THE GOVS WELLNESS HUB PROGRAM

A Model for Cross-Disciplinary Collaboration and High-Impact Teaching Practices

A Panel Discussion for Austin Peay State University's 2025 Faculty Conference

Morgan University Center, Room 305
Concurrent Session #4c on August 12, 2025, from 2:15 - 3:15 p.m.

Meet Our Team

2025 Govs Wellness Hub Team

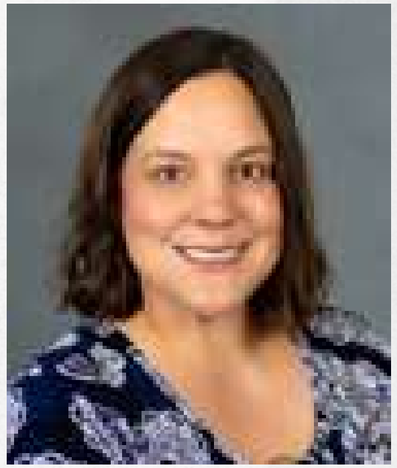
Dr. Tyler Nolting, Ph.D., MPH, MCHES®

Dr. Kadi Bliss, Ph.D., MCHES®

Dr. Tasha Ruffin, DNP, APRN, AGACNP-BC

Mrs. Mitzi Baker, MSN, FNP-BC, ACHPN

Dr. Heather Phillips, Ph.D., MLS(ASCP)



Mrs. Olivia Lahann, MBA

Ms. Alexandra Wills, MA

Public Health

School of Nursing

Allied Health Sciences
Medical Laboratory Science

Community Engagement & Sustainability

Panel Description

During our presentation we will...

- Review the 2025 Govs Wellness Hub Program by:
  - Providing a model for our approach to planning, implementing, and evaluating a campus health promotion program
  - Sharing challenges encountered, lessons learned, and suggestions for having impactful and effective collaborative and multidisciplinary partnerships
  - Inspiring others to incorporate cross-departmental collaborations that address student wellness, student learning, and scholarly teaching
- Share our plans for the 2025-2026 Govs Wellness Hub Program.

Planning Model

Funding: Joe and Cathi Maynard Family Fund of Excellence

Selected Portions of Grant Application

FUND OF EXCELLENCE

Fund of Excellence Name	Joe and Cathi Maynard Family Fund of Excellence
Alumni, Engagement & Philanthropy Staff	Vonda St. Amant, Assistant Vice President of Philanthropy & Erin Morton, Director of Development
Requester	Dr. Tyler Nolting, Ph.D., MPH, MCHES®; Dr. Kadi Bliss, Ph.D., MCHES®; Dr. Shani Collins Woods, Ph.D., MSW, MA; Dr. Heather Phillips, Ph.D., MLS (ASCP)CM; Dr. Tasha Ruffin, DNP, RN; & Alexandra Wills
Request Title	Govs Heart and Nutrition Hub: Empowering our Peayple
Amount	$8,473.37
Funding Timeline	July 1, 2024 – June 30, 2025
Funding Narrative	In spring 2024, HHP 4800: Capstone for Public Health students held a two-hour on-campus health screening at the APSU Morgan University Center, attracting over 50 students seeking screenings. This event's success underscores the critical need for the ongoing provision of health services to our student population at Austin Peay State University (APSU). As we look to the future, it is imperative to address cardiovascular disease (CVD), the leading cause of death globally. The most

Measurable Outcomes	1. **Number of Participants:** We aim to screen at least 50 participants during each screening event, totaling 150 over the semester. The total number could be as high as 200, depending on attendance at the events and our team's capacity to implement each event. 2. **Participant CVD Risk Factors:** We will measure participants' risk factors for hypercholesterolemia, hyperglycemia, obesity, physical inactivity, unhealthy diet, and smoking. 3. **Education Engagement:** We will track the number of individuals participating in the healthy heart screening and food security education sessions and collect feedback on the usefulness and effectiveness of the information provided. 4. **Follow-up and Referral:** We will monitor the number of participants who seek follow-up care or referrals based on their screening results, ensuring that individuals receive the necessary support to address identified health concerns. 5. **Participant Satisfaction:** We will administer satisfaction surveys to gather feedback on the overall experience

How will the funds be administered	**Budget Breakdown:** 1. **Public Health Screening Supplies:** $4,978.31 • Cholestech LDX Starter Kit: $2,508.58 1. This machine will be used to measure the screening participants' total cholesterol, HDL, and glucose levels. • Cassettes: $107.79 per box x 20 boxes = $2,155.80 1. These will be used for fingerstick tests to check for total cholesterol, HDL, and glucose levels. • Omron HBF-306C Handheld Body Fat Loss Monitor: $309.99 per monitor x 3 monitors = $929.97 1. This monitor is a hand-held device that will measure body fat percentage. • Extra Long Wagon: $145.99 1. This will haul the health screening supplies to the events. • Fitted Tablecloth: $24.99 x 3 = $74.97 1. These tablecloths will be used on the tables at the health screening event. They are red and will provide a more professional appearance to the event and activities. 2. **Printing of Health Screening Booklets:** $206.00 • 200 booklets x $1.03 per booklet = $206.00 1. The HHP 4800 students will use these booklets to record the measurements of the health screening participants, who will keep these booklets at the end of the screening. 3. **Food Security Education Component:** $696.89 • Printing recipe cards: 300 cards x $0.48 per card = $144.00 1. The pricing is from APSU Printing Services as of April 2024.

- Submitted application on May 7, 2024, for $8,473.37
- Received notification that we received the grant on August 26, 2024

August 26, 2024

Dear Tyler Nolting,

Congratulations! You have been selected as a Maynard Family Fund of Excellence recipient for fiscal year 2024-2025. You have been granted $8,473.37 to be used exclusively for Govs Heart and Nutrition Hub: Empowering our Peayple.

Time Period and Reporting:
As a recipient of the Maynard Family Fund of Excellence, you will be required to complete the following:

1. Utilize all of the funding by June 30, 2025.

2. Apply all of the funding for Govs Heart and Nutrition Hub: Empowering our Peayple based on the specifications stated in your submitted Maynard Family Fund of Excellence Request Form. Any deviations from the submission must be approved.

Selected Portion of Congratulations Letter

Planning Model

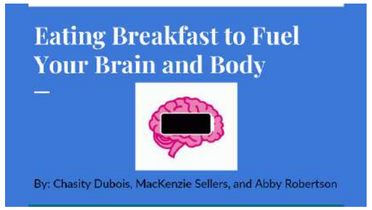
HHP 4010: Health Education Theory and Practice (Fall 2024): Program Components Created

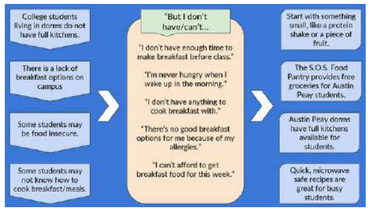
Event 1 Food Topic: Eating Breakfast to Fuel Your Body and Brain

Recipe Cards

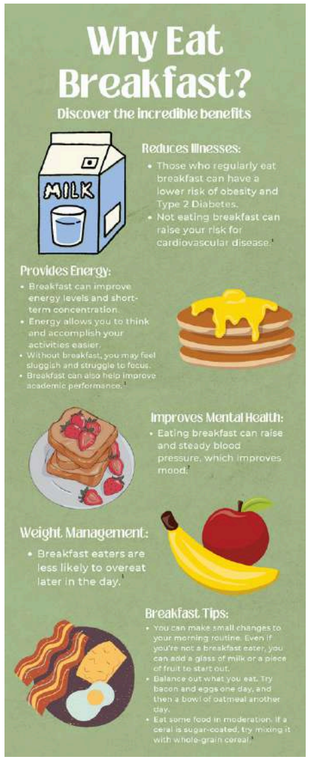
Event 1 included this recipe.

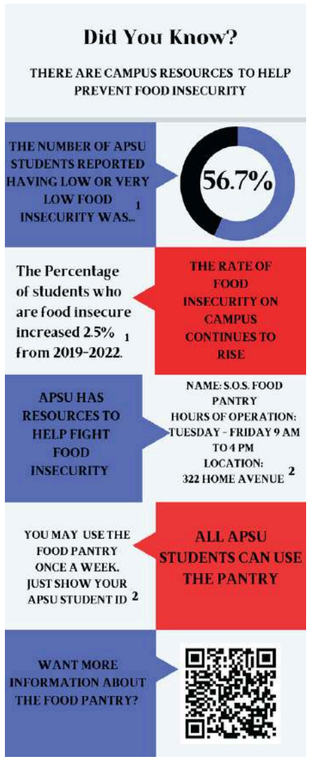
Key Points Presentation





Infographics





Planning Model

HHP 4010: Health Education Theory and Practice (Fall 2024): Program Components Created

Event 2 Food Topic: Cooking at Home/in Your Room and Packing Your Meals

Recipe Cards

Overnight Oats

INGREDIENTS
- 1 Cup Oats
- 1 Cup Milk
- 1 Tbsp Chia seeds (optional)
- 1 tsp Maple Syrup (optional)
- 1 tsp Vanilla Extract (optional)
- Toppings

DIRECTIONS
1. Place your oats in your favorite jar.
2. Pour in your choice of milk.
3. Stir to ensure everything is mixed well.
4. Let it chill in the refrigerator overnight.
5. Add your toppings and enjoy!

SUGGESTIONS AND VARIATIONS FOR RECIPES
- **Perfect with Nutrition:** Rich in protein and fiber, these overnight oats keep you satisfied longer to help you avoid mindless snacking.
- **Fall- Customizable:** Whether you adore fruits, are a chocolate lover, or enjoy nuts, you can create the perfect flavor combination. Feel free to add or mix in whatever you desire- it's the ultimate recipe!
- **Ideal for Meal Prep:** Prepare it the night before and wake up to a delicious and nutritious breakfast that you can have throughout the week.

NOTE:
Toppings: Here's where you can unleash your creativity with fresh fruits, dried fruits, nuts, seeds, and spices such as cocoa powder, matcha powder, and cinnamon. The variety of topping ideas and combinations are endless, so feel free to add what makes the recipe personally versatile!

Transcript is from "Feel Good Foods"
https://feelgoodfoodie.net/recipe/overnight-oats/

Nutrition Facts	
Servings: 1	
Amount per serving	
Calories	**521**
	% Daily Value*
Total Fat 4.8g	6%
Saturated Fat 1.6g	8%
Cholesterol 5mg	2%
Sodium 44mg	2%
Total Carbohydrate 147.6g	49%
Dietary Fiber 63.3g	228%
Total Sugars 14.4g	
Protein 13.8g	
Vitamin D 0mcg	1%
Calcium 120mg	9%
Iron 2mg	13%
Potassium 280mg	8%

*The % Daily Value (DV) tells you how much a nutrient in a food serving contributes to a daily diet. 2,000 calorie a day is used for general nutrition advice.

Recipe analyzed by verywell

Tuna Sandwich

INGREDIENTS
- 1 can (5 oz) tuna
- 1/3 cup mayonnaise
- lemon, juice of, pepper, and sugar, to taste
- 2 tsp chopped celery
- 1 tsp chopped onion
- 1/4 cup corn (optional)
- 4 slices of bread
- 2 tbsp mayonnaise
- 4 lettuce slices (optional)

DIRECTIONS
1. In a medium bowl, use a fork to flake the tuna.
2. Combine the tuna with mayonnaise, lemon juice, salt, pepper, and sugar.
3. Stir everything together until thoroughly mixed.
4. Sample the tuna spread and adjust the seasoning as necessary.
5. (Optional) place a lettuce leaf on one slice of bread.
6. Spoon the tuna salad onto the lettuce leaf.
7. If desired, add more slices on top.
8. Place the second slice of bread on top to create a sandwich.
9. Slice like cut the sandwich in half and serve or pack into go.

SUGGESTIONS AND VARIATIONS FOR RECIPES
- **Yield:** This recipe produces tuna salad sufficient for 2 to 3 sandwiches.
- **Storage:** Keep any leftovers covered in the refrigerator for up to 4 days.
- **Additional Mix-ins:** Enhance your tuna salad by incorporating a small amount of diced apples, a handful of thawed peas, or a couple of chopped hard-boiled eggs.

NOTES:
Using tuna in oil will create more flavorful sandwiches compared to tuna in water. However, if all you have is tuna in water, go ahead and proceed with this recipe! The same method is equally effective when using canned salmon.

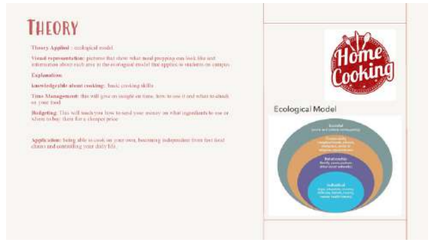
Nutrition Facts	
Servings: 2	
Amount per serving	
Calories	**768**
	% Daily Value*
Total Fat 15.8g	20%
Saturated Fat 3g	15%
Cholesterol 19mg	6%
Sodium 1536mg	67%
Total Carbohydrate 124.8g	45%
Dietary Fiber 10.2g	37%
Total Sugars 19.1g	
Protein 32.4g	
Vitamin D 0mcg	0%
Calcium 358mg	28%
Iron 12mg	66%
Potassium 1238mg	26%

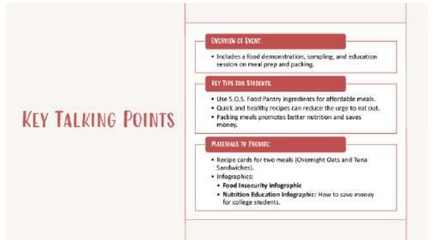
*The % Daily Value (DV) tells you how much a nutrient in a food serving contributes to a daily diet. A 600 calorie a day is used for general nutrition advice.

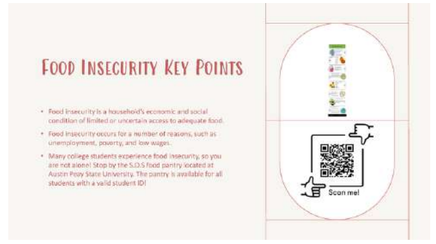
Recipe analyzed by verywell

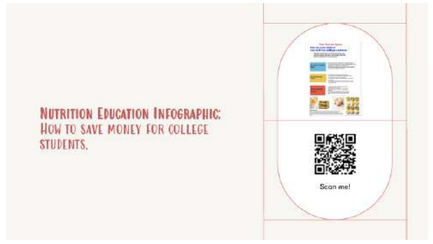
Recipes were tailored and adjusted for final implementation.

Key Points Presentation

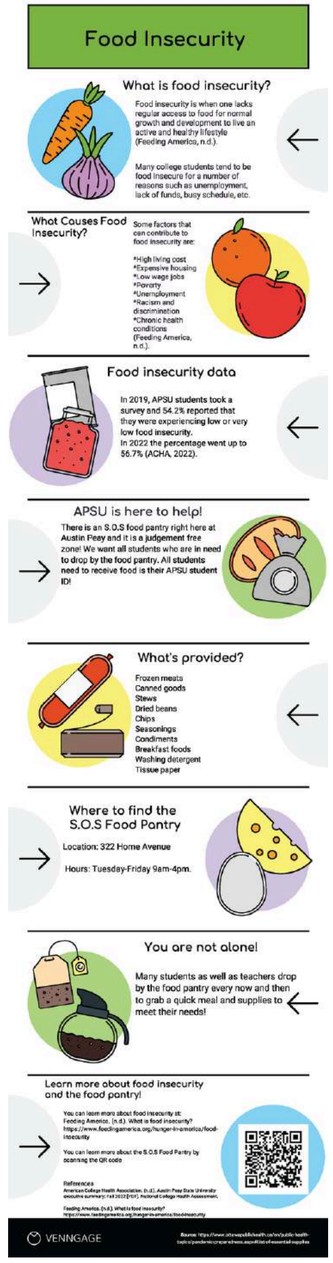








Infographic



Planning Model

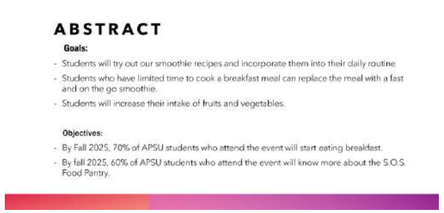
HHP 4010: Health Education Theory and Practice (Fall 2024): Program Components Created

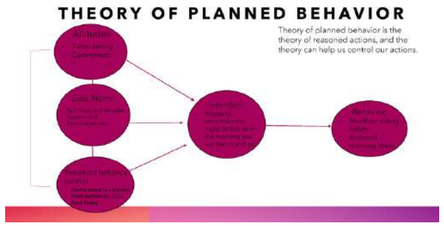
Event 3 Food Topic: Healthy and Fresh Spring Smoothies

Recipe Cards

Recipes were tailored and adjusted for final implementation.

Key Points Presentation





Infographic

Planning Model

Scholarship of Teaching and Learning: IRB Approval Process (Fall 2024)

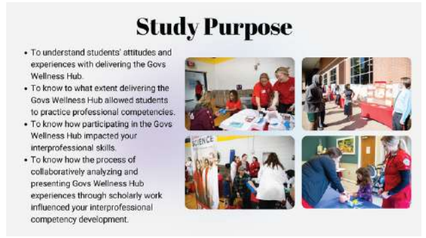
Study Title: **“Interprofessional Education and Competency Development Among Public Health, Nursing, and Medical Laboratory Science, Students: A Mixed-Methods Study of the Govs Wellness Hub Program”**

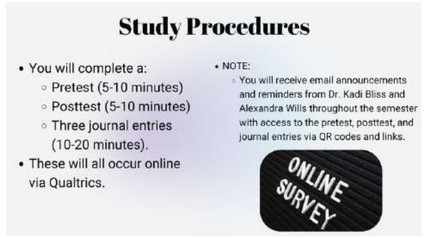
Planning Model

Student Research Participant Recruitment and Pretesting (Spring 2025)

- Dr. Bliss and Ms. Wills visited participating courses during the first two weeks of the semester to recruit students, obtain informed consent, and administer pretests.
  - Participating Courses:
    - HHP 4800: Capstone for Public Health (Dr. Tyler Nolting)
    - NURS 4050/4051: Community and Public Health Nursing/Community and Public Health Nursing Clinical (Dr. Tasha Ruffin and Mrs. Mitzi Baker)
    - MTEC 4090: Clinical Hematology (Dr. Heather Phillips

Selected Recruitment Presentation Slides





NOTE: Social Work 3620: Micro Social Work Practice faculty and students elected not to participate in the study early in the Spring 2025 semester.

Schedule: First Two Weeks

Week	Class	Activity	Date & Time	Location
Week 1	HHP 4800	First Class Visit	Wed, Jan 22, 11:15-12:10pm	Dunn Center 282
		Second Class Visit	Fri, Jan 24, 11:15-12:10pm	Dunn Center 282
	SW 3620	First Class Visit	Tue, Jan 21, 9:35-11am	McCord 221
		Second Class Visit	Thu, Jan 23, 9:35-11am	McCord 221
	NURS 4050	First Class Visit	Wed, Jan 22, 1:50-4:50pm	McCord 340
	MTEC 4090	Recruitment Session(s)	To be scheduled (Zoom/F2F)	TBD
	ALL CLASSES	Initial Pretest Email	Fri, Jan 24, 8am	-
Week 2	NURS 4050	Second Class Visit	Wed, Jan 29, 1:50-4:50pm	McCord 340
	ALL CLASSES	Reminder Email	Fri, Jan 31, 8am	-

Planning Model

Explaining the Govs Wellness Hub Program to Students (Spring 2025)

- Dr. Nolting visited NURS 4050/4051 early in the semester (January 23, 2025) to explain the Govs Wellness Hub Program.
- He also made a video presentation of these slides to share with all students in all courses involved.

Selected Overview Presentation Slides

Govs Wellness Hub

A Quick Overview for Students in SW 3620, NURS 4050/4051, MTEC 4090, and HHP 4800

Overall Student Experience

- Students
  - Will be placed into two groups, one for the Wellness Hub event(s) they will attend and another for their research poster group.
  - Will complete assignments related to the research poster
  - Will attend Wellness Hub event(s)

Classes/Students Involved

- HHP 4800: Capstone for Public Health
  - 11 students
- NURS 4050/4051: Community and Public Health Nursing/Community and Public Health Nursing Clinical
  - ~51 students
- MTEC 4090: Clinical Hematology
  - 16 students
- SW 3620: Micro Social Work Practice
  - 14 students

+~92 total students

Required Student Activities: Govs Wellness Hub Events

1. Wellness Hub Events: health screenings and nutrition/food security programming
   a. February 11: Eating Breakfast to Fuel Your Body and Brain
   b. March 4: Cooking at Home/In Your Room and Packing Your Meals
   c. March 25: Healthy and Fresh Spring Smoothies
2. All events occur from 11 am - 1 pm in MUC Ballroom
   a. We have it reserved from 10 am - 2 pm to allow time for setup and tear down.

Required Student Activities: Govs Wellness Hub Events (cont.)

3. Each course (except HHP 4800) will be split into thirds creating three cohorts.
   - Cohort 1 implements the 2/11 event.
   - Cohort 2 implements the 3/4 event.
   - Cohort 3 implements the 3/25 event.
- NOTE: Your professor(s) will provide you with the cohort lists.

Required Student Activities: Govs Wellness Hub Events (cont.)

4. Many items related to the Hub events will be included in your D2L shells throughout the semester:
- Event "game plans" which will detail the plan for each event.
- Promotional flyers
- Recipe cards for food security/nutrition programming (SW 3620)
- The healthy heart screening booklets (NURS 4050, MTEC 4090, and HHP 4800)
- Event supply lists for screenings and food programming

Required Student Activities: Research Poster Assignments

1. Research Poster Assignments
   a. Group Contract Assignment
   b. Introduction/Background Assignment
   c. Methods Assignment
   d. Results and Conclusions Assignment
   e. Poster
   f. Presentations
      i. 4/16 at Tennova from 2-4 pm
      ii. 4/23 on campus as part of the APSU Student Research and Scholarly Activity Symposium from 8-5 pm in the MUC Ballroom
   g. Self- and Peer-Evaluation

- NOTE: All assignments will appear in separate files and may contain items like the following:
  - Assignment Guidelines
  - Grading Rubric
  - AI Addendum
  - AI Disclosure
  - Student Example
  - Video Overview
  - Other

Required Student Activities: Research Poster Possible Topics

- Total Cholesterol and HDL: Relation to Heart Health
- Blood Pressure: Hypertension
- Blood Glucose, Hemoglobin A1C, and Diabetes
- Iron Levels and its Importance
- C-Reactive Protein: Relation to CVD
- Body Composition, Obesity, and CVD
- Physical Activity and CVD Outcomes
- Nutrition and the Following:
  - Fish and Shellfish
  - Whole Grains
  - Sodium
  - Sugar-Sweetened Beverages
  - Fruits and Vegetables
- Nutrition and the Following:
  - The Importance of Breakfast
  - The Importance of Preparing Meals
  - Healthy Beverages and Smoothies
- Smoking and Vaping and CVD Outcomes

Required Student Activities: Choosing Topics, Group Leaders, and Group Communication

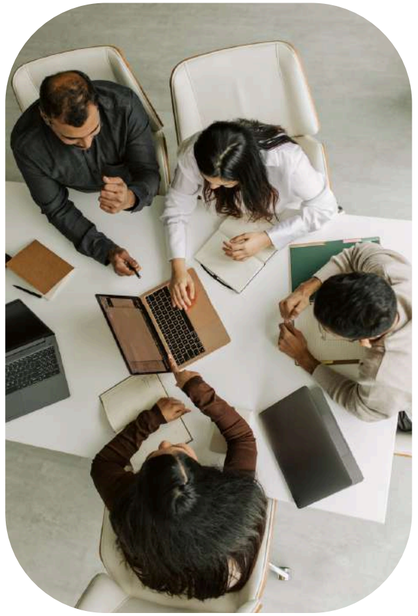
- With 11 students in HHP 4800, there will be a total of 11 research poster groups.
- Since the HHP 4800 course is centered around this entire Hub and research poster experience, each HHP 4800 student will be designated as the leader of their groups.
- During the first week of class, HHP 4800 students will select their topics from the previous list.
- By the end of week 1, they will contact their group via email to begin the research poster assignment journey.
- All major communication related to the research poster assignments can be directed to the HHP 4800 group leaders first and then to Tyler.

Planning Model

Formation of Teams, Selection of Topics, and Semester Assignments

Teams

- 10 total teams with each having 1 student from HHP 4800 (designated as the group leader)
- All teams had representation from NURS 4050/4051 and MTEC 4090

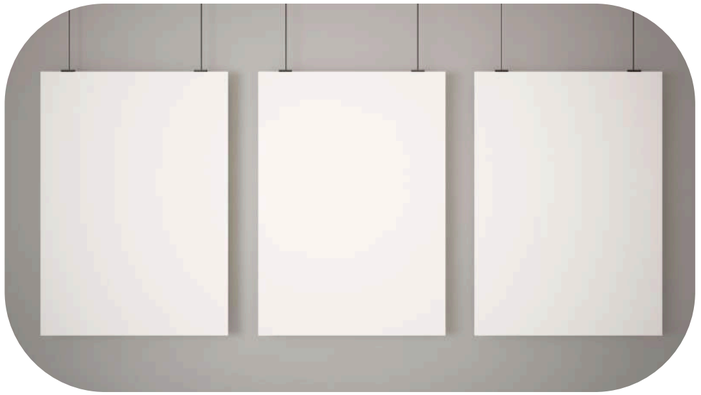


Topics

- Total Cholesterol and HDL: Relation to Heart Health
- Blood Pressure: Hypertension
- Blood Glucose, Hemoglobin, A1C, and Diabetes
- Iron Levels and its Significance
- C-Reactive Protein: Relation to CVD
- Body Composition, Obesity, and CVD
- Nutrition and the Importance of Fish and Shellfish, Whole Grains, and Fruits and Vegetables
- Sodium, Sugar-Sweetened Beverages and Influence on CVD
- Nutrition and the Importance of Breakfast, Preparing Meals, and Healthy Beverages and Smoothies
- Smoking, Vaping, and CVD

Assignments

- Group Contract
- Introduction/Background Assignment
- Methods Assignment
- Govs Wellness Hub Event
- Results and Conclusion Assignment
- Research Poster
- Poster Presentation #1: Tennova Healthcare – Nursing Research Poster Symposium
- Poster Presentation #2: APSU Student Research & Scholarly Activity Symposium



Planning/Implementation Model

Govs Wellness Hub Events: Important Documents

Screening Consent Form

Govs Wellness Hub Health Screening Consent Form
Austin Peay State University

Purpose

This form provides information about health screening procedures conducted at the Govs Wellness Hub in the Morgan University Center Ballroom. This screening event is a collaborative effort between Public Health, Nursing, and Medical Laboratory Science students.

Important Notice

This screening is for educational and preliminary assessment purposes only. The results are not diagnostic and should not be considered a substitute for a complete medical evaluation. We strongly recommend following up with your healthcare provider to discuss your results and obtain comprehensive medical advice.

Screening Procedures

1. **Blood Analysis (fingerstick and venous sample)**
   - Measurement of total cholesterol, HDL, glucose, hemoglobin, hemoglobin A1C, iron, CRP, and hematocrit.
   - Involves a small lancet puncture to the finger and a small needle puncture to a vein in the arm to obtain the blood sample.
2. **Blood Pressure and Heart Rate**
   - Blood pressure cuff measurement on the upper arm
   - Recording of systolic/diastolic pressure and heart rate
3. **Body Composition Assessment**
   - Height and weight measurements for BMI calculation
   - Waist circumference measurement
   - Body fat percentage using handheld bioelectrical impedance analysis (BIA)

Potential Risks

Blood Analysis
- Possible bruising or minor discomfort at the puncture sites
- Potential lightheadedness or dizziness
- Minimal risk of infection

Blood Pressure Measurement
- Temporary discomfort from cuff pressure

Body Composition
- BIA is not recommended for individuals with electronic medical implants or who are pregnant
- Measurements are taken with attention to privacy, but some disclosure of measurements may occur

2/2/2025

Govs Wellness Hub Health Screening Consent Form
Austin Peay State University

Participant Agreement

By signing below, I acknowledge and agree that:
- I am at least 18 years of age and an APSU student
- I understand this is a screening only and not a diagnostic medical examination
- I have been informed of the potential risks
- I may decline any part of the screening at any time
- The screening is performed by students under faculty supervision
- All information collected will be kept confidential
- I should seek medical care for any concerning results
- I am responsible for any follow-up medical care and associated costs

Medical Emergency Protocol

Appropriate medical services will be contacted in case of an emergency during the screening. Any costs associated with emergency care or follow-up medical treatment are the participant's responsibility.

Consent

Print Name: _____ Date: _____

Signature: _____ A Number: _____

Contact Phone: _____

Emergency Contact: _____ Phone: _____

Health Information (check all that apply)

□ History of fainting with blood draws

□ Pregnancy

□ Electronic medical implant

□ Bleeding disorders

□ Other medical conditions: _____

2/2/2025

Screening Reference Guide

Healthy Heart Screening Reference Guide
Govs Wellness Hub Event - Austin Peay State University

Blood Lipids

Measurement	Your Numbers	Low Risk	Moderate Risk	High Risk
Total Cholesterol (mg/dL)		<200	200-239	≥240
HDL (mg/dL) - Women		≥60	50-59	<50
HDL (mg/dL) - Men		≥60	40-59	<40
Total Cholesterol/HDL Ratio - Women		<3.0	3.0-4.4	>4.4
Total Cholesterol/HDL Ratio - Men		<3.5	3.5-5.0	>5.0

Blood Glucose and Hemoglobin A1C

Measurement	Your Numbers	Low Risk	Moderate Risk	High Risk
Non-fasting Glucose (mg/dL)		<140	140-199	≥200
Fasting Glucose (mg/dL)		≤99	100-125	≥126
Hemoglobin A1C		Normal: <5.7%	Pre-diabetic: 5.7-6.4%	Diabetic: >6.4%

Hemoglobin, Iron, CRP, and Hematocrit

Analyte	Your Numbers	Low	Normal	High
Hemoglobin – Men (g/dL)		<13.5	13.5-17.5	>17.5
Hemoglobin – Women (g/dL)		<12	12-16	>16
Iron – Men (ug/dL)		<50	50-150	>150
Iron – Women (mcg/dL)		<35	35-145	>145
CRP* (mg/dL)		<1	1-3	>3
Hematocrit – Men (%)		<41	41-50	>50
Hematocrit – Women (%)		<36	36-44	>44

*C-reactive protein (CRP) test measures inflammation in the body, which can indicate an increased risk of heart disease, infection, or other health conditions. Elevated CRP levels suggest the need for further medical evaluation.

Body Composition Measurements

Body Mass Index

Measurement	Your Numbers	Low Risk	Moderate Risk	High Risk
BMI		18.5-24.9	25-29.9 (Overweight)	30-34.9 (Class 1 Obesity)
				35-39.9 (Class 2 Obesity)
				≥40 (Class 3 Obesity)

Waist Circumference

Measurement	Your Numbers	Low Risk	Moderate Risk	High Risk
Women (inches)		<31.5	31.5-34.9	≥35
Men (inches)		<37	37-39.9	≥40

Body Fat Percentage

Group	Your Numbers	Low Risk	Moderate Risk	High Risk
Women 20-39 years		21-32.9%	33-38.9%	≥39%
Women 40-59 years		23-33.9%	34-39.9%	≥40%
Women 60-79 years		24-35.9%	36-41.9%	≥42%
Men 20-39 years		8-19.9%	20-24.9%	≥25%
Men 40-59 years		11-21.9%	22-27.9%	≥28%
Men 60-79 years		13-24.9%	25-29.9%	≥30%

Blood Pressure and Heart Rate

Your Blood Pressure Reading Today:

Measurement	Your Number
Systolic (upper number)	_____ mmHg
Diastolic (lower number)	_____ mmHg

Blood Pressure Categories:

Blood Pressure Category	Systolic (upper number)		Diastolic (lower number)
Normal	Less than 120	and	Less than 80
Elevated	120-129	and	Less than 80
High Blood Pressure (Hypertension) Stage 1	130-139	or	80-89
High Blood Pressure (Hypertension) Stage 2	140 or higher	or	90 or higher
Hypertensive Crisis (consult your doctor immediately)	Higher than 180	and/or	Higher than 120

Heart Rate	Your Number	Normal	High
Resting Heart Rate (bpm)		60-100	>100

Diet and Nutrition

Measurement	Your Numbers	Low Risk	Moderate Risk	High Risk
Vegetables and Fruits (cups/day)		≥4.5	>0 to <4.5	0
Fish/Shellfish (3.5-oz servings/week)		≥2	>0 to <2	0
Whole Grains (1 oz servings/day)		≥3	>0 to <3	0
Sodium (mg/day)		≤1,500	>1,500 to <4,500	≥4,500
Sugar-sweetened beverages (fl oz/week)		≤36	>36 to <210	≥210

Physical Activity

Activity Type	Your Numbers	Low Risk	Moderate Risk	High Risk
Moderate-Intensity Aerobic (min/week)		≥150	>0 to <150	0
Vigorous-Intensity Aerobic (min/week)		≥75	>0 to <75	0
Muscle-Strengthening (days/week)		≥2	1	0

Smoking/Vaping Status

Status	Your Response	Low Risk	High Risk
Smoking/Vaping		No	Yes

QUESTIONS FOR PHYSICAL ACTIVITY, DIET, AND SMOKING STATION

PHYSICAL ACTIVITY QUESTIONS

- How many minutes of aerobic activity do you get per week when your heart rate is increased but you can still have a conversation with someone?
- How many minutes of aerobic activity do you get per week when your heart rate is increased but you cannot have a conversation with someone?
- How many times per week do you do strength training where you are exercising all your major muscle groups?

DIET QUESTIONS

- How many cups of vegetables and fruit do you eat in a day? Imagine a cup being the size of your fist.
- How many servings of fish do you eat in a week? One serving is about the size of a deck of cards.
- How many servings of whole grains do you eat per day? One serving of whole grain is a slice of whole grain toast; a half-cup of cooked oatmeal, pasta, or rice; or a cup of dry cereal.
- How much salt do you consume per day? Remember, one teaspoon of salt is about 2,300 mg.
- How many ounces of sugar-sweetened beverages do you drink per week? Remember, a can of soda is usually 12 ounces.

SMOKING QUESTIONS

- Do you smoke tobacco products (e.g., cigarettes, cigars, cigarillos, etc.)?
- Do you vape?

Planning/Implementation Model

Govs Wellness Hub Events: Important Documents

Govs Wellness Hub Student Participant Survey

Govs Wellness Hub Survey 2025

Thank you for your willingness to complete this survey for the Govs Wellness Hub event. This survey contains questions about your health and family history. This survey may take anywhere between 5-10 minutes to complete.

This survey will help Austin Peay State University students better understand what they gained from the health screenings and nutrition education programming. We greatly appreciate you taking the time to complete the survey, and we all hope you enjoyed your experience at the Govs Wellness Hub event!

Part 1: Demographics

Q1: What is your age?

a. 18-24 years old
b. 25-34 years old
c. 35-44 years old
d. 45-54 years old
e. 55 years or older

Q2: What gender do you identify as?

a. Male
b. Female
c. Non-binary
d. Transgender
e. I prefer not to answer
f. Other _____

Q3: Please specify your race:

a. African American
b. Latino or Hispanic
c. Caucasian
d. Asian
e. Native American
f. Native Hawaiian or Pacific Islander
g. Bi- or Multi-racial
h. Prefer not to answer
i. Other/Unknown _____

Q4: Are you married?

a. Yes
b. No
c. In a domestic partnership
d. Prefer not to answer

Q5: How many children do you have?

a. None
b. 1
c. 2-4
d. More than 4
e. Prefer not to answer

Q6: What is your military affiliation status? (Select all that apply)

a. Currently serving in Active Duty
b. Currently serving in the National Guard/Reserves
c. Veteran/Former Service Member
d. Military dependent/spouse
e. Military dependent/child
f. ROTC Student
g. No military affiliation
h. Prefer not to answer

Part 2: Hub-Related Questions

Topic: Blood Pressure: Hypertension (Madison)

Q7: Which of the following is considered a normal blood pressure reading?

a. 116/82 mmHg
b. 134/68 mmHg
c. 126/72 mmHg
d. 118/76 mmHg
e. I'm not sure

Q8: How do you manage stress that may impact your blood pressure?

Topic: Total Cholesterol and HDL: Relation to Heart Health (Chasity)

Q9: Which of the following is considered a healthy total cholesterol?

a. 221 mg/dL
b. 254 mg/dL
c. 178 mg/dL
d. None of the above

Q10: Explain how you can increase your HDL levels.

Topic: C-Reactive Protein: Relation to CVD (Christianna)

Q11: Do you smoke (e.g., cigarettes, marijuana, vape, etc.)?

a. Yes
b. No
c. Used to, but quit

Q12: How many hours of sleep do you get every night?

a. Less than 4 hours
b. 4-6 hours
c. 7-9 hours
d. More than 9 hours

Q13: Describe your daily stress levels.

Topic: Iron Levels and its Importance (Hannah)

Q14: Which of these reflects healthy or normal iron levels? (g/dL for men; mcg for women)

a. 162
b. 135
c. 26
d. 17

Q15: How can you change your diet to increase and/or maintain your iron levels?

Topic: Nutrition and the Importance of Fish and Shellfish, Whole Grains, and Fruits and Vegetables (Wisanee)

Q16: How often do you eat the following food groups during the week?

Fish and Shellfish:

a. Never
b. 1-2 times
c. 3-4 times
d. 5 or more times

Whole Grains:

a. Never
b. 1-2 times
c. 3-4 times
d. 5 or more times

Fruits and Vegetables:

a. Never
b. 1-2 times
c. 3-4 times
d. 5 or more times

Q17: How would you explain the role of fish, shellfish, whole grains, and fruits and vegetables in promoting heart health and preventing cardiovascular disease?

Topic: Body Composition, Obesity, and CVD (Gazala)

Q18: Does your family have a history of obesity?

a. Yes
b. No
c. I don't know
d. I prefer not to say

Q19: How often do you eat fast food?

a. All the time (6-7 times per week)
b. Often (3-5 times per week)
c. Sometimes (1-2 times per week)
d. Rarely (1-3 times per month)
e. Never

Q20: Do you feel that your body composition affects your daily life? Why or why not?

Topic: Blood Glucose, Hemoglobin A1C, and Diabetes (Shalaya)

Q21: Which of the following A1C levels is considered in the pre-diabetic range?

a. 6.1
b. 5.7
c. 6.8
d. None of the above

Q22: How can you reduce and/ or manage diabetes now or in the future?

Topic: Sodium, Sugar-Sweetened Beverages and Influence on CVD (Abby)

Q23: On average, how many sugar-sweetened drinks do you consume weekly?

a. 0
b. 1-3
c. 4-6
d. 7+

Q24: How do you feel after drinking sugar-sweetened beverages in the short and long term?

Topic: Nutrition and the Importance of Breakfast, Preparing Meals, and Healthy Beverages and Smoothies (MacKenzie)

Q25: How many times a week do you eat breakfast?

a. 0-2
b. 3-4
c. 5 or more
d. Never

Q26: Preparing my meals at home helps me reduce my overall daily calorie intake.

a. Strongly agree
b. Agree
c. Neither agree nor disagree
d. Disagree
e. Strongly disagree

Q27: Describe your ideal healthy beverage or smoothie.

Topic: Smoking, Vaping, and CVD (Farrin)

Q28: Do you smoke cigarettes or vape?

a. No
b. Yes

Q29: Vaping is associated with cardiovascular disease.

a. Strongly Agree
b. Agree
c. Neither agree nor disagree
d. Disagree
e. Strongly disagree

Q30: Describe personal experiences and/or exposures to smoking and/or vaping throughout your life.

Planning/Implementation Model

Govs Wellness Hub Events: Important Documents

Pre- and Post-Hub Journal Reflections: Dr. Bliss followed the below email schedule to send initial and reminder emails to research study participants.

Week	Dates	Cohort	Event/Prompt Type	Action	Date & Time	Location
Week 3	Feb 3 - Feb 9	Cohort 1	Pre-Hub Reflection	Initial Email	Mon, Feb 3, 8am	-Cohort 1 Email List
				Reminder Email	Wed, Feb 5, 8am	-Cohort 1 Email List
Week 4	Feb 10 - Feb 16	Cohort 1	Hub Event	Event	Tue, Feb 11, 11am-1pm (reserved 10 am – 2 pm)	MUC Ballroom
			Post-Hub Reflection	Initial Email	Wed, Feb 12, 8am	-Cohort 1 Email List
				Reminder Email	Fri, Feb 14, 8am	-Cohort 1 Email List
Week 6	Feb 24 - Mar 2	Cohort 2	Pre-Hub Reflection	Initial Email	Mon, Feb 24, 8am	-Cohort 2 Email List
				Reminder Email	Wed, Feb 26, 8am	-Cohort 2 Email List
Week 7	Mar 3 - Mar 9	Cohort 2	Hub Event	Event	Tue, Mar 4, 11am-1pm (reserved 10 am – 2 pm)	MUC Ballroom
			Post-Hub Reflection	Initial Email	Wed, Mar 5, 8am	-Cohort 2 Email List
				Reminder Email	Fri, Mar 7, 8am	-Cohort 2 Email List
Week 9	Mar 17 - Mar 23	Cohort 3	Pre-Hub Reflection	Initial Email	Mon, Mar 17, 8am	-Cohort 3 Email List
				Reminder Email	Wed, Mar 19, 8am	-Cohort 3 Email List
Week 10	Mar 24 - Mar 30	Cohort 3	Hub Event	Event	Tue, Mar 25, 11am-1pm (reserved 10 am – 2 pm)	MUC Ballroom
			Post-Hub Reflection	Initial Email	Wed, Mar 26, 8am	-Cohort 3 Email List
				Reminder Email	Fri, Mar 28, 8am	-Cohort 3 Email List
Week 14	Apr 21 - Apr 27	Cohorts 1-3	Final Hub Reflection	Initial Email	Thu, Apr 24, 8am	-Cohorts 1-3 Email List
				Reminder Email	Fri, Apr 25, 8am	-Cohorts 1-3 Email List

Planning/Implementation Model

Govs Wellness Hub Event #1: Promotional Flyer and Facebook and Instagram Infographics

Facebook Infographic

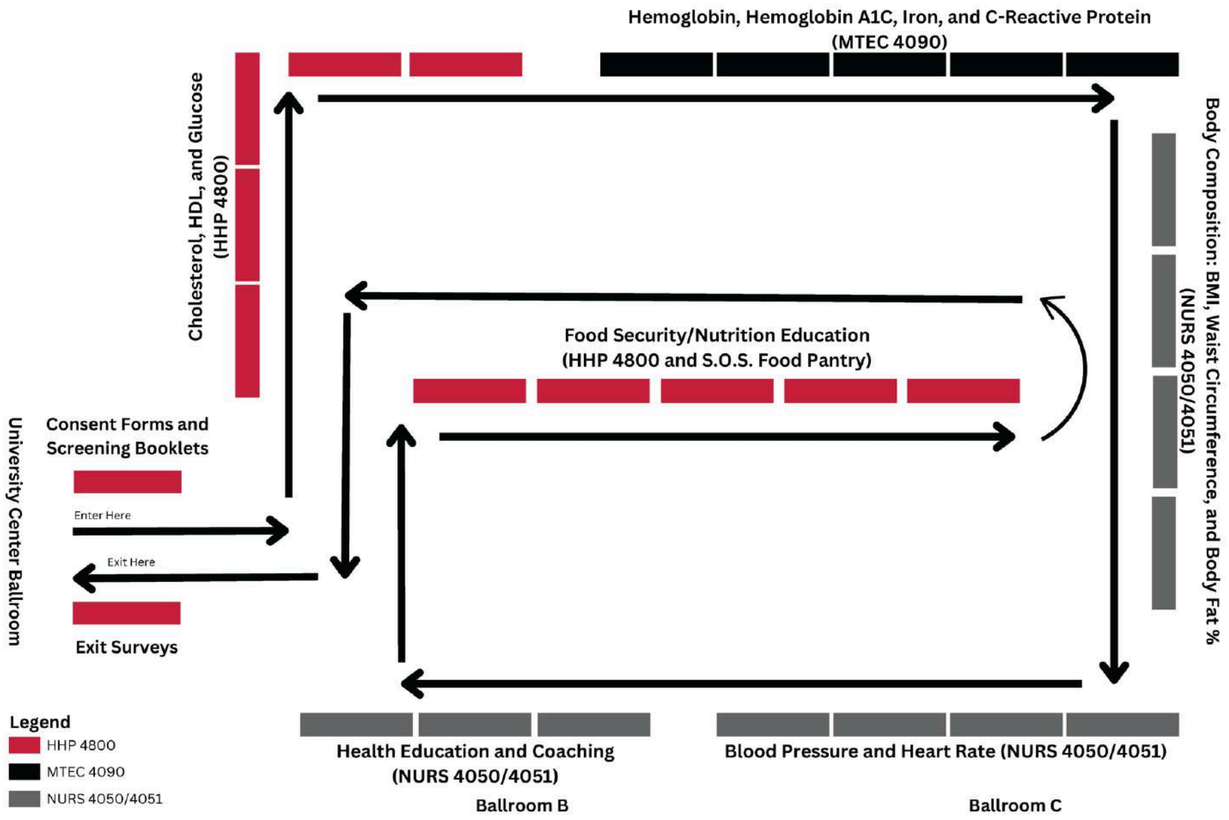
Flyer

Instagram Infographic

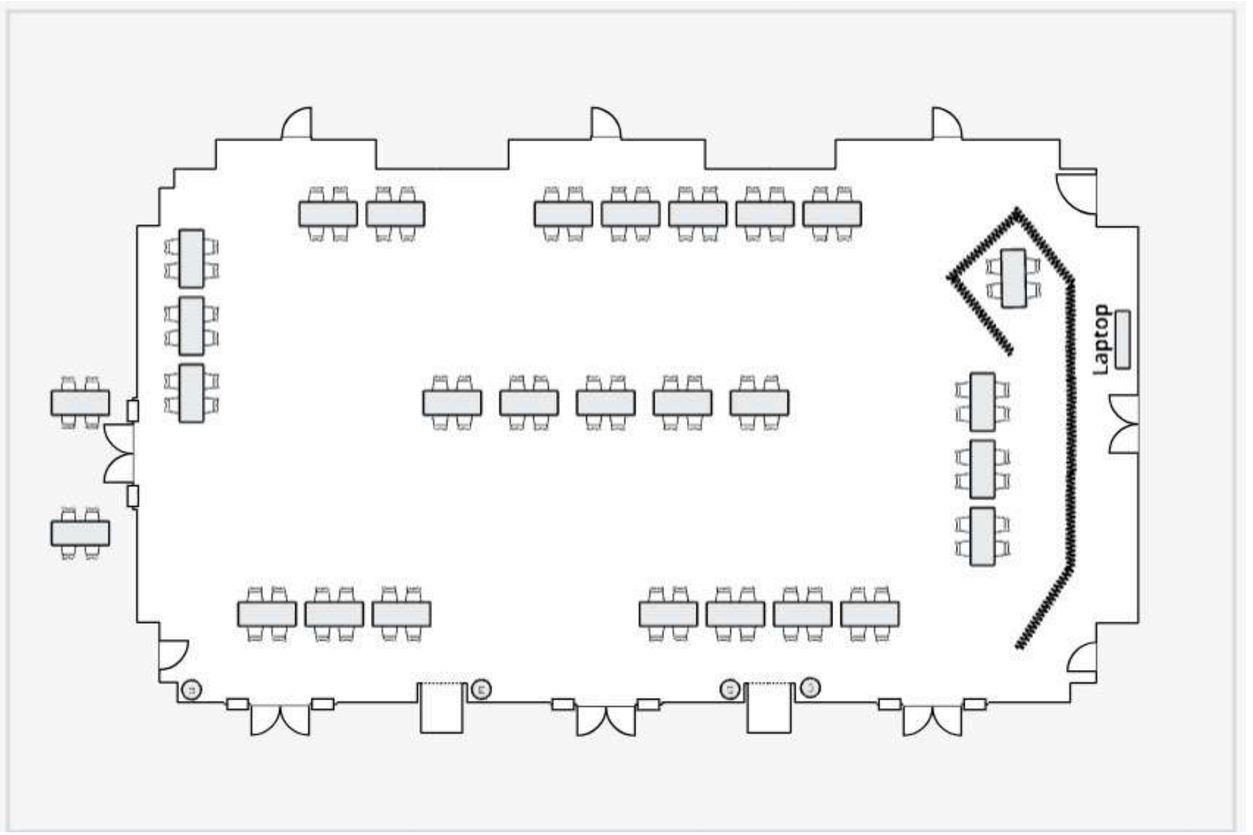
Planning/Implementation Model

Govs Wellness Hub Event #1: Map of MUC Ballroom

Original Map from Team



MUC-Generated Map



Planning/Implementation Model

Govs Wellness Hub Event #1: Social Media Infographic Recaps

Facebook Infographic Recap

Instagram Infographic Recap

Planning/Implementation Model

Govs Wellness Hub Event #2: Promotional Flyer and Facebook and Instagram Infographics

Facebook Infographic

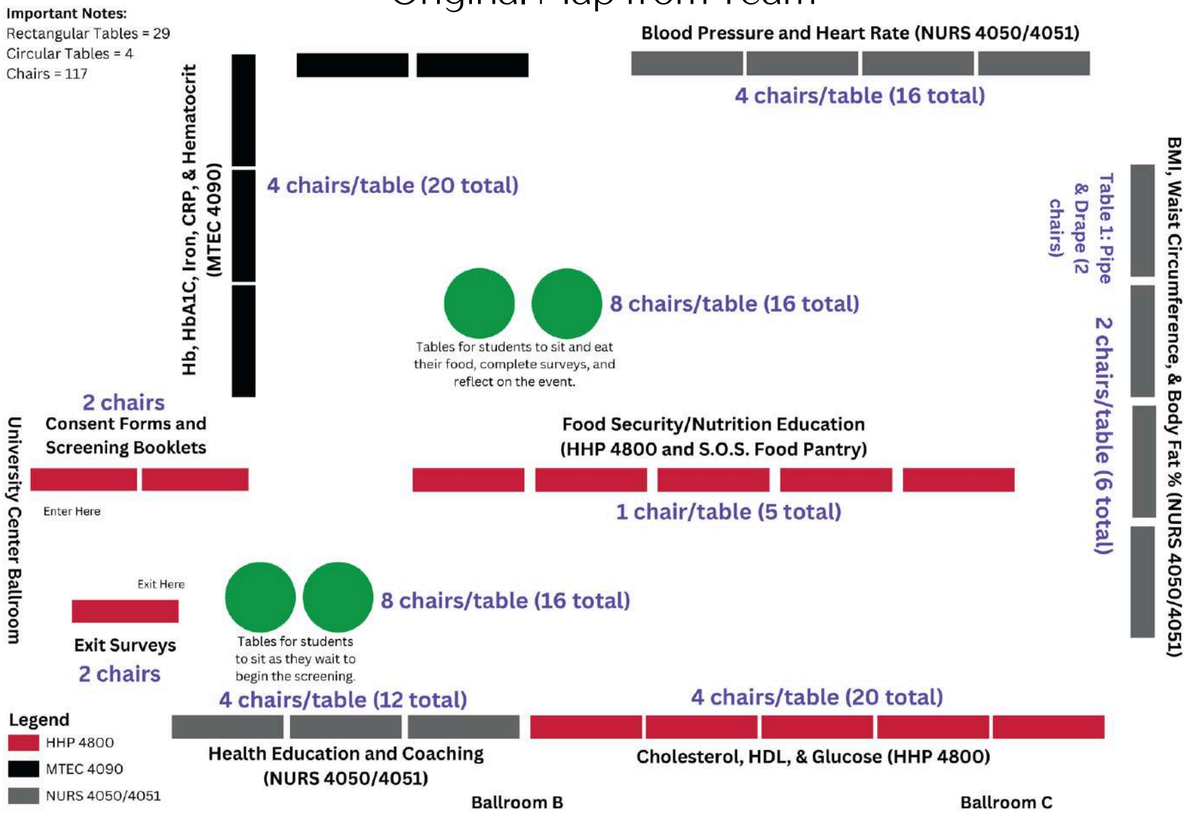
Flyer

Instagram Infographic

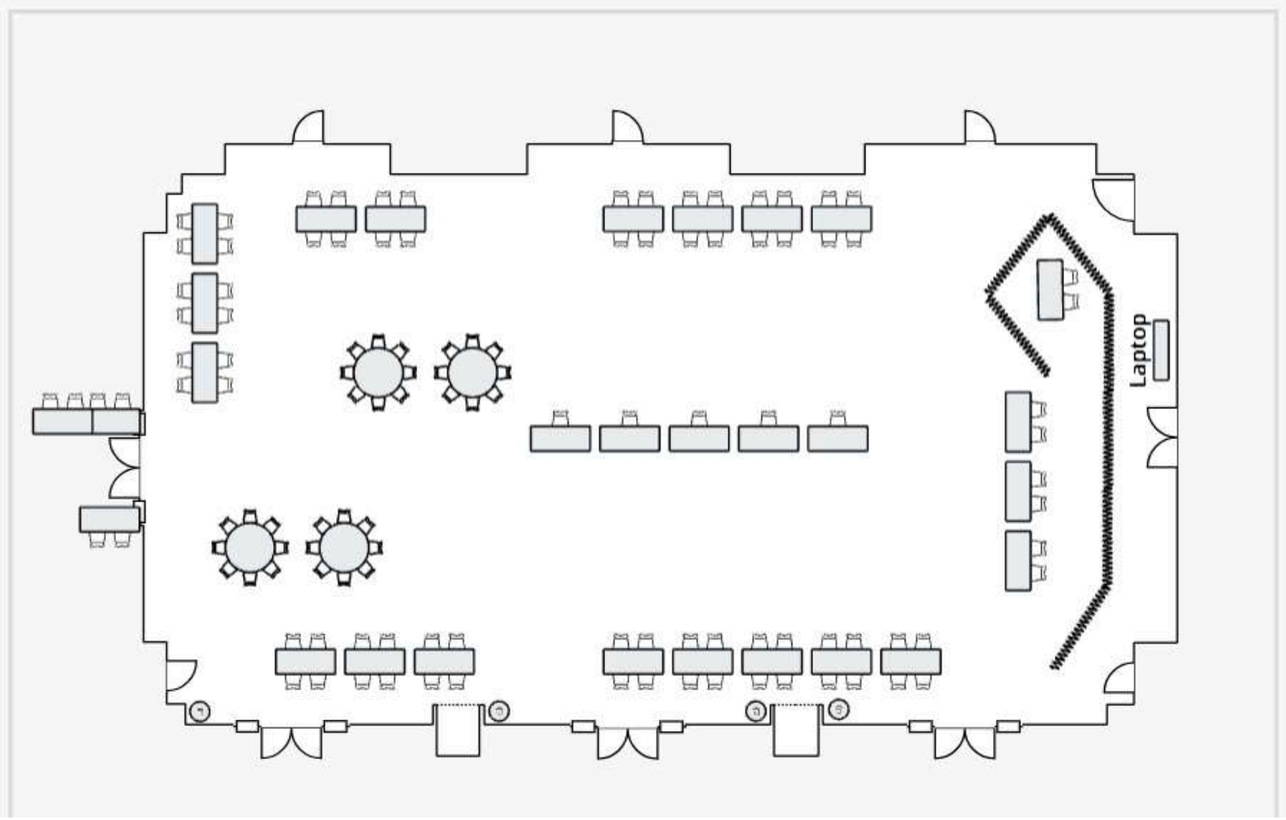
Planning/Implementation Model

Govs Wellness Hub Event #2: Map of MUC Ballroom

Original Map from Team



MUC-Generated Map



Planning/Implementation Model

Govs Wellness Hub Event #2: Social Media Infographic Recaps

Facebook Infographic Recap

Instagram Infographic Recap

Planning/Implementation Model

Govs Wellness Hub Event #3: Promotional Flyer and Facebook and Instagram Infographics

Facebook Infographic

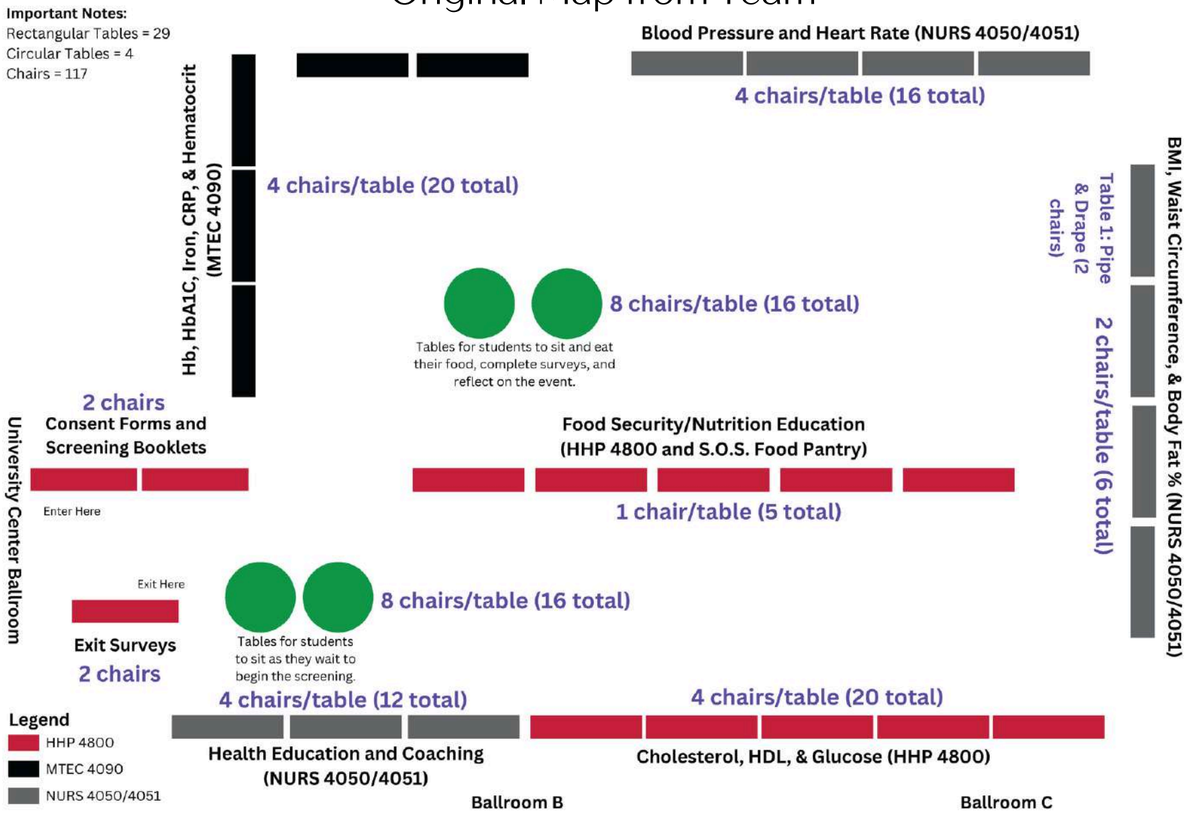
Flyer

Instagram Infographic

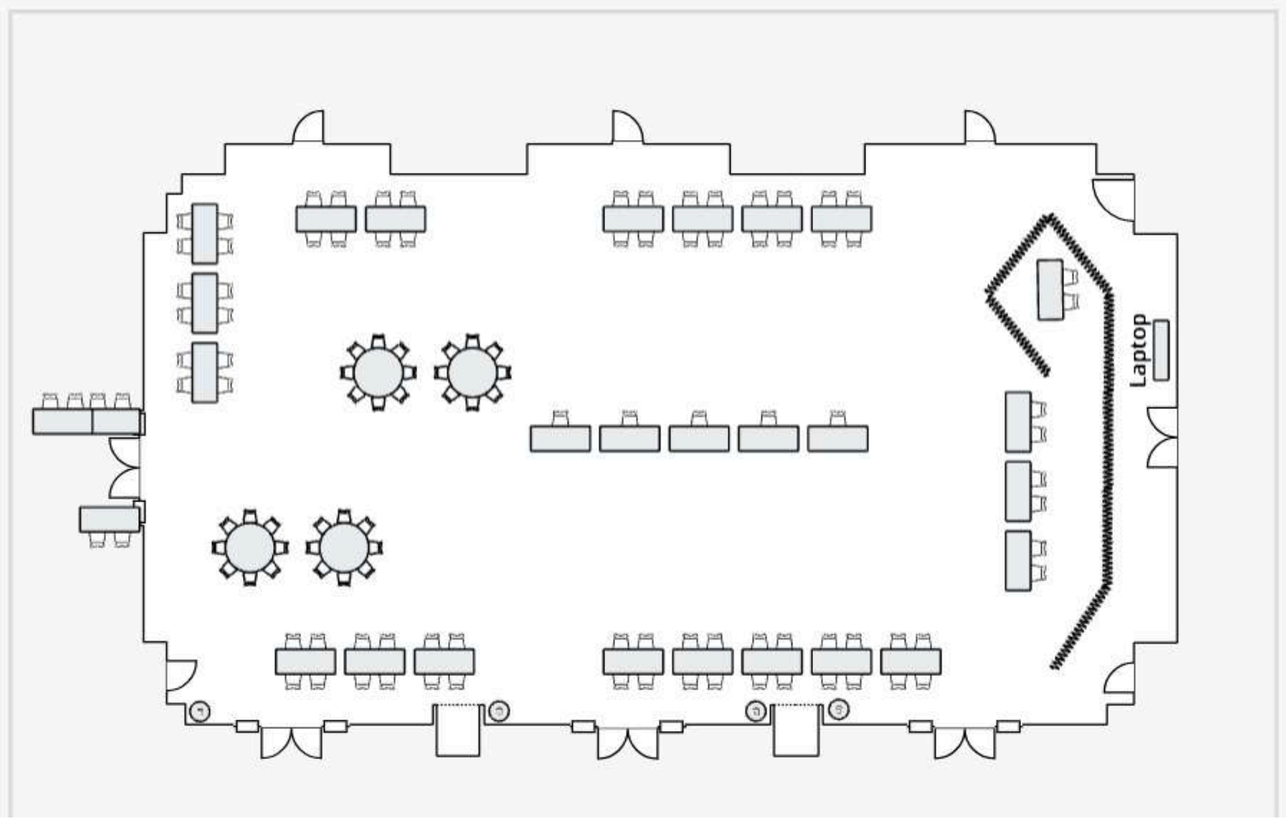
Planning/Implementation Model

Govs Wellness Hub Event #3: Map of MUC Ballroom

Original Map from Team



MUC-Generated Map



Planning/Implementation Model

Govs Wellness Hub Event #3: Social Media Infographic Recaps

Facebook Infographic Recap

Instagram Infographic Recap

Planning/Implementation Model

Govs Wellness Hub Event Summary

APSU Govs Wellness Hub – Spring 2025 Wrap-Up 🎉

- Program Highlights:
  - Led by students from HHP 4800, MTEC 4090, NURS 4050/4051, & Phlebotomy Tech
- By the Numbers:
  - 3 campus-wide wellness events
  - 160+ participants received health screenings
  - ~200 total participants
  - 69% survey response rate
  - 10+ faculty/staff supported the program
- Special Thanks:
  - Student leaders: Patrick Richardson & Shannon Slotwinski
  - Community partners: Ka'Niya Williamson (UT-Extension) & Nancy Proctor (Montgomery Co. Health Dept.)
  - Supportive faculty/staff: Dr. Phillips, Natalie DoVanne, Dr. Ruffin, Mrs. Baker, Dr. Bliss, Mrs. Lahann, Ms. Wills, and Paola Nolting
- Thank you to all who contributed to this successful initiative!

Evaluation Model

Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

TEAM 1

Abby Robertson: Group Leader (HHP 4800)
Daniella Stiles: MTEC 4090
Alexandra Tanafon: MTEC 4090
Ngan Tran: NURS 4050/4051
Johana Hernandez: NURS 4050/4051
Jacklyn Lucas: NURS 4050/4051
Olivia Heflin: NURS 4050/4051
Gabriela Trester: NURS 4050/4051

POSTER TITLE

The Impact of Sodium and Sugar-Sweetened Beverages on Cardiovascular Health

The Impact of Sodium, Sugar-Sweetened Beverages Impact on Cardiovascular

Abby Robertson, Daniella Stiles, Alexandra Tanafon, Ngan Tran, Johana Hernandez, Jacklyn Lucas, Olivia Heflin, Gabriela Trester
Dr. Tyler Nolting, Ph.D., MPH, MCHES, Dr. Heather Phillips, Ph.D., MLS(ASCP), MT(AMT), Dr. Tasha Ruffin, DNP, APRN, AG-ACNP-BC, & Mitzi Baker, MSN, FNP-BC, ACHPN

Public Health | Medical Laboratory Science | School of Nursing RN to BSN | Community Engagement & Sustainability

Abstract

❖ The Govs Wellness Hub at Austin Peay State University aimed to evaluate student consumption of sodium and sugar-sweetened beverages (SSBs) and their link to Cardiovascular disease (CVD). The three events engaged 160 students in health screenings: 59 attended Event 1, 51 attended Event 2, and 50 attended Event 3. Of these, 111 completed surveys (69% response rate). Events included screenings, education, and free food. The events were supported by over 85 student volunteers and faculty. Most participants (84%) were aged 18–24, with diverse representation: 53% female, 43% African American. Most students consumed 1–3 SSBs weekly (55%). Feedback showed varied effects from SSBs—some felt sluggish, others unaffected, and some avoided them. Many demonstrated awareness of related health risks. The program's strengths included interdisciplinary collaboration and incentives that boosted participation. Limitations included limited event frequency and small sample size. Overall, the initiative raised awareness and promoted healthier habits among APSU students.

Results

❖ After completing the Govs Wellness Hub Events, 160 participants participated. Out of these, 111 (69%) responded to the survey, which was used to conclude the event. From Event 1, 36 out of the 59 (61%) participants completed the survey. 39 out of 51 (76%) participants completed the survey from Event 2. Finally, at Event 3, 36 out of 50 (72%) of participants completed the survey. To calculate the quantitative data, we focused on descriptive statistics, including the mean, median, mode, and standard deviation. The mean value for how many sodium, sugar-sweetened beverages the participants consumed per week is 2 (1-3 beverages), the median is 2 (1-3 beverages), the mode is 2 (1-3 beverages), and the standard deviation is 1.

❖ Figure 1 provides a graphical representation of descriptive statistics that includes responses about how many sodium, sugar-sweetened beverages are consumed weekly by survey participants. This graph shows that most participants consume 1-3 sodium, sugar-sweetened beverages per week on average. Figure 2 provides a graphical representation of inferential statistics. A T-test was used to compare the means of men and women by how much sodium, sugar-sweetened beverages they consume weekly. There was no significance between males and females ($p=0.18$), but it had the lowest p-value of all the t-tests performed.

❖ Major themes (Table 1) present from the participant's feedback is that many are aware of the negative effects of sugar-sweetened beverages and are actively choosing healthier options like water or unsweetened tea. Some participants noted feeling tired, bloated, or sluggish after drinking these beverages, while some participants said they avoid these types of drinks altogether. Only a few mentioned feeling fine afterward drinking them.

Conclusions

❖ These results provide insight into APSU students' eating habits and nutrition knowledge, which can guide future events to address gaps in understanding. A key limitation was the limited availability of the HUB event, which reduced participation. Free food attracted students and encouraged learning about healthy eating and screenings. Most attendees were 18–24 years old with busy schedules, so timing is important. Surveys should be brief to avoid confusion, and clear goals help events run smoothly. Students have varied views on sodium and sugary drinks. Future public health students should keep goals and questions simple to avoid confusion and improve response quality.

Introduction

❖ Cardiovascular disease (CVD) is a group of conditions that affect the heart and blood vessels that can lead to stroke, heart failure, arrhythmias, heart valve problems, and blockages in the blood vessels that lead to your brain, or it can cause these blood vessels to burst which can lead to potential complications and a shorter life.[1,2] Risk factors include high blood pressure, high cholesterol, diabetes, smoking, poor diet, lack of exercise, obesity, men over 45, postmenopausal women, and people with a family history of CVD.[3,4]

❖ Because of ingredients, frequent consumption of salty snacks and sugar-sweetened beverages, like soda and energy drinks, increases the risk of cardiovascular disease by raising triglycerides, blood pressure, and obesity-related issues.[5,6,7] Limited healthy food options force college students to rely on sugary, high-sodium snacks, leading to poor academic performance and bad overall health.[8,9]

❖ Heart-healthy dietary patterns to reduce CVD contain primarily fruits and vegetables, food made with whole grains, healthy sources of protein, and reduced intake of beverages with added sugars and salts.[8] Studies have explored functional beverages with lipid-lowering effects, using fruit- and vegetable-based formulations that incorporate food waste to improve nutritional value.[9]

❖ To conclude, CVD remains a health concern influenced by factors such as diet, physical inactivity, smoking, and genetics. The consumption of sodium, sugar-sweetened beverages has been known to increase the risk of CVD because of their impact on obesity, hypertension, and metabolic health. Raising awareness and encouraging healthier lifestyle choices can reduce the risk of CVD and enhance overall well-being.

Figure 1: *Number of sodium, sugar-sweetened beverages drank weekly*

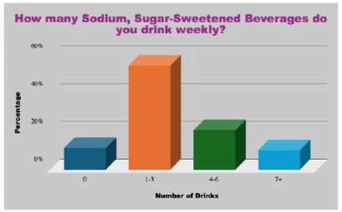
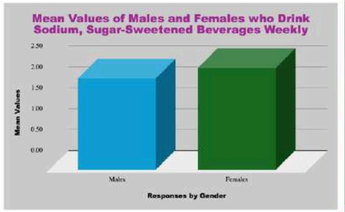


Figure 2: *Average Mean Values Between Female and Male ($p<.05$).*



Methods

❖ The quantitative survey questions used is "On average, how many sugar-sweetened drinks do you consume weekly?" (0, 1-3, 4-6, 7+). We used descriptive statistics and frequency values to create bar graphs to show the total number of responses received for each of our answer choices to the question. Inferential statistics and t-tests helped us analyze if demographics of the surveyed population to interpret significant differences in the answers. We used Microsoft Excel to analyze the data from the surveys. The qualitative survey question we used is, "How do you feel after drinking sugar-sweetened beverages in the short and long term?" We used thematic analysis to identify themes and sub-themes with the responses from the participants.

❖ There were a total of 160 participants from all three Hub Wellness Events (59 from Event 1, 51 from Event 2, and 50 from Event 3). A mixture of students from different genders, races, ethnicities, and lifestyles were surveyed at the event. 69% of participants responded to our survey. Given the responses, more women participated in the surveys compared to men. Additionally, primarily 18-to 24-year-olds participated in the survey. African Americans had the highest participation rate compared to Latino/Hispanic, Caucasian, Asian, and Native American.

❖ The Govs Wellness Hub program evaluated diet, nutrition, physical activity levels, and smoking/vaping status using various health screenings, including cholesterol, glucose, hemoglobin, body composition, blood pressure, and heart rate. Nursing, Public Health, and Medical Laboratory Science students perform screenings and education and data analysis.

❖ We implemented three Hub events in the Morgan University Center, targeting diet and nutrition, physical activity levels, and healthy lifestyles. Utilized testing and surveys helped us analyze the knowledge the participants have about sodium, sugary-sweetened beverages and educate them accordingly. Nursing students performed health education and coaching to help students understand their intake levels of sugar-sweetened beverages.

❖ Data was collected by asking participants to complete a survey before leaving the event. Our questions were both quantitative and qualitative, focusing on sodium and sugar-sweetened beverage consumption. The questions asked participants about their weekly intake of sodium and sugar-sweetened beverages and their understanding of how these beverages affect their health.

Table 1: Major Themes Present From Question, *"How do you feel after drinking sugar-sweetened beverages in the short and long term?"*

	Participant Responses		
Theme #1: Not very good	"I actually think a normal can is too much for me. I prefer the even smaller cans of soda if I do drink one"	"Like it in the short term it's not good for you in the long term"	"Sluggish"
Theme #2: Fine/Normal	"I feel fine for the most part."	"Good I guess"	"I don't feel particularly affected."
Theme #3: I don't drink them	"I don't drink that"	"Nothing"	"I don't drink them."

Acknowledgements

We would like to thank the following people and organizations who were instrumental in helping develop and implement the 2025 Govs Wellness Gov program: the Maynard Family Fund of Excellence, Dr. Kadi Bliss (Department of Health & Human Performance), Olivia Lahann and Alexandra Wills (Community Engagement and Sustainability), Patrick Richardson (APSU MPH Student), Ka'Niya Williamson (UT-Extension), Shannon Slotwinski (APSU Public Health Undergraduate Student), and Nancy Proctor (Montgomery County Health Department).

Contact

Abby Robertson
abbyclaire2020@gmail.com

References

1. American Heart Association. (2024). *What is cardiovascular disease?* https://www.heart.org/en/health-topics/consumer-healthcare/what-is-cardiovascular-disease
2. Bleiweis, C. & Mudiayaa, N. (2022). *A literary review on potential health risks of "soft drinks."* Journal of Nutrition Studies. https://doi.org/10.25259/Jons_12_2022
3. Johns Hopkins Medicine. (2025). *ABCs of knowing your heart risk.* https://www.hopkinsmedicine.org/health/wellness-and-prevention/abcs-of-knowing-your-heart-risk
4. Mozaffarian, D., Wilson, P. W., & Kannel, W. B. (2008). *Beyond established and novel risk factors: Lifestyle risk factors for cardiovascular disease.* Circulation, 117(23), 3031-3038. https://doi.org/10.1161/CIRCULATIONAHA.107.738331
5. Pacanowski, D., & Marrero Jr, D. N. (2022). *The impacts of sugar-sweetened beverages (SSB) on cardiovascular health.* Curress, 14(7), e26948. https://doi.org/10.7759/cureus.26948
6. Ren, Y., Peng, C., Li, Y., Zhou, F., Yang, M., Xiang, D., Hao, L., Tang, X., & Feng, J. (2022). *The association between sugar-sweetened beverage and high-energy diet and academic performance in junior school students.* National Library of Medicine. https://doi.org/10.3389/fpubh.2022.977
7. Samuel, L., Ortiero-Dalton, E., Jandali-Rosario, S., & Blake, C. (2023). *Restricted quality of snacks and beverages sold through vending machines in a Long Beginning urban college campus in the United States: across-sectional study.* Journal of Public Health Research, 12(2). https://doi.org/10.1177/22799036231179841
8. Yaemsiri, S., Ianopolo, D., Chiavarelli, J., Hendricks, D., Coulson, P. L., Avello, F., & Santiago, M. S. (2020). *The role of functional beverages in mitigating cardiovascular disease risk factors: A focus on their antidiabetic and hypolipidemic properties.* Beverages, 10(1), 21. https://doi.org/10.3390/beverages10010021
9. Tahmouzie, J. F. & Ibrahim, A. (2020). *Impact of soft drinks to health and economy: A critical review.* Clinical Oral Investigations, 24(4), 1485-1496. https://doi.org/10.1007/s00784-020-03388-8
10. World Health Organization (2021, June 11). *Cardiovascular diseases (CVDs).* https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)

Evaluation Model

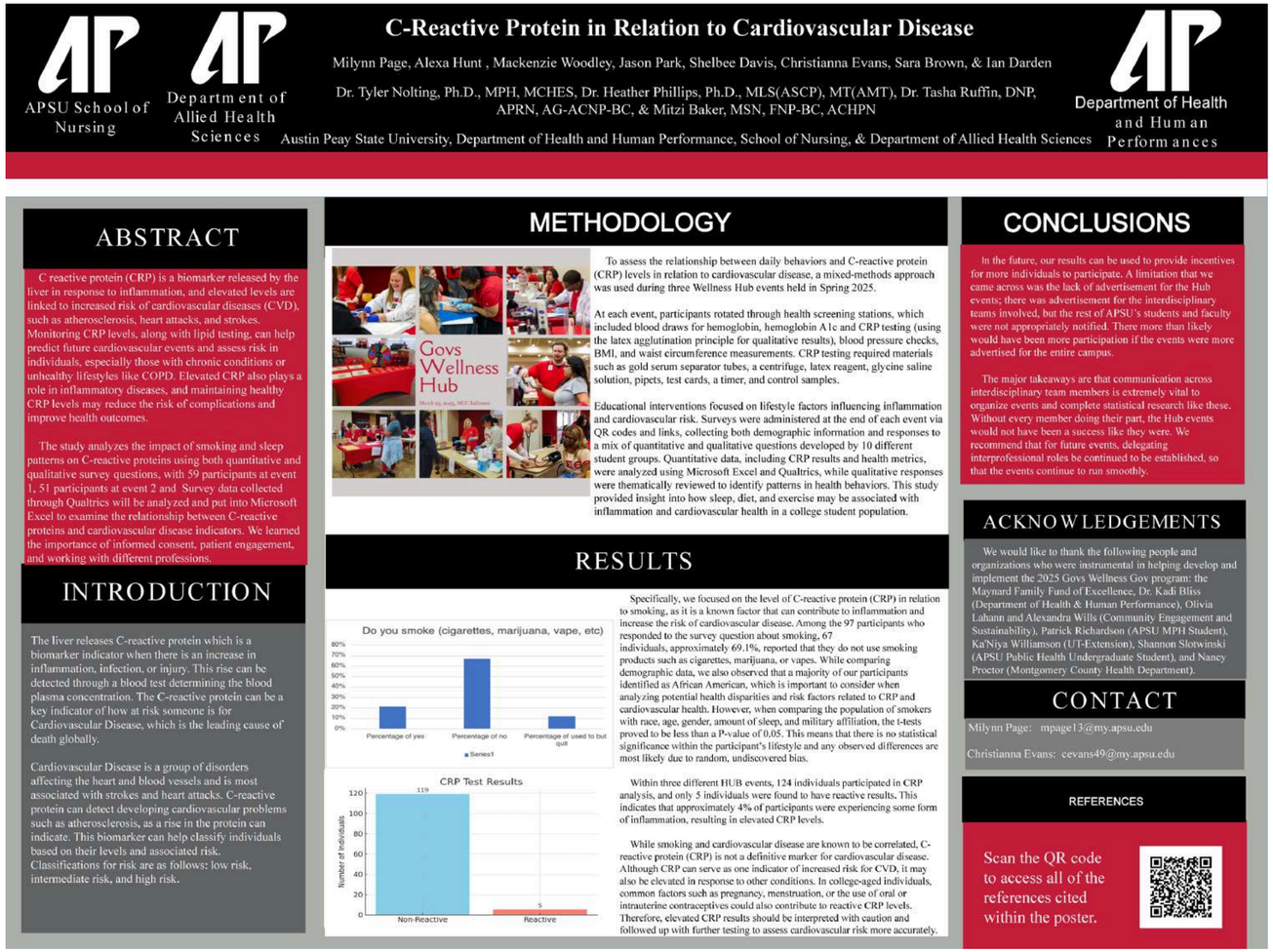
Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

TEAM 2

Christianna Evans: Group Leader (HHP 4800)
Milynn Page: NURS 4050/4051
Alexa Hunt: NURS 4050/4051
Mackenzie Woodley: NURS 4050/4051
Jason Park: NURS 4050/4051
Shelbee Davis: NURS 4050/4051
Sara Brown: MTEC 4090
Ian Darden: MTEC 4090

POSTER TITLE

C-Reactive Protein in Relation to Cardiovascular Disease



Evaluation Model

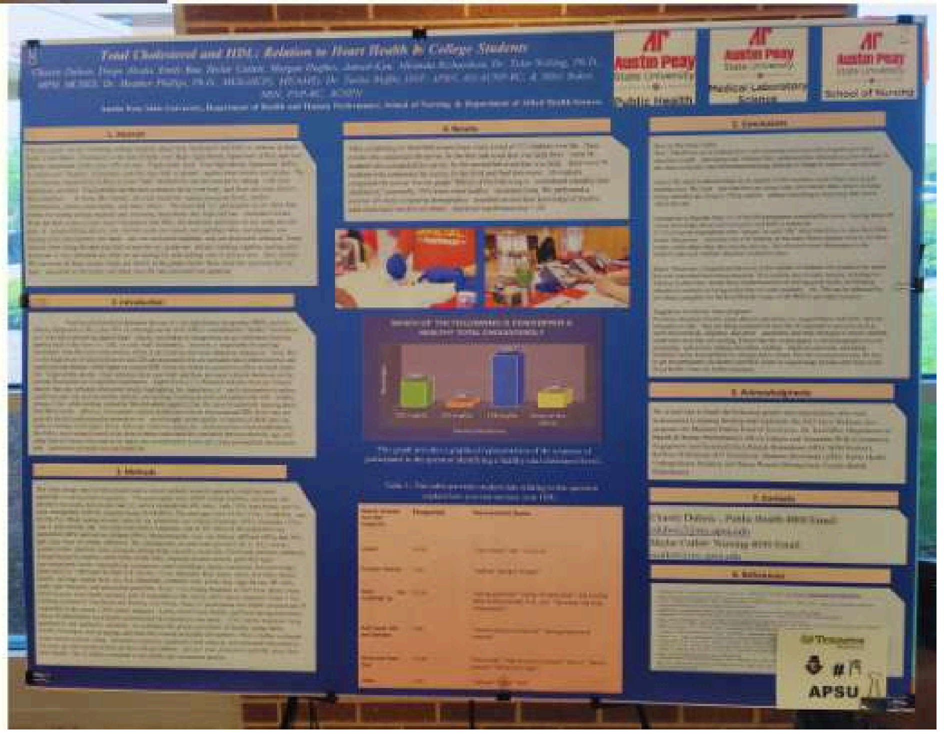
Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

TEAM 3

Chasity Dubois: Group Leader (HHP 4800)
Diego Alcala: MTEC 4090
Emily Bau: MTEC 4090
Skylar Catlett: NURS 4050/4051
Morgan Hughes: NURS 4050/4051
Junsub Kim: NURS 4050/4051
Miranda Richardson: NURS 4050/4051

POSTER TITLE

Total Cholesterol and HDL: Relation to Heart Health in College Students



Total Cholesterol and HDL: Relation to Heart Health in College Students

Chasity Dubois, Diego Alcala, Emily Bau, Skylar Catlett, Morgan Hughes, Junsub Kim, Miranda Richardson, Dr. Tyler Nolting, Ph.D., MPH, MCHES, Dr. Heather Phillips, Ph.D., MLS(ASCP), MT(AMT), Dr. Tasha Ruffin, DNP, APRN, AG-ACNP-BC, & Mitzi Baker, MSN, FNP-BC, ACHPN

Austin Peay State University, Department of Health and Human Performance, School of Nursing, & Department of Allied Health Sciences

Austin Peay State University Clarksville Tennessee Public Health
Austin Peay State University Clarksville Tennessee Medical Laboratory Science
Austin Peay State University Clarksville Tennessee School of Nursing

1. Abstract

For our poster, we are informing college students about total cholesterol and HDL in relation to their heart. Total Blood Cholesterol is the sum of both your High- high-density lipoprotein (HDL) and low-density lipoprotein (LDL) plus 20% of your Triglyceride level. Your high-density lipoprotein (HDL) is called your "healthy" cholesterol, and this may help to protect against heart attacks and strokes. The Low-Density Lipoproteins (LDL), or your "bad" cholesterol, can be lowered by talking with your healthcare provider. Triglycerides are the most common fat in your body, and there are many factors that contribute to them, like obesity, physical inactivity, eating processed foods, alcohol consumption, excess sugar intake, and many others. We have had 111 participants at our three Hub events for testing college students and informing them about their high and low cholesterol levels. With the Hub events to test Total Cholesterol and HDL, the materials and tools we are using are one pair of proper-fitting gloves, one alcohol swab, one lancet, one capillary tube, one plunger, one testing strip, one cassette, one band- aid, one cholestech machine, and one disposable underpad. Some lessons from doing the past two hub events for my group are always working together, making sure everyone is very informed on what we are testing for, and making sure to always have their consent. We surveyed all three events which are shown in the graphs below there were two questions for our topic presented at the events and there were 89 who answered our questions.

2. Introduction

Total blood cholesterol represents the sum of your high-density lipoprotein (HDL) and low-density lipoprotein (LDL), plus 20% of your triglyceride level. HDL is considered the "healthy" cholesterol, as it may aid in protecting against heart attacks and strokes by transporting excess cholesterol from the arteries back to the liver (1). LDL, or your "bad" cholesterol, however, is responsible for carrying cholesterol from the liver to the arteries, where it can build up and cause dangerous plaques to form. This is why high levels of total cholesterol and LDL are associated with an increased risk of atherosclerosis and cardiovascular disease, while higher or normal HDL levels are linked to a protective effect on heart health (4). Triglycerides are the most common fat in your body and there are many lifestyle factors as well as normal fluctuations as we age that contribute to higher levels (1,7). Research indicates there are lifestyle factors that also influence cholesterol levels, highlighting the importance of early intervention to reduce cardiovascular risk such as aerobic activity, not smoking, limiting alcohol, and eating foods with healthy omega-3 fats while limiting unhealthy fats and added sugar(2,3,5,6). We are still constantly learning about how these levels affect us, for example, certain studies have shown that increased HDL levels may not provide the full cardiovascular protection we once thought, as the quality in function of HDL does not seem to increase with higher levels. Although reference ranges for cholesterol have been established by the AHA, more research needs to be done to better understand the correlation between ethnicity, age, and other lifestyle factors that need to be taken into consideration to provide a more personalized and accurate risk assessment of cardiovascular health (8).

3. Methods

The study design used for this project used a mixed methods research approach, which included quantitative and qualitative questions. The participants were APSU college students, and around 160 attended the events, but we only had 111 survey respondents. 46% were male, 53% were female, and 1% were transgender, with the majority being 18-24(84%). The other ages were 25-34 (11%), 35-44(4%) and 45-54(1%). When coming to race, most of our population was African American (43%), Caucasian (33%) was a close second, and our least were Native Americans, just at 1%. Most of this population was unmarried (84%) and had no children (90%). Most participants were not military affiliated (68%), and 36% had some form of military affiliation. The materials that we used were gloves(S, M, L, XL), lancets, alcohol swabs, capillary tubes, plungers, testing strips, cassettes, band-aids, Cholestech machine, underpads, straight/butterfly needles, cotton balls, needle hubs, isopropyl alcohol sachets, gold SST/ tiger top/orange/gray marble top/purple top vacutainers, small centrifuges, sharps containers, blue arm wedge, hand sanitizer, CRP/Hgb/Hct/Hgb A1C test kit, 12 test tube racks, Kim wipes, timers, test tubes, diluted bleach, red bags, regular trash can, five tablecloths, extension cord, power strip, tarps for cart, BP cuffs, scale, tape measurer, and educational pamphlets. Event 1 was Eating Breakfast to Fuel Your Brain, where 59 participants were health screened, and 36 responded to the survey. (61% survey response) Event 2 was Cooking at Home/In Your Room and Packing your Meals, where 51 participants were health screened and 39 responded to the survey. (76% survey response) Lastly, event 3 was Healthy and Fresh Spring Smoothies, where 50 participants were health screened and 36 responded to the survey. (72% survey response) Using quantitative and qualitative questions, we evaluated this group's perception of healthy eating habits, healthy beverages, meal prepping, and what they viewed as healthy lab numbers. This is further evaluated in the results portion. Using descriptive statistics, qualitative data analysis, and inferential data analysis, we came up with results to back up how college students perceive total cholesterol and HDL about their heart health. This is further evaluated in the results and conclusions portion.

4. Results

After completing all three Hub events there were a total of 111 students over the three events who completed the survey. In the first hub event that was held, there were 36 students who completed the survey. In the second hub event that was held, there were 39 students who completed the survey. In the third and final hub event, 36 students completed the survey. For the graph "Which of the following is considered a healthy total cholesterol," essentially, 55% knew what healthy cholesterol was. We performed a number of t-tests comparing demographic populations and their knowledge of healthy total cholesterol but did not obtain statistical significance at p < .05.

OFFICIAL GOVERNOR

WHICH OF THE FOLLOWING IS CONSIDERED A HEALTHY TOTAL CHOLESTEROL?
Percentages
26%
5%
55%
15%
221 mg/dL
254 mg/dL
178 mg/dL
None of the Above
Survey Responses

This graph provides a graphical representation of the response of participants to the question identifying a healthy total cholesterol level..

Table 1: This table provides student data relating to the question explain how you can increase your HDL.

How to Increase Your HDL Categories	Frequency	Representative Quotes
Unsure	37.7%	"I don't know" "IDK" "not sure"
Increase Exercise	7.5%	"walking" "going to the gym"
Good Diet modificati on	32.1%	"eating good fats" "eating O3 fatty acids" "Eat healthy fatty foods (avocado, fish, etc)" "Decrease red meat consumption"
Both Good Diet and Exercise	5.7%	"Healthy eating and exercise" "Eating properly and exercise"
Stress and Poor Diet	11.3%	"Fatty foods" "High amounts of sodium" "Stress" "Rarely exercise" "Eating more sugar"
Other	5.7%	"Normal" "Good" "N/A"

5. Conclusions

How Is This Data Useful:
Now: This allows us to evaluate how well everyone involved in this program provided education to each participant and whether they understood the information given to them. It also helps us decide what information/teaching methods to change to improve our outcomes.

Future: We need to educate them on all aspects of their numbers, even if they have good numbers now. We must ask what they are doing today and educate them on how to keep doing what they are doing or if they need to change something to help keep their levels where they are.

Limitations in Results: Only 111 of the 160 participants completed the survey, leaving about 49 whose knowledge about total cholesterol and HDL is unknown.
37.7% of survey respondents were "unsure" or said "idk" when asked how to raise their HDL levels- this proves education was a bit lacking on this topic. Some students went to all three events, while others their first was the last one. This allowed a trend discrepancy in the student's data and whether education worked for them.

Major Takeaways: A significant takeaway is the number of students who wanted to be tested but were prevented from being educated. This could be due to many reasons, including not wanting to share their results due to embarrassment, not having good results, not thinking education is needed, not being aware that we were available, etc. This can be addressed by providing a pamphlet for the Boyd Health Center or MCPHD to get other resources.

Suggestions for similar future programs!
Prioritize education! For the most effective education, we suggest that at each table, they are educated on what they are being screened for and why it's essential to use tools such as teach-back methods, diagrams, take-home pamphlets, and other strategies to ensure students understand what they are learning. Ensure that the events appeal to the demographic you are presenting, such as how making smoothies, cooking meals in your room, and eating breakfast can be accomplished on campus and in dorms. Provide resources not only for how to get the participant's cholesterol and HDL levels in a good range but also send them to the Boyd Health Center for further assistance.

6. Acknowledgments

We would like to thank the following people and organizations who were instrumental in helping develop and implement the 2025 Govs Wellness Gov program: the Maynard Family Fund of Excellence, Dr. Kadi Bliss (Department of Health & Human Performance), Olivia Lahann and Alexandra Wills (Community Engagement and Sustainability), Patrick Richardson (APSU MPH Student), Ka'Niya Williamson (UT-Extension), Shannon Slotwinski (APSU Public Health Undergraduate Student), and Nancy Proctor (Montgomery County Health Department).

7. Contacts

Chasity Dubois – Public Health 4800 Email: cdubois2@my.apsu.edu
Skylar Catlett- Nursing 4050 Email: scatlett@my.apsu.edu

8. References

Evaluation Model

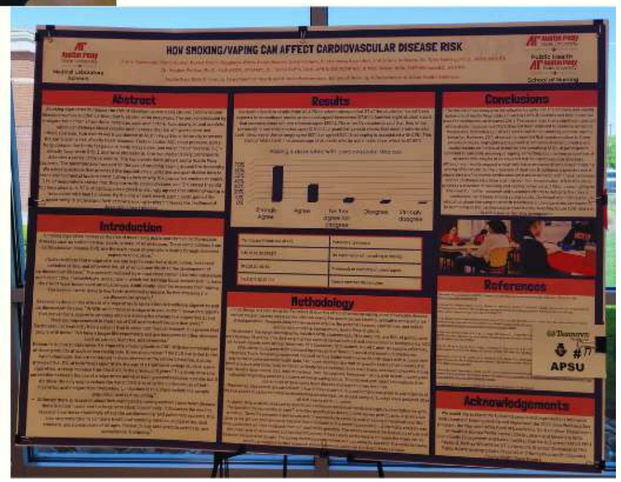
Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

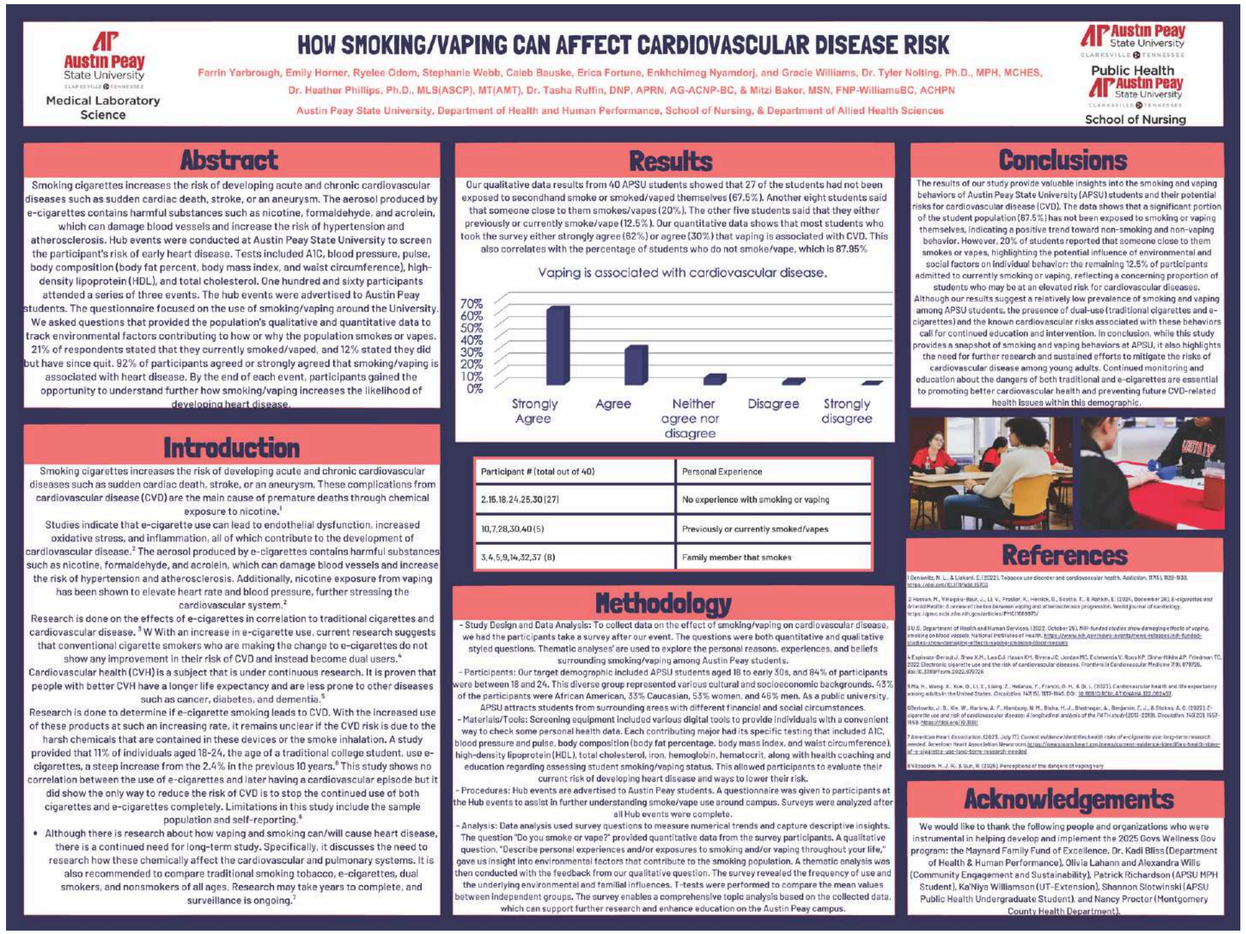
TEAM 4

Farrin Yarbrough: Group Leader (HHP 4800)
Emily Horner: MTEC 4090
Ryelee Odom: NURS 4050/4051
Stephanie Webb: NURS 4050/4051
Caleb Bauske: NURS 4050/4051
Erica Fortune: NURS 4050/4051
Enkhchimeg Nyamdorj: NURS 4050/4051
Gracie Williams: NURS 4050/4051

POSTER TITLE

How Smoking/Vaping Can Affect Cardiovascular Disease Risk





HOW SMOKING/VAPING CAN AFFECT CARDIOVASCULAR DISEASE RISK

Austin Peay State University — Medical Laboratory Science

Austin Peay State University — Public Health; School of Nursing

Farrin Yarbrough, Emily Horner, Ryelee Odom, Stephanie Webb, Caleb Bauske, Erica Fortune, Enkhchimeg Nyamdorj, and Gracie Williams, Dr. Tyler Nolting, Ph.D., MPH, MCHES, Dr. Heather Phillips, Ph.D., MLS(ASCP), MT(AMT), Dr. Tasha Ruffin, DNP, APRN, AG-ACNP-BC, & Mitzi Baker, MSN, FNP-WilliamsBC, ACHPN

Austin Peay State University, Department of Health and Human Performance, School of Nursing, & Department of Allied Health Sciences

Abstract

Smoking cigarettes increases the risk of developing acute and chronic cardiovascular diseases such as sudden cardiac death, stroke, or an aneurysm. The aerosol produced by e-cigarettes contains harmful substances such as nicotine, formaldehyde, and acrolein, which can damage blood vessels and increase the risk of hypertension and atherosclerosis. Hub events were conducted at Austin Peay State University to screen the participant's risk of early heart disease. Tests included AIC, blood pressure, pulse, body composition (body fat percent, body mass index, and waist circumference), high-density lipoprotein (HDL), and total cholesterol. One hundred and sixty participants attended a series of three events. The hub events were advertised to Austin Peay students. The questionnaire focused on the use of smoking/vaping around the University. We asked questions that provided the population's qualitative and quantitative data to track environmental factors contributing to how or why the population smokes or vapes. 21% of respondents stated that they currently smoked/vaped, and 12% stated they did but have since quit. 92% of participants agreed or strongly agreed that smoking/vaping is associated with heart disease. By the end of each event, participants gained the opportunity to understand further how smoking/vaping increases the likelihood of developing heart disease.

Introduction

Smoking cigarettes increases the risk of developing acute and chronic cardiovascular diseases such as sudden cardiac death, stroke, or an aneurysm. These complications from cardiovascular disease (CVD) are the main cause of premature deaths through chemical exposure to nicotine.[1]

Studies indicate that e-cigarette use can lead to endothelial dysfunction, increased oxidative stress, and inflammation, all of which contribute to the development of cardiovascular disease.[2] The aerosol produced by e-cigarettes contains harmful substances such as nicotine, formaldehyde, and acrolein, which can damage blood vessels and increase the risk of hypertension and atherosclerosis. Additionally, nicotine exposure from vaping has been shown to elevate heart rate and blood pressure, further stressing the cardiovascular system.[3]

Research is done on the effects of e-cigarettes in correlation to traditional cigarettes and cardiovascular disease.[3] W With an increase in e-cigarette use, current research suggests that conventional cigarette smokers who are making the change to e-cigarettes do not show any improvement in their risk of CVD and instead become dual users.[4]

Cardiovascular health (CVH) is a subject that is under continuous research. It is proven that people with better CVH have a longer life expectancy and are less prone to other diseases such as cancer, diabetes, and dementia.[5]

Research is done to determine if e-cigarette smoking leads to CVD. With the increased use of these products at such an increasing rate, it remains unclear if the CVD risk is due to the harsh chemicals that are contained in these devices or the smoke inhalation. A study provided that 11% of individuals aged 18-24, the age of a traditional college student, use e-cigarettes, a steep increase from the 2.4% in the previous 10 years.[6] This study shows no correlation between the use of e-cigarettes and later having a cardiovascular episode but it did show the only way to reduce the risk of CVD is to stop the continued use of both cigarettes and e-cigarettes completely. Limitations in this study include the sample population and self-reporting.[6]

- Although there is research about how vaping and smoking can/will cause heart disease, there is a continued need for long-term study. Specifically, it discusses the need to research how these chemically affect the cardiovascular and pulmonary systems. It is also recommended to compare traditional smoking tobacco, e-cigarettes, dual smokers, and nonsmokers of all ages. Research may take years to complete, and surveillance is ongoing.[7]

Results

Our qualitative data results from 40 APSU students showed that 27 of the students had not been exposed to secondhand smoke or smoked/vaped themselves (67.5%). Another eight students said that someone close to them smokes/vapes (20%). The other five students said that they either previously or currently smoke/vape (12.5%). Our quantitative data shows that most students who took the survey either strongly agree (62%) or agree (30%) that vaping is associated with CVD. This also correlates with the percentage of students who do not smoke/vape, which is 87.95%

Participant # (total out of 40)	Personal Experience
2,15,18,24,25,30 (27)	No experience with smoking or vaping
10,7,28,30,40 (5)	Previously or currently smoked/vapes
3, 4, 5, 9, 14, 32, 37 (8)	Family member that smokes

Methodology

- Study Design and Data Analysis: To collect data on the effect of smoking/vaping on cardiovascular disease, we had the participants take a survey after our event. The questions were both quantitative and qualitative styled questions. Thematic analyses' are used to explore the personal reasons, experiences, and beliefs surrounding smoking/vaping among Austin Peay students.
- Participants: Our target demographic included APSU students aged 18 to early 30s, and 84% of participants were between 18 and 24. This diverse group represented various cultural and socioeconomic backgrounds. 43% of the participants were African American, 33% Caucasian, 53% women, and 46% men. As a public university, APSU attracts students from surrounding areas with different financial and social circumstances.
- Materials/Tools: Screening equipment included various digital tools to provide individuals with a convenient way to check some personal health data. Each contributing major had its specific testing that included AIC, blood pressure and pulse, body composition (body fat percentage, body mass index, and waist circumference), high-density lipoprotein (HDL), total cholesterol, iron, hemoglobin, hematocrit, along with health coaching and education regarding assessing student smoking/vaping status. This allowed participants to evaluate their current risk of developing heart disease and ways to lower their risk.
- Procedures: Hub events are advertised to Austin Peay students. A questionnaire was given to participants at the Hub events to assist in further understanding smoke/vape use around campus. Surveys were analyzed after all Hub events were complete.
- Analysis: Data analysis used survey questions to measure numerical trends and capture descriptive insights. The question "Do you smoke or vape?" provided quantitative data from the survey participants. A qualitative question, "Describe personal experiences and/or exposures to smoking and/or vaping throughout your life," gave us insight into environmental factors that contribute to the smoking population. A thematic analysis was then conducted with the feedback from our qualitative question. The survey revealed the frequency of use and the underlying environmental and familial influences. T-tests were performed to compare the mean values between independent groups. The survey enables a comprehensive topic analysis based on the collected data, which can support further research and enhance education on the Austin Peay campus.

Conclusions

The results of our study provide valuable insights into the smoking and vaping behaviors of Austin Peay State University (APSU) students and their potential risks for cardiovascular disease (CVD). The data shows that a significant portion of the student population (67.5%) has not been exposed to smoking or vaping themselves, indicating a positive trend toward non-smoking and non-vaping behavior. However, 20% of students reported that someone close to them smokes or vapes, highlighting the potential influence of environmental and social factors on individual behavior. The remaining 12.5% of participants admitted to currently smoking or vaping, reflecting a concerning proportion of students who may be at an elevated risk for cardiovascular diseases.

Although our results suggest a relatively low prevalence of smoking and vaping among APSU students, the presence of dual-use (traditional cigarettes and e-cigarettes) and the known cardiovascular risks associated with these behaviors call for continued education and intervention. In conclusion, while this study provides a snapshot of smoking and vaping behaviors at APSU, it also highlights the need for further research and sustained efforts to mitigate the risks of cardiovascular disease among young adults. Continued monitoring and education about the dangers of both traditional and e-cigarettes are essential to promoting better cardiovascular health and preventing future CVD-related health issues within this demographic.

References

1 Benowitz, N. L., & Liakoni, E. (2022). Tobacco use disorder and cardiovascular health. Addiction, 117(6), 1933–1938. https://doi.org/10.1111/add.15722

2 Hasson, M., Vinagolu-Baur, J., Li, V., Frazier, K., Hendrix, D., Sirotta, T., & Rankin, K. (2024, December 26). E-cigarettes and brain health: A review of links between vaping and atherosclerosis progression. World journal of cardiology. https://pmc.ncbi.nlm.nih.gov/articles/PMC11684895/

3 U.S. Department of Health and Human Services. (2022, October 26). NIH-funded studies show damaging effects of vaping, smoking on blood vessels. National Institutes of Health. https://www.nih.gov/news-events/news-releases/nih-funded-studies-show-damaging-effects-vaping-smoking-blood-vessels

4 Espinoza-Derout J, Shao XM, Lee EJ, Hasan KM, Rivera JD, Jordan MC, Echeverria V, Roos KP, Shine-Hibbs AP, Friedman TC. (2022) Electronic cigarette use and the risk of cardiovascular diseases. Frontiers in Cardiovascular Medicine 9:916798. doi: 10.3389/fcvm.2022.916798

5 Ma, H., Wang, X., Xue, W., Li, Y., Liang, Z., Heianza, Y., Franco, O. H., & Qi, L. (2022). Cardiovascular health and life expectancy among adults in the United States. Circulation, 145(19), 1353–1362. doi: 10.1161/CIRCULATIONAHA.122.059432

6 Berlowitz, J. B., Xie, W., Harlow, A. F., Hardeep, N. M., Baha, M. J., Bhatnagar, A., Benjamin, E. J., & Stokes, A. C. (2021). E-cigarette use and risk of cardiovascular disease: A longitudinal analysis of the PATH study (2013–2019). Circulation, 143(20), 1929–1938. https://doi.org/10.1161/CIRCULATIONAHA.120.052344

7 American Heart Association. (2023, July 17). Current evidence identifies health risks of e-cigarette use, long-term research needed. American Heart Association Newsroom. https://newsroom.heart.org/news/current-evidence-identifies-health-risks-of-e-cigarette-use-long-term-research-needed

8 Wilcoxon, M. J. H., & Sun, R. (2026). Perceptions of the dangers of vaping vary

Acknowledgements

We would like to thank the following people and organizations who were instrumental in helping develop and implement the 2025 Govs Wellness Gov program: the Maynard Family Fund of Excellence, Dr. Kadi Bliss (Department of Health & Human Performance), Olivia Lahann and Alexandra Wills (Community Engagement and Sustainability), Patrick Richardson (APSU MPH Student), Ka'Niya Williamson (UT-Extension), Shannon Slotwinski (APSU Public Health Undergraduate Student), and Nancy Proctor (Montgomery County Health Department).

Evaluation Model

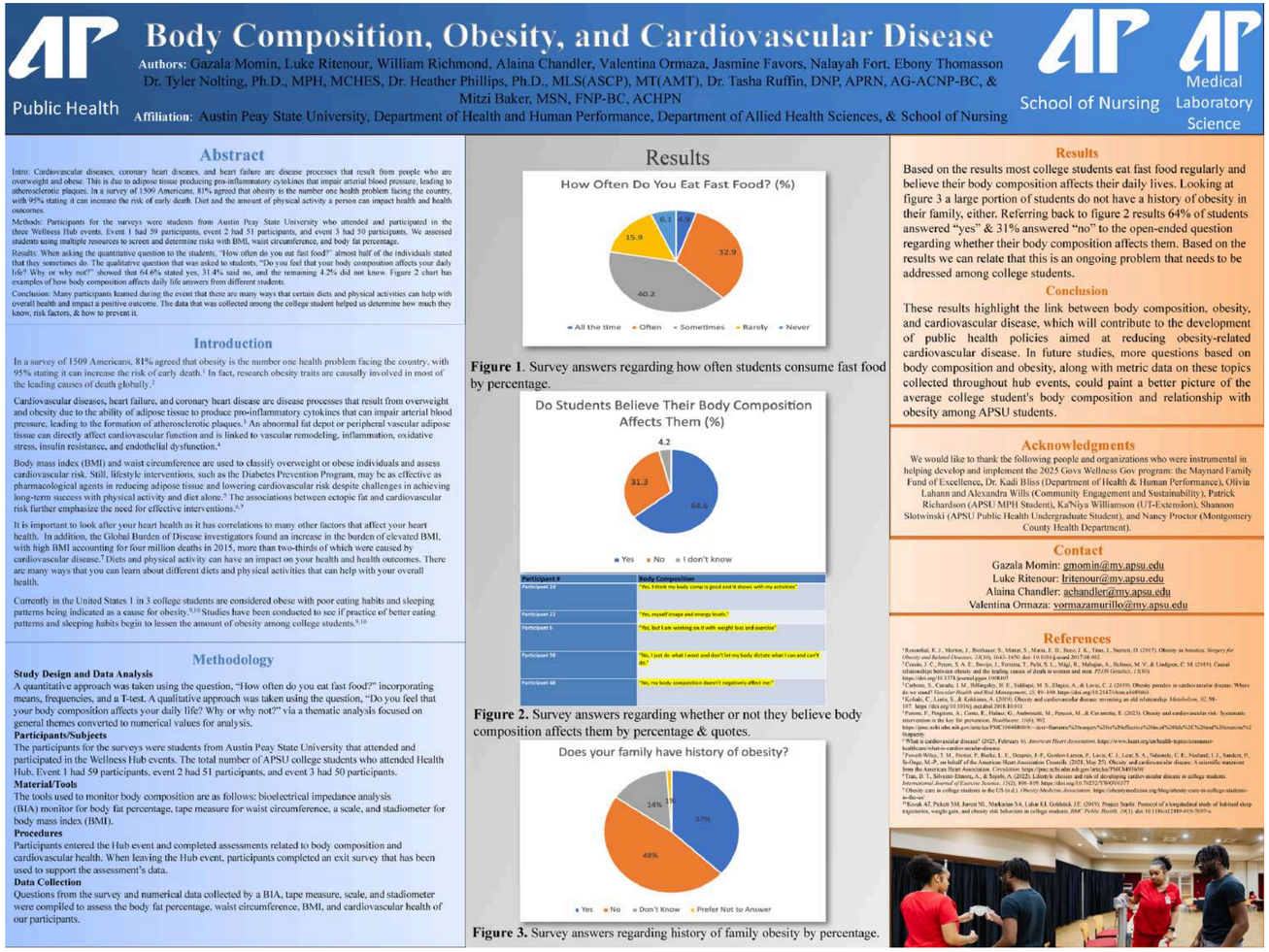
Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

TEAM 5

Gazala Momin: Group Leader (HHP 4800)
Luke Ritenour: MTEC 4090
William Richmond: MTEC 4090
Alaina Chandler: NURS 4050/4051
Valentina Ormaza: NURS 4050/4051
Jasmine Favors: NURS 4050/4051
Nalayah Fort: NURS 4050/4051
Ebony Thomasson: NURS 4050/4051

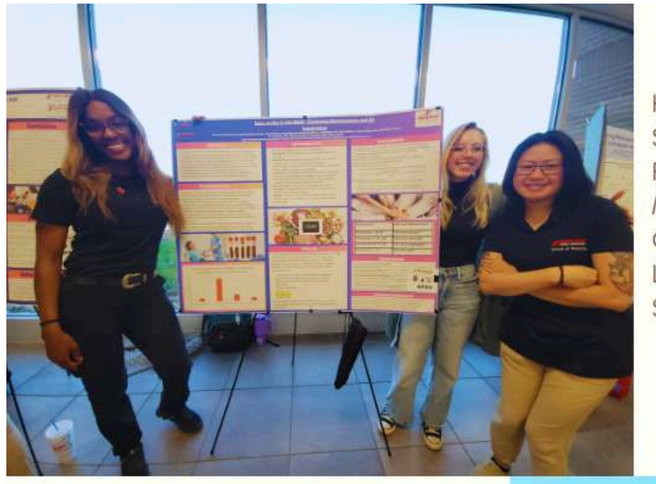
POSTER TITLE

Body Composition, Obesity, and Cardiovascular Disease



Evaluation Model

Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

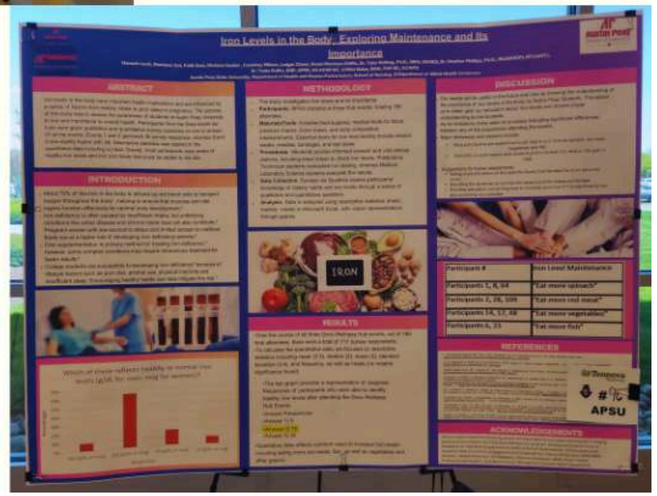


TEAM 6

Hannah Luck: Group Leader (HHP 4800)
Sharlyne Gul: NURS 4050/4051
Faith Suss: NURS 4050/4051
Marlana Goulet: MTEC 4090
Courtney Wilson: NURS 4050/4051
Ledger Chase: NURS 4050/4051
Susan Montoya-Griffis: NURS 4050/4051

POSTER TITLE

Iron Levels in the Body: Exploring Maintenance and its Importance



Evaluation Model

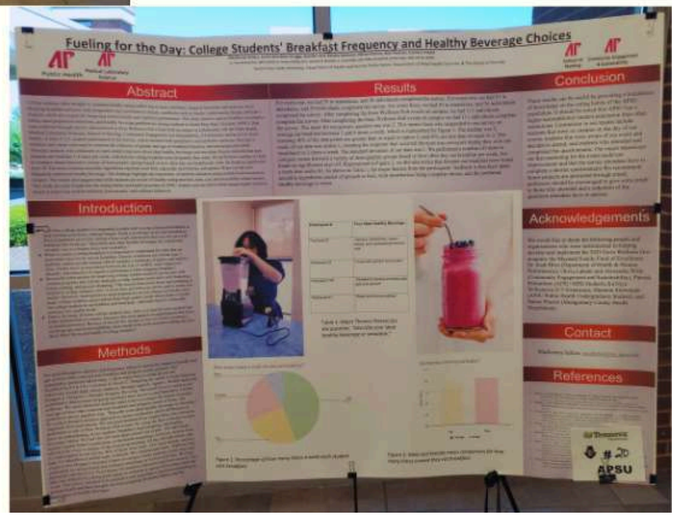
Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

TEAM 7

MacKenzie Sellers: Group Leader (HHP 4800)
Jariah Wordlaw-Scruggs: MTEC 4090
Jennifer Holt: NURS 4050/4051
Kendra Svensson: NURS 4050/4051
Nelson Ramos: NURS 4050/4051
Alex Pearson: NURS 4050/4051
Carmen Urquia: NURS 4050/4051

POSTER TITLE

Fueling for the Day: College Students' Breakfast Frequency and Healthy Beverage Choices



Fueling for the Day: College Students' Breakfast Frequency and Healthy Beverage Choices

MacKenzie Sellers, Jariah Wordlaw-Scruggs, Jennifer Holt, Kendra Svensson, Nelson Ramos, Alex Pearson, Carmen Urquia
Dr. Tyler Nelling, Ph.D., MPH, MCHES, Dr. Heather Phillips, Ph.D., MLS(ASCP), MT(AMT), Dr. Tasha Reffle, DNP, APRN, AG-ACNP-BC, & Mimi Baker, MSN, FNP-BC, ACHPN
Austin Peay State University, Department of Health and Human Performance, Department of Allied Health Sciences, & The School of Nursing

Public Health | Medical Laboratory Science | School of Nursing | Community Engagement & Sustainability

Abstract

College students often struggle to maintain healthy eating habits due to busy schedules, financial limitations, and academic stress. Skipping breakfast and poor meal preparation can contribute to chronic conditions such as obesity, cardiovascular disease, and type 2 diabetes, while also negatively impacting mental health and cognitive performance. This study aimed to explore breakfast consumption habits, meal preparation behaviors, and healthy beverage preferences among students at Austin Peay State University (APSU). Data were collected through surveys administered at three Wellness Hub events held on campus in collaboration with the Public Health, Medical Laboratory Sciences, School of Nursing, Community Engagement and Sustainability, UT-Extension, and the S.O.S. Food Pantry. A total of 111 students participated in the survey, which included both quantitative and qualitative questions. Descriptive statistics and t-tests were used to examine the influence of gender and age on breakfast frequency and meal preparation habits. Thematic analysis was conducted on open-ended responses about ideal healthy beverages and smoothies. Results indicated that most students eat breakfast 3–4 times per week, with females eating breakfast more frequently than males. We performed a number of t-tests to compare means between a variety of demographic groups based on how often they eat breakfast per week, but found no significance at $p<.05$. The most common smoothie ingredients reported were fruit, especially strawberries, and spinach. Water was the most frequently mentioned healthy beverage. The findings highlight the importance of nutrition education and accessible food resources on campus. The results also suggest that while students are aware of healthy eating practices, time, cost, and accessibility remain barriers. This study provides insight into the eating habits and health priorities of APSU students and can inform future campus health initiatives aimed at improving student nutrition, food security, and wellness behaviors.

Introduction

- As a busy college student it is important to make sure you eat a balanced breakfast to help increase your focus, manage hunger, boost your energy levels and metabolism. Meal preparation saves time during a busy week and ensures that you can eat a well balanced diet on the go.[1] Smoothies and other healthy beverages are a quick and versatile way to consume fruits and vegetables.[2]
- When it comes to eating breakfast it is important to understand the risks that are associated when we do not eat breakfast. Chronic conditions can include type 2 diabetes, cardiovascular disease (which includes a multitude of types), and obesity.[3] Also, studies show an association between the risk of ADHD, major depressive disorder, and reduction in cognitive performance when skipping breakfast.[4]
- Successful interventions for improving college student nutrition can be seen with campus programs that include strategies to help students build skills with budgeting, home cooking, and grocery shopping.[5] The success that comes from meal prepping is helpful to college students since it saves time and leftovers can be used to create new meals.[5] However, interventions to meal preparation are not always successful since many college students cannot afford these high quality foods which makes it harder for college students to eat healthier and meal prep, and leads them to continually consume low quality foods.[5]
- Due to the many stressors college students face, there is a need for new research that helps students find on-campus resources like food pantries or organizations that focus on health promotion. Because of factors like change or loss of control, academics, social groups, and food availability, there needs to be more research looking into how these affect the mental health of college students.[6]

Methods

We used descriptive statistics and frequency values to assess the impact of gender and age on how often someone eats breakfast and prepares meals at home. Our quantitative questions asked were, 1. How many times a week do you eat breakfast?a. 0-2 b.3-4 c.5 or more d. Never) 2. Preparing my meals at home helps me reduce my overall daily calorie intake (a. Strongly agree b. Agree c. Neither agree nor disagree d. Disagree e. Strongly disagree. By using Microsoft Excel to analyze our quantitative data because all group members have access to and familiarity with the software. We used inferential statistics and a t-test to evaluate the impact of gender and age on how often someone eats breakfast and prepares meals at home. Our qualitative survey question was, "Describe your ideal healthy beverage or smoothie." By using a thematic analysis approach to assess similarities and/or differences in responses from participants. We surveyed students from Austin Peay who choose to participate in any of three Wellness Hub events. By using the data collected we now have an understanding of our students' breakfast, meal prepping, and healthy beverages habits. We had 160-200 individuals attend our events. 160 individuals signed consent forms to participate in the health screenings, however, dozens more attended the event to engage in the food programming. Of the 160 individuals only 111 participated in our survey, 46% of them were male, 53% were female, and less than 1% identified as neither male or female. We implemented three Wellness Hub events in the Morgan University Center on campus where students could come and participate in various health and wellness screenings as well as activities. We have partnered with the S.O.S. Food Pantry for nutrition education and food security. Our data was collected by asking participants to complete a survey before they leave the event. This survey included both qualitative and quantitative questions pertaining to general health and their thoughts on meal prepping, breakfast habits, and the importance of healthy beverages

Results

For event one, we had 59 in attendance, and 36 individuals completed the survey. For event two, we had 51 in attendance, and 39 individuals completed the survey. For event three, we had 50 in attendance, and 36 individuals completed the survey. After completing the three Wellness Hub events on campus, we had 111 individuals complete the survey. The mean for our group's question one was 2. This means those who responded to our survey on average eat breakfast between 3 and 4 times a week, which is represented by Figure 1. The median was 2, meaning 50% of the data points are greater than or equal to option 2, and 50% are less than or equal to it. The mode of our data was option 1, meaning the response that occurred the most was surveyors stating they only eat breakfast 0 to 2 times a week. The standard deviation of our data was 1. We performed a number of t-tests to compare means between a variety of demographic groups based on how often they eat breakfast per week, but found no significance at $p<.05$. Represented in Figure 2, we did also notice that females eat breakfast more times a week than males do. As shown in Table 1, the major themes from the participants' feedback is that their ideal smoothie ingredients consist of spinach or fruit, with strawberries being a popular choice, and the preferred healthy beverage is water.

Participant #	Your Ideal Healthy Beverage
Participant 5	"Spinach, blueberries, yogurt, honey, and unsweetened almond milk"
Participant 22	"Fruity with spinach and protein"
Participant 103	"Strawberry banana smoothie with kale and spinach"
Participant 47	"Water and fruit smoothies"

Table 1: *Major Themes Present for the question, "Describe your ideal healthy beverage or smoothie."*

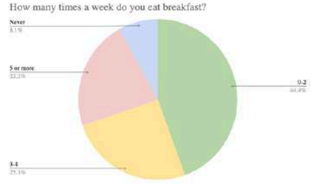


Figure 1: *Percentage of how many times a week each student eats breakfast.*

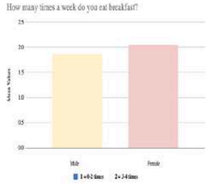


Figure 2: *Male and Female mean comparison for how many times a week they eat breakfast*

Conclusion

These results can be useful by providing a foundation of knowledge on the eating habits of the APSU population. It should be noted that APSU has a higher nontraditional student population than other institutions. Limitations in our results include students that were on campus on the day of our events, students that were aware of our event and decided to attend, and students who attended and completed the questionnaire. Our major takeaways are that marketing for the event could use improvement and that the survey attendees have to complete a shorter questionnaire. We recommend future projects are promoted through email, professors should be encouraged to give extra credit to those who attended and a reduction of the questions attendees have to answer.

Acknowledgements

We would like to thank the following people and organizations who were instrumental in helping develop and implement the 2025 Govs Wellness Gov program: the Maynard Family Fund of Excellence, Dr. Kadi Bliss (Department of Health & Human Performance), Olivia Lahann and Alexandra Wills (Community Engagement and Sustainability), Patrick Richardson (APSU MPH Student), Ka'Niya Williamson (UT-Extension), Shannon Slowinski (APSU Public Health Undergraduate Student), and Nancy Proctor (Montgomery County Health Department).

Contact

MacKenzie Sellers: msellers6@my.apsu.edu

References

1. Green, K (2024, March 7). How to eat healthy in college: Nutrition Tips and dining options: Ultimate Guide to Eat Healthy in College: Simple Strategies & Tips. https://www.nutrition.tufts.edu/2024/03/07/how-to-eat-healthy-in-college-nutrition-tips-and-dining-options/
2. Ostopa, J. (2018, March 29). *Smoothies: A good blend of flavor, convenience, and nutrition*. Penn State Extension. https://extension.psu.edu/smoothies-a-good-blend-of-flavor-convenience-and-nutrition
3. Sebastian, R. S., Hoy, M. K., Moshfegh, A. J. (2018). Breakfast consumption by U.S. Adults: What We Eat in America, NHANES 2007 - March 2010. (a *USDA Factsheet About Breakfast*. United States Department of Agriculture. (USDA) https://pubmed.ncbi.nlm.nih.gov/26851556/
4. Zhang, Z., Tan, F., & Lee, Q. (2024). Association between breakfast skipping and outcomes in schizophrenia/schizoaffective disorder, cognitive performance, and frailty: A Mendelian randomization study. *PLoS ONE*, *19*(1). https://doi.org/10.1371/journal.pone.0296146
5. Martinez, S. T. S., Harmon, B. E., Nagy, C. R., Bastian, E. C., & Stites-Isom, S. (2016). Diet and Physical Activity Interventions Strategies for College Students. *Health Behavior and Policy Review*, *3*(5), 456–547. https://doi.org/10.14485/HBPR.3.5.5
6. Miller, L. M. S., Fuller, T., Chrisler, G. M., & Chesnut, S. K. (2017). Home-prepared meals among college students: a food insecurity study. *Appetite*, *116*, 156652. https://doi.org/10.1016/j.appet.2017.04.030
7. Lo, Y., Bradshaw, S., Li, Z., & Roy, S. (2020, May). Does the University Food Environment Impact Student Dietary Behaviors? A Systematic Review. *Frontiers in Nutrition*, *7*, 64818. https://doi.org/10.3389/fnut.2020.00050
8. University of Colorado Boulder (2021, September 29). Top health concerns for college students (and what to do about them). https://www.colorado.edu/health/2020/07/29/top-health-concerns-college-students-and-what-do-about-them

Evaluation Model

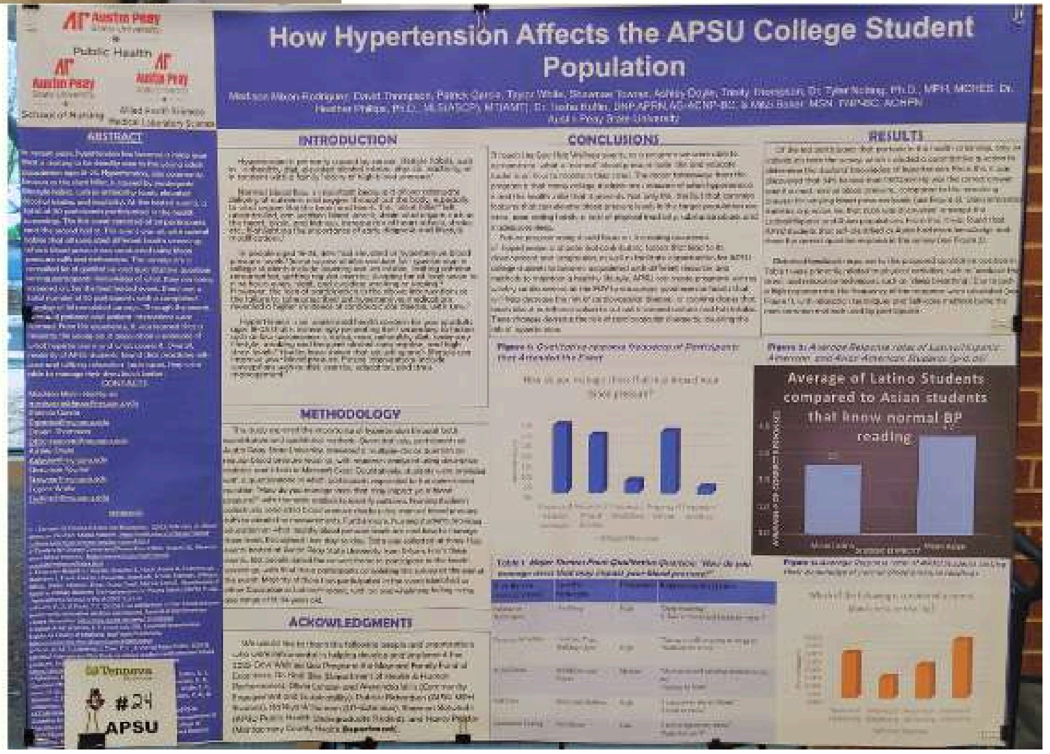
Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

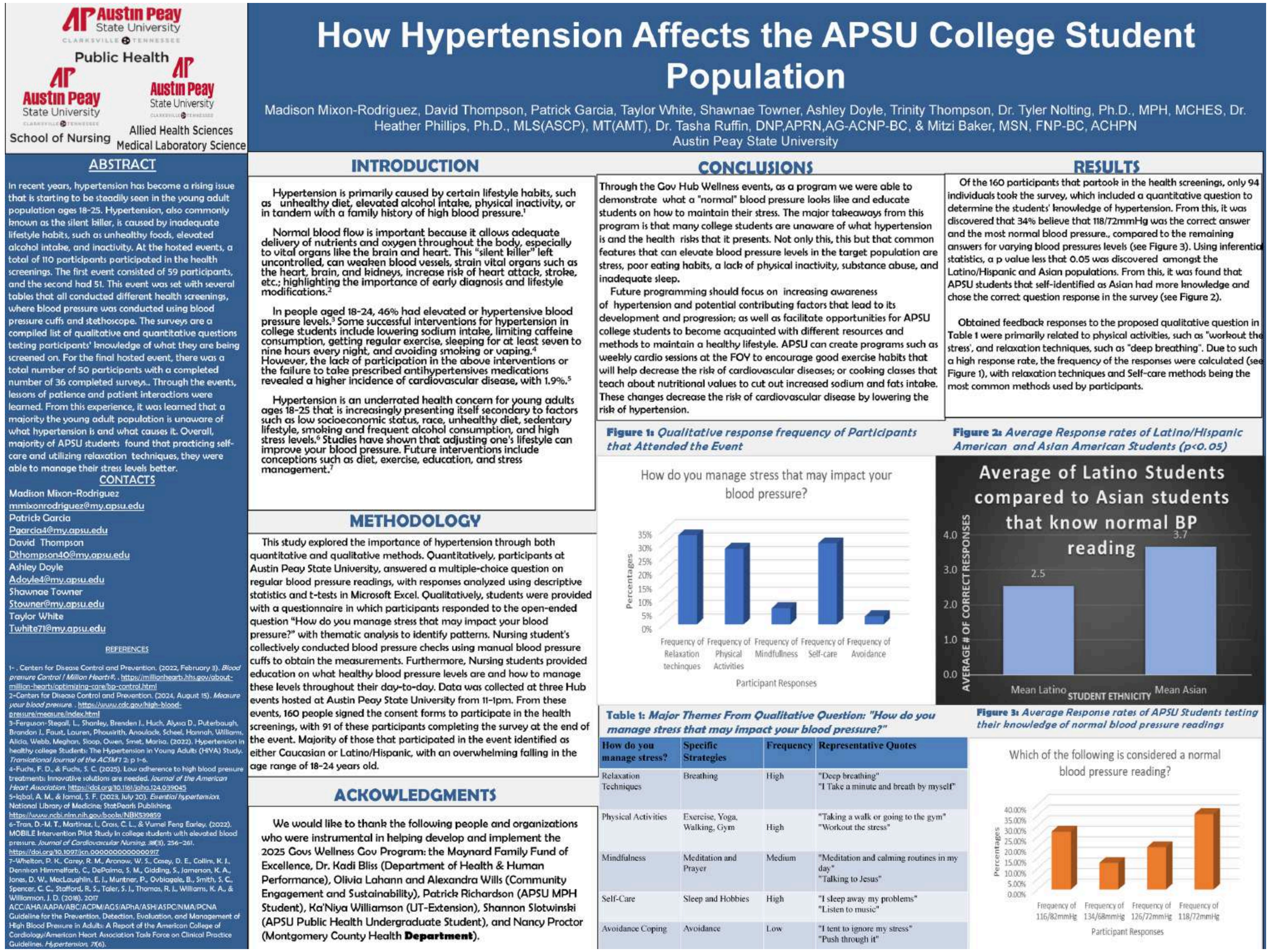
TEAM 8

Madison Mixon-Rodriguez: Group Leader (HHP 4800)
David Thompson: MTEC 4090
Patrick Garcia: NURS 4050/4051
Taylor White: NURS 4050/4051
Shawnae Towner: NURS 4050/4051
Ashley Doyle: NURS 4050/4051
Trinity Thompson: NURS 4050/4051

POSTER TITLE

How Hypertension Affects the APSU College Student Population





Austin Peay State University
Public Health
School of Nursing
Allied Health Sciences
Medical Laboratory Science

How Hypertension Affects the APSU College Student Population

Madison Mixon-Rodriguez, David Thompson, Patrick Garcia, Taylor White, Shawnae Towner, Ashley Doyle, Trinity Thompson, Dr. Tyler Nolting, Ph.D., MPH, MCHES, Dr. Heather Phillips, Ph.D., MLS(ASCP), MT(AMT), Dr. Tasha Ruffin, DNP,APRN,AG-ACNP-BC, & Mitzi Baker, MSN, FNP-BC, ACHPN
Austin Peay State University

ABSTRACT

In recent years, hypertension has become a rising issue that is starting to be steadily seen in the young adult population ages 18-25. Hypertension, also commonly known as the silent killer, is caused by inadequate lifestyle habits, such as unhealthy foods, elevated alcohol intake, and inactivity. At the hosted events, a total of 110 participants participated in the health screenings. The first event consisted of 59 participants, and the second had 51. This event was set with several tables that all conducted different health screenings, where blood pressure was conducted using blood pressure cuffs and stethoscope. The surveys are a compiled list of qualitative and quantitative questions testing participants' knowledge of what they are being screened on. For the final hosted event, there was a total number of 50 participants with a completed number of 36 completed surveys.. Through the events, lessons of patience and patient interactions were learned. From this experience, it was learned that a majority the young adult population is unaware of what hypertension is and what causes it. Overall, majority of APSU students found that practicing self-care and utilizing relaxation techniques, they were able to manage their stress levels better.

CONTACTS

Madison Mixon-Rodriguez
mmixonrodriguez@my.apsu.edu
Patrick Garcia
Pgarcia4@my.apsu.edu
David Thompson
Dthompson40@my.apsu.edu
Ashley Doyle
Adoyle4@my.apsu.edu
Shawnae Towner
Stowner@my.apsu.edu
Taylor White
Twhite71@my.apsu.edu

REFERENCES

1- , Centers for Disease Control and Prevention. (2022, February 3). *Blood pressure Control / Million Hearts®*. . https://millionhearts.hhs.gov/about-million-hearts/optimizing-care/bp-control.html
2-Centers for Disease Control and Prevention. (2024, August 15). *Measure your blood pressure*. . https://www.cdc.gov/high-blood-pressure/measure/index.html
3-Ferguson-Stegall, L., Shanley, Brenden J., Huch, Alyssa D., Puterbaugh, Brandon J., Faust, Lauren, Phousirith, Anoulack. Scheel, Hannah, Williams, Alicia, Webb, Meghan, Sloop, Owen, Smet, Marisa. (2022). Hypertension in healthy college Students: The Hypertension in Young Adults (HIYA) Study. *Translational Journal of the ACSM* 7 2: p 1-6.
4-Fuchs, F. D., & Fuchs, S. C. (2025). Low adherence to high blood pressure treatments: Innovative solutions are needed. *Journal of the American Heart Association*. https://doi.org/10.1161/jaha.124.039045
5-Iqbal, A. M., & Jamal, S. F. (2023, July 20). *Essential hypertension*. National Library of Medicine; StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK539859
6-Tran, D.-M. T., Martinez, L., Cross, C. L., & Yumei Feng Earley. (2022). MOBILE Intervention Pilot Study in college students with elevated blood pressure. *Journal of Cardiovascular Nursing*, 38(3), 256–261. https://doi.org/10.1097/jcn.0000000000000917
7-Whelton, P. K., Carey, R. M., Aronow, W. S., Casey, D. E., Collins, K. J., Dennison Himmelfarb, C., DePalma, S. M., Gidding, S., Jamerson, K. A., Jones, D. W., MacLaughlin, E. J., Muntner, P., Ovbiagele, B., Smith, S. C., Spencer, C. C., Stafford, R. S., Taler, S. J., Thomas, R. J., Williams, K. A., & Williamson, J. D. (2018). 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension*, 71(6).

INTRODUCTION

Hypertension is primarily caused by certain lifestyle habits, such as unhealthy diet, elevated alcohol intake, physical inactivity, or in tandem with a family history of high blood pressure.[1]

Normal blood flow is important because it allows adequate delivery of nutrients and oxygen throughout the body, especially to vital organs like the brain and heart. This "silent killer" left uncontrolled, can weaken blood vessels, strain vital organs such as the heart, brain, and kidneys, increase risk of heart attack, stroke, etc.; highlighting the importance of early diagnosis and lifestyle modifications.[2]

In people aged 18-24, 46% had elevated or hypertensive blood pressure levels.[3] Some successful interventions for hypertension in college students include lowering sodium intake, limiting caffeine consumption, getting regular exercise, sleeping for at least seven to nine hours every night, and avoiding smoking or vaping.[4] However, the lack of participation in the above interventions or the failure to take prescribed antihypertensives medications revealed a higher incidence of cardiovascular disease, with 1.9%.[5]

Hypertension is an underrated health concern for young adults ages 18-25 that is increasingly presenting itself secondary to factors such as low socioeconomic status, race, unhealthy diet, sedentary lifestyle, smoking and frequent alcohol consumption, and high stress levels.[6] Studies have shown that adjusting one's lifestyle can improve your blood pressure. Future interventions include conceptions such as diet, exercise, education, and stress management.[7]

METHODOLOGY

This study explored the importance of hypertension through both quantitative and qualitative methods. Quantitatively, participants at Austin Peay State University, answered a multiple-choice question on regular blood pressure readings, with responses analyzed using descriptive statistics and t-tests in Microsoft Excel. Qualitatively, students were provided with a questionnaire in which participants responded to the open-ended question "How do you manage stress that may impact your blood pressure?" with thematic analysis to identify patterns. Nursing student's collectively conducted blood pressure checks using manual blood pressure cuffs to obtain the measurements. Furthermore, Nursing students provided education on what healthy blood pressure levels are and how to manage these levels throughout their day-to-day. Data was collected at three Hub events hosted at Austin Peay State University from 11-1pm. From these events, 160 people signed the consent forms to participate in the health screenings, with 91 of these participants completing the survey at the end of the event. Majority of those that participated in the event identified as either Caucasian or Latino/Hispanic, with an overwhelming falling in the age range of 18-24 years old.

ACKOWLEDGMENTS

We would like to thank the following people and organizations who were instrumental in helping develop and implement the 2025 Govs Wellness Gov Program: the Maynard Family Fund of Excellence, Dr. Kadi Bliss (Department of Health & Human Performance), Olivia Lahann and Alexandra Wills (Community Engagement and Sustainability), Patrick Richardson (APSU MPH Student), Ka'Niya Williamson (UT-Extension), Shannon Slotwinski (APSU Public Health Undergraduate Student), and Nancy Proctor (Montgomery County Health **Department**).

CONCLUSIONS

Through the Gov Hub Wellness events, as a program we were able to demonstrate what a "normal" blood pressure looks like and educate students on how to maintain their stress. The major takeaways from this program is that many college students are unaware of what hypertension is and the health risks that it presents. Not only this, this but that common features that can elevate blood pressure levels in the target population are stress, poor eating habits, a lack of physical inactivity, substance abuse, and inadequate sleep.

Future programming should focus on increasing awareness of hypertension and potential contributing factors that lead to its development and progression; as well as facilitate opportunities for APSU college students to become acquainted with different resources and methods to maintain a healthy lifestyle. APSU can create programs such as weekly cardio sessions at the FOY to encourage good exercise habits that will help decrease the risk of cardiovascular diseases; or cooking classes that teach about nutritional values to cut out increased sodium and fats intake. These changes decrease the risk of cardiovascular disease by lowering the risk of hypertension.

RESULTS

Of the 160 participants that partook in the health screenings, only 94 individuals took the survey, which included a quantitative question to determine the students' knowledge of hypertension. From this, it was discovered that 34% believe that 118/72mmHg was the correct answer and the most normal blood pressure., compared to the remaining answers for varying blood pressures levels (see Figure 3). Using inferential statistics, a p value less that 0.05 was discovered amongst the Latino/Hispanic and Asian populations. From this, it was found that APSU students that self-identified as Asian had more knowledge and chose the correct question response in the survey (see Figure 2).

Obtained feedback responses to the proposed qualitative question in Table 1 were primarily related to physical activities, such as "workout the stress', and relaxation techniques, such as "deep breathing". Due to such a high response rate, the frequency of the responses were calculated (see Figure 1), with relaxation techniques and Self-care methods being the most common methods used by participants.

Figure 1: *Qualitative response frequency of Participants that Attended the Event*

How do you manage stress that may impact your blood pressure?
Percentages: 0%, 5%, 10%, 15%, 20%, 25%, 30%, 35%
Frequency of Relaxation techinques | Frequency of Physical Activities | Frequency of Mindfullness | Frequency of Self-care | Frequency of Avoidance
Participant Responses

Figure 2: *Average Response rates of Latino/Hispanic American and Asian American Students (p<0.05)*

Average of Latino Students compared to Asian students that know normal BP reading
AVERAGE # OF CORRECT RESPONSES: 0.0, 1.0, 2.0, 3.0, 4.0
Mean Latino: 2.5 | Mean Asian: 3.7
STUDENT ETHNICITY

Table 1: *Major Themes From Qualitative Question: "How do you manage stress that may impact your blood pressure?"*

How do you manage stress?	Specific Strategies	Frequency	Representative Quotes
Relaxation Techniques	Breathing	High	"Deep breathing" "I Take a minute and breath by myself"
Physical Activities	Exercise, Yoga, Walking, Gym	High	"Taking a walk or going to the gym" "Workout the stress"
Mindfulness	Meditation and Prayer	Medium	"Meditation and calming routines in my day" "Talking to Jesus"
Self-Care	Sleep and Hobbies	High	"I sleep away my problems" "Listen to music"
Avoidance Coping	Avoidance	Low	"I tent to ignore my stress" "Push through it"

Figure 3: *Average Response rates of APSU Students testing their knowledge of normal blood pressure readings*

Which of the following is considered a normal blood pressure reading?
Percentages: 0.00%, 5.00%, 10.00%, 15.00%, 20.00%, 25.00%, 30.00%, 35.00%, 40.00%
Frequency of 116/82mmHg | Frequency of 134/68mmHg | Frequency of 126/72mmHg | Frequency of 118/72mmHg
Participant Responses

Evaluation Model

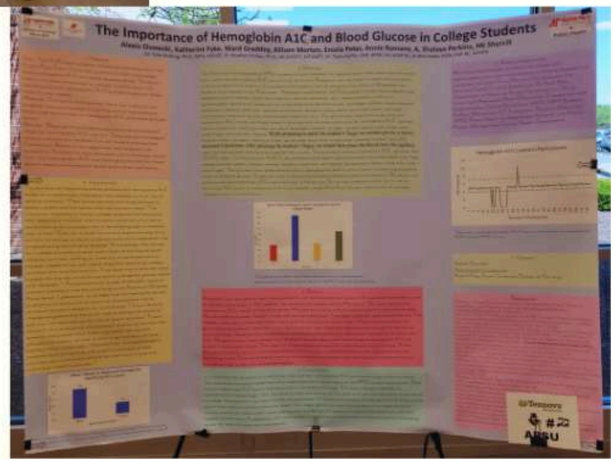
Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

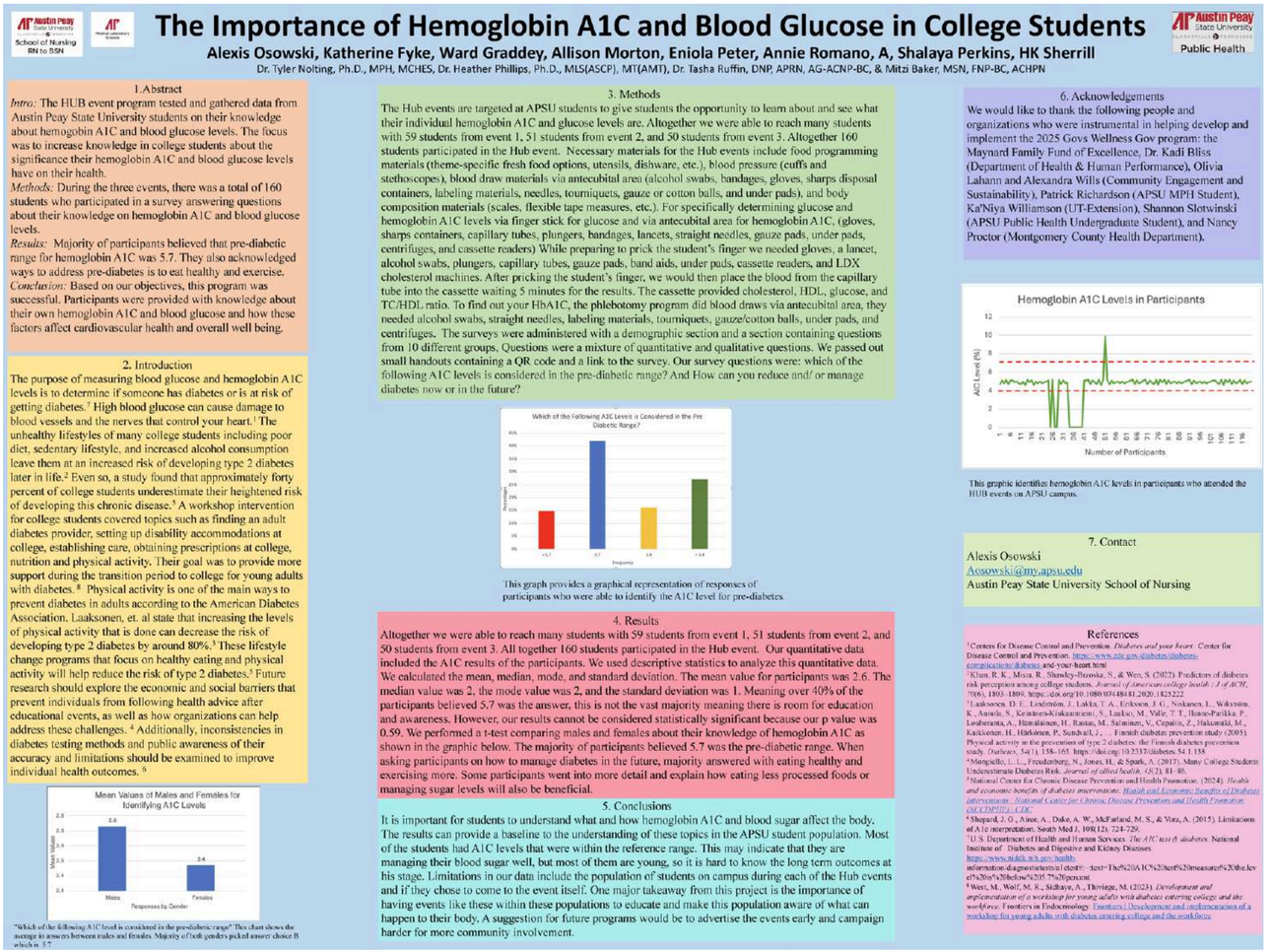
TEAM 9

Shalya Perkins: Group Leader (HHP 4800)
Alexis Osowski: NURS 4050/4051
Katherine Fyke: NURS 4050/4051
Ward Graddey: NURS 4050/4051
Allison Morton: NURS 4050/4051
Eniola Peter: NURS 4050/4051
Annie Romano: MTEC 4090
Haley Sherrill: MTEC 4090

POSTER TITLE

The Importance of Hemoglobin A1C and Blood Glucose in College Students





The Importance of Hemoglobin A1C and Blood Glucose in College Students

Alexis Osowski, Katherine Fyke, Ward Graddey, Allison Morton, Eniola Peter, Annie Romano, A, Shalaya Perkins, HK Sherrill
Dr. Tyler Nolting, Ph.D., MPH, MCHES, Dr. Heather Phillips, Ph.D., MLS(ASCP), MT(AMT), Dr. Tasha Ruffin, DNP, APRN, AG-ACNP-BC, & Mitzi Baker, MSN, FNP-BC, ACHPN

School of Nursing RN to BSN

Austin Peay State University Public Health

1.Abstract

Intro: The HUB event program tested and gathered data from Austin Peay State University students on their knowledge about hemoglobin A1C and blood glucose levels. The focus was to increase knowledge in college students about the significance their hemoglobin A1C and blood glucose levels have on their health.
Methods: During the three events, there was a total of 160 students who participated in a survey answering questions about their knowledge on hemoglobin A1C and blood glucose levels.
Results: Majority of participants believed that pre-diabetic range for hemoglobin A1C was 5.7. They also acknowledged ways to address pre-diabetes is to eat healthy and exercise.
Conclusion: Based on our objectives, this program was successful. Participants were provided with knowledge about their own hemoglobin A1C and blood glucose and how these factors affect cardiovascular health and overall well being.

2. Introduction

The purpose of measuring blood glucose and hemoglobin A1C levels is to determine if someone has diabetes or is at risk of getting diabetes.[7] High blood glucose can cause damage to blood vessels and the nerves that control your heart.[1] The unhealthy lifestyles of many college students including poor diet, sedentary lifestyle, and increased alcohol consumption leave them at an increased risk of developing type 2 diabetes later in life.[2] Even so, a study found that approximately forty percent of college students underestimate their heightened risk of developing this chronic disease.[3] A workshop intervention for college students covered topics such as finding an adult diabetes provider, setting up disability accommodations at college, establishing care, obtaining prescriptions at college, nutrition and physical activity. Their goal was to provide more support during the transition period to college for young adults with diabetes..[8] Physical activity is one of the main ways to prevent diabetes in adults according to the American Diabetes Association. Laaksonen, et. al state that increasing the levels of physical activity that is done can decrease the risk of developing type 2 diabetes by around 80%.[3] These lifestyle change programs that focus on healthy eating and physical activity will help reduce the risk of type 2 diabetes.[5] Future research should explore the economic and social barriers that prevent individuals from following health advice after educational events, as well as how organizations can help address these challenges. [4] Additionally, inconsistencies in diabetes testing methods and public awareness of their accuracy and limitations should be examined to improve individual health outcomes. [6]

"Which of the following A1C level is considered in the pre-diabetic range" This chart shows the average in answers between males and females. Majority of both genders picked answer choice B which is 5.7

3. Methods

The Hub events are targeted at APSU students to give students the opportunity to learn about and see what their individual hemoglobin A1C and glucose levels are. Altogether we were able to reach many students with 59 students from event 1, 51 students from event 2, and 50 students from event 3. Altogether 160 students participated in the Hub event. Necessary materials for the Hub events include food programming materials (theme-specific fresh food options, utensils, dishware, etc.), blood pressure (cuffs and stethoscopes), blood draw materials via antecubital area (alcohol swabs, bandages, gloves, sharps disposal containers, labeling materials, needles, tourniquets, gauze or cotton balls, and under pads), and body composition materials (scales, flexible tape measures, etc.). For specifically determining glucose and hemoglobin A1C levels via finger stick for glucose and via antecubital area for hemoglobin A1C, (gloves, sharps containers, capillary tubes, plungers, bandages, lancets, straight needles, gauze pads, under pads, centrifuges, and cassette readers) While preparing to prick the student's finger we needed gloves, a lancet, alcohol swabs, plungers, capillary tubes, gauze pads, band aids, under pads, cassette readers, and LDX cholesterol machines. After pricking the student's finger, we would then place the blood from the capillary tube into the cassette waiting 5 minutes for the results. The cassette provided cholesterol, HDL, glucose, and TC/HDL ratio. To find out your HbA1C, the phlebotomy program did blood draws via antecubital area, they needed alcohol swabs, straight needles, labeling materials, tourniquets, gauze/cotton balls, under pads, and centrifuges. The surveys were administered with a demographic section and a section containing questions from 10 different groups, Questions were a mixture of quantitative and qualitative questions. We passed out small handouts containing a QR code and a link to the survey. Our survey questions were: which of the following A1C levels is considered in the pre-diabetic range? And How can you reduce and/ or manage diabetes now or in the future?

This graph provides a graphical representation of responses of participants who were able to identify the A1C level for pre-diabetes

4. Results

Altogether we were able to reach many students with 59 students from event 1, 51 students from event 2, and 50 students from event 3. All together 160 students participated in the Hub event. Our quantitative data included the A1C results of the participants. We used descriptive statistics to analyze this quantitative data. We calculated the mean, median, mode, and standard deviation. The mean value for participants was 2.6. The median value was 2, the mode value was 2, and the standard deviation was 1. Meaning over 40% of the participants believed 5.7 was the answer, this is not the vast majority meaning there is room for education and awareness. However, our results cannot be considered statistically significant because our p value was 0.59. We performed a t-test comparing males and females about their knowledge of hemoglobin A1C as shown in the graphic below. The majority of participants believed 5.7 was the pre-diabetic range. When asking participants on how to manage diabetes in the future, majority answered with eating healthy and exercising more. Some participants went into more detail and explain how eating less processed foods or managing sugar levels will also be beneficial.

5. Conclusions

It is important for students to understand what and how hemoglobin A1C and blood sugar affect the body. The results can provide a baseline to the understanding of these topics in the APSU student population. Most of the students had A1C levels that were within the reference range. This may indicate that they are managing their blood sugar well, but most of them are young, so it is hard to know the long term outcomes at his stage. Limitations in our data include the population of students on campus during each of the Hub events and if they chose to come to the event itself. One major takeaway from this project is the importance of having events like these within these populations to educate and make this population aware of what can happen to their body. A suggestion for future programs would be to advertise the events early and campaign harder for more community involvement.

6. Acknowledgements

We would like to thank the following people and organizations who were instrumental in helping develop and implement the 2025 Govs Wellness Gov program: the Maynard Family Fund of Excellence, Dr. Kadi Bliss (Department of Health & Human Performance), Olivia Lahann and Alexandra Wills (Community Engagement and Sustainability), Patrick Richardson (APSU MPH Student), Ka'Niya Williamson (UT-Extension), Shannon Slotwinski (APSU Public Health Undergraduate Student), and Nancy Proctor (Montgomery County Health Department).

This graphic identifies hemoglobin A1C levels in participants who attended the HUB events on APSU campus.

7. Contact

Alexis Osowski
Aosowski@my.apsu.edu
Austin Peay State University School of Nursing

References

[1]Centers for Disease Control and Prevention. *Diabetes and your heart*. Center for Disease Control and Prevention. https://www.cdc.gov/diabetes/diabetes-complications/diabetes-and-your-heart.html
[2]Khan, R. K., Moya, R., Shmeley-Bizoska, S., & Wen, S. (2022) Predictors of diabetes risk perception among college students. *Journal of American college health : J of ACH*, 70(6), 1803–1809. https://doi.org/10.1080/07448481.2020.1825222
[3]Laaksonen, D. E., Lindström, J., Lakka, T. A., Eriksson, J. G., Niskanen, L., Wikström, K., Aunola, S., Keinänen-Kiukaanniemi, S., Laakso, M., Valle, T. T., Ilanne-Parikka, P., Louheranta, A., Hämäläinen, H., Rastas, M., Salminen, V., Cepaitis, Z., Hakumäki, M., Kaikkonen, H., Härkönen, P., Sundvall, J., . . . Finnish diabetes prevention study (2005). Physical activity in the prevention of type 2 diabetes: the Finnish diabetes prevention study. *Diabetes*, 54(1), 158–165. https://doi.org/10.2337/diabetes.54.1.158
[4]Mangiello, L. L., Freudenberg, N., Jones, H., & Spark, A. (2017). Many College Students Underestimate Diabetes Risk. *Journal of allied health*, 45(2), 81–86.
[5]National Center for Chronic Disease Prevention and Health Promotion. (2024) *Health and economic benefits of diabetes interventions*. *Health and Economic Benefits of Diabetes Interventions - National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) | CDC*
[6]Shapard, J. G., Ance, A., Duke, A. W., McFarland, M. S., & Vora, A. (2015). Limitations of A1c interpretation. South Med J, 108(12), 724-729.
[7]U.S. Department of Health and Human Services *The A1C test & diabetes*. National Institute of Diabetes and Digestive and Kidney Diseases. https://www.niddk.nih.gov/health-information/diagnostic-tests/a1c-test#:~:text=The%20A1C%20test%20measures%20the,level%20is%20below%205.7%20percent.
[8]West, M., Wolf, M. R., Sidhaye, A., Thivierge, M. (2023) *Development and implementation of a workshop for young adults with diabetes entering college and the workforce*. Frontiers in Endocrinology. Frontiers | Development and implementation of a workshop for young adults with diabetes entering college and the workforce

Evaluation Model

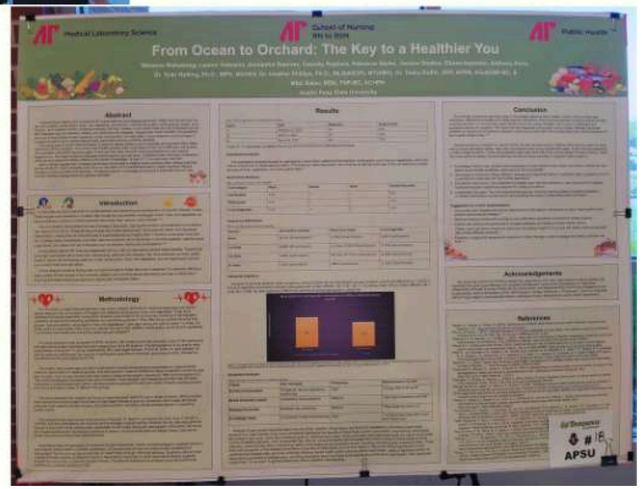
Tennova Healthcare Nursing Research Day Poster Symposium (April 16, 2025, 2:00 – 4:00 p.m.)

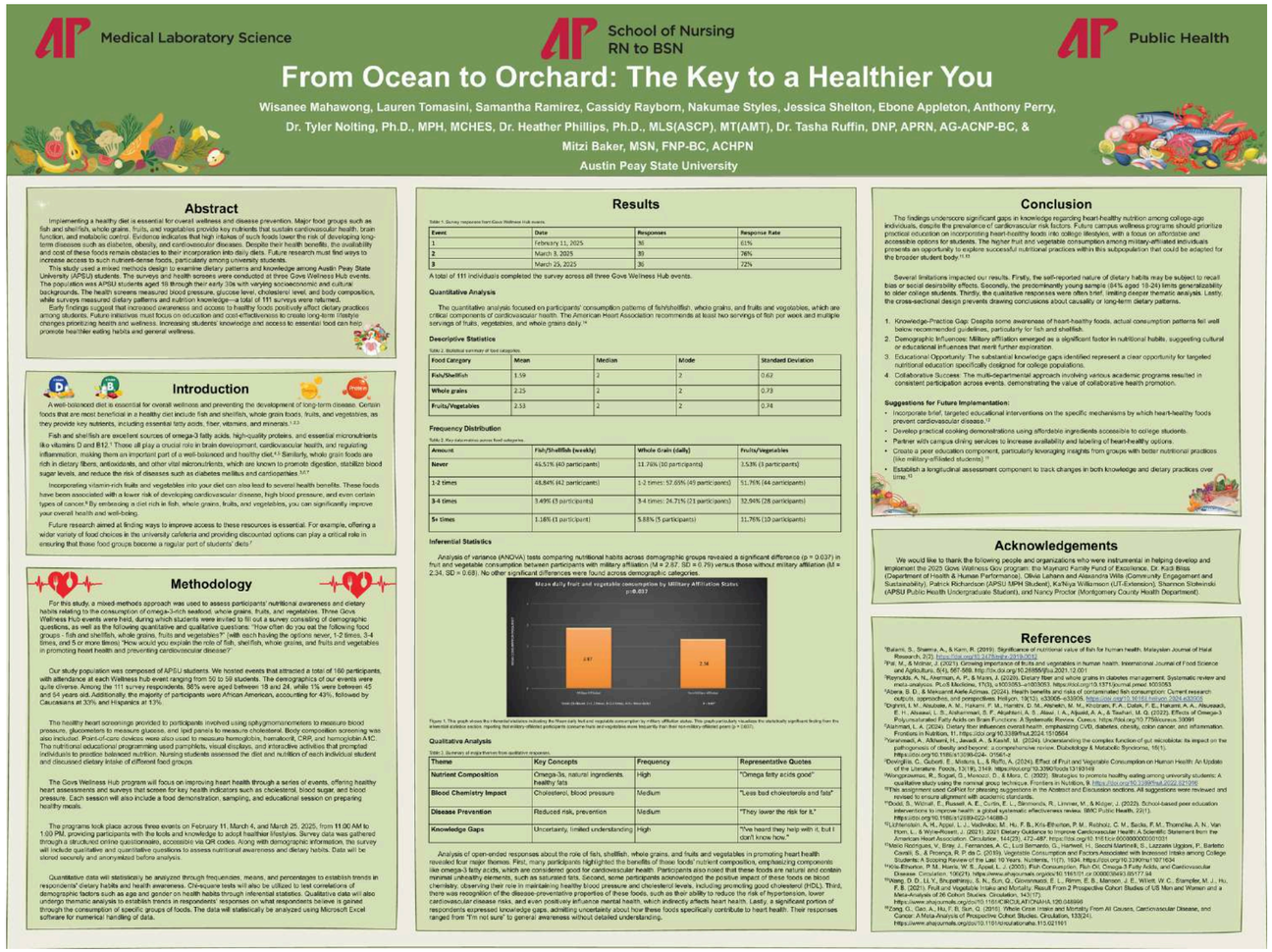
TEAM 10

Wisanne Mahawong: Group Leader (HHP 4800)
Lauren Tomasini: MTEC 4090
Samantha Ramirez: MTEC 4090
Cassidy Rayborn: NURS 4050/4051
Nakumae Styles: NURS 4050/4051
Jessica Shelton: NURS 4050/4051
Ebone Appleton: MTEC 4090
Anthony Perry: NURS 4050/4051

POSTER TITLE

From Ocean to Orchard: The Key to a Healthier You





Medical Laboratory Science | School of Nursing RN to BSN | Public Health

From Ocean to Orchard: The Key to a Healthier You

Wisanee Mahawong, Lauren Tomasini, Samantha Ramirez, Cassidy Rayborn, Nakumae Styles, Jessica Shelton, Ebone Appleton, Anthony Perry,
Dr. Tyler Nolting, Ph.D., MPH, MCHES, Dr. Heather Phillips, Ph.D., MLS(ASCP), MT(AMT), Dr. Tasha Ruffin, DNP, APRN, AG-ACNP-BC, &
Mitzi Baker, MSN, FNP-BC, ACHPN
Austin Peay State University

Abstract

Implementing a healthy diet is essential for overall wellness and disease prevention. Major food groups such as fish and shellfish, whole grains, fruits, and vegetables provide key nutrients that sustain cardiovascular health, brain function, and metabolic control. Evidence indicates that high intakes of such foods lower the risk of developing long-term diseases such as diabetes, obesity, and cardiovascular diseases. Despite their health benefits, the availability and cost of these foods remain obstacles to their incorporation into daily diets. Future research must find ways to increase access to such nutrient-dense foods, particularly among university students.

This study used a mixed methods design to examine dietary patterns and knowledge among Austin Peay State University (APSU) students. The surveys and health screens were conducted at three Gove Wellness Hub events. The population was APSU students aged 18 through their early 30s with varying socioeconomic and cultural backgrounds. The health screens measured blood pressure, glucose level, cholesterol level, and body composition, while surveys measured dietary patterns and nutrition knowledge—a total of 111 surveys were returned.

Early findings suggest that increased awareness and access to healthy foods positively affect dietary practices among students. Future initiatives must focus on education and cost-effectiveness to create long-term lifestyle changes prioritizing health and wellness. Increasing students' knowledge and access to essential food can help promote healthier eating habits and general wellness.

Introduction

A well-balanced diet is essential for overall wellness and preventing the development of long-term disease. Certain foods that are most beneficial in a healthy diet include fish and shellfish, whole grain foods, fruits, and vegetables, as they provide key nutrients, including essential fatty acids, fiber, vitamins, and minerals.[1,2]

Fish and shellfish are excellent sources of omega-3 fatty acids, high-quality proteins, and essential micronutrients like vitamins D and B12.[1] These all play a crucial role in brain development, cardiovascular health, and regulating inflammation, making them an important part of a well-balanced and healthy diet.[1] Similarly, whole grain foods are rich in dietary fibers, antioxidants, and other vital micronutrients, which are known to promote digestion, stabilize blood sugar levels, and reduce the risk of diseases such as diabetes mellitus and cardiopathies.[3,4,7]

Incorporating vitamin-rich fruits and vegetables into your diet can also lead to several health benefits. These foods have been associated with a lower risk of developing cardiovascular disease, high blood pressure, and even certain types of cancer.[5] By embracing a diet rich in fish, whole grains, fruits, and vegetables, you can significantly improve your overall health and well-being.

Future research aimed at finding ways to improve access to these resources is essential. For example, offering a wider variety of food choices in the university cafeteria and providing discounted options can play a critical role in ensuring that these food groups become a regular part of students' diets.[7]

Methodology

For this study, a mixed-methods approach was used to assess participants' nutritional awareness and dietary habits relating to the consumption of omega-3-rich seafood, whole grains, fruits, and vegetables. Three Gove Wellness Hub events were held, during which students were invited to fill out a survey consisting of demographic questions, as well as the following quantitative and qualitative questions: "How often do you eat the following food groups - fish and shellfish, whole grains, fruits and vegetables?" (with each having the options never, 1-2 times, 3-4 times, and 5 or more times) "How would you explain the role of fish, shellfish, whole grains, and fruits and vegetables in promoting heart health and preventing cardiovascular disease?"

Our study population was composed of APSU students. We hosted events that attracted a total of 186 participants, with attendance at each Wellness hub event ranging from 50 to 58 students. The demographics of our events were quite diverse. Among the 111 survey respondents, 86% were aged between 18 and 24, while 1% were between 45 and 64 years old. Additionally, the majority of participants were African American, accounting for 43%, followed by Caucasians at 33% and Hispanics at 13%.

The healthy heart screenings provided to participants involved using sphygmomanometers to measure blood pressure, glucometers to measure glucose, and lipid panels to measure cholesterol. Body composition screening was also included. Point-of-care devices were also used to measure hemoglobin, hematocrit, CRP, and hemoglobin A1C. The nutritional educational programming used pamphlets, visual displays, and interactive activities that prompted individuals to practice balanced nutrition. Following students assessed the diet and nutrition of each individual student and discussed dietary intake of different food groups.

The Gove Wellness Hub program will focus on improving heart health through a series of events, offering healthy heart assessments and surveys that screen for key health indicators such as cholesterol, blood sugar, and blood pressure. Each session will also include a food demonstration, sampling, and educational session on preparing healthy meals.

The programs took place across three events on February 11, March 4, and March 25, 2025, from 11:00 AM to 1:00 PM, providing participants with the tools and knowledge to adopt healthier lifestyles. Survey data was gathered through a structured online questionnaire, accessible via QR codes. Along with demographic information, the survey will include qualitative and quantitative questions to assess nutritional awareness and dietary habits. Data will be stored securely and anonymized before analysis.

Quantitative data will statistically be analyzed through frequencies, means, and percentages to establish trends in respondents' dietary habits and health awareness. Chi-square tests will also be utilized to test correlations of demographic factors such as age and gender on health habits through inferential statistics. Qualitative data will also undergo thematic analysis to establish trends in respondents' responses on what respondents believe is gained through the consumption of specific groups of foods. The data will statistically be analyzed using Microsoft Excel software for numerical handling of data.

Results

Table 1. Survey responses from Gove Wellness Hub events

Event	Date	Responses	Response Rate
1	February 11, 2025	36	61%
2	March 3, 2025	39	78%
3	March 25, 2025	36	72%

A total of 111 individuals completed the survey across all three Gove Wellness Hub events.

Quantitative Analysis

The quantitative analysis focused on participants' consumption patterns of fish/shellfish, whole grains, and fruits and vegetables, which are critical components of cardiovascular health. The American Heart Association recommends at least two servings of fish per week and multiple servings of fruits, vegetables, and whole grains daily.[14]

Descriptive Statistics

Table 2. Statistical summary of food categories.

Food Category	Mean	Median	Mode	Standard Deviation
Fish/Shellfish	1.59	2	2	0.62
Whole grains	2.25	2	2	0.73
Fruits/Vegetables	2.53	2	2	0.74

Frequency Distribution

Table 3. Key relationships across food categories.

Amount	Fish/Shellfish (weekly)	Whole Grain (daily)	Fruits/Vegetables
Never	46.51% (40 participants)	11.76% (10 participants)	3.53% (3 participants)
1-2 times	48.84% (42 participants)	1-2 times: 57.65% (49 participants)	51.76% (44 participants)
3-4 times	3.49% (3 participants)	3-4 times: 24.71% (21 participants)	32.94% (28 participants)
5+ times	1.16% (1 participant)	5.88% (5 participants)	11.76% (10 participants)

Inferential Statistics

Analysis of variance (ANOVA) tests comparing nutritional habits across demographic groups revealed a significant difference ($p = 0.037$) in fruit and vegetable consumption between participants with military affiliation ($M = 2.87$, $SD = 0.79$) versus those without military affiliation ($M = 2.34$, $SD = 0.69$). No other significant differences were found across demographic categories.

Figure 1. This graph shows the inferential statistics indicating the Mean daily fruit and vegetable consumption by military affiliation status. This graph particularly visualizes the statistically significant finding from the inferential statistics section, showing that military-affiliated participants consume more fruits and vegetables more frequently than their non-military-affiliated peers ($p = 0.037$).

Qualitative Analysis

Table 4. Summary of responses from qualitative responses.

Theme	Key Concepts	Frequency	Representative Quotes
Nutrient Composition	Omega-3s, natural ingredients, healthy fats	High	"Omega fatty acids good"
Blood Chemistry Impact	Cholesterol, blood pressure	Medium	"Less bad cholesterols and fats"
Disease Prevention	Reduced risk, prevention	Medium	"They lower the risk for it."
Knowledge Gaps	Uncertainty, limited understanding	High	"I've heard they help with it, but I don't know how."

Analysis of open-ended responses about the role of fish, shellfish, whole grains, and fruits and vegetables in promoting heart health revealed four major themes. First, many participants highlighted the benefits of these foods' nutrient composition, emphasizing components like omega-3 fatty acids, which are considered good for cardiovascular health. Participants also noted that these foods are natural and contain minimal unhealthy elements, such as saturated fats. Second, some participants acknowledged the positive impact of these foods on blood chemistry, observing their role in maintaining healthy blood pressure and cholesterol levels, including promoting good cholesterol (HDL). Third, there was recognition of the disease-preventative properties of these foods, such as their ability to reduce the risk of hypertension, lower cardiovascular disease risks, and even positively influence mental health, which indirectly affects heart health. Lastly, a significant portion of respondents expressed knowledge gaps, admitting uncertainty about how these foods specifically contribute to heart health. Their responses ranged from "I'm not sure" to general awareness without detailed understanding.

Conclusion

The findings underscore significant gaps in knowledge regarding heart-healthy nutrition among college-age individuals, despite the prevalence of cardiovascular risk factors. Future campus wellness programs should prioritize practical education on incorporating heart-healthy foods into college lifestyles, with a focus on affordable and accessible options for students. The higher fruit and vegetable consumption among military-affiliated individuals presents an opportunity to explore successful nutritional practices within this subpopulation that could be adapted for the broader student body.[11,15]

Several limitations impacted our results. Firstly, the self-reported nature of dietary habits may be subject to recall bias or social desirability effects. Secondly, the predominantly young sample (84% aged 18-24) limits generalizability to older college students. Thirdly, the qualitative responses were often brief, limiting deeper thematic analysis. Lastly, the cross-sectional design prevents drawing conclusions about causality or long-term dietary patterns.

1. Knowledge-Practice Gap: Despite some awareness of heart-healthy foods, actual consumption patterns fell well below recommended guidelines, particularly for fish and shellfish.
2. Demographic Influences: Military affiliation emerged as a significant factor in nutritional habits, suggesting cultural or educational influences that merit further exploration.
3. Educational Opportunity: The substantial knowledge gaps identified represent a clear opportunity for targeted nutritional education specifically designed for college populations.
4. Collaborative Success: The multi-departmental approach involving various academic programs resulted in consistent participation across events, demonstrating the value of collaborative health promotion.

Suggestions for Future Implementation:

- Incorporate brief, targeted educational interventions on the specific mechanisms by which heart-healthy foods prevent cardiovascular disease.[17]
- Develop practical cooking demonstrations using affordable ingredients accessible to college students.
- Partner with campus dining services to increase availability and labeling of heart-healthy options.
- Create a peer education component, particularly leveraging insights from groups with better nutritional practices (like military-affiliated students).[11]
- Establish a longitudinal assessment component to track changes in both knowledge and dietary practices over time.[10]

Acknowledgements

We would like to thank the following people and organizations who were instrumental in helping develop and implement the 2025 Gove Wellness Gov program: the Maynard Family Fund of Excellence, Dr. Kadi Bliss (Department of Health & Human Performance), Olivia Lahanis and Alexandra Wills (Community Engagement and Sustainability), Patrick Richardson (APSU MPH Student), KaNiya Williamson (UT-Extension), Shannon Stolwinski (APSU Public Health Undergraduate Student), and Nancy Proctor (Montgomery County Health Department).

References

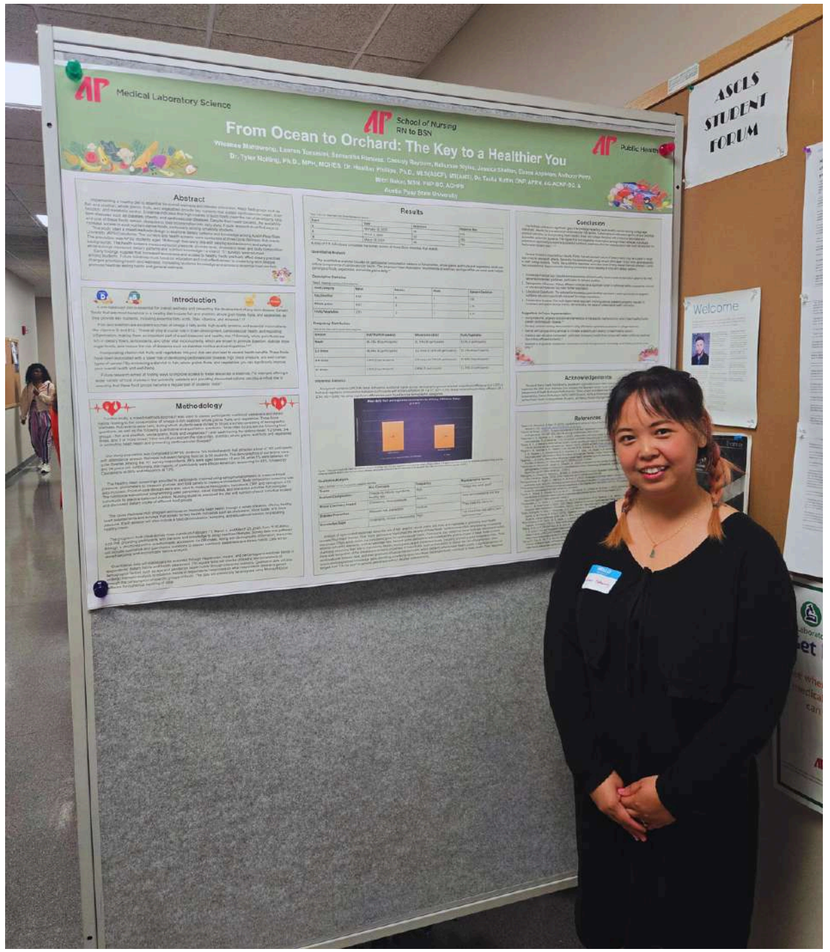
[1]Balami, S., Sharma, A., & Karn, R. (2019). Significance of nutritional value of fish for human health. Malaysian Journal of Halal Research, 2(2). https://doi.org/10.2478/mjhr-2019-0012
[2]Pal, M., & Monsal, J. (2021). Growing importance of fruits and vegetables in human health. International Journal of Food Science and Agriculture, 5(4), 567-568. http://dx.doi.org/10.26855/ijfsa.2021.12.001
[3]Reynolds, A. N., Akerman, A. P., & Mann, J. (2020). Dietary fiber and whole grains in diabetes management: Systematic review and meta-analyses. PLoS Medicine, 17(3), e1003053–e1003053. https://doi.org/10.1371/journal.pmed.1003053
[4]Abera, B. D., & Mekuanint Aiefe Admas. (2024). Health benefits and risks of contaminated fish consumption: Current research outputs, opportunities, and perspectives. Heliyon, 10(13), e33058–e33058. https://doi.org/10.1016/j.heliyon.2024.e33058
[5]Dighriri, I. M., Alsubaie, A. M., Hakami, F. M., Hamithi, D. M., Alshekh, M. M., Khobrani, F. A., Dalak, F. E., Hakami, A. A., Alsuwaidi, E. H., Alowaidi, L. S., Kaabarnawi, G. F., Alqahtani, A. S., Alawi, I. A., Njoudi, A. A., & Tayhari, M. Q. (2023). Effects of Omega-3 Polyunsaturated Fatty Acids on Brain Functions: A Systematic Review. Cureus. https://doi.org/10.7759/cureus.33091
[6]Kahmann, L. A. (2024). Dietary fiber influences overall health, emphasizing CVD, diabetes, obesity, colon cancer, and inflammation. Frontiers in Nutrition, 11. https://doi.org/10.3389/fnut.2024.1510604
[7]Yaranmadi, A., Alkhaldi, H., Jawadi, A., & Kaushal, M. (2024). Understanding the complex function of gut microbiota: its impact on the pathogenesis of obesity and beyond: a comprehensive review. Diabetology & Metabolic Syndrome, 16(1). https://doi.org/10.1186/s13098-024-01567-z
[8]Devoglitie, C., Gobert, E., Mistura, L., & Ruffo, A. (2024). Effect of Fruit and Vegetable Consumption on Human Health: An Update of the Literature. Foods, 13(18), 3149. https://doi.org/10.3390/foods13183149
[9]Wongprawmas, R., Sogari, G., Menozzi, D., & Mora, C. (2022). Strategies to promote healthy eating among university students: A qualitative study using the nominal group technique. Frontiers in Nutrition, 9. https://doi.org/10.3389/fnut.2022.921916
[10]This assignment used ChatGPT for phrasing suggestions in the Abstract and Discussion sections. All suggestions were reviewed and revised to ensure alignment with academic standards.
[11]Dodd, S., Widnall, E., Russell, A. E., Curtis, E. L., Simmonds, R., Linnner, M., & Kröger, J. (2022). School-based peer education intervention to improve health: a global systematic effectiveness review. BMC Public Health, 22(1). https://doi.org/10.1186/s12889-022-14088-3
[12]Lichtenstein, A. H., Appel, L. J., Vadiveloo, M., Hu, F. B., Kris-Etherton, P. M., Rebholz, C. M., Sacks, F. M., Thorndike, A. N., Van Horn, L., & Wylie-Rosett, J. (2021). 2021 Dietary Guidance to Improve Cardiovascular Health: A Scientific Statement from the American Heart Association. Circulation, 144(23), 472–487. https://doi.org/10.1161/cir.0000000000001031
[13]Mello Rodrigues, V., Bray, J., Fernandes, A. C., Luiz Bernardo, G., Hartwell, H., Secchi Martinelli, S., Lazzarini Viggiano, F., Barletto Cavalli, S., & Proença, R. P. da C. (2019). Vegetable Consumption and Factors Associated with Increased Intake among College Students: A Scoping Review of the Last 10 Years. Nutrients, 11(7), 1634. https://doi.org/10.3390/nu11071634
[14]Della-Ettorre, P.M., Rueda, W. B., Appel, L. J. (2020). Fish Consumption, Fish Oil, Omega-3 Fatty Acids, and Cardiovascular Disease. Circulation, 106(21). https://www.ahajournals.org/doi/10.1161/01.cir.0000036491.85177.b8
[15]Wang, D. D., Li, Y., Bhupathiraju, S. N., Sun, Q., Giovannucci, E. L., Rimm, E. B., Manson, J. E., Willett, W. C., Stampfer, M. J., Hu, F. B. (2021). Fruit and Vegetable Intake and Mortality. Result From 2 Prospective Cohort Studies of US Men and Women and a Meta-Analysis of 26 Cohort Studies. Circulation, 143(17). https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.120.048996
[16]Zong, G., Gao, A., Hu, F. B., Sun, Q. (2016). Whole Grain Intake and Mortality From All Causes, Cardiovascular Disease, and Cancer: A Meta-Analysis of Prospective Cohort Studies. Circulation, 133(24). https://www.ahajournals.org/doi/10.1161/circulationaha.115.021161

Evaluation Model

APSU Student Research & Scholarly Activity Symposium (April 23, 2025, 2:00 – 4:00 p.m.)

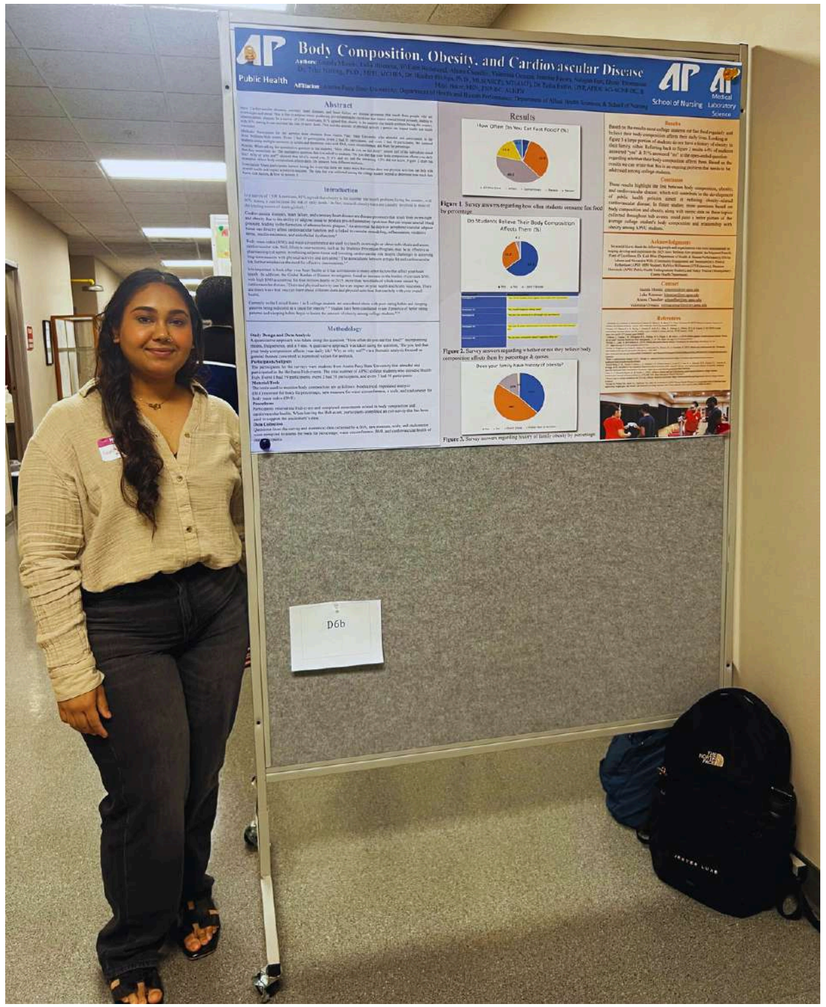
Evaluation Model

APSU Student Research & Scholarly Activity Symposium (April 23, 2025, 2:00 – 4:00 p.m.)



Evaluation Model

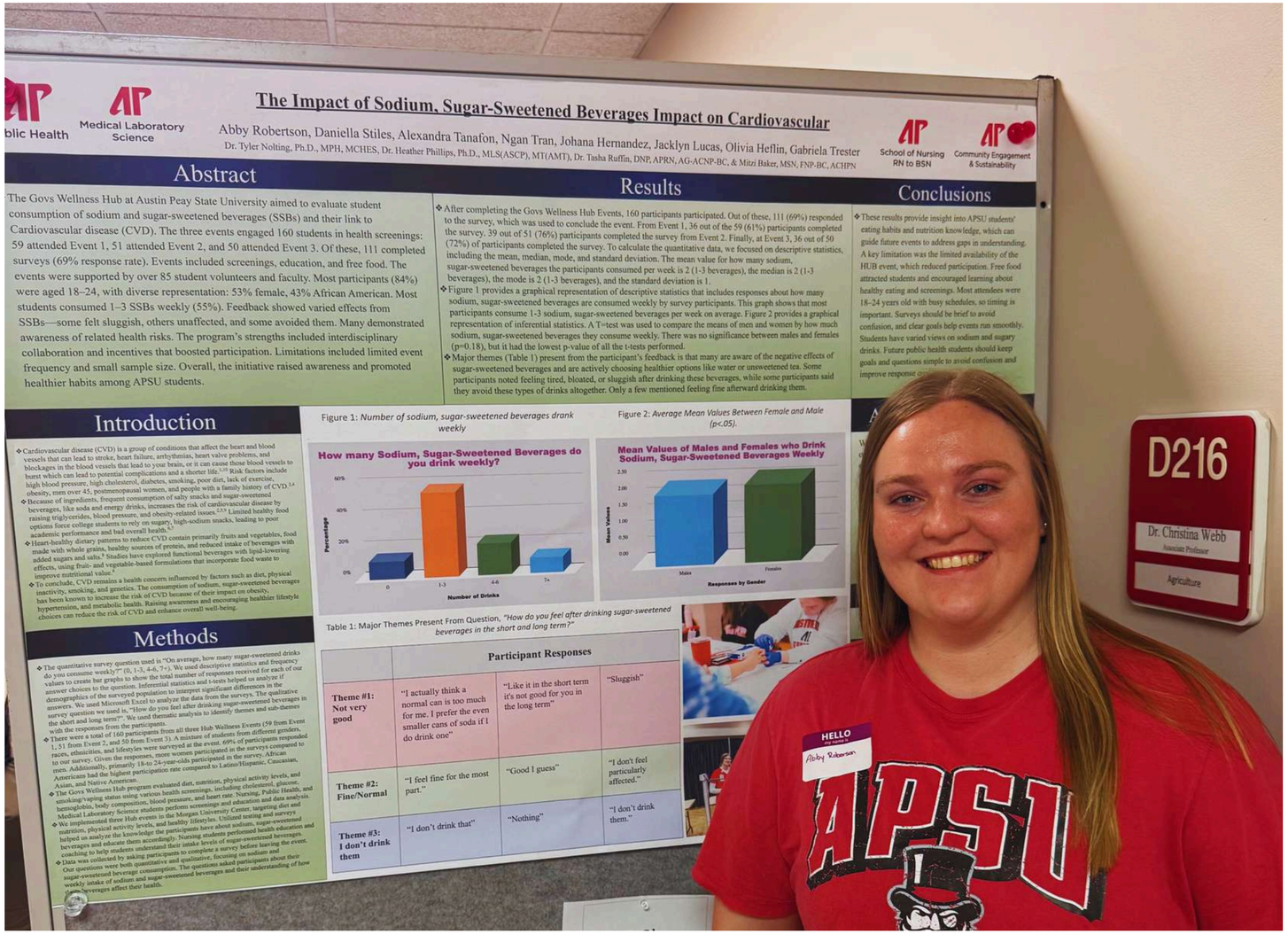
APSU Student Research & Scholarly Activity Symposium (April 23, 2025, 2:00 – 4:00 p.m.)

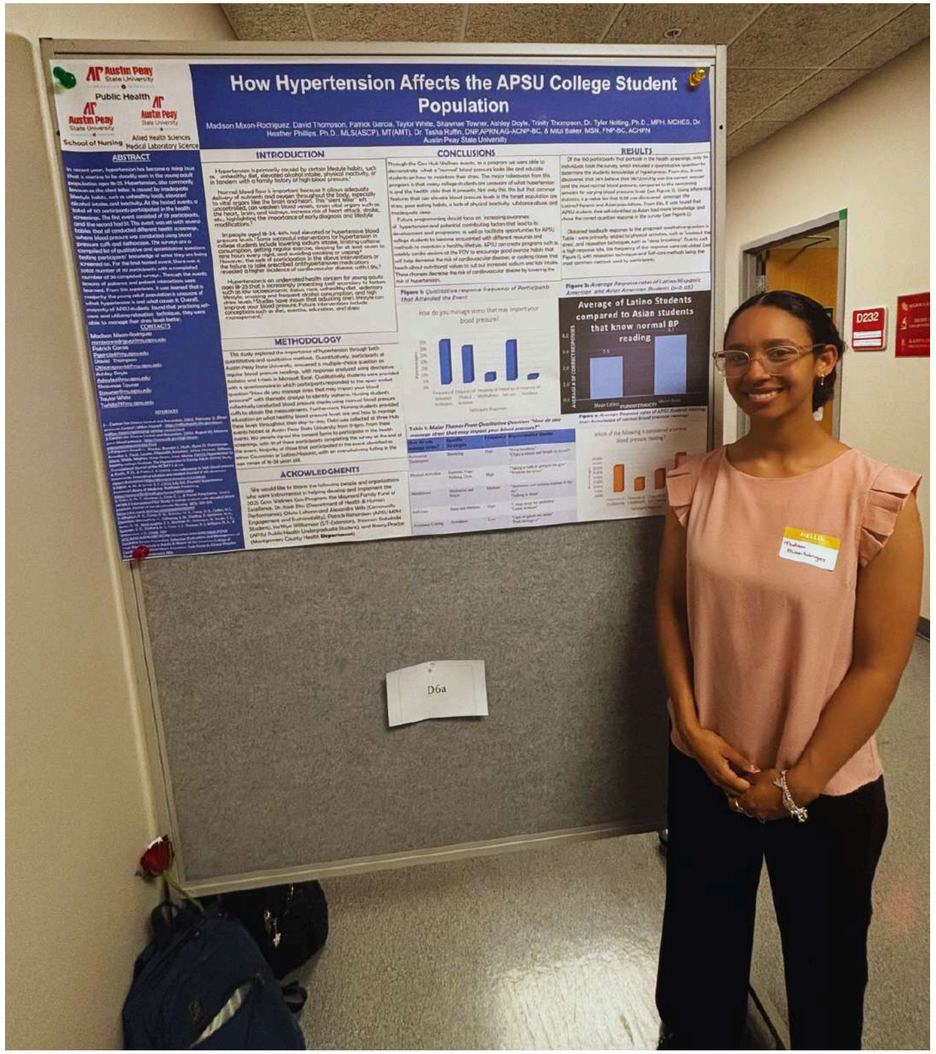


Won 2nd Place in the Health Division

Evaluation Model

APSU Student Research & Scholarly Activity Symposium (April 23, 2025, 2:00 – 4:00 p.m.)





Evaluation Model

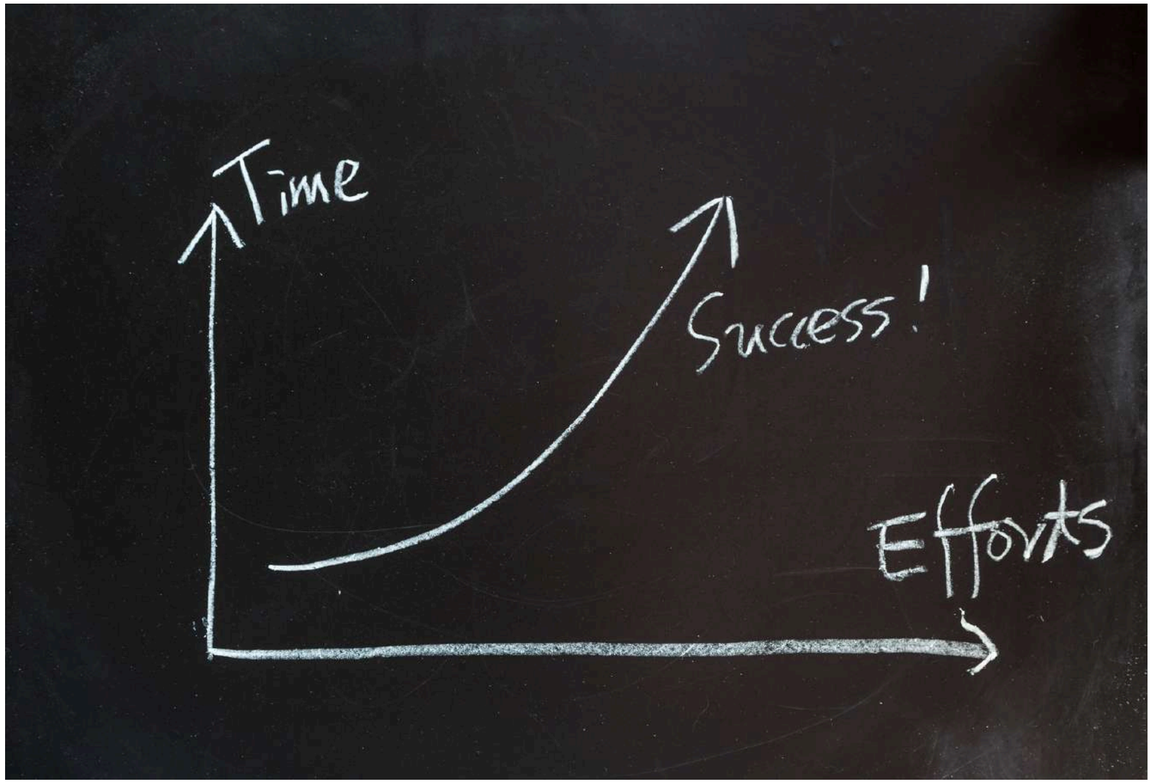
Acknowledgement of HHP 4800 Student Leaders

Dr. Ruffin celebrates the leadership and guidance of HHP 4800 and the student group leaders.

Dr. Nolting and HHP 4800 students celebrate the finale of the Govs Wellness Program at the final poster symposium.

Challenges, Lessons Learned, and Suggestions

Time Investment: Giving the time and effort it takes for successful outcomes



- **Challenge:** Underestimating resource requirements
- **Lesson:** Success demands sustained commitment beyond initial projections
- **Suggestion:** Build realistic timelines with contingency buffers

Challenges, Lessons Learned, and Suggestions

Team Satisfaction: Group work and satisfaction of team members, program partners, and recipients

- **Challenge:** Balancing diverse stakeholder expectations
- **Lesson:** Regular feedback loops prevent disconnect and burnout
- **Suggestion:** Establish clear communication channels and recognition systems

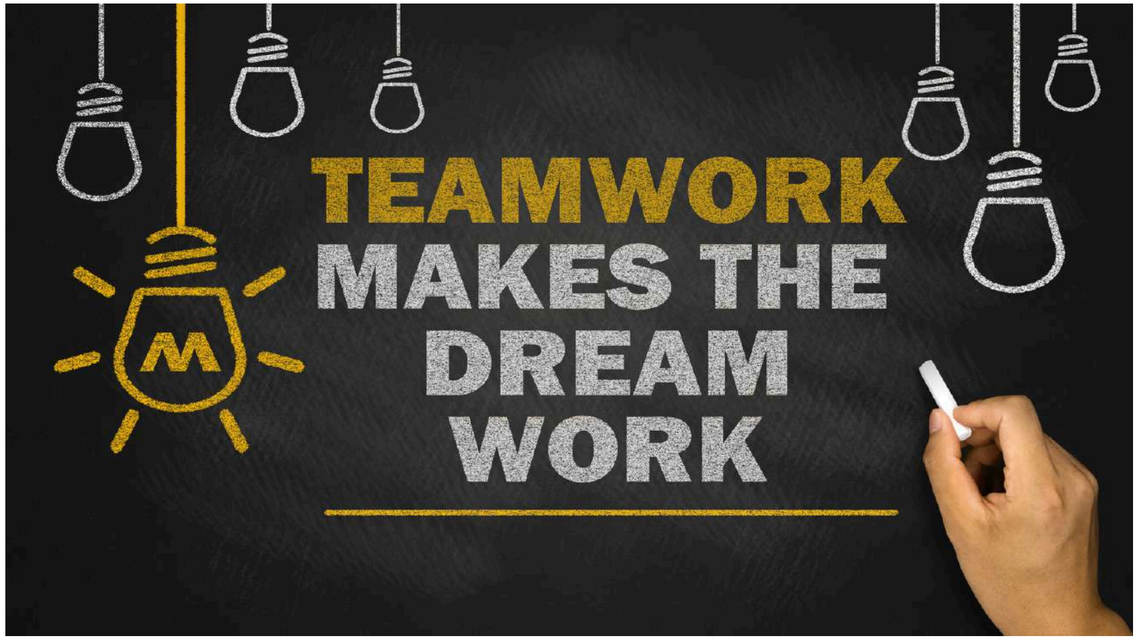
Challenges, Lessons Learned, and Suggestions

Program Sustainability:
Program maintenance and sustainability

- **Challenge:** Maintaining momentum after initial implementation
- **Lesson:** Early planning for long-term viability is essential
- **Suggestion:** Develop succession plans and knowledge transfer protocols

Challenges, Lessons Learned, and Suggestions

Team Culture: Creating a positive team culture and environment



- **Challenge:** Building cohesion across different programs
- **Lesson:** Intentional culture-building activities drive engagement
- **Suggestion:** Invest in team development from project inception

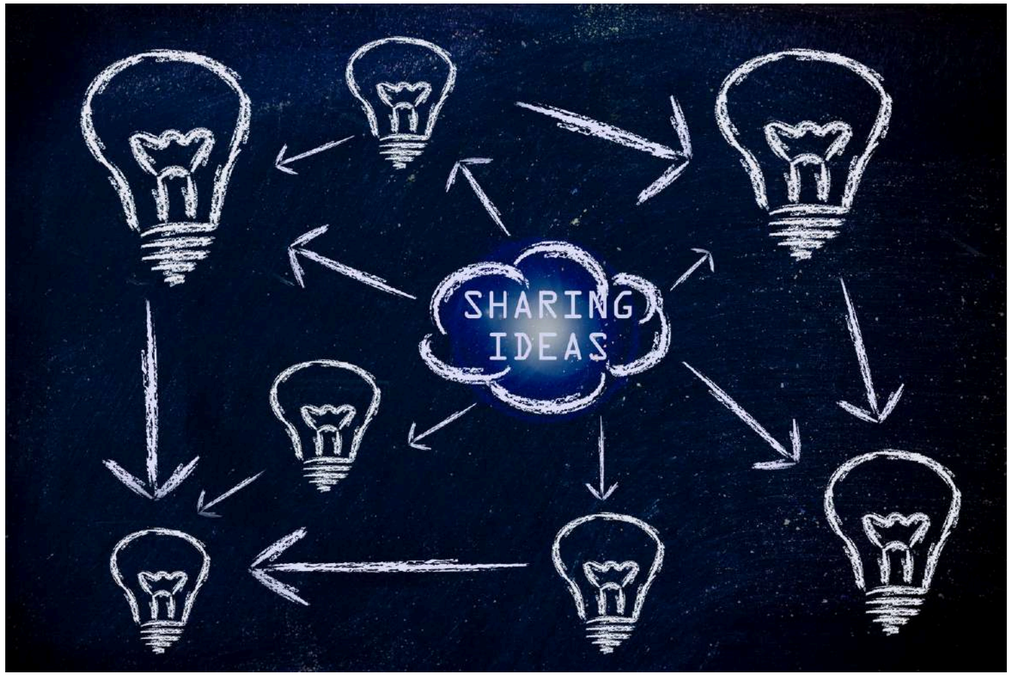
Challenges, Lessons Learned, and Suggestions

Future Funding:
Funding for future programs

- **Challenge:** Securing ongoing financial support
- **Lesson:** Document impact metrics throughout program lifecycle
- **Suggestion:** Cultivate diverse funding streams and demonstrate ROI early

Challenges, Lessons Learned, and Suggestions

Knowledge Sharing:
Sharing findings with others for future use and implementation



- **Challenge:** Translating lessons into actionable insights for others
- **Lesson:** Systematic documentation enables broader impact
- **Suggestion:** Create standardized reporting templates and dissemination strategies

Plans for the Future

Govs Wellness Hub 2.0: Caring for Campus and Community (2025-2026 Academic Year)

Campus Wellness Hub Event

- Comprehensive health screenings for students and community members
- Partnership with APSU Office of Community Engagement and Sustainability to bring health and wellness organizations to campus
- Focus on preventive health education and services

Collaboration with Dr. Kadi Bliss, Mrs. Olivia Lahann, Dr. Tasha Ruffin, Mrs. Mitzi Baker, Dr. Heather Phillips, Ms. Alexandra Wills, and Dr. Tyler Nolting

Resources: Applied for Maynard Grant of nearly $13,000 (pending)

Plans for the Future

Govs Wellness Hub 2.0: Caring for Campus and Community (2025-2026 Academic Year)

Community Wellness Hub Event

- Partnership with Loaves and Fishes and Clarksville Parks and Recreation
- Health screenings combined with resources addressing basic needs and food security
- Targeted outreach to vulnerable community populations

HHP 4800, NURS 4050, and MTEC 4090 Students Providing Health Screenings

Dr. Lillian Beard-Gaines, MD
Michelle Bulla, ANP-BC

MLS and Phlebotomy Students Providing Screenings

Family and Children's Services

Clarksville Neighborhood and Community Services

Collaboration with Dr. Kadi Bliss, Mrs. Olivia Lahann, Dr. Tasha Ruffin, Mrs. Mitzi Baker, Dr. Heather Phillips, Ms. Alexandra Wills, and Dr. Tyler Nolting

Resources: Applied for Maynard Grant of nearly $13,000 (pending)

Plans for the Future

Govs Wellness Hub 2.0: Caring for Campus and Community (2025-2026 Academic Year)

Community Wellness Hub Event (continued)

Montgomery County Health Coalition

goinglocal initiative

Matthew Walker Comprehensive Health Center

DocGo Mobile Health Clinic

Clarksville Parks and Recreation

Juvenile Engagement Team

thrive for a healthier Tennessee

Collaboration with Dr. Kadi Bliss, Mrs. Olivia Lahann, Dr. Tasha Ruffin, Mrs. Mitzi Baker, Dr. Heather Phillips, Ms. Alexandra Wills, and Dr. Tyler Nolting

Resources: Applied for Maynard Grant of nearly $13,000 (pending)

Some Inspiring Words from Clarksville's 3-Time Olympic Gold Medalist

Wilma (center) surrounded by her parents, Blanche and Eddie.

"No matter what great things you accomplish, somebody helps you."
–Wilma Rudolph

By DWIGHT LEWIS
Staff Writer

When Wilma Rudolph was around 6 years old and ill with scarlet fever, the whooping cough and polio, her mother, Blanche Pettus Rudolph, told her she could still be anything that she wanted to be.

Wilma listened to her mother's words of encouragement and in August 1960 — without the leg braces that she wore from the time she was 6 until she was 10 — won three gold medals in the Olympic Games at Rome.

said. "She was always there for her children and other members of her family.

"When I was a little girl, she told me I could be anything that I wanted to be if I worked hard and believed in myself. She said if I never stopped working hard and believing in myself that it would work for me and it did."

"She was my everything," Wilma Rudolph said.

Some More Inspiring Words from Clarksville's 8-Time National Champion

Coach Summitt hugs her mom, Hazel Head.

"I've always said, 'You win in life with people.'"
–Pat Summitt

ANY QUESTIONS?