Preparing and Presenting Poster Presentations at a Professional Conference

Dr. Jennifer J. Waldron
Associate Vice President for Research & Innovation/Dean of the Graduate College
12th Annual Graduate Student Symposium
April 3, 2019

Poster Presentations, Oral Presentations and Creative Performances

Registration is open through March 1, 2019. Find registration information at
https://grad.uni.edu/graduate-student-symposium
What Is a Poster Presentation?

- Visual summary of creative or scholarly work
  - Text and graphics
- Allows work to be displayed to a large group
- Facilitates conversation and feedback
Preparation

• Know your audience
  • Discipline specific or general
• Know the requirements of the conference
  • Size of poster, type of poster, components, deadlines
  • Handouts may be submitted prior to the event
• Know the key points of your presentation
## Common Components of a Poster

### Data-Based
- **Title & Author(s)**
  - Clear & concise
- **Introduction**
  - Short summary of the entire project
  - Purpose statement
- **Method**
  - How the project was set up
- **Results**
  - Data analysis
- **Discussion**
  - How findings fit with previous literature
- **References/Acknowledgements/Other**

### Literature Review
- **Title & Author(s)**
  - Clear & concise
- **Introduction**
  - Short summary of the entire project
  - Purpose statement
- **Content-specific Sections**
  - Headings linked to main points
- **Conclusion/Implications**
  - Application of knowledge
  - Importance of knowledge
- **References/Acknowledgements/Other**
Predictors of Hazing in College and High School Athletes
Jennifer J. Waldron, Ph.D. University of Northern Iowa, Cedar Falls, IA USA

INTRODUCTION

Many athletes on sport teams engage in initiation rituals in order to enhance team identity and team cohesion. Initiation rituals are required of some teams as a group and can consist of positive activities or negative activities (i.e., hazing). Positive initiation rituals include activities such as community service and team trips. Hazing behaviors can be humiliating and degrading or they can be dangerous and abusive activities. In this study, mild hazing behaviors included activities that were humiliating and degrading, such as having to carry the equipment to the bus or having to remain silent. Many athletes may experience mild hazing, but high school athletes may experience severe hazing (Waldron & Hoffer, 2000). Severe hazing, in the current study, was characterized by dangerous and abusive behaviors such as binge drinking. Recent, national data sets suggest that approximately 72% of college athletes and 59% of high school athletes have experienced hazing (Allen & Madden, 2008; Hoover, 1999; Hoffer & Pollard, 2008).

In order to understand why athletes would engage in mild and severe hazing, the model of health-compromising behaviors was utilized (Waldron & Krane, 2001). First, athletes engage in unsocially acceptable norms of sport, including making sacrifices for the team and playing through pain. Accepting the norms of sport allows athletes to gain the status, respect, and privileges of being on an athletic team. Second, athletes internalize the social-anomie goal orientation where they feel successful about their sport when they conform to team norms. Previous research has found that this model explains why athletes engage in hazing behaviors (Waldron & Kawaski, 2009). Although national data sets have revealed rates of hazing in sport, these data sets are only descriptive in nature and do not statistically examine predictors of athletic hazing.

Purpose

The current study, framed within this psychosocial model, examined the influence of sex, sport type, level of competition, athletic identity, and team norms for mild or severe hazing on whether athletes experienced mild or severe hazing or not.

METHOD

Procedures

After Institutional Review Board approval, high school and college athletes were contacted via email or phone regarding participation in the study. After providing informed consent (if the participant was under the age of 18 consent, participants completed an online survey.

Participants

Data were collected with 287 athletes (n_girls = 126, n_males = 161, n_mom = 100, n_husband = 187) who were currently competing in sport. The sample was primarily White American/Canadians with an average age of 17.8 ± 3.3 years old (age range from 14-23 years). Approximately, half of the sample was Vaults on their respective high school or college team.

Measure

The survey instrument contained demographic questions, the initiation questionnaire, Athletic Identity Measurement Scale, and the social norms for initiation. The initiation questionnaire (Campou, Paulou, & Sipple, 2003) asked participants how many times they engaged in a different initiation activities in order to become a member of their sport team. The questionnaire included nine severe hazing acts (e.g., being kidnapped) and six mild hazing acts (e.g., being yanked gently down). Participants dichotomized into (a) those who participated in at least one severe hazing act and those who had not and (b) those who had engaged in at least one mild hazing act and those who had not.

Athletic identity was measured by the 10-item, Athletic Identity Measurement Scale (Heuwe, Vanicola, & Linder, 1995). This scale measures the degree an athlete accords the role of being an athlete (e.g., "I need to participate in sport to feel good about myself") on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). In the current study, Cronbach’s alpha was .91.

The social norms for severe and mild hazing were measured by assessing teammates’ approval of each activity. For each subset, participants responded to the question “My teammates would approve of following behaviors in team-building and initiation” on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). This instrument was adapted from the study by Campou, Paulou, and Sipple (2005) by using the word teammates instead of friends. Both subscales were reliable (α = .85 for severe hazing and α = .78 for mild hazing).

RESULTS

Table 1 displays the percentage of athletes who experienced at least one mild or severe hazing experience or severe hazing experience. The numbers show that college athletes, as a whole, experience more initiation rituals than high school athletes. Approximately half of all athletes experienced at least one mild and/or severe hazing episode.

Logistic Regression for Severe Hazing

- Predictors, as a set, reliably distinguished between those who experienced severe hazing and those who did not, χ2 (6, n = 287) = 68.07, p < .001.
- Predictors success overall was 71.8%.
- The Wald criterion demonstrated that team norms for severe hazing (p < .001), sport level (p = .015), and sport type (p = .002) made a significant contribution to prediction.
- When team norms for hazing were raised by one unit the odds ratio for the engaging in severe hazing was 8.1 times larger.
- College students were 3.0 times as likely as high school athletes to be hazing severe hazing.
- Non-contact sport athletes were 2.1 times as likely to experience severe hazing as compared to contact sport athletes.

The current research was supported by a Professional Development Assignment from the University of Northern Iowa.

School of Health, Physical Education, and Leisure Services

DISCUSSION

Results from this study suggest that many high school and college athletes are experiencing mild and severe hazing during their sport experience. It is cause for concern for 47% of all athletes who experienced severe hazing. We cannot turn a blind eye to those behaviors perceived to the third party that are just as bad. We need to become proactive in anti-hazing education. These educational messages need to start early and need to be multisided. Coaches, teachers, administrators, and parents have no excuse to create an environment where hazing, in any form, is not tolerated and will result in being disciplined. Critical discussions about hazing with athletes must occur. For example, conversations could center on the definition of hazing, the spectrum of hazing behaviors, the power dynamic of hazing, and consequences of hazing. Discussions need to include ways athletes could take action against hazing. For instance, how can athletes restrict the planning of hazing, stop the hazing, or take action after the hazing has occurred. These discussions should both help athletes critically think about hazing but also become empowered to speak out against hazing. Breaking the culture of silence is critical to hazing.
Design Considerations

• Know maximum dimensions for poster
  • 36” x 48” is the most common
  • Common to have 4’x8’ poster board to hang posters
• Check the plotter you are going to print on
  • Most have 36” paper, some can do larger (42” or 60”)
• Landscape or Portrait
  • Landscape is the most common
Design Considerations

• Flow
• Layout
• Blank Space
• Colors
• Theme
• Text
• Graphics
Design

Flow
• How the poster guides people through the project
• English-speaking readers
  • text left to right and top to bottom

Layout
• Use blank spaces to define sections
• Align everything
• Consistent borders and spaces
Example: Poster with Poor Flow
Example: Layouts
Design

Colors

- Contrasting
- Red/green
- Do not overdo the colors
- Avoid dark backgrounds
- Use a common theme throughout
- Limit colors to 2-3
  - Background, foreground, accent
  - Use color schemes
Design

Text
• Not too much
• Bullet points are ideal
• Size
  • Readable from 4-5 feet away
  • Title: ~100 point font
  • Heading: minimum 36-48 point font
  • Body text: 30-36 point font
• Clean and easy to read
• Professional looking
Graphics

- Resolution and aspect ratio
The Use of Benzylpenicilloyl Polysyline Skin Testing as an Antimicrobial Stewardship Initiative in a Not-for-profit Community Health System

Bruce M. Jones, PharmD, BCPS, Leigh Ann Bramlett, PharmD
St. Joseph’s/Candler Health System – Savannah, GA

Background
- Penicillin allergy is one of the most frequently reported drug allergies, with approximately 10% of patients reporting hypersensitivity1 which results in limited treatment options, increased healthcare costs, and increasing resistance with use of broad-spectrum agents. Up to 90% of patients reporting hypersensitivity do not truly have a penicillin allergy.1,2
- Benzylpenicilloyl polysyline is a penicillin skin test (PST) antigen indicated for the assessment of hypersensitivity to penicillin in patients with a history of penicillin allergy.
- True penicillin allergy involves immunoglobulin E (IgE)-mediated reactions, which are typically immediate and life-threatening (e.g. anaphylaxis, bronchospasm).3,4
- The health system’s Antimicrobial Management Program (AMP) aimed to improve clinical outcomes by implementing PST.

Purpose and Rationale
- **Primary Outcome**: Change in therapy and reduction in total direct antimicrobial cost following PST in patients with a history of suspected IgE-mediated penicillin allergy or unknown reaction
- **Secondary Outcome**: To assess the negative predictive value of PST and to evaluate the effect of AMP recommendations on PST prescribing.

Methodology
- Non-randomized, observational chart review over an open enrollment period concurrent with prospective use of PST
- Administration of the test utilizes a protocol approved by the Pharmacy and Therapeutics Committee that has 3 phases: puncture, intradermal, and oral challenge (optional phase)
- Data collected: age, gender, indication for antimicrobials, allergy history, medications that may interfere with PST, antimicrobials prior to PST, test results, and antimicrobial selection following a negative reaction

Study Design

**Inclusion Criteria**
1. Inpatients ≥ 18 years old at St. Joseph’s Hospital or Candler Hospital who received PST over an open enrollment period from July 1, 2014 through March 31, 2015
2. Completion of PST per protocol

**Exclusion Criteria**
1. History of anaphylaxis to beta-lactam agents within last 10 years
2. Anaphylaxis from any cause within the 4 weeks prior to inpatient status
3. HIV patients with either CD4 count < 500 or history of opportunistic infection
4. Neutropenia (ANC <1000)
5. Skin condition interfering with results
6. Did not complete all required steps of PST protocol

46 patients received PST during open enrollment period

**Reactions Reported (n=36)**

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Number (n)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hives</td>
<td>11 (n=4)</td>
<td>30.6%</td>
</tr>
<tr>
<td>Pruritus</td>
<td>16 (n=9)</td>
<td>44.4%</td>
</tr>
<tr>
<td>Other</td>
<td>9 (n=3)</td>
<td>25.0%</td>
</tr>
<tr>
<td>Unknown</td>
<td>3 (n=1)</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

**Results & Conclusions**

**Antimicrobial Therapy Pre- and Post- PST** (n=36)
- Carbapenem +/- Vancomycin: 12
- Vancomycin: 4
- Aminoglycoside: 2
- Other: 6
- No antimicrobial: 3
- No change: 9

*Penicillins/cephalosporins were ordered for all patients with a negative PST & antimicrobial changes

**Cost Analysis (n=24)**
- Total antimicrobial cost savings $7554.08
- Antimicrobial savings/patient $314.75

**Recommendations and Results of Tests**
- Recommendation for PST (n=36): AMP: 11 tests
- Other: 25 tests
- Results of Test (n=36): Positive: 0
- Negative: 36

**Limitations**
- 10 patients excluded due to histamine agent unreactive (manufacturer’s issue vs. administration/human error)
- Time commitment to train and administer the test

**Conclusions**
- By providing PST to patients there has been a reduction in the use of carbapenems, aztreonam, vancomycin, and other broad-spectrum agents
- This results in cost savings and avoids the risk of increasing antimicrobial resistance from unnecessary overuse
- Even though some patients were not able to be changed to a penicillin in the current admission, they will be an option in the future and will likely lead to cost savings during future admissions

References
**Pigs in Space**

**Effect of Zero Gravity and Ad Libitum Feeding on Weight Gain in Cavia Porcellus**

Colin B. Purrington
6673 College Avenue, Swarthmore, PA 19081 USA

**ABSTRACT:**

One ignored benefit of space travel is a potential eradication 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 not maintained. Indeed, in space one could conceivably follow ad libitum feeding and never become overweight, and the only side effect would be the need to upgrade one's already space-capable pants. But because many diet plans start as very good plans, they can be rather harmful. We treated our pigs 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 amounts of high-calorie food pellets. Fresh fruits and vegetables were not available in space so were not offered. Every 5 days, each Guinea pig was weighed. Over 5 years, we found that individuals, on average, weight less. In addition to eating nothing, no weight appeared to be gained over the duration of the experiment. This continued to be the case after we ceased to feed the pigs, and we believe that assumption is sound, we believe that feeding the pigs increased the weight of the pigs, and those at risk for overweight — to space would be a losing bet.

**INTRODUCTION:**

The current obesity epidemic started in the early 1990s with the invention and proliferation of fast food and soft drinks, which increased obesity rates. Early on, we wanted to test new ad libitum feeding, designed to lower the body weight of hundreds of millions of people by simply giving them the act of eating all their food in a place, presumably because this would stop the consumption of cardioactive pressure forces for molecules to adopt a more competitive energy structure (Cavazos, 1986). Luckily, in the same time that fast food became a race, the race to the moon between the United States and Russia yielded a useful fact: gravity in outer space is minimal to nonexistent. When weight is zero, objects cease to have weight. Indeed, early astronauts and cosmonauts had to secure themselves to their ships with seat belts and sturdy boots. The potential application to space was immediately obvious, but at the time, space to space was prohibitively expensive and thus the issue was not seriously pursued. Now, however, many companies are developing cheap, extra-capsule travel options for ordinary consumers, and potential travelers are alter creating news ways to play for products and services that they cannot afford at all. Together, these factors open the possibility that moving to space could cure weightlessness syndrome and permanently for a large number of humans.

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

**RESULTS:**

Over 50 years, each Guinea pig was weighed. Every 5 days, we found that individuals, on average, weight less. In addition to eating nothing, no weight appeared to be gained over the duration of the experiment. This continued to be the case after we ceased to feed the pigs, and we believe that assumption is sound, we believe that feeding the pigs increased the weight of the pigs, and those at risk for overweight — to space would be a losing bet.

**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 trials permission, and should have our planned experiment finished within 60 years, pending expected review by local and national institutions.

**LITERATURE CITED:**


Making the Poster

Recommended Software
• Microsoft PowerPoint
  • Common & familiar, most commonly used
• Microsoft Publisher
  • Reasonably common, similar to PowerPoint
• Adobe InDesign
  • Less common, steeper learning curve, more powerful

Not Recommended Software
• Photoshop
• Word
• Individual panels
Creating a Timeline

• Meet with faculty member/mentor to discuss poster
• Collect
  • Research & design information for the poster
• Double check conference requirements & deadlines
• Create poster
  • Paying special attention to design and layout
  • Have multiple people edit
  • Maintain academic integrity
• Determine poster printing options
  • Submit poster and handouts to conference, if needed
• Print poster
  • Print in advance

https://www.hamilton.edu/documents/LFP-Timeline.pdf
Poster Printing

• Students in College of Humanities, Arts and Sciences can have posters printed at no charge
  • Second printings will be charged $25
  • Students not in College of Humanities, Arts and Sciences can print posters for $25
    • Email chastech@uni.edu for more information

• Students in the College of Social and Behavioral Sciences can have posters printed at no charge
  • For more information visit http://www.csbs.uni.edu/request/posters/

• Copyworks, located at 2227 College St. Cedar Falls, has poster printing service
  • For more information visit https://copyworks.presencehost.net/companyinfo/locations/cedar-falls.html
Poster Printing

Preparing to Print
• Embed your fonts
  • Print computer might not have all of them
• Export to PDF likely to give best results
• Text print on 11x17 to check color, layout and spelling
Embed fonts in Word and PowerPoint

1. Click the **File** tab and then click **Options**.

   (In Office 2007, click the **Office Button** in the upper left corner and then click the **Options** button.)

2. In the left column, select the **Save** tab.

3. At the bottom, under **Preserve fidelity when sharing this presentation**, select the **Embed fonts in the file** check box.

   ![Preserve fidelity when sharing this document:](image)
   ![Embed fonts in the file](image)
   - Embed only the characters used in the document (best for reducing file size)
   - Do not embed common system fonts

   Leaving that check box blank (or selecting **Embed all characters** in Office 2007) increases the file size, but is best for allowing others to edit the document and keep the same font.

   Selecting **Embed only the characters used in the presentation** reduces the file size but limits editing of the file using the same font.

4. Click **OK**.
Poster Presenting Tips

• Dress professionally
• Prepare 2-4 minute “elevator speech”
• Give people time to read and process the poster information
• Don’t read the poster to them
• Be prepared for questions
  • Answer honestly if you don’t know
• Use effective eye contact
• Speak confidently and slowly
Example of Ineffective Posters
Inorganic Biochemistry of Iron Proteins

Jared J. Heymann, Claire J. Parker Siburt, Katherine D. Weaver, and Alvin L. Crumbliss

Duke University – Department of Chemistry – Durham, NC

**Purpose:**
To study iron protein biochemistry from the perspective of the iron Protein = Ligand

**Techniques:**
- Spectroelectrochemistry
- UV-Visible Spectroscopy
- Fluorescence Spectroscopy
- Diffusional Spectroscopy
- Stopped-Flow Kinetics

**SUFREx**

**Proteins act as the 1st & 2nd coordination shell of iron and can modulate the kinetics and thermodynamics of reaction.**

**The Iron Paradox**
- Iron is toxic and can produce reactive oxygen species & must be controlled

**Iron Abundance in Humans**
- 85-65 mg/day in humans
- 76% in red blood cells
- 9% in transferrin

**Transferrin**
A mechanistic study of the iron release by receptor-bound transferrin using spectroelectrochemistry

**Ferric Binding Protein**
- Role of a synergistic action in modulating iron uptake in a bacterial transferrin by pathogenic bacteria: A study in kinetics and thermodynamics

**Hemoglobin**
Effects of subunit cross-linking on hemoglobin oxidation states determined by spectroelectrochemistry

**Chemically modified Hb**
- Photocrosslinking
- Photogelation
- Cross-linking for polymeric aids & proteins

**Combination Neural Plot**

**Implications**
- Changes in transport
- Changes in respiratory potentials
- Loss of cooperativity
- Lower oxygen affinity
- Erythrocyte dysfunction

**Modified Hb Conclusions**
- Loss of cooperativity
- Lower oxygen affinity
- Erythrocyte dysfunction

**References:**
Examples of Effective Posters
THE COMBINATION OF TECHNOLOGY AND EDUCATION AS CHANGE AGENTS FOR IMPROVING BREAST CANCER QUALITY CARE

BACKGROUND
With rapid advances in research, clinicians find it challenging to remain current with evolving care guidelines and to implement current national quality standards (NQS) relevant to breast cancer management. Adherence to NQS is driving reimbursement for cancer services, but clinical workflow processes and IT solutions are lacking to effectively document adherence. The Carevive Care Planning System™ (CPS), an evidence-based, patient assessment and care planning software and solution, is designed to close gaps in quality cancer care by seamlessly connecting clinical and patient reported data with evidence-based algorithms, thereby allowing oncology programs to improve and document their adherent rates to quality care standards.

DESIGN AND METHODS
- 60 total non-metastatic breast cancer patients across 2 academic cancer centers (30 per site)
- Eligible participants are planned to initiate chemotherapy treatment (±2 medical oncology visits prior to enrollment)
- Provider adherence to quality metrics is compared between the 30 historical controls (seen prior to study initiation) and intervention group
- Two part study intervention includes:
  1. Provider participation in certified continuing medical education (CME) on evidence-based assessment, decision-making, and management strategies for breast cancer
  2. Use of the Carevive CPS with intervention subjects
     a. Subjects complete an electronic survey assessing current symptoms and concerns prior to their visit
     b. Subjects receive a provider-approved care plan including tailored recommendations for symptom management and referrals
Data collection is ongoing. The primary analyses herein compares results of cases and controls at a single site and describes the differences between controls from two sites.

RESULTS: TWO-SITE SUMMARY OF HISTORICAL CONTROLS (N=60)

ASSESSMENT AND CARE PLANNING
Meeting the quality standards includes both assessment and subsequent addressing of the problem(s) in a documented plan of care. Preliminary results for two quality metrics (emotional wellbeing and pain) indicate that:
- Emotional wellbeing was poorly assessed at Site 1 (20%) but better addressed (33%) than at Site 2
- 46% of control participants at Site 2 were assessed for emotional wellbeing, yet only 6% had their emotional wellbeing addressed
- 100% of controls at Site 1 were assessed for pain, yet only 38% had their pain addressed (in a documented care plan)
- Care plans for pain management were documented for 38% of patients at Site 1 and 50% at Site 2

RESULTS: SINGLE SITE CASE/CONTROL COMPARISON

IMPLICATIONS AND NEXT STEPS
Provider adherence to quality metrics for emotional wellbeing increased from pre-to post-intervention, suggesting effectiveness of the combined CME and Carevive CPS intervention. Additionally,
- Preliminary findings are incongruent within and across sites
- Poor opioid induced constipation assessment for interventions and controls pre-and post intervention (6% vs. 18%), suggests opportunities exist for continued improvement in pain management assessment and care planning documentation
Meeting quality standards includes both assessing and subsequently addressing the problem(s) in a documented care plan. Further analyses will be conducted once data collection is complete at both sites.
Jakarta’s Giant Sea Wall: Resilient Infrastructure Project as Threat and Asset

Reny Revariah and Sara Hamideh, PhD

BACKGROUND
- Jakarta, the World’s fastest rising city, is building a $40 billion Giant Sea Wall (GSW) to protect itself from flooding caused by tidal surges and sea level rise.
- Planning and design of the GSW as part of the National Capital Integrated Coastal Development masterplan is a joint project of the Netherlands and Indonesian government.
- The GSW is a massive project with a seawall made of 17 artificial islands for checkpoints, harbor, rail, shipping, and other logistics.
- GSW construction has caused rapid increase in evictions: 15 cases affecting residential and commercial units 2019-2020, which mostly are streets where fishermen communities live.
- Some forced evictions only gave residents 1-3 days in advance, without any replacement options.
- There are reports about eviction flooding, informal settlement, and health issues.
- Interestingly, a high-end development, Perumahan Kapuk (PK) owned by one of the real estate developers of the GSW is also located on the bay; next to the fishermen neighborhoods.
- PK area, once a mangrove forest, was transformed to high-end residential and commercial development with soil compaction system on a 1.5-km area; leaving 16 million cubic meter of degraded area.
- The 2018 PK expansion plan PK.2 is connected to GSW project.
- PK.2 is planned as an urban watershed area with superior facilities which are worth the investment.
- A questionable situation: why fishermen neighborhoods are targeted for eviction while PK expands in the same location exposed to the risk of floods and sea level rise?

RESEARCH QUESTIONS
What resilience projects for the Giant Sea Wall going to enhance? Who will benefit and lose? Can resilient infrastructure become an asset and threat at the same time?

DATA AND METHODS
- Data Provider: Online news, maps
- Data: Jakarta Provincial Government, Non Governmental Organizations and advocacy groups, Google Earth: View images of Jakarta
- Methods: Mapping spatial transformation in North Jakarta Bay area: Penjaringan District
- Methodology: Phenological research, photo elicitation: condition of neighborhoods in North Jakarta

STUDY AREA

ANALYSIS

CONCLUSIONS
- Spatial transformation in North Jakarta Bay shows PK development progress every year.
- Jakarta’s GSW seems to have high possibility to generate new economic development and bring more investments to the GSW.
- In contrast, some communities in slum neighborhoods adjacent to the GSW have become more vulnerable, because of mass evictions without housing and livelihood replacement options.
- Our findings show that resilient infrastructure could be an asset and a threat at the same time.
- Systematic erosion with new opportunities for resilience could be a way to solve issues in the GSW project.
- To develop infrastructure projects that enhance resilience for all, we should carefully analyze: the existing socioeconomic disparities and processes of vulnerability in the target communities.
- Government agencies, non-governmental organizations, and local communities should work closely together to ensure real estate interests do not dominate development of large infrastructural projects like GSW in the name of resilience and to ensure equitable outcomes for all citizens.

REFERENCES

2018 Natural Hazards Workshop
Colorado, July 9-11, 2018
Cross-talk between nonsense-mediated mRNA decay and proteasome-mediated protein degradation

Heather Johns 1,2,3, Qing Feng 1,2, Sujatha Jaganathan 1,2, Robert Bradley 1,2
Public Health Sciences1, Basic Sciences2, Fred Hutchinson Cancer Research Center, Seattle, WA, Whitman College3, Walla Walla, WA

Introduction
Aberrant mRNA and protein synthesis has been linked to the pathology of a diverse range of neurodegenerative diseases such as Alzheimer’s disease. Cells have quality control pathways to detect errors in gene expression and eliminate the resulting aberrant mRNAs and proteins. However, it is unknown whether these pathways independently monitor each step of the gene expression process or whether they work together.

Nonsense-mediated mRNA decay (NMD)
- Conserved quality control pathway
- Eliminates mRNAs that contain a premature termination codon
- Upstream of ribosome 1 (UPF1) detects premature termination codons in the mRNAs and promotes degradation by an exonucleosome

Proteasome-mediated protein degradation
- Conserved quality control that degrades nonfunctional, aberrant proteins (and regulates normal protein turnover)

We hypothesize that there is cross-talk between NMD and proteasome-mediated protein degradation.

Introduce FLAG-tag into β-globin by PCR
Adding a FLAG-tag will allow us to detect β-globin mRNA with Western Blot

Using primer overhanging PCR, we introduced a FLAG-tag sequence after the start codon, in-frame with the exon encoding frame of β-globin.

To confirm the presence of the FLAG-tag, we sequenced the PCR products.

Wild type β-globin is detected by FLAG antibody, but not 39 ter β-globin

Possible Explanations:
- NMD targets: 39ter β-globin mRNA with high efficiency, causing degradation of the mRNA before detectable amounts of protein are translated.
- 39ter β-globin is short and runs off the protein gel.

Expected Protein Lengths:
- 1. 39ter β-globin: 15 kDa
- 2. 39ter β-globin: 88 kDa
- 3. NMD inhibited: 88 kDa

In order to observe the β-globin proteins, we increased the loading concentrations.

Moreover, the 39ter β-globin protein was still not detected.

Discussion and Future Directions
Overview: Explore the possibility of cross-talk between NMD and proteasome-mediated degradation in human cells.

Progress and Outcomes:
- Created reporters by inserting a FLAG-tag into both a wild type (wt) β-globin and a mutant (39ter) β-globin with a premature termination codon at the 39 end of the transcript.
- Transfect reporters into 293T human cells.
- Knock-down UPF1 using specific antibodies.
- Test whether NMD is inhibited by UPF1 knockdown through qRT-PCR analysis: NMD not inhibited by UPF1 knockdown.

Analysis changes in protein levels between wild and 39ter β-globin with FLAG-tag upon UPF1 knockdown and proteasome inhibition – aberrant protein was not visible.

Future Plan: Research has suggested that the cell may compensate for low levels of UPF1 by upregulating the levels of either NMD or proteasome factors. To increase the signal-to-noise ratio of NMD inhibition, we will knock down multiple NMD factors simultaneously. Additionally, we will use a β-globin reporter that contains a premature termination codon further downstream in regions of producing a larger aberrant protein that is visible during Western Blot analysis. Another option would be to use a different reporter altogether, such as the dual color bioluminescence-based NMD reporter system (shown below), specifically constructed for assaying NMD in mammalian cells. We will implement these changes while following the same experimental strategy to continue the investigation of cross-talk between NMD and proteasome-mediated protein degradation.

References

Acknowledgements:
- Rolf Despont Lab, HHMI, BC and PHG
- Whitman College in partnership with PCCER Student Undergraduate Research Program supported by Howard Hughes Medical Institute
- financed through the Florida State University Foundation.
- The FHCRC Crop Research Center institutional funds (10W).

Experimental Strategy

Step 1 Add FLAG-tag to wt β-globin and 39ter β-globin reporters

Step 2 Transfer 293T cells with β-globin reporters

Step 3 Inhibit NMD through UPF1 knockdown

Step 4 Measure β-globin mRNA levels by qRT-PCR

The ratio of 39ter/mRNA in WT β-globin is ∼30 times higher than in 39ter β-globin

The addition of siUPF1 caused a decrease in the mRNA levels of NMD and UPF1

UPF1 was successfully knocked down.

The addition of siUPF1 caused a decrease in the NMD protein levels.

UPF1 Knockdown
To test our cross-talk hypothesis, we first had to knock down UPF1 using small interfering RNA (siRNA) transfection.

Possible Explanations:
- NMD targets: 39ter β-globin mRNA with high efficiency, causing degradation of the mRNA before detectable amounts of protein are translated.
- 39ter β-globin is short and runs off the protein gel.

Wild type β-globin is detected by FLAG antibody, but not 39ter β-globin

Possible Explanations:
- NMD targets: 39ter β-globin mRNA with high efficiency, causing degradation of the mRNA before detectable amounts of protein are translated.
- 39ter β-globin is short and runs off the protein gel.

Expected Protein Lengths:
- 1. 39ter β-globin: 15 kDa
- 2. 39ter β-globin: 88 kDa
- 3. NMD inhibited: 88 kDa

In order to observe the β-globin proteins, we increased the loading concentrations.

Moreover, the 39ter β-globin protein was still not detected.

Discussion and Future Directions
Overview: Explore the possibility of cross-talk between NMD and proteasome-mediated degradation in human cells.

Progress and Outcomes:
- Created reporters by inserting a FLAG-tag into both a wild type (wt) β-globin and a mutant (39ter) β-globin with a premature termination codon at the 39 end of the transcript.
- Transfect reporters into 293T human cells.
- Knock-down UPF1 using specific antibodies.
- Test whether NMD is inhibited by UPF1 knockdown through qRT-PCR analysis: NMD not inhibited by UPF1 knockdown.

Analysis changes in protein levels between wild and 39ter β-globin with FLAG-tag upon UPF1 knockdown and proteasome inhibition – aberrant protein was not visible.

Future Plan: Research has suggested that the cell may compensate for low levels of UPF1 by upregulating the levels of either NMD or proteasome factors. To increase the signal-to-noise ratio of NMD inhibition, we will knock down multiple NMD factors simultaneously. Additionally, we will use a β-globin reporter that contains a premature termination codon further downstream in regions of producing a larger aberrant protein that is visible during Western Blot analysis. Another option would be to use a different reporter altogether, such as the dual color bioluminescence-based NMD reporter system (shown below), specifically constructed for assaying NMD in mammalian cells. We will implement these changes while following the same experimental strategy to continue the investigation of cross-talk between NMD and proteasome-mediated protein degradation.

References

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Barriers and Facilitators of All-Terrain Vehicle Education and Safety Training for Youth Under 16 Years of Age

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Abstract

Background and Significance
- Children under 16 years of age are at risk for ATV injuries.
- ATV-related accidents are a significant problem.
- ATV-related deaths are decreasing, but injuries are still high.

Methods

Conceptual Framework

Survey Design

Implementation

Results

Conclusions

The socio-ecological model was used as a map for understanding the community and policy implications of ATV safety training participation.

The survey was conducted for this project to determine gaps in ATV and Youth education and training.

A cover letter explained the purpose of the study and included a written 26-question survey. A total of 90 parents completed the survey. A convenience sample of 20 families per county was selected.

42.2% of the youth surveyed reported that they had a child under 16 years of age who had been on an ATV in the past 12 months. 10.59% of the families did not have an ATV. 303 of 359 families had an ATV.

The evaluation process utilized descriptive statistics (i.e., percentages) to analyze the multiple-choice and Likert scale questions. Percentages were also used to assess demographics.

- The socio-ecological model provided a useful framework to understand the determinants that affect enrollment and participation in ATV safety education and training.
- Parental influence was the key factor in the decision to enroll their child.
- Parents communicated a strong desire to have ongoing, trusting relationships with the Tennessee ATV Extension.
- Parents did not feel ATVs are dangerous.
- It remains unclear if parents do not know what current literature states about the dangers of ATV riding and children or if they choose not to believe what they have read or been told.

Future Research

- Future research should include a youth component to identify additional barriers or facilitators to course enrollment.
- Further exploring trust/distrust issues parents have about ATV safety information.
- Promote healthy policy initiatives in conjunction with educational and training programs.
- Explore vehicle loan programs for youth who need to purchase ATVs for course enrollment.

Evaluation
- Evaluate ATV training outcomes: materials and handbook for age appropriateness and readability.
- Evaluate ATV training outcomes: materials and handbook for age appropriateness and readability.

Implications for Practice

- Medical providers should guide families to resources of local ATV safety training opportunities.
- Advanced practice nurses who provide care for children and families must assess risk factors and attitudes about ATV education and safety training and incorporate anticipatory guidance into patient care.
- Develop collaborative/multidisciplinary partnerships to promote ATV safety within community settings.
- Bridging injury prevention research into the clinical setting is essential for reducing pediatric ATV-related injuries.
**Introduction and Review**

Speech requires an exquisite integration of neural programming and precise coordination of excitation, time-locked motor programs, and respiratory systems. Information processing is defined as an individual's ability to utilize sensory inputs including visual, auditory, and tactile stimulation. The major motor program for speech production includes the selection of a specific motor program, initiation of the motor program, and execution of the motor program. It is believed that the layering of speech upon the Mayer Effect is the primary cause of the brain's ability to code and decode the motor program for speech production. It is also believed that the brain's ability to code and decode the motor program for speech production is the primary reason for the brain's ability to code and decode the motor program for speech production.

**Purpose**

The purposes of the present study are to determine how the respiratory and phonatory systems interact during inhibitory tasks. There is a predictable behavior of breathing that occurs during speech. It is believed that this behavior is the result of the brain's ability to code and decode the motor program for speech production.

**Methods**

Participants

10 males and 10 females, 18 to 20 years of age, were recruited for participation. All participants were native speakers of English. All participants were non-smokers and none had a history of respiratory or airway disease.

Equipment

- **Speech Timer**: The speech timer was used to measure the participant's ability to inhibit speech production if the sweep hand stops at 800ms.
- **Electroglottograph (EGG)**: An EGG was used to measure vocal fold contact and oral pressure.
- **Microphones**: Two head-mounted microphones (Audio-Technica AT 8531 & Audio-Technica AT 8531B) were used to record vocal fold contact and oral pressure.
- **Hardware**: Two head-mounted microphones (Audio-Technica AT 8531 & Audio-Technica AT 8531B) were used to record vocal fold contact and oral pressure.
- **Software**: Twenty-four-bit (TF32; Milenkovic, 2002) software was used to collect digital, pressure, airflow, and abdominal movement, and electroglottographic signals. Please see Figure 2.

**Results**

The participants produced 1.08 % out of 25% (45.9%) were determined to be completely inhibited. Participants inhibited 4.5% during the inhibition period and 10.7% of the time during the production of the water. The participants were able to completely inhibit production between 45% and 65% of the time. The ability to inhibit increased from 45% to 10.7% during the production of the water. The participants were able to completely inhibit production between 45% and 65% of the time. This ability to inhibit decreased at 600ms and was below 10% at 700ms, 750ms, and 800ms. Please see Figure 9 and 10.

**Discussion and Conclusion**

Participants were able to inhibit decreased at 600ms and was below 10% at 700ms, 750ms, and 800ms. This ability to inhibit decreased at 600ms and was below 10% at 700ms, 750ms, and 800ms.

**Selected References**

Additional Resources

Symposium Poster Presentation Resources
• https://grad.uni.edu/poster-presentation-category

Additional Online Resources
• https://writing.wisc.edu/Handbook/PosterPresentations.html
• https://projects.ncsu.edu/project/posters/
• http://www.owlnet.rice.edu/~cainproj/ih_posters.html
• http://www.undergradresearch.gatech.edu/presentation-tips
• https://cirt.gcu.edu/research/developmentresources/tutorials/posterpresent
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