

# Mobile Apps for Hypertension Management: Cross-sectional survey of dietitian app use in patient care

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## ABSTRACT

### Background

Mobile apps show promise for managing chronic diseases such as hypertension; however, more evidence is needed to understand how dietitians are using apps in hypertension care.

### Objective

To classify dietitians' incorporation of apps into dietary education for patients with hypertension.

### Study Design, Setting, Participants

An online cross-sectional survey of registered dietitian nutritionists who work with patients with cardiovascular disease.

### Measurable Outcome/Analysis

App use in hypertension diet education classified with descriptive statistics and Friedman tests with Bonferroni corrections. Dietitian characteristics impacting app use measured through stepwise regression.

### Results

A total of 190 completed the survey. The DASH diet was the most common dietary approach used in hypertension education ( $p < .001$ ). The most commonly recommended app for hypertension education was MyFitnessPal (23%); however, only 36% recommend any apps to patients with hypertension. For comparison, 64% recommended apps for weight management. Few (2%) were extremely satisfied with apps for hypertension management and less than a third were somewhat satisfied (30%). In general, dietitians did use apps for diet tracking, with a third reporting using apps for diet tracking most of the time, and another third sometimes. Dietitians were more likely to recommend apps for diet tracking than pen and paper ( $p < .001$ ), online programs or websites ( $p = .01$ ), or computer-based word-processing ( $p < .001$ ). Stepwise regression analysis showed that as dietitian education level increased, the number of patients that dietitians recommended apps to also increased (R-squared = .04,  $p = .01$ ). Dietitian age and gender did not significantly predict app use.

### Conclusions

Most dietitians are not specifically recommending apps for hypertension management. Those who do use an app are most likely to use MyFitnessPal. Future work should examine the effectiveness of using MyFitnessPal to reduce hypertension and barriers to dietitian satisfaction with apps.

## AIM

To identify dietitian approaches to hypertension diet education, including the use of mobile apps

## METHOD

### Survey Development

Survey items adapted from previously validated survey of practitioner use of apps in diabetes care<sup>1</sup>

### Survey Validation

Cognitive Interviews<sup>2</sup>

- Iterative process
- 2 rounds
- 5 Registered Dietitian Nutritionists with at least 1 year of experience working with patients with heart disease in clinical, outpatient and community settings
- 2 researchers reviewed responses

### Survey Administration

41 item Qualtrics survey

n=190 participants recruited from:

- Sports, Cardiovascular and Wellness Nutrition Dietetics Practice Group list serve
- Email list of 5000 randomly selected dietitians from the Commission on Dietetic Registration

### Sample Survey Items

Q7. Which approaches do you use to guide nutrition education for patients/clients with hypertension?

	Always	Most of the time	Sometimes	Never
Mediterranean Diet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietary Approaches to Stop Hypertension (DASH)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MyPlate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietary Guidelines for Americans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Therapeutic Lifestyle Changes (TLC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15. What apps do you encourage your clients/patients to use for *weight management*? If more than one, please list your most preferred app first. If you do not use apps in counseling for weight management, type *none*.

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Q16. What apps do you encourage your clients/patients to use for the *management of hypertension*? If more than one, please list in order of preference. If you do not use apps in counseling for hypertension, type *none*. If the same answer as above, type *same*.

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## RESULTS

### Dietitian Characteristics

94.7% female, 3.2% male, 0.5% prefer not to answer

94.2% not Hispanic or Latino, 3.7% Hispanic or Latino

4.7% Asian, 3.2% Black or African American, 90% White

6.8% 20-29 years old, 44.2% 30-39, 16.3% 40-49, 20.0% 50-59, 11.1% 60-69

43.7% 4-year degree, 51.6% Masters degree, 1.6% Doctoral degree, 1.6% Professional degree (JD, MD), 1.6% other

### Hypertension Education Approaches

Dietitians relied on the following approaches ranked from the most frequent to least frequent:

- DASH
- Therapeutic Lifestyle Changes
- Mediterranean Diet
- Dietary Guidelines for Americans

### App Use in Hypertension Dietary Education

Only 36% of dietitians recommend any apps to patients with hypertension compared to 64% who recommend apps for weight management

MyFitnessPal was the most recommended app for hypertension (23%)

Low satisfaction with apps for hypertension management  
2.1% extremely satisfied, 29.5% somewhat satisfied

Confidence with patients' ability to use app related to patient age

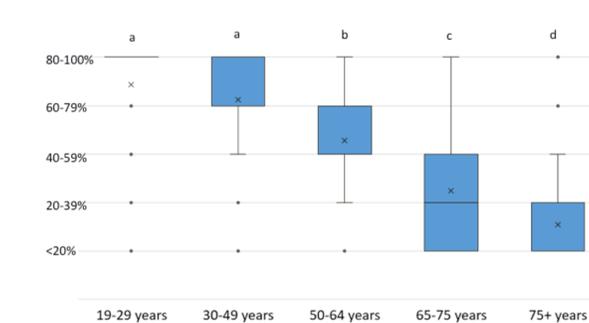


Figure 1: Percent of patients able to use apps by age group as reported by dietitians. All differences significant at  $p < .001$  except c-d significant at  $p = .001$

## RESULTS Continued

Dietitians recommend apps for diet tracking more often than other pen and paper ( $p < .001$ ), online programs or websites ( $p = .01$ ), or computer-based word-processing ( $p < .001$ )

Dietitians recommended app use for a variety of reasons; however they were least likely to recommend apps for managing medications

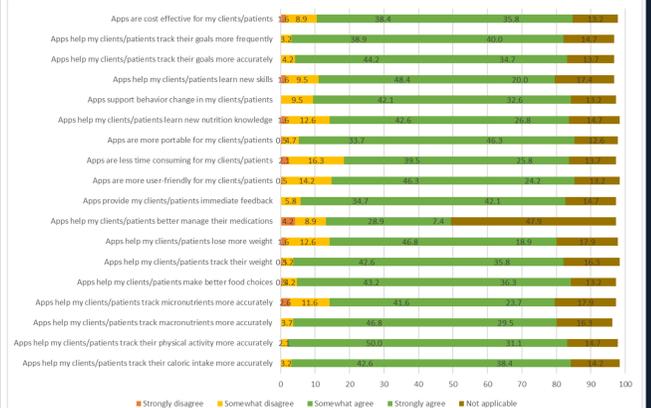


Figure 2: Reasons dietitians recommend using health-related apps to patients and clients with hypertension compared to other methods (%).

## CONCLUSIONS

Most dietitians are not specifically recommending apps for hypertension management. Those who do use an app are most likely to use MyFitnessPal.

Future work should examine the effectiveness of using MyFitnessPal to reduce hypertension and barriers to dietitian satisfaction with apps.

## REFERENCES

1. Karduck J, Chapman-Novakofski KM. Results of the Clinician Apps Survey, how clinicians working with patients with diabetes and obesity use mobile health apps. *J Nutr Educ Behav*; 50(1): 62-29.
2. Willis GB. *Cognitive Interviewing: A Tool for Improving Questionnaire Design*. Thousand Oaks, CA: SAGE Publications, Inc; 2005.