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
Dear students, staff, and faculty of Georgia Tech,

The sudden and tragic death due to a __________________ of an undergraduate student, __________________, has been devastating news to the Georgia Tech community, and in particular to all who knew him. For members of the School of __________________ community, and for faculty who had ________ 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 __________________.

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](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](http://health.gatech.edu/services/Pages/Psychiatry.aspx)) is open to students and their spouses. Students interested in scheduling an appointment may call 404-894-2505 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](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.mycaill.com](http://www.mycaill.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.

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
Online College Communities on Reddit
Counseling Recommendations

Dear Students, staff, and faculty of Georgia Tech,

The sudden and tragic death of a student, [redacted], has been devastating news to the Georgia Tech community, and in particular to all who knew her. For members of the [redacted] and faculty who had her 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.

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- 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.myiscal.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
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

<table>
<thead>
<tr>
<th>PSAs</th>
<th>Student Death</th>
<th>NO Student Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling Recommendation</td>
<td>CR (229 Posts)</td>
<td>B2</td>
</tr>
<tr>
<td>NO Counseling Recommendation</td>
<td>B3 (0 Post)</td>
<td>B1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dataset</th>
<th>#Users</th>
<th>#Posts</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR</td>
<td>842</td>
<td>3.1M</td>
</tr>
<tr>
<td>B1</td>
<td>2,215</td>
<td>6.8M</td>
</tr>
<tr>
<td>B2</td>
<td>321</td>
<td>1.2M</td>
</tr>
<tr>
<td>B3</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Causal Framework
Observational Data

Treatment: Exposure to Counseling Recommendation

Outcome:
- Affective changes
- Behavioral changes
- Cognitive changes
Causal Analysis Framework

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)
Matching Balance

- Cohen’s $d$ metric
  - <0.2: small differences
- 2-Tier matching improves covariate imbalance
Examining the Outcomes

Affective

Behavioral

Cognitive
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 Model\(^1\) 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

• ANEW\(^2\) (Affective Norms for English Words):
  • Word Embedding based similarity on Grief Lexicon:
  • Obtains \textbf{Valence} and \textbf{Activation} dimensions of the Grief Lexicon
  • 2,357 Grief n-grams mapped to 459 ANEW categories

\(^1\)Russel (1980), \(^2\)Nielsen (2011)
Grief Lexicon

- Anger: .1
- Afraid: .2
- Lost: .3
- Regretful: .2
- Pain: .1
- Dead: .1
- Time: .5
- Suicide: .1
- Grief: .4
- Death: .1
- Sad: .5
- Funeral: .1
- Alone: .3
- Pity: .2
- Love: .2
- Friend: .1
- Heart: .1
- Wife: .1
- Imagine: .5
- Improve: .1
- Hug: .1
- Wish: .2
- Wonder: .3
- Inspire: .2
- Family: .1
- Hope: .6
- Thought: .7
- Grateful: .4
- Month: .2
- Kind: 1
Affective Changes of Grief

Treatment

Control
Behavioral Changes

• Activity
• Interaction Diversity
• Interactivity
Behavioral Changes

![Graph showing changes in interaction diversity and interactivity between Control and Treatment groups.](image-url)
Cognitive Changes

- Readability
- Repeatability
- Complexity
- Linguistic Style
- Cognition and Perception
- Social Context
Cognitive Changes: Readability

Proportion of Users

Coleman Liau Index

Before
After

Proportion of Users

Coleman Liau Index

Before
After

Treatment
Control
Cognitive Changes: Repeatability & Complexity

Repeatability

Complexity
Cognitive Changes: LIWC

Mean diff. \( \frac{(Af.-Bf.)/Bf.}{100} \)

Control

Treatment

Cognition and Perception

Linguistic Style

Social Context

- Causation
- Certainty
- Cognitive Mech.
- Discrepancies
- Inhibition
- Negation
- Tentativeness
- Insight
- Percept
- See
- Hear
- Insight
- Percept
- See
- Hear

- Feel
- Singular
- Plural
- 1st
- 2nd
- 3rd
- Indef.
- Future Tense
- Past Tense
- Present Tense
- Adverbs
- Article
- Verbs
- Aux.
- Conjunction
- Inclusive
- Exclusive
- Preposition
- Quantifier
- Relative
- Family
- Friends
- Humans
- Sexual
- Social
- Work
Summary

• 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