

# Misinformed Promotion of the Ketogenic Diet: Twitter Content Review



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## Background

### The Ketogenic Diet

- “Keto” is a diet comprised of 70% of calories from fat, 10% carbs, and 20% protein<sup>1</sup>, originally designed for epilepsy control
- Popular for dieting, but unscientific in this use
  - Many potential side effects, from cardiac issues, weight gain, to disordered eating<sup>1</sup>
- Fad diets promise fast results, lack guidelines, are not sustainable, nutritionally inadequate, and lack evidence<sup>5</sup>
- Promoted by commercial interests
  - An entire market of get-skinny-fast programs and products<sup>4</sup>

### Diet Discussions on the Internet

- 36% of US adults have basic or less level of health literacy<sup>3</sup>
- 90% use unaccredited sources for health questions<sup>3</sup>
- 2 in 3 do not check for accuracy before acting<sup>2</sup>
- Social media like Twitter [now “X”] is an emerging tool for sharing health information<sup>2</sup>

## Purpose

The goal of this study is to characterize ketogenic diet discussions on Twitter, evaluate accuracy, and determine:

1. Do they differ between obesity levels?
2. Do they vary based on geographic regional level of obesity?

## Methods

**Study design:** content analysis

**Population:** 9 states, 3 each from highest, midpoint, and lowest obesity proportions

**Sample selection:** 25 top geotagged tweets from each location

**Data:** each tweet was scored on creator, post type, theme, and accuracy of content

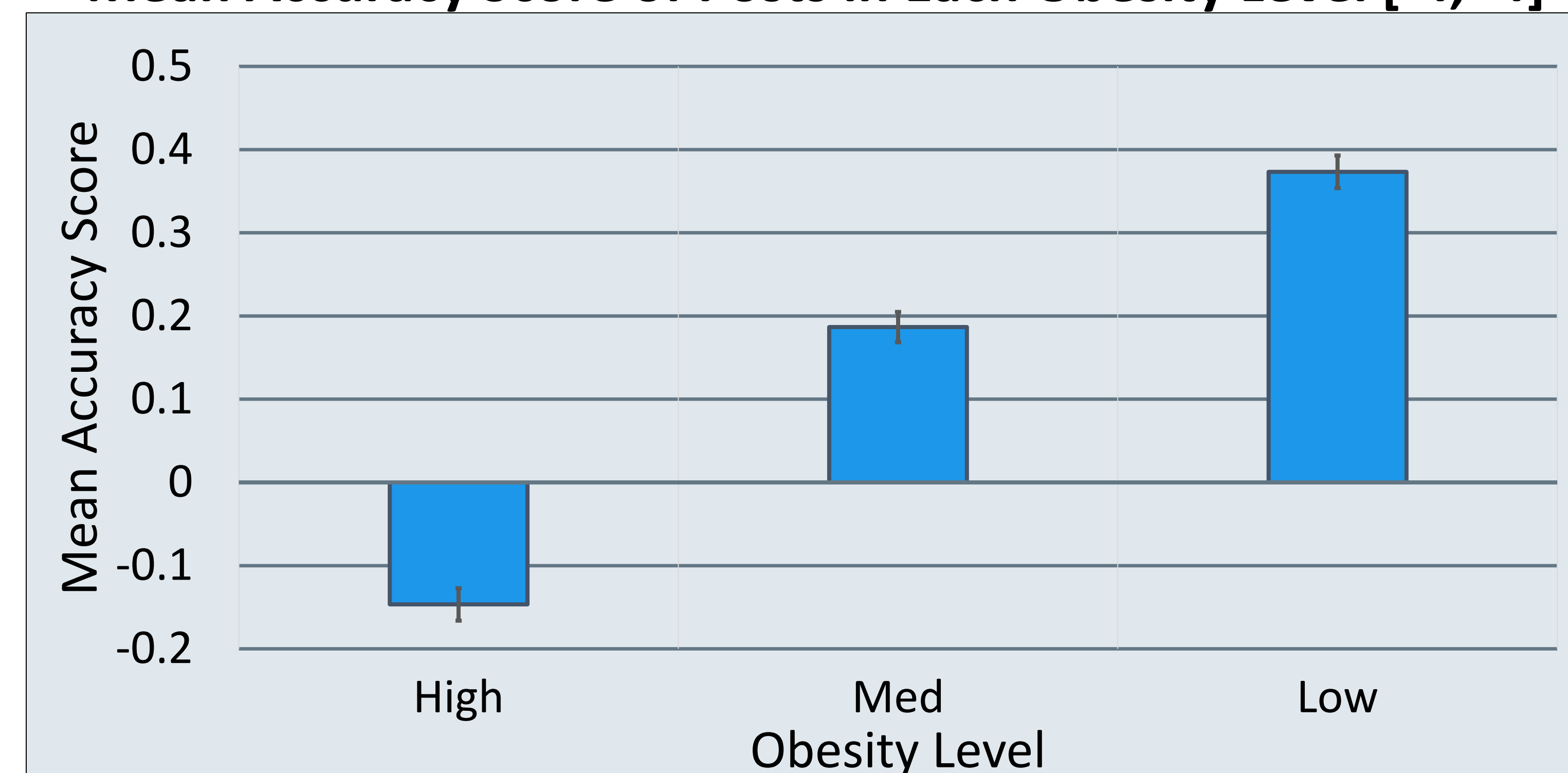
**Statistical test:** Chi-square test of independence, one-way ANOVA, one-way ANCOVA

## Figures and Tables

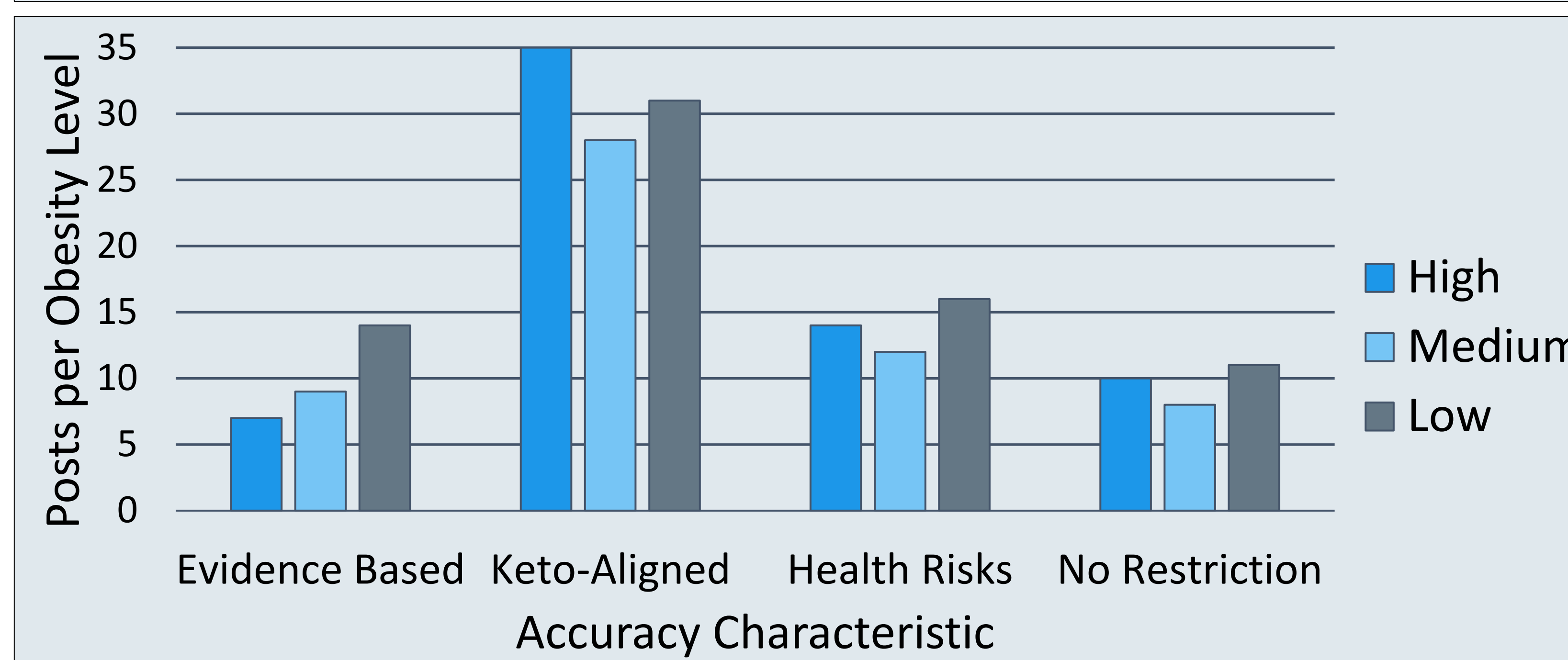
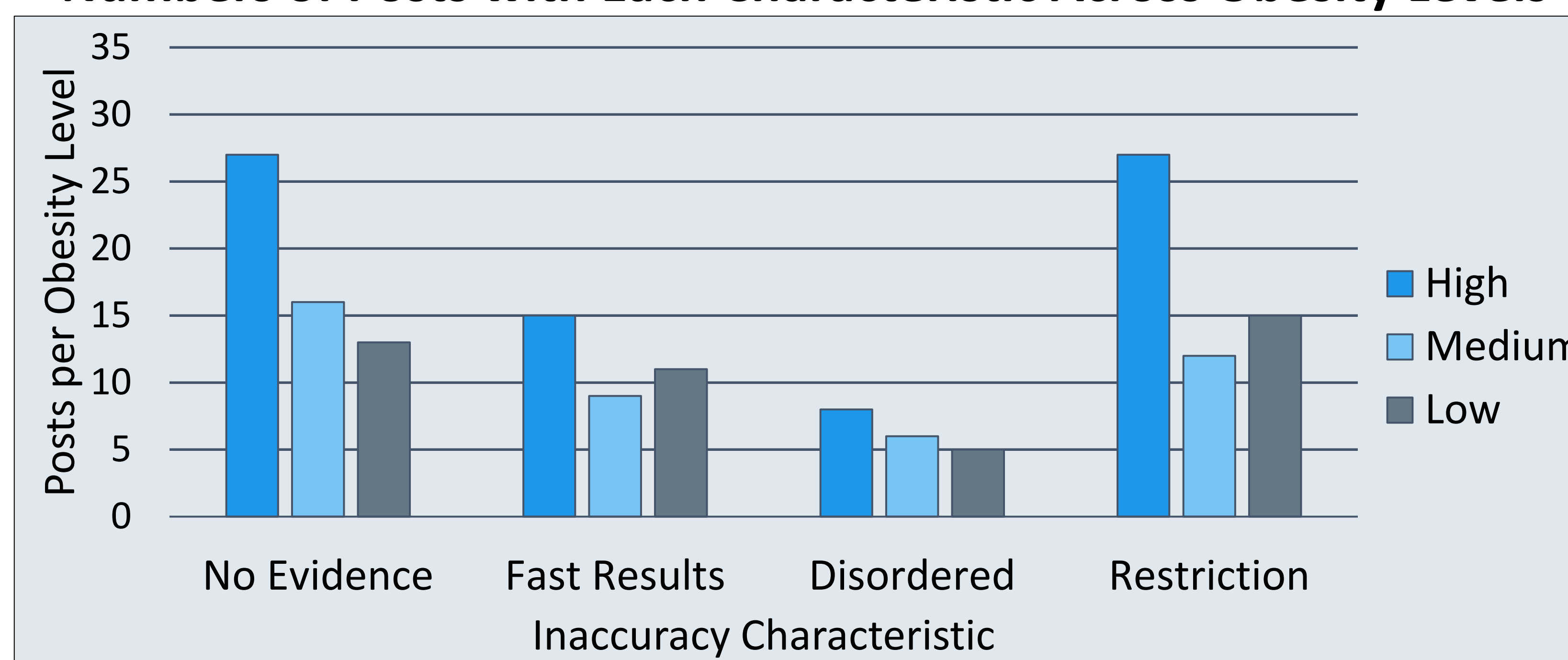
### Scorecard for Quantitative Analysis of Individual Tweets

Components	Categories	Accuracy Score	Traits
Creator	Expert	Inaccurate Traits (-1)	Opinion
	Influencer		Fast Results
	Commercial Consumer		Disordered Eating Restriction
Post Type	Food	Accurate Traits (+1)	Evidence-based
	Outcomes		Aligned with Keto
	Personal		Mentions Risks
	Promotion		Non-Restriction
Engagement	Testable Fact		
	Number of Likes		
	Number of Views		

### Mean Accuracy Score of Posts in Each Obesity Level [-4,+4]



### Numbers of Posts with Each Characteristic Across Obesity Levels



## Quantitative Results

### Between Obesity Levels

- Accuracy score for High obesity was significantly lower than the Low group ( $p = .031$ )
- Posts with the inaccuracy traits of “No Evidence” and “Restriction” were more likely to be in the high obesity category ( $p = .021$ ,  $p = .009$ )

### Controlling for Obesity Level

- Post and creator type were not associated with obesity level
- Post and creator type were significantly associated with accuracy score
  - “Experts” scored higher on accuracy ( $p = .004$ )
  - “Promotion” scored lower than “food” and “testable statement” ( $p = .046$ )

## Conclusions

- Conversations in the Twitter keto community give insight into misconceptions, beliefs, trends, and fad dieting behaviors
- Regions with high obesity levels are exposed to more inaccurate and harmful information
- Commercial promoters of keto products and those posing as nutritional experts share unresearched information to trusting consumers
- Information about ketogenic dieting accuracy can be used to target health campaigns and inform on regional dieting and obesity trends

## Acknowledgements

I would like to thank Dr. Suzanne Redington for guidance on this project. I would also like to thank the Arcadia University Department of Public Health for resources, and the HaMM Lab at Ursinus College for my background in the ketogenic diet.

## References

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