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The Spice is Right: Evaluating the Spice and Herb Content of Congregate Meals

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Introduction

Congregate meals offer social and nutritional benefits to Americans over the age of sixty. A nutritious diet is essential to support health and manage chronic health conditions, specifically for an aging population. Congregate meals must meet minimum nutritional requirements and typically include a variety of fruits, vegetables, grains, dairy products and protein.

Current literature suggests that:

- Commonly used spices and herbs have potential health benefits due to their antioxidant, anti-inflammatory, and glucose- or cholesterol- lowering properties.¹
- “The rapidly growing older population, increased demand for integrated continuous support systems, and rising cost of health care underscore the need for these (congregate meal) programs.”²
- Eight percent of people who participate in congregate meals (Figure 1) say this program improved their health.³
- “Some of the potential health benefits of herbs and spices include protection against cardiovascular disease, neurodegenerative conditions, chronic inflammation, cancer, obesity, arthritis and type 2 diabetes.”⁴
- The flavoring properties of many herbs and spices tend to reduce the use of salt as a flavoring agent (e.g. reduced sodium intake).⁴

The **study objectives** were to (1) document the primary herbs and spices contributed to the diet through congregate meals, (2) review existing literature to explore how herbs and spices found in congregate meals could be linked to the improvement of health issues experienced by the older population accessing those meals, and (3) analyze whether an increase in herb and spice content is related to a decrease in the salt content of the recipes.



Figure 1. Congregate meal plate example.
 Photo Source: www.healthyheartfood.com/congregate-meals

Methods

Participants & Procedures: The study sample included state and/or local directors of congregate meals sites in all 50 states. Recruitment emails with a 17-question survey were distributed to participants during a 12 week period. Study participation required approximately 15 minutes to complete an electronic survey and upload recipes from a specified two-week time period from the summer of 2022 for data consistency.

Data Analysis: The collected data was downloaded from the electronic survey into JMP (Version 16, SAS Institute Inc., Cary, NC, 1989-2021). The researchers created a data set containing all herbs, spices, and salt plus their amounts (in teaspoons) used in each recipe. Descriptive and inferential statistics were performed and reported.

IRB Approval: The research study was approved by the Lipscomb University Institutional Review Board (IRB).

Results

Seven states and 9 counties across the US contributed valid congregate meal recipes to the study. A total of 287 recipes were analyzed with 95 recipes containing herbs and spices. The most frequently used spices and herbs were black pepper (spice) used in 50 recipes, thyme (herb) in 11 recipes, parsley (herb) in 10 recipes, paprika (spice) in 7 recipes, and oregano (herb) and cumin (spice), both in 6 recipes (Figure 2). Other seasonings were also present in congregate meal recipes and included onions and/or shallots in 45 recipes, fresh garlic in 22 recipes, dried garlic in 14 recipes, and onion powder in 6 recipes. Salt was added into 44 recipes.

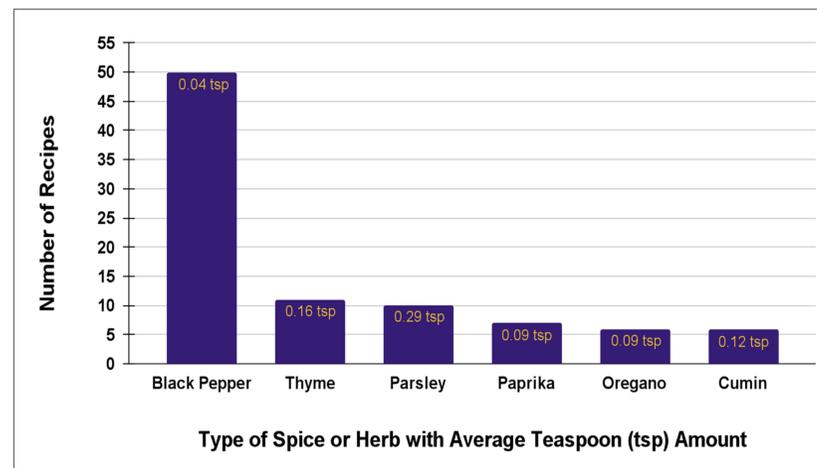


Figure 2. Common Spices and Herbs Found in Congregate Meals.

Mixed dishes (e.g. pasta, sandwich, soup, chili, etc.) were frequently seasoned with herbs and spices while grains, condiments and desserts were the least seasoned. Using Spearman’s rho statistic, salt and pepper (not normally distributed) was analyzed and results found a significant positive relationship, $r(29) = 0.6959, p < 0.001$. Normally distributed spice and herb relationship (Table 1) were analyzed with pairwise correlation statistics and found that both salt and parsley and salt and paprika had strong positive statistically significant relationships. When all spice plus herb amounts (tsp) were analyzed in relationship to total salt (tsp) there was a positive statistically significant relationship noted, $r(44) = 0.3018, p = 0.0465$.

Variable	<i>n</i>	<i>r</i>	<i>p</i>
Salt and Thyme (herb)	5	.0130	.9834
Salt and Parsley (herb)	5	.9817	.0030
Salt and Paprika (spice)	4	.9749	.0251
Salt and Oregano (herb)	3	.4940	.6711

Note: $p = 0.05$

Table 1. Pairwise Correlation Results of Selected Seasonings and Salt in Congregate Meal Recipes.

Discussion and Conclusions

Key findings of the research study suggest that:

- Black pepper, thyme and parsley were the most frequently used spices in congregate meals. Parsley contributed the largest amount (tsp) per person.
- Health benefits of black pepper include being a digestive aid, enhancing energy expenditure, and supporting cognition.¹ Thyme boasts antioxidant, anti-bacterial and anti-atherosclerotic properties.⁵ Parsley contains antioxidant and antimicrobial compounds.⁶
- The researchers did not find that an increase in herbs and spices resulted in a negative relationship to added salt in congregate meal recipes. In fact, a positive relationship was found between overall herbs and spices and salt in congregate meal recipes.
- Opportunities exist to add spices, herbs and other low sodium seasonings (e.g. vinegar) to recipes especially vegetables, protein and grains.

One **limitation of the study** was that a portion of the submitted data was unusable for herb and spice analysis (e.g. only a menu was provided). Another limitation was that many of the congregate meal foods are premade and the researchers were unable to analyze their spice and herb content.

Future research should continue to explore seasonings that are acceptable to persons eating congregate meals as well as the possible health benefits associated with those seasonings, especially in reducing added salt. Also, regional comparisons should be explored to establish if there are any differences in how various parts of the country season foods and which herbs and spices would be most prominent and acceptable.

References and Funding

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