



***New Visions
Scientific Research & World Health***

**Class of 2023
Annual Student
Poster Day
Abstract Book**

**Wednesday, June 7 , 2023
9:00 AM – 11:00 AM**

**Cancer Research Center Lobby
Gen*NY*Sis Building
1 Discovery Drive
Rensselaer, NY 12144**

Community Perceptions and Attitudes Regarding Air Quality Across Three Zip Codes in the NY State Capital Region

Sean Meyer, Troy High School

Air pollution is one of the greatest problems being faced by society today. How people perceive the pollution and air quality in their area can give many insights into what is actually occurring. A survey was created to understand how the communities in Troy, Cohoes, and Lansingburgh perceived their air quality. The survey included detailed questions about how the respondents think the air might have affected their health, a general opinion of it, and lastly how their community views the air quality in the area and their opinion on whether that should change or not. Respondents tended to think the overall quality of the air was slightly below or above average with many different reasons ranging from vehicle emissions to cigarette and marijuana smoke, as well as air pollution from the Norlite Company. Most but not all believed the air wasn't having a large negative effect on their health. However, many did report they suffer from diseases like asthma, COPD, hypertension, and allergies to particles such as pollen and dust. Respondents also had many different opinions on the perception of the air where they live. Many thought there was no knowledge of air pollution and that their community needed to become aware of that fact, with others saying there is no problem. Figuring out what a community thinks about the pollution in their area, and why, is instrumental in fixing the issue and aiding the community.

Gender Bias and Differing Attitudes Surrounding Contraceptive Uses and Beliefs

Madeline Strang, Troy High School

Contraceptives are at the intersection of sexual health and women's health. Male contraceptives are still under development and attitudes surrounding them may vary by sex and gender. This study sought to discover society's view on contraceptives and how certain factors may play into the outlook on contraceptives and gender. The survey divided the participants by biological sex and gender. They were then asked to disclose their beliefs and experiences surrounding contraceptive methods. It was found that gender bias may influence one's attitude about contraceptives. However, if more contraceptive opportunities were created for men, they would be willing to use them. Men would be willing to use other forms of contraceptives, not based on practicality, but on the framework of equal responsibility. If contraception is to be more widely effective, our society must be willing to implement a fair and equal number of methods of contraceptives to be used among partners.

How Environmental and Road Factors Affect the Speed Choice of Drivers

Zaid Azhari, Troy High School

Speeding has been a dominant cause of accidents in road transportation. Driver's speed choice is affected by their behavior and road environment. This study explores the relationship between road and environmental characteristics that affect a driver's speed choice. This analysis is based on survey data gained from 28 participants. Using the results gained from this survey, a conclusion was drawn on what affected driver's beliefs about speed choice. People believe they would drive faster on wider roads with more vegetation and open terrain. The cloudiness of the sky does not seem to affect their driving speed. From these results, roads in need of speed reduction could alter the environment in order to do so.

Impact of Biological Sex and Gender on the Onset of Psychological Effects from Childhood Sexual Abuse

Cadence Church, Berlin High School

Childhood Sexual Abuse (CSA) occurs in about 1 in 10 children in the United States. While there are long-term problems that can occur physically, there are also psychological effects of CSA. The correlation between chronicity and intensity of psychological effects, and how that may be impacted by biological factors and perceived gender, is unknown. Participants completed a Google Form that assessed their Sexual Abuse “survivor status,” gender at time of abuse and current gender, biological sex, current diagnosed disorders, and intensities of their symptoms. Research found that females who experienced CSA had less severe psychological effects, but more instances of chronic CSA. Males experienced more side-effects, such as behavioral problems. Females who identified as non-binary experienced these male-oriented side-effects as well. Perceived gender stereotypes as a child can impact the rates at which a child is sexually abused. Increased rates of CSA in women has no correlation to the increased detrimental psychological effects that men and non-binary survivors experienced. This suggests that gender is the strongest factor behind psychological impacts, which contradicts prior opinions about biological sex being a determining factor.

Influence of Level of Education on Abuse, Chronic Disease, and Stress in the Nursing Profession

Izabella Stanton, Troy High School

Nursing is a difficult and taxing profession in the healthcare field that has a mission to provide care to all. The level of education that nurses have and its effects on problems such as abuse, chronic illness, and stress levels have long-term effects and are not well-studied or understood. Data was collected through a survey and a sample of 15 nursing environments and input from 10 nurses was gathered. The results showed that those with an associate or bachelor's degree in nursing have a higher prevalence of abuse than those with master's degrees. Also, those with associate's degrees were found to have a wider range of chronic diseases than those with a higher level of college education. Those with bachelor's and master's degrees still developed chronic diseases, but with less variety. However, those with associate's degrees faced the least amount of stress in their work environments. For masters degree nurses, only high stress environments were reported. This indicates that the level of education has a direct impact on problems such as abuse, chronic disease, and level of stress. Researching more in-depth on this topic can help implement policies moving forward to protect nurses.

Multiple Factors in Figure Skating's Alarming Effects on Eating Disorders in Young Women

Grace Huffam, Tamarac High School

There has been little research done on eating disorders in figure skating. There has been no research done on synchronized skating's effects on eating habits leaving this susceptible population at high risk with little to no resources to help. This study investigates the risk of individual and/or synchronized skating on young women. A survey was sent out to skating clubs, coaches and skaters around the United States. This questionnaire asked questions specific to skating and also had a standardized test at the end of the survey which provides a risk assessment of an eating disorder in the participants. Analysis of the data showed that an increase in years skating resulted in an unexpected lower score. The freestyle skaters had a higher average score overall compared to the participants who participated in synchronized skating. This study yields insight to the skating populations as a whole and into individual groups. US Figure Skating needs to be aware of these problems and address them to the coaches and club leaders. There also needs to be education about this problem and resources available to the skaters.

Nutritional Deficiencies and Caffeine Consumption in High School Track and Field Athletes

Mariah Kratt, Ichabod Crane High School

There is very little data and research on the current nutritional status of high school athletes and only some can be found on college athletes. This study focused on local high school track and field athletes' nutrition to see how they fell within the set nutritional standards. During this study ten high school track and field athletes were surveyed on their diets during track and field season. This data was then put through an app to breakdown their macronutrients and total calorie consumption over three days. It was found that many athletes do not know the proper amount of calories to consume and end up undereating but do know how to eat a balanced diet. Type of caffeine consumption was looked at and a prevalence of sugar free energy drinks was found. The effect of these on the teenage body and how their marketing draws consumers in was looked at as well. Conclusions were made from this to make suggestions for high school track and field coaches to help their teams meet optimal nutrition and prevent under-eating.

Resistance of Patients and Physicians towards Cutting Edge Robot Assisted Surgery

Lily Stachowicz, Troy High School

Robot Assisted Surgery has significant benefits but is not being used to its full potential due to patient and physician resistance. Previous research has shown that patients are resistant towards Robot Assisted Surgery due to many factors like insurance, fear, and general understanding. This study aims to investigate the underlying reason for resistance from patients and physicians for Robot Assisted Surgery. An online survey was distributed to patients and licensed physicians. Each response was analyzed based on their thoughts to gain a general concurrence of the answers. Analysis of the responses showed that the sizable resistance came from physicians due to not seeing it benefit them and the training hours. The results indicate that the patient data is earnest of implementing Robot Assisted Surgery into hospitals. Along with this Physicians were not as accepting, but still had some positive outlooks. The wide-ranging resistance comes from the head of hospitals not wanting to spend money for these machines. Further work entails contacting heads of hospitals and surgeons with specific experience with Robot Assisted Surgeries to get their viewpoint.

Sensory Triggers: Touch, Sound, and Sight Connected to Episodic Memory of Trauma

Haeley Spohn, Cobleskill-Richmondville High School

Trauma related amnesia is a major public health concern, especially long term amnesia. The intensity of any traumatic event makes it difficult to process and then modify, however having more experiences with sensory triggers that relate to trauma allows increased exposure which diminishes the anxiety around trauma and makes it easier to manage. A survey was distributed to determine episodic memory changes pre and post sensory triggers. The data was then analyzed and related to other research papers done on related topics. Out of the 8 responses, 6 experienced a form of trauma, 3 experienced trauma related amnesia, all 3 experienced sensory triggers. All three experienced touch as a trigger, 2 of the experienced sound triggers, and 1 experienced a sight trigger. Episodic memories were gained in the participant that experienced both touch and sounds but also sight. The more sensory triggers that were experienced led to more episodic memories: touch is a common sensory trigger among those who have experienced trauma, and sight is linked to increased memory. Future research done on touch and sight sensory triggers associated with retaining episodic memories would be valuable to decreasing trauma related amnesia and long term amnesia.

The Contribution of Deficient Menopause Education to the Sex-Based Health Gap

Elsie Corbett, Berlin High School

The gap between women's health education and men's health education is ever present, particularly in the context of menopause. A lack of menopausal education can have serious implications for the wellbeing of the individual, as menopause can bring on many health complications. This self-reported survey asked biological women their primary information source when it came to learning about menopause, their true symptoms as well as expectations, and most importantly their perception of their own education. It was found that postmenopausal women had a better opinion of their menopausal education, yet had fewer expectations than the pre and perimenopausal groups. Within the postmenopausal group, the individuals lacking certain expected symptoms were also lacking family as an information source. This points to family possibly playing an important role in women's health education as a whole, as well as a specific area for improvement in menopausal education.

The COVID-19 Lockdown and Mental Health: The Effects of Time Spent Outdoors on Stress

Emma Gilooly, Troy High School

This study examines the relationship between Vitamin D levels, mental health symptoms, and the impact of the COVID-19 pandemic. Vitamin D is produced in the body when UV-B rays from sunlight hit the skin and synthesize into calciferol, an activated version of Vitamin D that the body can use. It can also be obtained from supplements or certain foods. Previous studies show a link between Vitamin D and improved mental health symptoms. The goals of this study were to examine Vitamin D levels in comparison to both perceived levels of psychological symptoms and diagnosed conditions while introducing the variable of the COVID-19 pandemic and the prolonged home isolation periods that came with it. An anonymous survey was conducted and included questions about remote lifestyle and related stressors, time spent outdoors, climate, perceived stress levels, and diagnosed mental health or neurological conditions. The results of the survey show a strong correlation between mental health and time spent outdoors during the pandemic in most climates, excluding consistently hot climates. The study also found increases in diagnoses of mental health conditions, specifically an uptick in diagnoses of eating disorders, Generalized Anxiety Disorder and Major Depressive Disorder from March 2020 onwards. Future work surrounding this topic would include using a more precise way to gauge Vitamin D levels, rather than using a proxy (time spent outdoors), diet-related questions to examine Vitamin D intake from foods and find a link to the uptick in eating disorders, and re-evaluation of public health interventions in warmer climates that advise people to get outside to de-stress.

The Effects of Early Intervention on Children with Adverse Childhood Experiences (ACEs)

Emma Dugan, Maple Hill High School

Adverse Childhood Experiences (ACEs) have been under study since it was proven that untreated ACEs lead to an increased risk of chronic illness. Trauma Informed Care (TIC) is a new approach that is being taught in the healthcare system, which is the idea about how physicians should approach treatment and how to intervene when it comes to patients with trauma. A survey was distributed to three different groups, including adolescents, adults, and practitioners; questions were geared specifically for each group. The most prominent pattern was the generational age gap. In the adolescent group, people who are non-female identified have a greater likelihood of resistance to attending therapy. In the adult group, people who are non-female identified have a greater resistance to developing chronic illnesses. Adults have fewer coping mechanisms, which tend to be negative, while adolescents have more coping mechanisms, which are generally positive. Age and gender were considered as independent factors, however, there may be an intersection underlying the two. All practitioners believed that ACEs and TIC should be taught in healthcare to give physicians the ability to catch specific behaviors patterns and how to help their patient through that trauma. They also believed TIC is not the only approach that should be taught and used when dealing with patients who have experienced trauma. Adverse Childhood Experiences lead to multiple problems later in life if not intervened at an early stage. ACEs and TIC should be taught in all aspects of education because the earlier intervention happens with trauma the better the outcome.

The Public Health Threat of Inefficiencies in the Harmful Algal Bloom Reporting Systems Across Eastern States

Zoe Collins, Columbia High School

Harmful Algal Blooms (HABs) are overgrowths of algae or cyanobacteria in water that produce dangerous toxins in fresh or marine water which threaten the environment, local economies, and public health. HABs have been increasing in frequency and severity within the past few decades. Current research shows that even toxins whose primary vector of illness is food-borne can become aerosolized and travel fairly long distances but not much research has been done in terms of the long term effects of this phenomenon. An epidemiologic survey requesting zip codes, the presence of any chronic respiratory illness, and any known contact with HABs was distributed across the United States Eastern Seaboard and Great Lakes regions. The data gathered from the survey was then to be compared against government HAB monitoring data. However, the publicly available monitoring data state-to-state was insufficient to complete this research. Measurements of cell count and labels between states were inconsistent or inaccessible. Many states only have current up to date information about recreational or harvesting area closures and do not publicize their archived data if it is saved at all. These practices are a massive risk to public health and impede the advancement of scientific progress in this field. Harmful algal bloom testing and data collection methods need to be comprehensive and standardized across the United States.

The Relationship Between Music Genres and the Big Five Personality Types

Bailee Drummond, Ichabod Crane High School

Music plays a crucial role in the lives of many, yet its effects are not fully comprehended. The connection between music from adolescence and adult personality has not been thoroughly analyzed. Using a questionnaire and the Big Five inventory, a group of 25 individuals was surveyed for general background information, past and present music tastes, and personality traits. Each genre was analyzed individually using the scores from the Big Five inventory. The geometric mean of the scores was compared based on personality category and past versus present tastes in music. Patterns were found across genres between adolescence and adulthood which demonstrated a clear link between music and personality. There are no significant differences in personality traits between genres. These findings also revealed that criteria previously used to denote genres as positive or negative are quite biased and do not prove true in the overall influence of a genre. Further research is required to determine whether music drives personality or if personality drives music choices.