Unreliable Tweets: Influence of Twitter on the Gluten Free Community

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BACKGROUND

- Celiac Disease (CD) is an autoimmune condition resulting in small intestinal damage in response to ingesting gluten[1]
- CD affects approximately 1 in 143 individuals worldwide[2]
- A strict gluten free diet is the only treatment for CD[1]
- Many people turn to online sources for information and support with the gluten-free diet[1]
- Cheerios is a labeled gluten-free product, and its true gluten-free nature is in question following a recall in 2015[3]
- The social media platform, Twitter has been used to share information about medical conditions and treatments[4]
- Analyzing the type of information shared about Cheerios on Twitter may help to identify mis-information contributing to suspicions that Cheerios are not gluten-free, further restricting access to this product for those who follow the gluten free diet like those with CD

OBJECTIVE

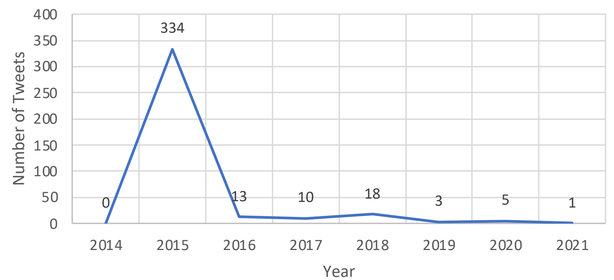
How does false information on social media impact individuals on the gluten free diets, like those with CD?

METHODS

- This **cross-sectiona**l study utilized **data mining** to collect tweets related to Cheerios and gluten
- 390 Tweets were evaluated with 43 hashtags including #cealic, #celiac, #cheerios, #glutenfree, #NoCureNoChoice.
- Retweeted tweets with sources (n=26) were evaluated for validity
- Tweets were evaluated using **descriptive statistics** and **qualitative review** of user sources
- **Thematic Analysis**[5] was done to conduct an in-depth analysis of the tweet sentiment

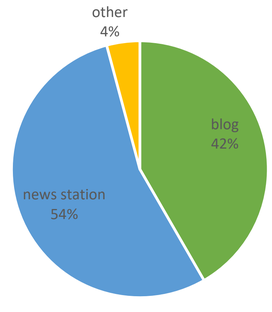
RESULTS/DISCUSSION

Figure 1: Number of Tweets Per Year Containing Specified Hashtags (n=390)



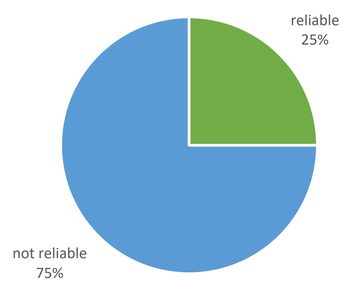
Contrary to continued suspicion about gluten in cheerios, most tweets regarding Cheerios and gluten were in 2015

Figure 2: Type of Source (n=26)



News stations and blogs were the most common sources cited in re-tweets

Figure 3: Source Validity (n=26)



*The **sources** of these re-tweets were categorized as **unreliable (75%)** if the source information came from personal blogs, other blogs, and news stations without source citations and **reliable (25%)** if the source information came from the FDA or General Mills/Cheerios company.*

"General Mills recalling 1.8 million Cheerios boxes on allergy risk"
Neutral sentiment (35%)

"so I guess celiacs everywhere are trial and error guinea pigs, depending on the day #NoCureNoChoice"
Negative/sarcastic sentiment (52%)

"Found this in my @cheerios. Yes its glass. Glad i wasnt a child! #blueglass #notglutenfree https://t.co/jhWPjBnlLy"
Misinformation (4%)

"Hey @cheerios, transparency goes a long way. http://t.co/CMvgYcPOxj via @GlutenDude #NoCureNoChoice"
Self-promotion (9%)

*The top 2 **contributing** users were self-identified bloggers who contributed to 34.33% of all tweets.*

IMPLICATIONS

- By analyzing social media data, it was found that much of the information being spread was not reliable, which could be harmful to those following a gluten-free diet for medical treatment.
- Multiple sources of information are helpful when navigating medical treatment, however the information needs to be reliable.
- Future projects could be done to analyze medical information shared in social media and online venues for additional diseases to gain prospective on the amount of false information being shared.
- To combat this misinformation, more medical professionals need to be involved on social media to spread correct and reliable information

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REFERENCES

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