Group 3 - Perceptions and Realities of Coffee Consumption and Health

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**Topic:** Coffee: A Comparison of Perceptions versus Health Impacts of Coffee Consumption

**Proposal:** We will be researching articles and information on coffee and its effects on health. After conducting our preliminary research, we will proceed by surveying students on their knowledge about the health benefits of coffee. Following the conclusion of our research, we plan to compare the information gleaned from our research to the perceptions of SUNY Geneseo students, revealing the extent of their knowledge.

The librarian who helped us research was Tom Ottaviano.

**Abstract:**

Many people have stereotypes about certain topics that aren't necessarily correct. Many people consider coffee to be unhealthy, an idea that is sending Americans into a caffeine addicted frenzy. Though many people are addicted to coffee, scientific studies and surveys prove that coffee is not as detrimental to health as it is perceived by the American public. For example, our ethnographic research of college students in Geneseo showed that many people believe coffee can cause cardiovascular issues and other physical health problems. Most of the time when asked about physical health issues related to coffee, many people answered 'I don't know,' or 'maybe.' This shows how uneducated the public truly is about coffee consumption. In reality, studies have proven that coffee can lower risk of type two diabetes, and even improve health in older women. Our research indicates that media may have more influence on the public perception of coffee than scientific research, because people's views on coffee and health tend be more congruent with media views.

Only a couple scientific studies matched up with the results of our survey. One example was the issue of coffee and increasing anxiety, which many students linked to the caffeine in the coffee. Another study indicated that genetics has a strong impact on how much coffee a person drinks, which was proven in our survey question about the amount of coffee the respondent's parents drink.

In conclusion, the public's perceptions and the actual facts about coffee are quite different, and should be cleared up by the promotion of studies about coffee becoming more public and common knowledge.

**Introduction to Research:**

Coffee is a staple item today in America. Many people feel as if they can't even function without their morning cup of coffee or latte or espresso. People have become so dependent on coffee's effects that they have concluded that coffee must be unhealthy. Contrary to this widely held belief, there are many studies that prove this stereotype is untrue. In fact, some scientific studies have suggested that coffee can improve physical health.

The survey we created asked respondents questions concerning the public's perception of coffee. We chose people that were seen at places connected with coffee in order to acquire information by people who actually drink it. Most of the answers did not line up with the scientific research we procured, the only two remotely close being coffee increasing anxiety and coffee drinking correlating with genetics. Most of the responses had a high correlation with media influence, proving that the public's perceptions of coffee are different than the suggested scientific health benefits.

**Ethnographic Methods:**

To gain perceptions of coffee to compare to the information gathered from our research, we read an article on the popular perceptions of coffee and conducted a survey to learn the views of SUNY Geneseo students about coffee consumption.

In order to gain a point of reference into popular culture perspectives on the impacts of coffee on health we looked at several news articles discussing various claims about coffee. One article recently published in the Los Angeles Times (Coris 2011) suggested that drinking coffee regularly might be beneficial for the cardiovascular system and prevent strokes. Another news source (Tarkin 2012) claimed that drinking the beverage might reduce risks of skin cancer. The Fox News article research conducted at the Ernest Mario School of Pharmacy at Rutgers University School of pharmacy that rats given caffeine while exposed to ultra violet light had reduced cancer rates and the conclusion of the 14-week study. These non-peer reviewed news media sources provided a bit of insight into some of the beliefs that students responding to the survey may have. It is also interesting to compare the information from news sources to the results of studies published in peer-reviewed journals.

To conduct our survey, each member of our group surveyed coffee drinkers at one of the two main places that sell coffee drinks on campus. Specifically, two members gave surveys to people at Starbucks in the student Union, while the other two distributed surveys at Books and Bites, the café and coffee shop in Milne Library. We felt that surveying two different locations we could get a wider variety of respondents. Furthermore, at each location we distributed surveys at two different times of the day. One group member went to Starbucks in the morning, while one went to Books & Bites, then in the afternoon, the two other people each went to a location and gave out more surveys. Additionally, we decided that each member should survey between 15 and 20 people to get about the same number from each location in both the morning and the afternoon.

Another variable of the survey we considered was gender distribution, each person tried to get about the same number of male and female participants so the results would be as unbiased in terms of gender. Additionally, we asked participants if they had already been surveyed. By verifying prior participation, we prevented unintentionally duplicated answers, which could skew our data, especially with a survey the size of ours.

In our survey, we asked initial questions to gauge gender, age, and level in college. In addition, we included questions inquiring about participants' daily coffee consumptive habits as well as their parents' to ascertain if a correlation may exist between parents who drink coffee and their children's consumptive habits.

**Results of Ethnographic Research:**
Our group surveyed 76 Geneseo students, 37 male and 39 female, about their perceptions of the impact of drinking coffee on health. Though we were not comparing male versus female perceptions, we did try to get a balance view of Geneseo students’ perceptions of coffee, so we tried to interview approximately the same number of each gender. The ages of participants ranged from 18 to 28, but the majority of students interviewed were between 18 and 21 (Appendix A). Furthermore, we tried to get information from each class year at Geneseo, and ended up with an approximately equal number of participants from each year (Appendix A).

In our survey we then asked students how much coffee they consume in the average day. We found that 48 students drank 1-3 cups, 23 students drank 4-7 cups, and 5 students drank 8 to 10 cups per day. After establishing this baseline of data, we asked questions about to what extent the participants felt reliant on coffee to stay awake: 33 said they felt reliant on coffee, 37 said they did not, and 5 were not sure. However, when asked if they felt addicted to coffee, only 29 said yes, while 42 replied no, and the same 5 remained unsure. The majority of people 63%, said that they drank other caffeinated beverages along with coffee, including tea (33), soda (37) and energy drinks (18). 20 participants said they did not drink other caffeinated beverages, but 8 were not sure. When asked why they drank coffee, 65 said to stay awake, 3 said for health reasons, and 8 were not sure.

Next we focused on more general perceptions of students’ opinions regarding coffee’s correlation to health. When asked if they believed that coffee had health implications (positive or negative was not here specified), 34 said yes, 24 said no, and 18 were not sure. What does this suggest? When asked if finding out that drinking coffee was harmful to health would they change their consumptive habits, 13 said yes, 40 replied no, and another 23 were not sure. Of those who replied yes/maybe to the previous question, 8 said they would stop drinking completely and 28 would reduce consumption.

We then asked more specific questions, such as “do you believe drinking coffee lowers the risk of type 2 diabetes?” (yes:9, no:54, maybe:6 I don’t know:7) People responded similarly when asked if they thought adding cream to your coffee would decrease the risk of type 2 diabetes, with the majority believing adding cream would not reduce your risk. (yes:5, no:58, maybe:8, I don’t know:5) 33 individuals believed there was a correlation between drinking coffee and high blood pressure, 11 said there was not, 24 said maybe, and 8 were not sure. When asked if they believed people who drank over 6 cups of coffee were at greater risk for suicide, 16 said yes, 28 no, 17 maybe and 15 I don’t know. Only 3 participants believed that drinking coffee could increase their risk of liver disease, while 39 said no, 21 said maybe and 13 were not sure. Furthermore we inquired how often the participants’ parents drank coffee: 34 once a day, 23 multiple times a day, 10 a few times a week and 9 rarely. Lastly, participants responded to what kind of coffee they drank: 40 regular coffee, 24 espresso, 42 latte, 7 decaf, 35 cappuccino and 6 other.

Scientific Perspective:

The results of our survey suggest that the majority of Geneseo students perceive drinking coffee as unhealthy. In all health related questions, significantly more people answered that coffee would lead to deteriorating health. In the scholarly and peer reviewed articles we found on coffee, however, we found an overwhelming amount of research attesting to the health benefits of coffee consumption and only a few discussing coffee as a health detriment.

Specifically two sources, the 2007 article, “Possible Beneficial Effects of Coffee on Liver Disease and Function” by I.S. H. Cadden, and Yoshida E. M. Partovi, and the 2006 article, “Is Coffee a functional food?” by Do’rea Jose’ Gand and, Teresa Helena M da Costa suggesting that higher rates of coffee consumption lead to lower risk rates of liver disease. Furthermore, multiple studies have been done showing that an inverse relationship exists between coffee consumption and liver cirrhosis. Despite the scientific evidence, when our survey asked if coffee consumption could lower risk of liver disease, only 3 participants out of 80 felt that this could be a possibility.

The trend continues with our research and survey results about type 2 diabetes. Again, two sources were found connecting coffee consumption to diabetes, specifically, “Does Coffee Consumption reduce risk of Type 2 Diabetes in Individuals With Impaired Glucose?” and “Methylglyoxal in Drinking Coffee as a Cytotoxic Factor.” The first source concludes that drinking coffee leads to lower instances of type 2 diabetes while the second suggests that adding cream to coffee also decreases risk of type 2 diabetes. Two questions were asked about diabetes, one corresponding to the information we gleaned from our research, and the majority of survey participants answered that they believed that the risk of type two diabetes would not be decreased by increased coffee consumption or by adding cream.

Another one of our sources, “Heavy Coffee Drinking and the Risk of Suicide,” found that the caffeine in coffee correlates to increased anxiety and that high levels of coffee consumption even leads to increased rates of suicide. This was the set of questions that survey participants answered closest to correctly. When asked if there is a correlation between coffee and anxiety, 33 said yes, and when asked if coffee consumption leads to increases risk of suicide, more respondents said no than yes, but only by a small margin.

One source, “Genetics of Coffee Consumption and It’s Stability,” detailed the results of a study suggesting that amount of coffee consumption is largely genetic. We investigated student perspectives in our survey by asking participants how often their parents consume coffee. 57 participants said their parents drink coffee at least once a day while only 9 said their parents drink coffee rarely. As all our participants are coffee drinkers, this information supports the idea that coffee consumption is perhaps partially genetic, or a trait learned from one’s parents.

Other sources included information on coffee leading to decreased instances of MRSA, increased cognitive function, lower rates of ovarian cancer, decreased risk of coronary heart disease, and increased flow mediated dilation. We could not put questions about all of these topics in our survey so we chose the best supported, most relevant, and diverse topics on which to question participants.

Conclusion:

Our research has indicated that the perceptions of Geneseo students concerning the health impacts of coffee do not correlate with the scientific evidence we discovered. Generally our research demonstrated that coffee has positive health effects, while students generally perceived coffee having negative health impacts.

Scholarly and Peer-Reviewed References Cited:

Arab, Lenore, Mary L. Biggs, Ellen S. O’Meara, W.T. Longstreth, Paul K. Crane, Annette L. Fitzpatrick
This study follows 4,809 people over age 65 and assesses the correlation between coffee/tea consumption and cognitive decline in men and women. It found that although no specific quantity specifications could be determined, women who consumed caffeine appeared to have decreased rates of cognitive decline as they aged. Although a correlation existed in women, none however existed in the results pertaining to men. This article relates to our topic because it reveals yet another potential benefit of coffee consumption, about which average coffee consumers may not consider or have knowledge.

Buscemi, S., Batsis, J.A., Arcoleo, G., Verga, S.


Coffee and endothelial function: a battle between caffeine and antioxidants? describes a study in which caffeinated and decaffeinated coffee are compared to determine whether caffeine or antioxidants are responsible for increases flow mediated dilation (FMD). The study concluded that caffeine is responsible for negative health aspects of coffee, not increased FMD, as decaffeinated coffee showed nearly as much increase in FMD as caffeinated, suggesting that the likely cause for this is antioxidants, found in high levels in both caffeinated and decaffeinated coffee.

Butt, Masood Sadiq, Sultan Tauseef M


This article found that coffee does in fact improve cognitive functions. Coffee also has detoxifying enzymes that are good for the body’s cell functions. This article also addresses the conflicting information that the public receives about the health effects of coffee, but states that its findings and experiments were overwhelmingly positive.

Cadden, I.S.H., Partovi, N., Yoshida E.M


This article takes a critical view on scientific literature concerning the health risks and benefits of drinking coffee. The study finds that most published information concerning coffee as a health risk was controversial and not fully substantiated. What they found instead was a lot of good evidence that men and women drinking more than five cups of coffee daily had a decreased risk of liver cirrhosis, especially due to heavy alcohol consumption, as well as a decreased risk of liver inflammation.

Campos H., and A. Baylin


This study suggests coffee’s effects may be detrimental or beneficial to an individual based on his or her genetics.

Do´rea Jose´ Gand, da Costa, Teresa Helena M


This article discusses whether coffee is a Functional Food, meaning: does it have beneficial effects on health or disease prevention? The findings of this article that may be of use to our research are as follows—caffeine content varies widely depending on the type of coffee, from 58mg to 259mg per serving; coffee is found to have positive mood effects, as it is often used as part of a social ritual; it has certain anti-oxidant properties; frequent coffee drinking can lead to a decrease in LDL cholesterol; there is an inverse relationship between coffee consumption and liver cirrhosis; a few cups of coffee strengthened central information processing; and the biggest negative side effect noted was caffeine withdrawal.

Everett, Charles J., PhD, King, Dana E., MD, MS, Mainous, Arch G. III, PhD, Matheson, Eric M, MD, MS


This article begins with research demonstrating hot caffeinated drinks like coffee and tea have been seen to have antimicrobial properties in the nasal cavities. Their research involves exploring whether the drinks would also correlate to decreased instances of methicillin-resistant Staphylococcus aureus, a staph infection commonly known as MRSA, within the nasal cavities. Their findings show that an increased consumption of coffee does in fact correlate with decreased instances of MRSA being carried with the nasal passages.

Jordan, Susan J., David M. Purdie, Adele C. Green, Penelope M. Webb

2004 Coffee, Tea, Caffeine and Risk of Epithelial Ovarian Cancer *Cancer Causes & Control* 15(4): 359-365

In their investigation of the correlation between tea, coffee and caffeine consumption and risk of epithelial ovarian cancer, Jordan et al. studied the health histories and beverage consumption in 696 women with ovarian cancer and 786 control women, all of whom were selected from the Electoral Roll of Australia (Australia’s registered voter pool). Women ranging age from 18 to 79 years of completed surveys and submitted their medical health records to the researchers. Although the initial hypothesis believed that caffeine consumption contributed to lower rates of ovarian cancer, the results suggested that other chemical components of coffee outside of caffeine contributed decreased risk. Furthermore, the researchers suggested that in the future not only quantity of consumption be researched, but also the type and preparation be considered as well. This article relates to our research in that it investigates a possible additional benefit of regular coffee consumption.

Kleemola, Pajvi., Pekka Jousilahti, Pirjo Pletinen, Erkki Vartiainen, and Jaakko Tuomilehto
It is the stereotype that as humans age, they need more caffeine to stay awake. But many believe that an addiction to coffee is like that of an addiction to smoking with similar detrimental effects. In this study in Finland of middle aged men and women, it was proven that coffee does not cause coronary heart disease, in fact, in women, the statistics showed that drinking copious amounts of coffee may decrease the risk for coronary heart disease. It was also observed that non-coffee drinkers of this age are more likely to turn to other drugs that cause bodily harm, which was an interesting twist.


This study is on whether or not there is a genetic correlation in consumption of coffee. It uses sets of both identical and fraternal twins to survey on daily consumption of coffee to determine if coffee consumption is genetic. They conclude that consumption of coffee is significantly hereditary.


This study was on the difference in health conscious coffee choice between men and women. It was observed whether a choice in order at a coffee shop was aimed at being healthy with things like non-fat milk, sugar free syrup, of a lighter recipe. The study found that men are almost twice as likely to order an unhealthy version of a drink than women.


From this article we plan to look at some of their survey techniques to help us add to our own, such as asking people how many times a day they consume coffee, why they consume coffee, and what kind of coffee beverages they drink.


This article details the findings of a study that examined the link between type 2 Diabetes and the consumption of coffee. This article relates to our topic on the difference between the perceived and actual impacts of coffee on human health because it suggests a link exists between the consumption of caffeinated coffee and lower rates of diabetes in a study of 910 adults under 50 years old over two separate three-year periods.


This article from the European Journal of Epidemiology explains the results of a study conducted in Finland that followed 43,166 subjects for an average of 14.6 years beginning with a general survey to gage coffee consumption as well as other factors that could influence suicide rate. The results suggest coffee consumption, beyond a moderate level (6-7 cups per day), places the consumer at an increased risk of suicide. A known psychoactive substance, caffeine can increase anxiety, tremors, panic attacks and hostility; acknowledging this, the researchers suggest that clinicians screen for control and use of caffeine.


This study proves that coffee decrease the likelihood for cardiovascular disease in postmenopausal women. Also, it shows that a diet of coffee shows no significant detrimental effects on the human body.


This article explains how different ways of filtering coffee have different effects on health. For example, coffee in Scandinavia and Turkey is filtered in a way that increase cholesterol.


MG, a dicarbonyl molecule, is found in high levels in coffee and lead to Diabetes, obesity, and hypertension. This study is on what type of coffee and what additives to it cause the highest levels of MG. It finds that espresso has about three times as much MG as bold coffee and over four times as much as decaffeinated. It also finds that adding cream causes decreased levels of MG because cream contains the proteins that MG reacts with, causing less free MG molecules. Sugar, however, negates this effect. In conclusion, they find that decaffeinated coffee with one packet of cream is the best combination to reduce MG levels.
Conis, Elena


Tarkan, Laurie


Figure 1: Coffee beans (Fair Trade 2010: Fig 1)