

# Calories from Newspaper Dessert Recipes are Associated with Community Obesity Rates

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## ABSTRACT

**Introduction:** The purpose of this study was to determine if the nutrient content of recipes available in newspapers is related to community obesity rates.

**Methods:** All recipes published in the major newspapers for 3 cities with populations of 400,000 or more from 4 geographic areas within the United States the last week of August 2000 were accessed. The recipes were grouped as entrée, dessert, accompaniment, snack, appetizer, or beverage, and the nutrient content per serving for each recipe was calculated. The nutrient content was correlated with data on self-reported obesity rates in these same cities.

**Results:** Total mean kcalories per dessert serving ranged from 180.0 to 599.0 (mean=315.5) and total mean kcalories per entrée serving ranged from 265.4 to 567.3 (mean=436.7). Obesity rates for the 12 cities ranged from 16.8% to 28.2% (mean=21.1%). The average total caloric content of dessert recipes was significantly associated with the percent obese in the metropolitan cities (correlation=0.76,  $P$ -value=0.011). The total caloric content of entrée recipes was not significantly associated with the obesity rate ( $P$ =0.59).

**Discussion:** While these data cannot be interpreted as causal, they are intriguing and suggest that newspapers may play a greater role in promoting or preventing obesity than previously recognized.

## INTRODUCTION

The US obesity epidemic, with continuing increases

in overweight prevalence in children and men through 2004,<sup>1</sup> is resulting in unnecessary suffering and health care costs. The newly revised Dietary Guidelines for Americans<sup>2</sup> contain key recommendations to help Americans manage weight while meeting recommended nutrient intake levels. Data presented in the Guidelines suggest that males and females would have to decrease their intake of discretionary calories from solid fats and added sugars (commonly found in desserts and sweets) by nearly 50% to meet the recommended intakes.

The media play a large role in providing nutrition information to the public,<sup>3-5</sup> but the nutritional content of this information is seldom studied. A study of prime time television programming in the 1990s showed 60% of advertised foods were low in nutrients and high in sugar, inconstant with Dietary Guidelines.<sup>6</sup> The purpose of this study was to determine if the nutrient content (particularly fat and caloric content) of recipes available in newspapers is related to community obesity rates.

## METHODS

Three cities with populations of 400,000 or more (Bureau of the Census definition as a large central city) were selected from 4 geographic areas within the United States: (1) West (Los Angeles, Denver, Portland), (2) South (Washington DC, Dallas, Jacksonville), (3) Midwest (Milwaukee, Detroit, Kansas City), and (4) Northeast (New York, Philadelphia, Boston). All recipes published in the major newspapers for those cities in the last week of August 2000 were accessed. The recipes were grouped as entrée, dessert, accompaniment, snack, appetizer, or beverage, and the nutrient content per serving for each recipe was calculated using the software program Nutritionist Pro<sup>®</sup>, version 1.1.96 (First DataBank Inc, California). Junior and senior level undergraduate nutrition students at the University of Wisconsin-Stevens Point conducted all of the nutrient analyses, under the supervision of a nutrition instructor.

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Selected Metropolitan/Micropolitan Area Risk Trends from the Behavioral Risk Factor Surveillance System (SMART BRFSS)<sup>7</sup> were used to estimate weighted obesity rates (defined as body mass index [BMI] >30) for the metropolitan statistical areas corresponding to the cities selected for nutrient recipe analysis. Data were entered into an Excel<sup>®</sup> spreadsheet and analyzed with SPSS<sup>®</sup> using linear regression and correlation. The study design is that of a group-level correlational study,<sup>8</sup> with data correlated at the level of the community and not the individual.

## RESULTS

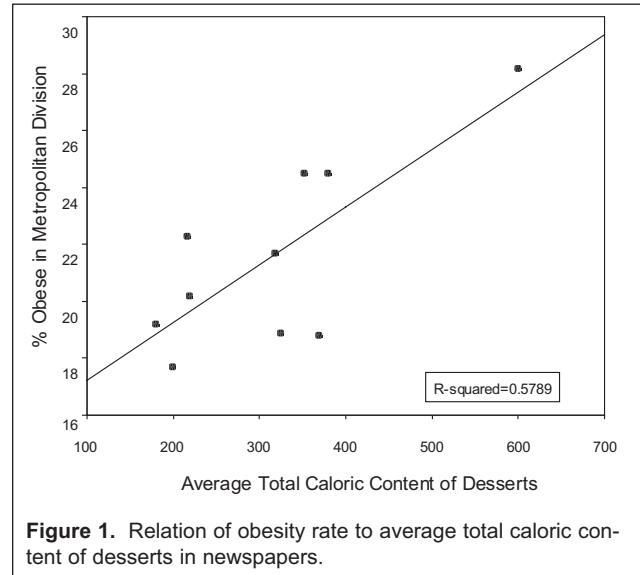
There was a sufficient number of recipes for the 12 cities in 2 categories of recipes to allow for meaningful analyses: entrées and desserts. Sixty-four entrée recipes and 38 dessert recipes from the 12 cities were analyzed. Total mean kcalories per dessert serving ranged from 180.0 to 599.0 (mean=315.5, median=321.4) and total mean kcalories per entrée serving ranged from 265.4 to 567.3 (mean=436.7, median=439.4). Mean and median values for the individual cities were similar, so the mean value was selected for the regression analyses. Obesity rates for the 12 cities ranged from 16.8% to 28.2% (mean=21.1%, median=20.6%).

The average total caloric content of dessert recipes was significantly associated with the percent obese in the metropolitan cities sampled (Figure 1). The correlation coefficient for the regression line was 0.76 ( $P$ -value=0.011), for an  $r^2$  of 0.5789 (58% of the variance in community obesity rates explained by the caloric content of the dessert recipes). The total caloric content of entrée recipes was not significantly associated with the obesity rate ( $r^2=0.03$ ,  $P=0.59$ ).

## DISCUSSION

In this study, we found that caloric intake of recipes published in major newspapers are correlated with community obesity rates. We know of no other similar studies with which to compare the results observed in the present study. A study published in 2003 revealed that health behavior stories in Missouri newspapers are rare; only 1373 (1.7%) of 80,000 stories addressed diet, physical activity or tobacco.<sup>5</sup>

Advantages of this study include the relatively large range of BMI and kcalories studied, which allows for meaningful correlational analyses. Furthermore, the model of student volunteers used in the present study could help address editor concerns of local newspapers that may not have the resources for nutrient analyses of recipes, as well as community groups seeking to assess



**Figure 1.** Relation of obesity rate to average total caloric content of desserts in newspapers.

meaningful changes that result from community interventions.

Limitations of this study stem primarily from the correlational study design that may lead to the “ecological fallacy” where the observed correlation may be due to some other underlying difference between the communities included in the study, such as demographics or access to health care.<sup>8</sup> The results should not be assumed to apply to individuals within the communities. It would be nearly impossible to design and undertake a study to assess the use of specific recipes in newspapers by individuals and their corresponding BMI. Additional studies that could be conducted that would add support to the correlation observed in the current study include long-term trends, i.e. correlating BMI and kcalories from newspaper recipes over time within a city. In the end, however, researchers would still be left with trying to determine which came first: the obesity or the higher kcalories in the recipes offered. It is possible that communities with higher body mass indices request and provide positive feedback for higher calorie recipes. It is equally possible that people *do* use the recipes provided in the newspapers, thus leading to higher BMI in those communities. Causality should not be inferred, only association.

If the results of this study are valid, and regardless of the temporality of the association, a community-led healthy lifestyles initiative could include healthy recipe alternatives as 1 strategy to help provide support for individual behavior change that could ultimately lead to decreased levels of overweight and obesity in the community as a whole. Another strategy would be to educate the community about smaller portion sizes, which

would lead to lower caloric consumption. Using similar methodology to the current study, previous studies have demonstrated that increased portion sizes are correlated at the community level with the obesity epidemic.<sup>8</sup> On the basis of these correlation analyses, portion control educational interventions have been implemented.

This analysis demonstrates that the caloric content of desserts printed in local newspapers varies by geography and that it is strongly correlated with community obesity rates. While these data cannot be interpreted as causal, they are intriguing and suggest that newspapers may play a greater role in promoting or preventing obesity than previously recognized. Furthermore, it underscores the importance of publishing recipes to help readers achieve and maintain a healthy weight. Newspaper editors, take note! The newspaper-reading public, including health professionals, can help to facilitate the availability of healthy recipe options being printed by contacting newspaper editors, who tend to respond to reader requests.

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