



CONSTRUCTING AN ACADEMIC POSTER THAT IS INFORMATIVE TO A GENERAL AUDIENCE

Office of URSCA

Dr. Matt Venesky, Director

WHAT IS AN ACADEMIC POSTER?

- A visual representation of the story of your scholarship/experience that can be viewed/read in 5-10 minutes.
- It should feature the title of your scholarship/experience, essential information to understand *why* you are doing what you did, an overview of *how* you did what you did, a summary of what your **outcomes**, a **discussion of the significance** of those outcomes, supporting information, and an acknowledgement of support.

THE BEST POSTERS SHOULD...

- contain visually representations of your approach (i.e., the *how*) as well as your *outcomes*.
- have around 1000 words
- be visually appealing to the audience from afar and when standing close to it
- generate discussion

Uptick in Tick-borne Disease: A KAB Survey in Lyme-Endemic Northwestern Pennsylvania

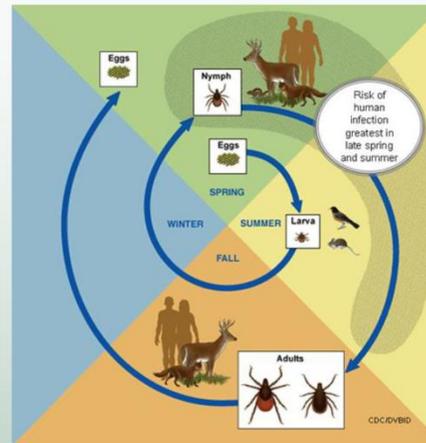
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Allegheny College: Department of Environmental Science & Department Global Health Studies



Tick-Borne Disease

- Ticks are responsible for 95% of vector-borne disease in the United States
- Climate change and landuse changes allow tick populations to grow and spread throughout the Northeast
- Individual TBD management through tick checks, wearing insect repellent, and appropriate clothing
- Two extreme perceptions:
 - Normalization of tick bites leading to low adherence to preventative behaviors
 - Extreme caution and avoidance of the outdoors

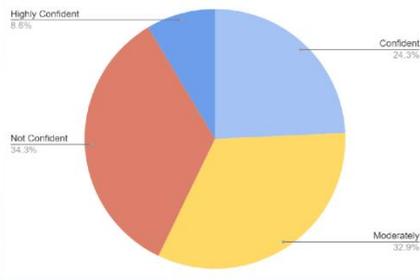


Top Left: Image of a blacklegged tick (*Ixodes scapularis*). The only vector of Lyme disease causing bacteria (*Borrelia burgdorferi*) to humans in Northeast America.
 Bottom Left: White-footed mouse (*Peromyscus leucopus*) a vital host in the lifecycle of the blacklegged tick and the Lyme causing bacteria, *Borrelia burgdorferi*
 Above Right: The life cycle of the blacklegged tick and the transmission of Lyme disease to humans showcasing the seasonality of the deer tick's lifecycle and the reliance on different types of hosts as the tick grows. Image from CDC (2011)

Major Findings and Implications

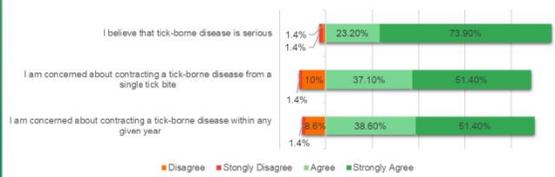
- Respondents report high adherence to individual preventative behaviors
- Low knowledge of disease ecology
 - Overestimated the amount of ticks carrying Lyme disease
 - Underestimated the time needed for a tick to transmit Lyme disease
- High levels of concern of tick bites may alter participant's relationship with the outdoors
- Mistrust in the medical communities ability to diagnose and treat Lyme disease
- Community solutions such as host mitigation strategies are vital in preventing TBD

How confident are you in your ability to identify different species of ticks (deer tick, dog tick, lone star tick ect)



Left: Confidence in ability to identify different species of ticks. Only a third of participants feel confident in their tick identification
Below: Levels of concern of contracting TBD. Respondents are very concerned about TBD. Concern does not correspond with frequency of tick encounters.

Concern of tick-borne disease



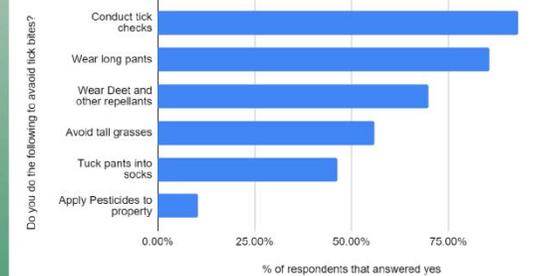
Methods

- Knowledge, Attitude, and Behavior (KAB) survey to understand how/if perceptions impacted preventative behaviors
- 25 multiple choice, Likert scale, & check all that apply questions and 2 open ended questions.
- Received 70 responses from email sub lists and Facebook groups in the Northwestern PA area

Sources of Note:

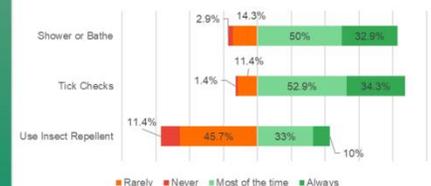
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Do you do the following to avoid tick bites?



Above: Rates of adherence to personal protective behaviors. Only 10% of participants apply pesticides to property
Right: Frequency of adherence to common personal protective behaviors. Most respondents do not apply tick repellents often

How often do you do the follow to prevent tick borne disease?





Canada in World War II: Understanding Its Distinct and Important Role in World War II



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Early Years of War



British Commonwealth Air Training Plan (BCATP):

- The BCATP was an Air Training program held for all British Commonwealth countries during the early years of World War II
- It was held in Canada and was led by Canadians
- Canada supplied over half of all men who were trained through the BCATP
- King George describing Canada's impact on the BCATP: "perhaps the most striking feature of the magnificent effort which Canada has made in so many directions toward winning the war"



Battle of Atlantic/ Convoy Participation:

- Canada was an active and leading participant in the Battle of the Atlantic where they helped organized convoys that were transporting supplies and men over to Britain
- Convoys were groups of ships that were strategically sent across the Atlantic to help limit the number of U-Boat attacks from the Germans
- These Convoys were paramount to supplying Britain during the early years of the war, especially during the Battle of Britain
- Marcus Faulkner explaining Canada's role in the Battle of the Atlantic and Convoys: "effective naval control of shipping and convoy routing was one of the unheralded victories of Canada (and the British Commonwealth) in the northwest Atlantic in 1942. This was no accident. Canada was an integral part of the global British NCS and naval intelligence system"

Operation Husky



Operation Husky Overview:

- Operation Husky was an Allied military operation attacking Sicily, Italy with the eventual goal of working all the way up through Italy and defeating the Axis forces in Italy
- It took place July 9, 1943 to August 17, 1943
- It would be a coordinated attack from the Navy, Air Force, and Army
- The Allies were feeling pressure from the Soviet Union to begin an attack on Western Europe
- Italy was identified as a possible location with the idea that if Italy fell, it would be a major loss to the Germans
- It was eventually a turning point in World War II



Canada in the lead up to Operation Husky:

- Up until Operation Husky, there had been very limited Canadians fighting on the ground of Europe
- There had been outcry from Canadians at home for more involvement in World War II
- In the end, Canada had to be requested to participate in Operation Husky, they were not asked
- Mark Zuehlke explains: "Canada could have avoided invading Sicily. Indeed, it required the intercession of senior generals and the minister of national defense, Colonel John Ralston, as well as a personal plea by Prime Minister Mackenzie King to Sir Winston Churchill before Britain reluctantly invited Canadian troops to join the venture. From the British perspective, there was little to recommend diverting forces from First Canadian Army in England for service in the Mediterranean theatre"

Canada in Operation Husky:

- During the first few days, Canada achieved considerable success
- Canada was given a list of objectives for the first day of Operation Husky and they were able to achieve them all; they were not a supporting nation, they were front and centre
- This showed to the Allied forces that Canada was capable of leading operations and became much more active after Operation Husky

Operation Overlord



Operation Overlord Overview:

- Operation Overlord (aka D-Day, Battle of Normandy) was an Allied military operation attacking Normandy, France with the eventual goal of liberating France and marching into Germany
- There would be five beaches: Sword, Gold, Omaha, Utah, and Juno
- This was one of the biggest operations of World War II
- It took place June 6, 1944
- This was the last turning point of World War II with the Allies continuing their advance until they defeated the Germans



Canada in Operation Overlord

- Canada was responsible for one beach, Juno Beach
- Over 60,000 Canadian men stormed Juno Beach
- Juno Beach had the second highest death toll of the five beaches (after Omaha Beach)
- Proportionally, Canada had the highest death toll of all the Allied nations in Operation Overlord
- Canada was able to proceed furthest inland of all the nations after the first day: "every Canadian unit had moved well inland, and the 3rd division was close to joining up with the British troops on Gold and Sword beaches, adjoining Juno."
- Canada's involvement in Operation Overlord described by Terry Copp: "the Canadians played a role in this victory all out of proportion to the number of troops engaged. Their performance at both the tactical and operation level was far from perfect but it compares favourably with that of any other army in Normandy"



Economic Determinants of Crime: A test of the Economic Strain Theory and its Racial Implications



Maya Ginter-Frankovitch



Black people, who account for 13 percent of the U.S. population, accounted for 27 percent of those fatally shot and killed by police in 2021¹



Background



Motivation: Focus on the perpetual cycle of racial stereotypes regarding the Black community's higher propensity to commit crimes and how it leads to police brutality and biased crime statistics.

Question



How much of the variation in crime rates can be explained by the Economic Strain Theory along with city-level demographics their racial implications.

Theory

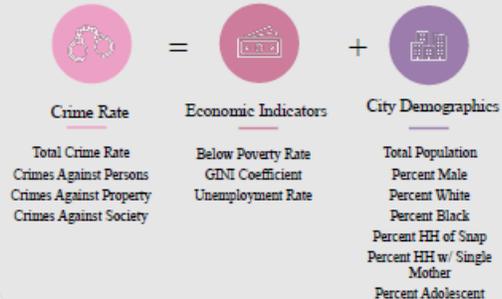


Economic Strain Theory describes the cycle where an individual experiences economic deprivation leading to a psychological response of stress which then results in crime. The choice of crime depends on the marginal cost and marginal benefit of committing a crime.

Data

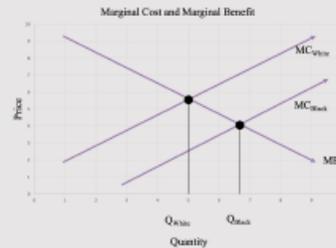


Model



Theory

Economic Strain Theory describes the cycle where an individual experiences economic deprivation leading to a psychological response of stress which then results in crime.



The choice of crime depends on the marginal cost and marginal benefit of committing that crime

Figure 1 describes the difference in perceived marginal costs for Black and White Americans. Many scholars hypothesize that the Black population will have a perceived marginal cost curve while White people will have the opposite. Because MC_{black} is an outward transformation of MC_{white} , the equilibrium quantity for Black people will increase

Results

- 01 Below poverty rate is the best determinant of crime.
- 02 None of the interaction variables with the percentage of the population that is Black were significant.
- 03 SNAP HHs had a decrease in crime rate. So, people who feel supported by the government may be less likely to commit a crimes.

Limitations

The study only utilized city-level data. Sample bias also occurred due to using two data bases to create the data set

¹Bum, C. (2022, March 4). Report: Black people are still killed by police at a higher rate than other groups. NBCNews.com. Retrieved March 17, 2022, from <https://www.nbcnews.com/news/nbcblk/report-black-people-are-still-killed-police-higher-rate-groups-rcna17169>



PIGS IN SPACE: EFFECT OF ZERO GRAVITY AND AD LIBITUM FEEDING ON WEIGHT GAIN IN CAVIA PORCELLUS



SPACEEXES

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ABSTRACT:

One ignored benefit of space travel is a potential elimination of obesity, a chronic problem for a growing majority in many parts of the world. In theory, when an individual is in a condition of zero gravity, weight is eliminated. Indeed, in space one could conceivably follow ad libitum feeding and never even gain an gram, and the only side effect would be the need to upgrade one's stretchy pants("exercise pants"). But because many diet schemes start as very good theories only to be found to be rather harmful, we tested our predictions with a long-term experiment in a colony of Guinea pigs (*Cavia porcellus*) maintained on the International Space Station. Individuals were housed separately and given unlimited amounts of high-calorie food pellets. Fresh fruits and vegetables were not available in space so were not offered. Every 30 days, each Guinea pig was weighed. After 5 years, we found that individuals, on average, weighed nothing. In addition to weighing nothing, no weight appeared to be gained over the duration of the protocol. If space continues to be gravity-free, and we believe that assumption is sound, we believe that sending the overweight — and those at risk for overweight — to space would be a lasting cure.

INTRODUCTION:

The current obesity epidemic started in the early 1960s with the invention and proliferation of elastane and related stretchy fibers, which released wearers from the rigid constraints of clothes and permitted monthly weight gain without the need to buy new outfits. Indeed, exercise today for hundreds of million people involve only the act of wearing stretchy pants in public, presumably because the constrictive pressure forces fat molecules to adopt a more compact tertiary structure (Xavier 1965).

Luckily, at the same time that fabrics became stretchy, the race to the moon between the United States and Russia yielded a useful fact: gravity in outer space is minimal to nonexistent. When gravity is zero, objects cease to have weight. Indeed, early astronauts and cosmonauts had to secure themselves to their ships with seat belts and sticky boots. The potential application to weight loss was noted immediately, but at the time travel to space was prohibitively expensive and thus the issue was not seriously pursued. Now, however, multiple companies are developing cheap extra-orbital travel options for normal consumers, and potential travelers are also creating news ways to pay for products and services that they cannot actually afford. Together, these factors open the possibility that moving to space could cure overweight syndrome quickly and permanently for a large number of humans.

We studied this potential by following weight gain in Guinea pigs, known on Earth as fond of ad libitum feeding. Guinea pigs were long envisioned to be the "Guinea pigs" of space research, too, so they seemed like the obvious choice. Studies on humans are of course desirable, but we feel this current study will be critical in acquiring the attention of granting agencies.

MATERIALS AND METHODS:

One hundred male and one hundred female Guinea pigs (*Cavia porcellus*) were transported to the International Space Laboratory in 2010. Each pig was housed separately and deprived of exercise wheels and fresh fruits and vegetables for 48 months. Each month, pigs were individually weighed by duct-taping them to an electronic balance sensitive to 0.0001 grams. Back on Earth, an identical cohort was similarly maintained and weighed. Data was analyzed by statistics.

RESULTS:

Mean weight of pigs in space was 0.0000 +/- 0.0002 g. Some individuals weighed less than zero, some more, but these variations were due to reaction to the duct tape, we believe, which caused them to be alarmed push briefly against the force plate in the balance. Individuals on the Earth, the control cohort, gained about 240 g/month (p = 0.0002). Males and females gained a similar amount of weight on Earth (no main effect of sex), and size at any point during the study was related to starting size (which was used as a covariate in the ANCOVA). Both Earth and space pigs developed substantial dewlaps (double chins) and were lethargic at the conclusion of the study.

CONCLUSIONS:

Our view that weight and weight gain would be zero in space was confirmed. Although we have not replicated this experiment on larger animals or primates, we are confident that our result would be mirrored in other model organisms. We are currently in the process of obtaining necessary human trial permissions, and should have our planned experiment initiated within 80 years, pending expedited review by local and Federal IRBs.

ACKNOWLEDGEMENTS:

I am grateful for generous support from the National Research Foundation, Black Hole Diet Plans, and the High Fructose Sugar Association. Transport flights were funded by SPACE-EXES, the consortium of wives divorced from insanely wealthy space-flight startups. I am also grateful for comments on early drafts by Mañana Athletic Club, Corpus Christi, USA. Finally, sincere thanks to the Cuy Foundation for generously donating animal care after the conclusion of the study.

LITERATURE CITED:

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Xavier, M. 1965. Elastane Purchases Accelerate Weight Gain In Case-control Study. Journal of Obesity, 2:23-40.



**USE THE SPACE BELOW AND LIST 5 DIFFERENT
VISUAL ELEMENTS THAT YOU WOULD CHANGE ON
THE PREVIOUS POSTER**

TIPS ON CREATING YOUR POSTER

- Work backwards. First identify what information you want your audience to walk away with and then backfill information, methods/approach, outcomes.
- Start with more information and then work to condense it. Then condense it again.
- Use the “Drawing” tools in PowerPoint (or another software package) to create simple images that represent actions

**USE THE SPACE BELOW TO IDENTIFY THE PRIMARY
OUTCOME/TAKE HOME THAT YOU WANT YOUR
AUDIENCE TO WALK AWAY WITH**

TIPS ON PRESENTING YOUR POSTER

- Have your “2 minute elevator speech” prepped ready.
- Some participants prefer to read first → engage the presenter; some participants prefer to engage the presenter first.
- Introduce yourself and ask the participant if they’d like to read the poster first or if they’d like you to start.
- When engaging with participants, keep it general; they’ll ask for details.

**USE THE SPACE BELOW TO BRAINSTORM THE
ELEMENTS YOU WANT IN YOUR “ELEVATOR
SPEECH”**

URSCA RESOURCES FOR POSTERS

