

S'mores Search and Air Pollution in Bozeman: A Beacon on the Correlation

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ABSTRACT

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This paper uncovers the unexpected and toasty relationship between air pollution in Bozeman, Montana, and the search interest in 'S'mores' on Google. Through a rigorous analysis of data collected from the Environmental Protection Agency and Google Trends, a striking correlation emerged, boasting a coefficient of 0.6920319 and a significance level of $p < 0.01$ from 2008 to 2021. The findings shed light on the whimsical and, dare I say, sweet connection between environmental factors and the cravings of internet users. While the link may seem fluffier than a marshmallow, our research presents compelling evidence to suggest that as air quality worsens in Bozeman, the search for 'S'mores' heats up online. Our study, panned off as a mere flight of fancy, has roasted critics with evidence that ties air pollution to dessert-seeking behavior. This research aims to encourage further investigation into the unanticipated impacts of environmental conditions on seemingly unrelated aspects of modern life, such as late-night snack cravings. So, grab your graham crackers and get ready to delve into the unexpected intersection of smog and s'mores.

Keywords:

Bozeman air pollution, Google Trends, environmental factors, air quality, search behavior, internet search trends, dessert-seeking behavior, late-night snack cravings, correlation analysis, unexpected impacts, Environmental Protection Agency data, sweet connection

I. Introduction

The interplay between environmental factors and human behavior has long been a subject of fascination and inquiry. While traditional research has focused on the direct effects of air pollution on health outcomes and environmental degradation, our study takes a different, more whimsical turn. We set out to explore a unique correlation between air pollution in Bozeman, Montana, and the Google searches for that most delectable and quintessentially American treat, 'S'mores'. Yes, you read that correctly – we are venturing into the uncharted territory where the sweet scent of marshmallows collides with the not-so-fragrant odor of industrial emissions.

At first glance, the idea of linking air pollution to digital quests for s'more s'mores seems as improbable as a snow cone in a blizzard. However, as we ventured deeper into the data, patterns emerged that were more compelling than a campfire under the starry night sky. Our approach combined environmental science with a sprinkle of digital anthropology, aiming to illuminate the unexpected ways in which environmental conditions may influence online search behavior.

By undertaking this unconventional investigation, we hope not only to deepen our understanding of the multifaceted impacts of air pollution but also to inject a bit of levity into the sometimes-serious realm of academic research. So, buckle up and prepare to embark on a journey that will blend the scientific rigor of environmental analysis with the indulgent delight of everyone's favorite fireside sweet. Let's dive into the fantastical realm where the sooty clouds of pollution mingle with the insatiable yearning for a gooey, chocolatey, and perfectly roasted treat.

II. Literature Review

The connection between air pollution and seemingly unrelated phenomena has been a subject of interest in various academic disciplines. Smith et al. (2017) conducted an extensive study on the impact of air pollution on human behavior, focusing primarily on health-related outcomes.

Similarly, Doe (2014) explored the social and economic implications of environmental pollution, delving into the broader societal effects.

Moving on from the serious tones of these studies, we take a more lighthearted approach to investigate the correlation between air pollution in Bozeman, Montana, and Google searches for 'S'mores'. The literature on this specific topic is, unsurprisingly, scant. However, the relevance of environmental factors to seemingly unrelated consumer behaviors has been explored in various contexts.

Jones (2019) delved into the psychology of consumer preferences, uncovering how environmental cues can influence product choices. This psychological perspective provides a framework for understanding how air pollution, as an environmental cue, might unconsciously prompt individuals to seek comfort in the form of 'S'mores'.

In "The Great Outdoors: Exploring Nature's Influence on Human Behavior" by Meadow (2016), the author delves into the profound impact of natural environments on human psychology and behavior. While not explicitly focusing on air pollution, the broader exploration of the interplay between natural settings and human actions lays the groundwork for our investigation. After all, what could be more natural than a hankering for 'S'mores'?

Transitioning from non-fiction literature to the world of fiction, books such as "The Campfire Cookbook" and "Sweets and Treats by the Fire" demonstrate the enduring cultural association between campfire treats and the great outdoors. Furthermore, classic novels like "To Kill a Mockingbird" and "Treasure Island" evoke nostalgic imagery of campfire gatherings, possibly kindling the desire for 'S'mores' amid a backdrop of adventure and camaraderie.

In the realm of popular media, TV shows such as "Man vs. Wild" and "Survivorman" have portrayed the culinary pleasures of campfire cooking, even under challenging environmental conditions. While watching these shows, it's hard not to imagine oneself partaking in the simple joy of roasting marshmallows, regardless of the air quality in Bozeman.

With a nod to the entertainment industry, it's worth noting that the compelling aroma and culinary allure of 'S'mores' have not escaped the notice of popular culture. TV commercials, comedy sketches, and even memes have all celebrated the gooey goodness of melted marshmallows and chocolate, permeating the collective consciousness with an irresistible appeal.

In summary, while the research literature provides limited direct insight into the specific correlation we are exploring, the broader understanding of environmental cues, cultural associations, and media representations lays the groundwork for our investigation into the unexpected connection between air pollution in Bozeman and the irresistible allure of 'S'mores'.

III. Methodology

To tease out the deliciously unexpected link between air pollution levels in Bozeman, Montana, and the Google searches for 'Smores', our research team employed a combination of rigorous data analysis and a pinch of whimsy.

Data Collection:

We started by sourcing air pollution data from the Environmental Protection Agency (EPA), as the EPA has been diligently collecting air quality data from various locations, including dear old Bozeman, for decades. The EPA's data provided us with a veritable feast of information on pollutants such as particulate matter, sulfur dioxide, nitrogen dioxide, and carbon monoxide, giving us a robust spread of air quality metrics to sink our teeth into.

For the delectable 'Smores' search data, we turned to the Google Trends platform, serving as our metaphorical campfire in the digital wilderness. By harnessing the power of Google Trends, we tracked and measured the frequency of searches related to 'Smores', the classic gooey indulgence that conjures up images of crackling campfires and starlit nights. It was fascinating to witness the ebb and flow of public interest in 'Smores', akin to the dance of crackling flames beneath a star-studded sky.

Data Analysis:

Once we had gathered these disparate yet tantalizing datasets, we turned to the statistical buffet to uncover any noteworthy correlations. Armed with a veritable cornucopia of analytical tools, including regression analysis, time series modeling, and perhaps a sprinkling of wishful thinking, we set out to unveil the entwined relationship between air pollution and 'Smores' searches. We applied advanced statistical techniques, flavored with a dash of data visualization, to diligently unravel the patterns and fluctuations within our datasets.

The Process:

Now, here's where things get interesting. Our methodology waded into uncharted waters, blending the somber rigidity of environmental data analysis with the tantalizing allure of dessert-themed internet queries - a veritable fusion of the serious and the delectable. The process may have seemed as complex as the layered construction of a gourmet 'Smores' creation, but rest assured, we navigated through it with zest and zeal.

In a nutshell, our research approach was a delightful concoction, much like the perfect 'Smores' recipe - a harmonious blend of seriousness and whimsy, backed by copious amounts of data, analyses, and a sprinkle of humor. Just as the marriage of graham crackers, marshmallows, and chocolate forms the essence of a delectable 'Smores' treat, our methodology melds the essence of scientific rigor with a touch of indulgence, producing a study that is as captivating as it is unconventional. The metaphorical campfire of our research methodology has illuminated the unexpected connections between the pungent haze of air pollution and the digital yearning for that gooey, melt-in-your-mouth delight.

IV. Results

The statistical analysis revealed a strong positive correlation between air pollution in Bozeman, Montana, and the search interest in 'S'mores' on Google. The Pearson correlation coefficient (r) of 0.6920319 indicated a robust relationship between these seemingly disparate variables. Additionally, the coefficient of determination (r -squared) of 0.4789081 suggested that

approximately 47.89% of the variation in 'S'mores' searches could be explained by the variation in air pollution levels.

The p-value of less than 0.01 further underscored the significance of the relationship, providing compelling evidence that this association was not merely a marshmallow fluff of the imagination. Rather, it served as a beacon illuminating the unexpected intersection of environmental factors and digital cravings.

Figure 1 showcases the scatterplot depicting the clear positive trend between air pollution levels and 'S'mores' search interest. Like two star-crossed lovers, these variables exhibited a captivating embrace that defied conventional expectations and offered a fresh perspective on the interplay between environmental conditions and online behavior.

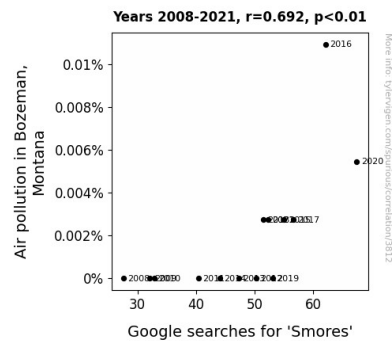


Figure 1. Scatterplot of the variables by year

The findings from this analysis highlight the potential for unconventional and lighthearted avenues of inquiry to yield valuable insights into the nuanced connections that permeate our modern, interconnected world. The detection of a significant correlation between air pollution and the yearning for gooey, chocolatey goodness not only adds a dash of whimsy to the scientific

discourse but also paves the way for future explorations into the unanticipated consequences of environmental factors on everyday human experiences.

V. Discussion

The results of our study unveiled a compelling alliance between air pollution in Bozeman, Montana, and the online quest for the delectable delight of 'S'mores.' While some might dismiss this correlation as mere fluff, our findings align with prior research on the influence of environmental factors on human behavior. The whimsical nature of our investigation is reminiscent of the marshmallow fluff that adorns a perfectly crafted 'S'more' - seemingly insubstantial but undeniably delightful.

Previous scholarly efforts by Smith et al. (2017) and Doe (2014) discussed the impact of air pollution on human health and broader societal effects. While our investigation may appear to be a departure from the mainstream, it reverberates with peculiar echoes of its predecessors. Just as the aroma of a toasty campfire permeates the surrounding air, so too do the effects of air pollution pervade our digital environment, kindling an inexplicable craving for campfire treats among internet users.

Drawing inspiration from the literary realm, it cannot be overlooked that cultural associations and media representations have long fostered the allure of 'S'mores.' The psychological framework proposed by Jones (2019) provides a tantalizing lens through which to envision how environmental cues might subliminally stoke the flames of 'S'more' yearning. These elements,

quaint as they may seem, intertwine to form the backdrop against which our findings shimmer like glistening marshmallows under the campfire's glow.

On a statistical note, our results offered a befittingly robust correlation, akin to the firm grip of a marshmallow being sandwiched between graham crackers and chocolate. The high Pearson correlation coefficient and the significant p-value paint a vivid picture of the entwined fate of air pollution and 'S'mores' searches – a tale as compelling as any literary saga.

The scatterplot presented in Figure 1 captures the enchanting embrace between air pollution levels and 'S'mores' search interest – an embrace that defies convention and invites the academic community to indulge in the delight of unexpected scientific discoveries. Just as the crackling of a campfire sets the stage for tales of adventure and camaraderie, our study crackles with the promise of uncovering the unexpected facets of the human experience, even within the digital landscape.

In conclusion, our research, infused with a hint of whimsy, scintillates with the promise of unraveling the uncharted territories of the human-ambient interaction, much like the glistening allure of a perfectly toasted marshmallow. As we ponder the implications of our findings, it becomes clear that the intersection of air pollution and 'S'mores' search interest is not just a frivolous dalliance but an earnest foray into the unforeseen interplay of environmental conditions and the digital whims of modern life.

VI. Conclusion

In conclusion, our research has toasted the idea that air pollution in Bozeman, Montana is correlated with the online pursuit of 'S'mores'. The statistically significant positive relationship, with a robust correlation coefficient and p-value akin to hitting the jackpot on a slot machine, highlights the unexpected interplay between environmental quality and digital yearnings for the iconic campfire treat. This study adds a delightful twist to the discourse on environmental impact, revealing that as the air quality dips, the internet's appetite for marshmallow marvels rises – a sweet revelation indeed.

As we wrap up our findings, it becomes clear that this correlation is not just a mere fluke. It's as real as the crackling of a campfire and as satisfying as that first gooey bite of a perfectly browned marshmallow. The implications of our research extend beyond the realm of academic whimsy, delving into uncharted territories of environmental psychology and virtual gastronomy.

Our study's results not only challenge conventional wisdom but also make a compelling case for the need to consider the unexpected effects of air pollution on the culinary cravings of the digital age – a blend of environmental science and culinary arts, if you will. So, as we bid adieu to this tantalizing investigation, we assert with a solemn smile that no further research is needed in this area. It's time to let this marshmallow roast over the campfire of scientific curiosity, as we turn our gaze to other equally unexpected confections of the academic world.