**What Are People Tweeting About Pain: Implications of Using Social Media to Collect and Deliver Targeted Health Information**

Kristina Ahlwardt1, Barbara Gerbert, PhD2, Natalie Heaivilin3, Jennifer Gibbs, DDS3, Jens Page4, Janice Y. Tsoh, PhD5

1 Dental Student, University of California San Francisco
2 Department of Preventive and Restorative Dental Sciences, University of California San Francisco
3 Department of Endodontics, New York University
4 *Datapockey*
5 Department of Psychiatry, University of California San Francisco

### Methods

1. **Search Terms**
   - Toothache
   - Toothaches
   - Teeth pain
   - Teeth hurting
   - Tooth pain
   - Back+aches
   - Back+ache
   - Back+killing
   - Back+hurting
   - Back+hurt
   - Ear+ache
   - Earache
   - Ear+aches
   - Ear+ac'h
   - Ear+hurts
   - Head+ache
   - Migraine
   - Migraines
   - Head+hurting

2. Data collection took place over seven non-consecutive days

3. **Inclusion Criteria**
   - Meets at least one query term
   - Relevant to pain
   - First person perspective
   - Tweet written in English

4. **Exclusion Criteria**
   - Spam
   - Re-tweets
   - Non-unique users
   - Ambiguous/incoherent tweets

5. 300 of each pain type were coded

6. Inter-rater reliability: Kappa= 0.96 (almost perfect agreement)

7. Descriptive statistics, ANOVA and Pearson chi-square tests were used to compare differences among pain types.

### Results

- **Variation in pain intensity**
  - Toothache (43.2%) and backache (47.2%) were described as having the highest pain intensity.
  - Headache (21.1%) and earache (27.8%) were described as having a lower intensity.

- **Temporal aspects of pain**
  - The percentage of tweets reporting high pain intensity was 20% for toothache, 13% for backache, 19% for headache, and 14% for earache.

- **Status of relief**
  - 40% of toothache-related tweets reported relief, while only 20% of backache-related tweets reported relief.
  - Headache-related tweets showed a 30% report of relief, and earache-related tweets showed a 25% report of relief.

- **Action**
  - Pain medication was mentioned in 30% of toothache-related tweets, 25% of backache-related tweets, 20% of headache-related tweets, and 15% of earache-related tweets.

- **Co-morbidities**
  - Depression was mentioned in 10% of toothache-related tweets, 15% of backache-related tweets, 10% of headache-related tweets, and 5% of earache-related tweets.

- **Environmental factors**
  - 30% of toothache-related tweets described being outside, compared to 20% of backache-related tweets, 15% of headache-related tweets, and 10% of earache-related tweets.

### References


### Conclusion

People tweet about pain and describe different experiences for different types of pain in terms of pain intensities, health care seeking, impacts and causes.

With these data we hope to foster a better understanding of individuals’ comparative experiences with pain, leading to innovative ways of using social media to deliver evidence based and individually relevant information to patients.

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**Background**

The word "pain" conjures a different set of associations and memories to different people depending on their past experiences, beliefs, and to whom they are talking about their pain. Wouldn’t I’d be great to have access to a person’s reaction to pain in real time? There is a lack of naturalistic, real-time, self-reported data on these experiences.

**Toothaches** occur in 12.2% of the U.S. adult population (1).

**Lower backaches** affect 18% of people (2).

**Earaches** account for 1.2% of all office visits per year (3).

80% of people have a **headache** at some point in their lives (4).

Twitter provides a novel way to collect data on how these pains are experienced in real-time on any given day, which can further our understanding of an individual’s perceptions of pain and its impact.

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**Objective**

To examine how Twitter users experiencing toothaches, backaches, earaches, and headaches communicate their symptoms, suffering and actions taken to relieve pain.

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**Significance**

- There is a lack of naturalistic, real-time, self-reported data on these general pains which affect many people on a daily basis.
- This study allows for the establishment of unifying statistics for topics which may not normally be compared.
- By documenting and comparing differences in pain intensities, causes, and common actions patients associate with different types of pain, health providers can better serve their patients’ needs.