

# Dietary Sodium Intake: Perceptions of an Urban Heart Failure Population

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## Learning Objectives

- To assess the prevalence of knowledge regarding sodium-restricted diets in patients with heart failure.
- To assess heart failure patient ability to accurately classify food as containing high-, moderate-, or low-sodium.

## Introduction

Dietary sodium restriction is a mainstay of disease management and self-care in heart failure (HF). Heart failure education programs that include recommendations on limiting sodium intake are fairly variable across centers and populations. A clear assessment is lacking on efficacy of such programs in enhancing levels of patient understanding regarding recommendations on sodium intake and knowledge of sodium content in commonly consumed food items. This pilot study was designed to assess the knowledge pertaining to sodium-restricted diets in underserved, at-risk patients with chronic, stable HF at an urban, academic center.

## Methods

Adult English-speaking patients with either stable, chronic HF reduced ejection fraction (HFREF) or HF preserved ejection fraction (HFPEF) were included. Baseline characteristics such as demographics, knowledge of HF, self-care including understanding of sodium intake, and related health implications were collected. Subsequently, a pictorial survey was administered that asked participants to categorize food items into high-, medium- or low-sodium based on the FDA-recommended daily sodium intake of 2.4 grams. Unordered Pearson chi-square tests were performed for differences between each group.

## Methods- Pictorial Survey Example

**SODIUM FACTS**  
Dietary Information for Salt-Restricted Diets

• Always read the **Nutrition Facts Label**

• The Percent Daily Value (%DV) is the amount of Sodium in one serving of a food as a percentage of the recommended daily intake of sodium

• The %DV listed is for one serving, but note that many packages have more than one serving. Make a note of how many servings you are actually consuming - if you eat two servings, you get **double the %DV listed on the label!**

**FDA Daily Recommendation**  
**2,400mg**

|                 |  |
|-----------------|--|
| High Sodium     | greater than 480mg (20% DV) of sodium per serving              |
| Moderate Sodium | between 120mg (5% DV) and 480mg (20% DV) of sodium per serving |
| Low Sodium      | less than 120mg (5% DV) sodium per serving                     |

Regarding the amount of sodium it contains, would you consider this food to be low, moderate or high in sodium?

**Large Pizza, 1 Slice**

(a) Low (b) Moderate (c) High

How frequently do you eat this food?  
(a) Daily (b) Weekly (c) Monthly (d) Yearly (e) Never

**1 Hot Dog or Smoked Sausage**

(a) Low (b) Moderate (c) High

How frequently do you eat this food?  
(a) Daily (b) Weekly (c) Monthly (d) Yearly (e) Never

**Processed Cheese**

(b) Low (b) Moderate (c) High

How frequently do you eat this food?  
(a) Daily (b) Weekly (c) Monthly (d) Yearly (e) Never

**1/2-pound Hamburger, cooked**

(a) Low (b) Moderate (c) High

How frequently do you eat this food?  
(a) Daily (b) Weekly (c) Monthly (d) Yearly (e) Never

ID: SS \_\_\_\_\_

**Soy Sauce**

(a) Low (b) Moderate (c) High

How frequently do you eat this food?  
(a) Daily (b) Weekly (c) Monthly (d) Yearly

**Mustard**

(a) Low (b) Moderate (c) High

How frequently do you eat this food?  
(a) Daily (b) Weekly (c) Monthly (d) Yearly

**Ketchup**

(b) Low (b) Moderate (c) High

How frequently do you eat this food?  
(a) Daily (b) Weekly (c) Monthly (d) Yearly

**2 Lox crab cake**

(b) Low (b) Moderate (c) High

How frequently do you eat this food?  
(a) Daily (b) Weekly (c) Monthly (d) Yearly

ID: SS \_\_\_\_\_

## Results

A total of 24 participants (mean age 57.3, 58.3% male, 75% HFREF) participated in the survey. Seventy-five percent of participants had a high-school or equivalent level education and 25% had an advanced degree. Participants were able to accurately categorize foods into high-, moderate-, or low-sodium categories 74%, 36% and 63% of the time, respectively (respective 95% confidence intervals 0.69-0.79, 0.29-0.43, 0.56-0.63). These percentages differed significantly from each other ( $p < 0.0001$  high vs moderate,  $p < 0.004$  high vs low,  $p < 0.001$  moderate vs low).

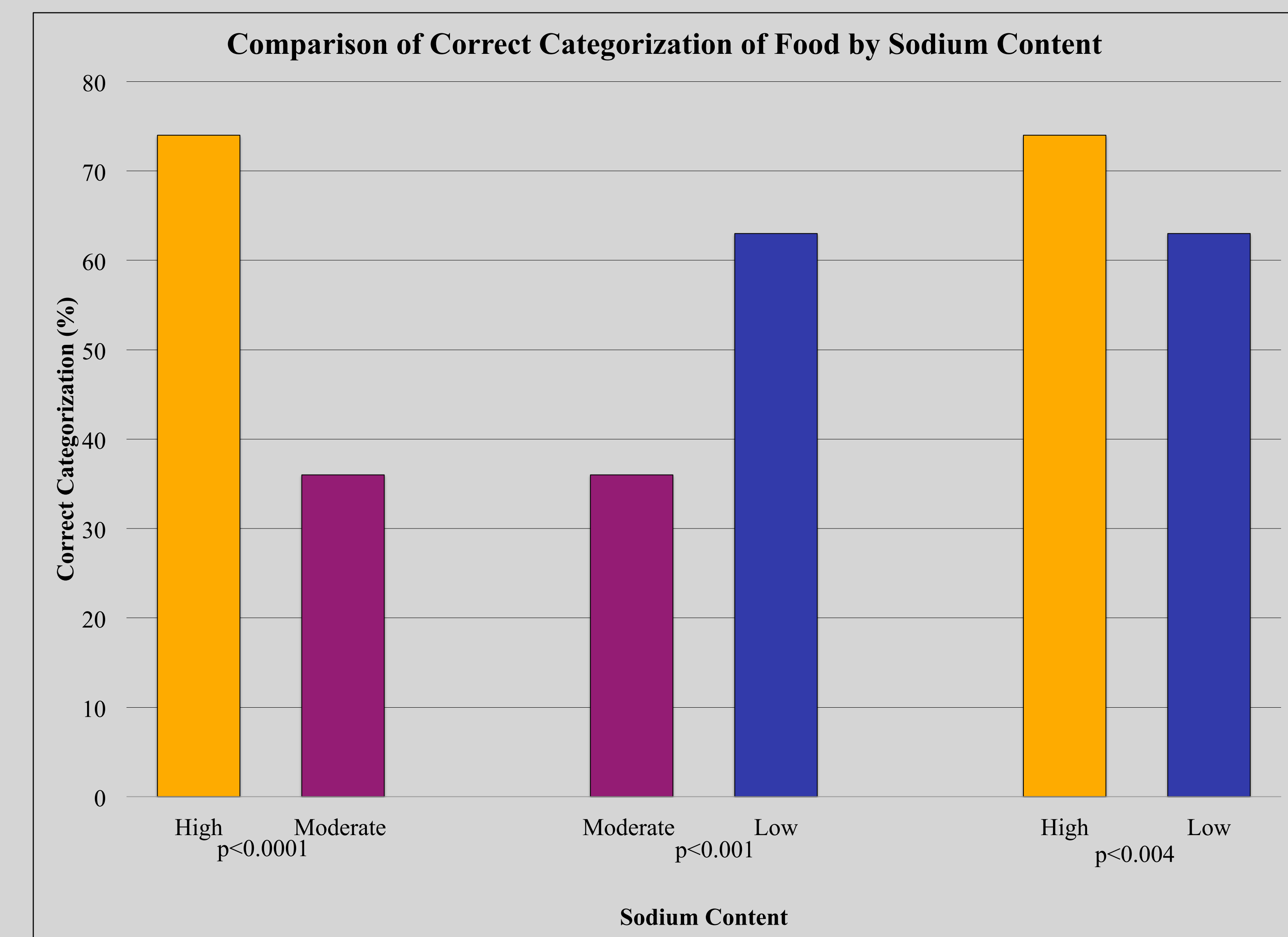


Figure 1: Comparative difference in correct categorization of foods as high-, moderate-, or low-sodium content

## Conclusion

Despite intensive HF education, understanding of dietary sodium intake is inadequate among HF patients. Patients were not able to accurately identify sodium content in appropriate categories and were most deficient in recognizing foods that contained moderate amounts of sodium. Further research is needed to understand barriers of dietary education and their effect on outcomes.

## References

- Papadakis, S. et al. Knowledge, attitudes and behaviours related to dietary sodium among 35- to 50-year-old Ontario residents. *Can J Cardiol.* May 2010; 26(5): e164–e169
- Pan-American Health Organization Questionnaire on Knowledge, Attitudes, Behavior toward Dietary Salt and Health