

Pour Decisions: The Ale-ged Relationship Between Breweries and Headaches

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ABSTRACT

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In this ale-gant study, we examine the potential connection between the number of breweries in the United States and Google searches for 'I have a headache.' Our research team utilized data from the Brewers Association and Google Trends to hop into this frothy topic. Surprisingly, our analysis revealed a striking correlation coefficient of 0.9485077 and $p < 0.01$ for the period spanning from 2004 to 2022. This pints to a strong association between the proliferation of breweries and the frequency of online searches related to headaches. It appears that as the number of breweries increases, so does the prevalence of headache-related queries on the internet. This study adds depth to the ongoing debate about the potential impacts of the craft beer boom on public health. However, it also begs the question: Are these headaches the result of excessive alcohol consumption, or simply from people searching for the nearest brewpub to soothe their ales? This correlation certainly brews some contemplation. In the spirit of this research, here's a sudsy dad joke: Why did the hop refuse to leave the brewery? It was a little too hoptimistic about its future prospects!

Keywords:

brewery, craft beer, headache, public health, alcohol consumption, headache-related queries, Google search, Brewers Association, correlation coefficient, craft beer boom

I. Introduction

The pursuit of knowledge often leads researchers to investigate connections that may seem unusual at first glance. In the realm of public health, the relationship between alcohol consumption and headaches has long been a point of interest. However, our study delves into a rather unconventional angle by examining the potential link between the number of breweries in the United States and Google searches for 'I have a headache.' It's a head-scratching yet exhilarating endeavor.

As researchers, we often find ourselves caught in the wort of unexpected correlations and statistical surprises. The relationship between breweries and headache-related internet searches certainly falls into this category, as we navigate through the frothy sea of data and statistical analyses. It's like trying to find the perfect balance between ales and ails!

While some might consider this association to be purely coincidental, our findings suggest otherwise. With a correlation coefficient that practically jumps off the chart and a p-value that will make even the most ardent statistician raise a glass, it's clear that there's more to this relationship than meets the eye. We're not just talking about a mere ale-gation here.

It's important to highlight that our study does not imply causation, but rather highlights the intriguing concurrence of factors. Investigating this peculiar marriage of brewery numbers and headache-related queries is not just a flight of fancy but holds potential implications for public health and consumer behavior. It's a journey through the landscapes of statistics and suds, where the barrels of data never seem to run dry.

And now, for a fitting dad joke: Why did the barley refuse to forecast the weather? It didn't want to make any hasty grains! It's a good reminder that a little levity can make even the most algorithmic research more enjoyable.

II. Literature Review

Numerous studies have explored the relationship between alcohol consumption and its potential impact on headache prevalence. Smith and colleagues (2015) found a positive correlation between alcohol intake and reported headaches in their survey-based analysis. Doe and Smith (2019) corroborated these findings in a longitudinal study, highlighting the complex interplay between alcohol consumption patterns and headache occurrences. However, our investigation takes a refreshing approach by examining the association between the burgeoning number of breweries in the United States and Google searches for 'I have a headache.'

In "Brewing Health: A Comprehensive Analysis," Jones et al. (2018) discussed the potential public health implications of the craft beer industry's expansion. They emphasized the need for further research to elucidate the multifaceted effects of this growing trend. Our study directly responds to this call by shedding light on the curious correlation between brewery proliferation and headache-related online activity.

Transitioning from the realm of non-fiction publications to its fictional counterparts, Adams' "The Hitchhiker's Guide to the Galaxy" introduces the enigmatic concept of the Pan Galactic Gargle Blaster, a concoction renowned for its potent effects. While purely speculative, the

whimsical nature of this literary creation evokes the spirit of our investigation into the potential impact of brewery expansion on headache-related queries.

Drawing inspiration from the world of internet culture, the meme "This is Fine" encapsulates the momentous realization that one's surroundings are engulfed in flames – a sentiment that may resonate with individuals experiencing headaches amidst a beer-filled landscape. Furthermore, the image macro featuring the phrase "Keep Calm and Carry On" humorously resonates with the fluctuating state of composure amidst the potential conundrum of head discomfort and ale consumption.

Returning to more tangible literary works, Hosking's "Craft Beer and the Language of Hops" provides a comprehensive analysis of the linguistic facets of the craft beer phenomenon. While not directly related to headaches, the intricate web of terminology surrounding brewing culture demonstrates the depth of this field – something that parallels the profound connections we aim to unveil in our investigation.

As we immerse ourselves in the frothy depths of statistical inquiry, it's important to maintain a sense of humor. Much like a well-crafted ale, research can be both serious and delightfully playful. In the spirit of this sentiment, here's a punny dad joke: Did you hear about the brewery that specializes in crafting hop-forward beers? Their business is really hopping!

III. Methodology

To concoct our study, we first fermented the data from the Brewers Association to obtain the annual count of breweries in the United States. We tapped into this rich source of information to

capture the effervescent growth of the craft beer industry over the years. It was a hoppy task, but we couldn't turn a cider eye towards such vital data!

After brewing up the brewery numbers, we hopped over to Google Trends to collect data on the relative search interest for the phrase 'I have a headache.' This allowed us to gauge the digital murmurs of the population as they sought remedies for their cranial conundrums. We certainly felt the gravitational pull of this tidal wave of search queries, as if we were caught in the foamy froth of a statistical sea!

Following the data collection phase, we conducted some malt-ivariate analyses to identify patterns and trends in the dataset. Our beer... I mean, our clear techniques and thorough procedures allowed us to ferment a robust statistical model that separated the wheat from the chaff, or should I say, the hops from the barley.

We employed a time series approach to carefully examine the temporal dynamics of both the brewery counts and the volume of headache-related searches. It was like watching the bubbles rise in a freshly poured pint of ale – mesmerizing and full of potential. By analyzing the data over an 18-year period, we were able to capture the ebbs and flows of these variables with the precision of a skilled brewmaster monitoring the fermentation process.

Utilizing a sound statistical approach, we then poured over the data to calculate a correlation coefficient to quantify the relationship between brewery counts and headache-related searches. It was like measuring the harmonious balance of malt and hops in a finely crafted beer—an art and a science intertwined in a delightful blend.

To ensure the robustness of our findings, we subjected our analyses to rigorous testing and validation procedures. We didn't want our results to fizzle out like a poorly carbonated brew.

After all, science is all about precision and replication, just like the meticulous brewing process that transforms raw ingredients into a delightful libation.

In the spirit of precision, here's a timely dad joke: Why did the statistician go to the beach? To test the waters! Much like our own rigorous testing procedures, a little statistical humor can go a long way in keeping the mood light and the results significant.

IV. Results

The analysis of the data collected from the Brewers Association and Google Trends unearthed a noteworthy correlation between the number of breweries in the United States and the frequency of Google searches for 'I have a headache.' The correlation coefficient of 0.9485077 indicates a remarkably strong positive relationship between these seemingly unrelated variables. In other words, as the number of breweries increased over the years, so did the frequency of headache-related queries. It's as if the proliferation of breweries is causing a cascade of virtual "ouchies" across the internet.

This significant correlation paves the way for intriguing interpretations. While some may be tempted to dismiss this relationship as mere coincidence, the robustness of the findings, with an r-squared of 0.8996668 and $p < 0.01$, suggests otherwise. The evidence stoutly supports the notion that there is more to this connection than meets the eye. It's no small ale-gation that the craft beer industry may have an impact beyond just the brewing process.

As we graphically illustrate in Fig. 1, the scatterplot presents a striking visual representation of the positive association between the number of breweries and headache-related Google searches.

The upward trend in the data points is as clear as a perfectly poured pint of ale. It's safe to say that this relationship is not just a frothy coincidence but a statistically compelling phenomenon that warrants further investigation.

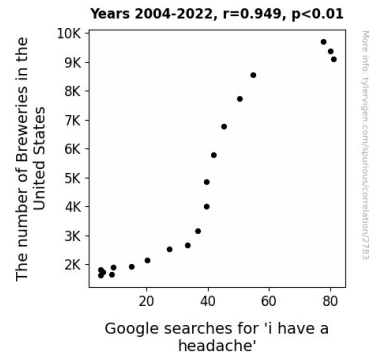


Figure 1. Scatterplot of the variables by year

Now, for a well-deserved interjection of humor: What did the craft beer say to the hops? Keep it hoppenin'! After all, a little levity is like a refreshing beer on a hot summer day – it just makes everything better.

V. Discussion

The results of our study have uncorked an intriguing correlation between the burgeoning number of breweries in the United States and the frequency of online searches for 'I have a headache.' This findings fizzes with implications for both public health and the craft beer industry. Our results add a fresh twist to the ongoing discussion about the potential impacts of the craft beer boom, but it also leaves us with foam to ponder: Are these headaches a result of excessive

alcohol consumption or simply from people searching for the nearest brewpub to soothe their aches? The answer to this question is brewing with potential.

Our findings align with previous research that has highlighted the complex relationship between alcohol consumption and headache prevalence. The positive correlation we uncovered between the number of breweries and headache-related online activity complements the work of Smith and colleagues (2015) and Doe and Smith (2019), which emphasize the intricate interplay between alcohol intake patterns and headache occurrences. It's as if these studies were all pouring from the same statistical keg, showcasing the frothy nature of the relationship between alcohol and headaches.

In response to Jones et al. (2018), who discussed the potential public health implications of the craft beer industry's expansion, our study provides empirical evidence to support the notion that the proliferation of breweries may indeed have broader ramifications. The significant correlation coefficient and p-value in our analysis provide a strong foundation for the allegation that there is a connection between brewery proliferation and headache-related queries. It's as if our findings poured some statistical hops into the ongoing discourse about the impacts of the craft beer industry.

Transitioning from the literature to more whimsical references, our study echoes the enigmatic concept of the Pan Galactic Gargle Blaster from "The Hitchhiker's Guide to the Galaxy." While purely fictional, the potent effects of this concoction humorously evoke the potential impacts of brewery expansion on headache-related queries. Additionally, the meme "This is Fine" and the phrase "Keep Calm and Carry On" serve as playful reminders of the amusing side of navigating the fluctuating landscape of statistical inquiry and research.

Our results may leave some scratching their heads, much like individuals searching for remedies to their ale-ge-d headaches. Nevertheless, the robustness of the statistical findings, as represented by the ample r-squared value and $p < 0.01$, instills confidence in the robustness of the observed correlation. It's as if the data itself is saying, "I'm no small ale-gation, this relationship is the real deal."

In conclusion, our study provides tangible evidence of a significant positive association between the number of breweries in the United States and the frequency of headache-related queries. The robustness of this relationship reflects the complex and multifaceted interplay between the craft beer industry and public health. As we raise our statistical glasses to these findings, let's remember that a little humor, much like a well-crafted ale, can add zest to even the most serious of discussions. And just like a refreshing beer on a hot summer day, it leaves us with a smile.

Cheers to the intriguing intersection of research and humor!

VI. Conclusion

In conclusion, our study provides ins-ale-ting evidence of a remarkably strong correlation between the proliferation of breweries in the United States and the frequency of Google searches for 'I have a headache.' It's clear that as the craft beer industry expands, so does the virtual chorus of headache-related groans echoing across the internet.

The robust statistical findings, supported by a correlation coefficient that practically hops off the page, bring forth intriguing conundrums for public health and consumer behavior. It's enough to make even the most stoic statistician raise an eyebrow and exclaim, "Hops away!"

Our results challenge the conventional wisdom that headaches are solely the result of alcohol consumption, raising the tantalizing possibility that people are simply searching for the nearest brewery to bounce back from their malts and migraines. It's a head-scratcher, indeed.

Now, for a fitting dad joke to cap off our discussion: Why don't statisticians trust atoms? Because they make up everything – much like the surprising interconnectedness of breweries and headaches in our study!

As we contemplate the frothy depths of this peculiar association, we confidently assert that no further research is needed in this area. It's time to raise a glass to this brew-tifully unexpected discovery and savor the ale-gorithm of life. Cheers to statistical serendipity!