Tech Ends Suicide Together, a campus-wide initiative.

We all have a role to play in ending suicide on our campus and in our community.

What you need to participate in this important initiative.

Thank You

koustuv.saha@gatech.edu

koustuv.com