The Global Fruit & Veg Newsletter

n° 49

December 2019

CHALLENGES AND INTERVENTIONS TO INCREASE FRUIT AND VEGETABLES CONSUMPTION

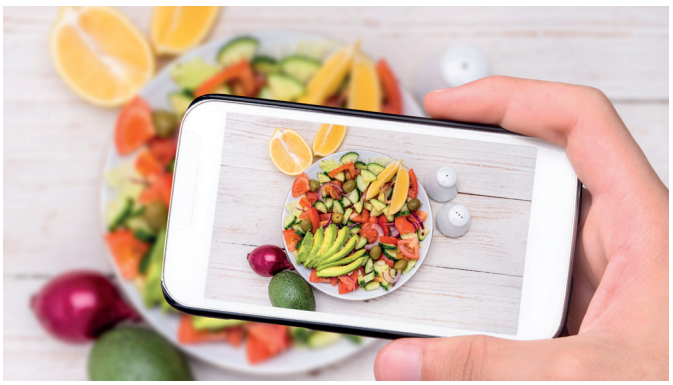
In order to design effective interventions and policy measures to increase fruit and vegetables (F&V) consumption in different populations, it is critical to know the perceptions and views held by members of the target groups. In this issue of the Global Fruit & Veg Newsletter, Howse and colleagues present a study exploring the experiences of young urban adults. Three narratives are identified in this qualitative study, namely value, appeal and emotional connections of food. The results point to influences at different levels of the environment and food system. As suggested by the authors, these are key targets for environment-level and policy-level interventions. Interventions seen as most acceptable to the target group should be explored.

Focused interventions providing feedback and concrete advice on how to increase F&V consumption are being developed and tested. Gustafson presents the "Go Big and Bring it Home" project designed to encourage 15 year-olds to purchase F&V. Working with mentors for a week to identify salient messages, the participants received concrete challenges and advices via text messages over the following six weeks. The evaluation reveals a number of encouraging results.

A study with Australians adult applied a smartphone app "VegEze" designed to increase vegetable variety and consumption. By tracking actual intake, participants received daily feedback on consumption, content and recipe notifications several times a week. As reported by Williams and colleagues, the app has the potential to reach large numbers and it is expected to increase the average daily intake of F&V with ¼ to ½ serving.

These studies both highlight the need for engaging with target populations in identifying appropriate policy interventions and the possibilities of designing targeted interventions using technological platforms. Combined, such strategies have the potential to support large population groups in increasing their F&V consumption.

Knut-Inge Klepp
Division of Mental and Physical Health, The Norwegian Institute of Public Health/Department of Nutrition, University of Oslo, NORWAY



Editions available in: English: www.aprifel.com / www.freshfel.org / www.kauppapuutarhaliitto.fi www.unitedfresh.co.nz / www.5amtag.ch / www.halfyourplate.ca French: www.aprifel.com Spanish: www.5aldia.org

THE GLOBAL FRUIT & VEG NEWSLETTER
CONTACT US

APRIFEL Agency for the Research and Information on Fruit and Vegetables
99 boulevard Pereire 75017 Paris – France
GLOBAL FRUIT & VEG NEWSLETTER Secretariat : gfvn@aprifel.com

www.aprifel.com
www.egeaconference.com

Young adults' views about food choices and influences

Eloise Howse[a] and collaborators

a. Prevention Research Collaboration, Sydney School of Public Health, Faculty of Medicine and Health, University of Sydney, AUSTRALIA

Improving diet is critical to prevent chronic and non-communicable diseases (NCDs). The dietary recommendations of the World Health Organization[1] encourage the consumption of a variety of fruits, vegetables, whole grains, legumes and nuts; and limiting consumption of 'discretionary' food and beverage items - products that are high in fats, salt and/or added sugars (including sugar-sweetened beverages). Particular population groups are at risk of poor diet, including young adults (18–30 years of age), who tend to consume high levels of discretionary food and drinks and low levels of fruit and vegetables[2]. Young adults are making the transition to independence from different settings, such as from school to university and workplace settings, which can affect food behaviours. In addition, young adults are highly marketed by food and drink advertisers[3].

Previous research with young adults has looked at the barriers and enablers driving their food choices, focusing primarily on university and college students[4]. However, there is less research using qualitative methods with young adults as a broader population group.

This study explored the experiences of young adults in two different settings: Sydney, Australia and Glasgow, Scotland. Eight focus groups of young adult participants, ranging in size from 2–6 participants, were held in Sydney, Australia (n = 14) and Glasgow, Scotland (n = 16) to discuss, explore and compare the determinants and influences of their food choices. Focus group transcripts were coded thematically based on a process of narrative analysis. We identified three major narratives: value of food, appeal of food, and emotional connections with food. These narratives were underpinned by a broader narrative of 'performing adulthood' (Figure 1).

Value of food

Participants discussed the importance of price on their decisions regarding food, but also reflected 'value negotiations' about food which included aspiring to purchase better or healthier foods as adults, as well as prioritising the 'time value' or convenience of certain foods.

Appeal of food

Participants were highly aware of the range of techniques used by advertisers and promoters to make food more appealing, particularly in terms of product placement in stores and social media advertising. They felt these strategies were very effective at influencing their food choices.

Emotion connections of food

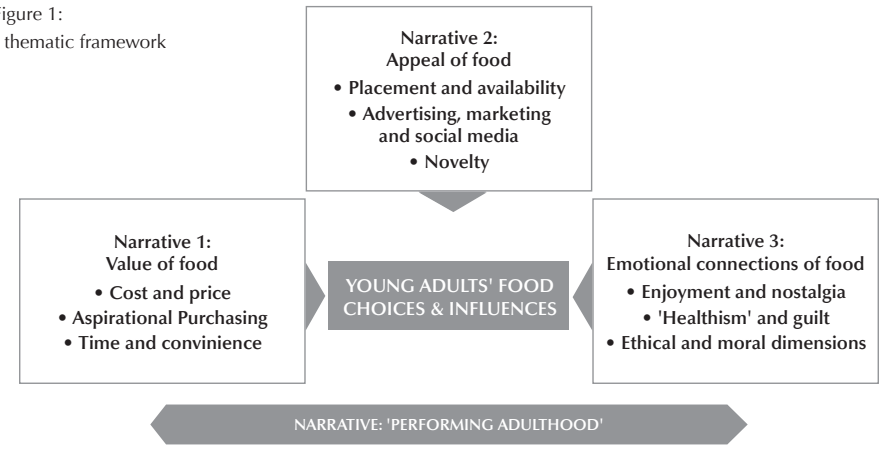
Food was viewed by young adults as a source of emotional connection and enjoyment. For example, some discretionary food options reminded them of a past memory or place. For others, they demonstrated guilt in regards to perceive healthiness of foods and choices. Participants also noted the importance of ethical decision-making regarding foods, such as environmental sustainability.

Performing adulthood

Participants reflected the view that as adults, they should make rational, informed choices about food, though many times they found this conflicted with the broader food environment. They also felt that children were different from adults and required additional help to negotiate food environments and decisions.

The results suggest that young adults are struggling to make healthier food choices due to a competing number of narratives and sub-narratives, which are driven by multiple influences at different levels of the food environment and system. Strategies that address the food environment may be effective at empowering young adults' sense of self-efficacy regarding food choices. Future research could examine which environment-level or policy-based interventions are most acceptable to young adults in terms of influencing their food choices and dietary behaviours.

Figure 1:
Narrative and thematic framework



Based on: Howse, E.; Hankey, C.; Allman-Farinelli, M.; Bauman, A.; Freeman, B. 'Buying Salad Is a Lot More Expensive than Going to McDonalds': Young Adults' Views about What Influences Their Food Choices. Nutrients 2018, 10, 996. https://doi.org/10.3390/nu10080996

References

1. World Health Organization. Fact sheet no. 394: Healthy diet. 2015 [cited 2018 18/01]; Available from: http://www.who.int/mediacentre/factsheets/fs394/en/.

2. Nour, M., et al., The fruit and vegetable intake of young Australian adults: a population perspective. Public Health Nutrition, 2017. 20(14): p. 2499-2512.

3. Freeman, B., et al., Young adults: beloved by food and drink marketers and forgotten by public health? Health Promotion International, 2015.

4. Munt, A.E., S.R. Partridge, and M. Allman-Farinelli, The barriers and enablers of healthy eating among young adults: a missing piece of the obesity puzzle: A scoping review. Obesity Reviews, 2017. 18(1): p. 1-17.

A text messaging intervention to increase fruit and vegetables consumption and goal setting for healthier dietary consumption among rural adolescents

Alison Gustafson

Department of Dietetics and Human Nutrition, University of Kentucky, USA

Due to socio-economic status and lack of access to affordable healthy food, rural adolescents consume fewer fruit and vegetables (F&V) and thus have higher rates of obesity and greater risk of cardiovascular diseases[1,2]. It has been shown that adolescents having greater availability of F&V at home consume more F&V than those with lower home availability[3].

Text-messaging interventions have shown to be effective in weight loss among adults[4] and in improving F&V purchases among urban adolescent[5]. However, there are no interventions aimed at providing affective messages neither targeting F&V and healthy/low calorie beverages intake among rural adolescents nor examining whether text messaging improves self-efficacy and goal setting related to dietary intake. In this context, we developed and tested a text-messaging intervention to increase self-efficacy and goal setting for healthier food and beverages intake.

The primary outcome of this study is to report the effect of this intervention on F&V intake. The secondary outcome was a change in sugar-sweetened beverages (SSBs) intake, food shopping habits, home food availability, self-efficacy, and goal setting related to healthy eating.

"*Go Big and Bring it Home*" (GBBH) project

The GBBH project is an eight-week mentor-led text-messaging intervention to improve F&V consumption among rural adolescents. A total of 411 participants (277 intervention and 134 control, mean age = 15 years old) were recruited from eight rural high schools. Mentors were volunteer undergraduate students in human nutrition and dietetics from the University of Kentucky.

• The first week aims to let students get to know their mentor and work out communication glitches.

• During the following six weeks, students received weekly a challenging text message related to consuming F&V and low-calorie beverages. The content also focused each week on a different food venue where adolescents reported to purchase or consume food (convenience stores, supermarkets, and fast-food restaurants). Messages exclude negative wording such as "no" or "stay away from".

Examples of text messages sent:

> *"Choose a fruit when shopping at the gas station"*
>
> *"I like to grab water when I eat fast food, think that might work for you this week"*

• The 8th week provides information about the goals achieved by students and schools.

Effect on intake and purchase of F&V

The following intervention had a significant and positive effect on F&V intake: the intervention group reported an increase of 0.71 servings of F&V/day, while the control group reported a decrease of 1.52 servings/ day.

There was also an increase in F&V purchases over 7 days within intervention group (+2.55 purchases/ week).

Effects on intake and purchase of healthy snacks, water or no-calorie beverages and SSBs

There was no effect on SSBs consumption. However, there was an increase in water or non-calorie beverages purchases over 7 days within the intervention group (+0.87 calories/ day).

Concerning healthy snacks, intervention adolescents increased their purchases by 1.81 healthy snacks/ day over 7 days.

Effect on self-efficacy and goal setting

Compared to control group, those in the intervention group reported a significant higher odds of having self-efficacy for eating vegetables (1.59 OR) as well as of goal setting for fruit (1.52 OR), vegetables (1.75 OR) and SSB (1.94 OR).

In conclusion, this type of intervention focusing on individual- and environmental-level changes is a promising approach to improve dietary and purchasing behaviors.

Based on: Gustafson A. et al. A Mentor-Led Text-Messaging Intervention Increases Intake of Fruits and Vegetables and Goal Setting for Healthier Dietary Consumption among Rural Adolescents in Kentucky and North Carolina, 2017. Nutrients 2019, 11, 593.

References

1. Lutfiyya MN. et al. Is rural residency a risk factor for overweight and obesity for U.S. Children? Obesity 2007, 15, 2348–2356.

2. Johnson CM. et al. Eating behaviors and social capital are associated with fruit and vegetable intake among rural adults. J. Hunger. Environ. Nutr.2010, 5, 302–315.

3. Pearson N. et al. Family correlates of fruit and vegetable consumption in children and adolescents: A systematic review. Public Health Nutr.2009, 12, 267–283.

4. Flores Mateo G. et al. Mobile phone apps to promote weight loss and increase physical activity: A systematic review and meta-analysis. J. Med. Internet Res.2015, 17, e253.

5. Trude, A.C.B. et al. A multilevel, multicomponent childhood obesity prevention group-randomized controlled trial improves healthier food purchasing and reduces sweet-snack consumption among low-income african-american youth. Nutr. J.2018,17, 96.

A smartphone app to increase vegetable consumption in Australian adults

Gemma Williams[a] and collaborators

a. Health & Biosecurity, Commonwealth Scientific and Industrial Research Organisation, Adelaide, AUSTRALIA

Poor-quality dietary patterns, generally characterized by insufficient consumption of fruit and vegetables, are one of the most important modifiable risk factors for non-communicable diseases (NCDs)[1]. Despite the scientific evidence about health benefits of vegetable consumption, intake remains low[2,3]. In Australia, 95% of adults don't meet vegetables' recommended intake[3]. Even though it is clear that vegetable consumption should be increased, dietary behavior change is often difficult and affected by different factors: individual-level factors (e.g. willpower and motivation), household-level factors (e.g. availability and finances) and community-level factors (e.g. accessibility to fresh food and social norms)[4].

Smartphone-based behavior change interventions may be effective and also accepted by individuals due to smartphones' characteristics: increasingly ubiquitous, ability to reach individuals at nearly any time or place, highly interactive, deliver information in an engaging and rewarding way and provide timely feedback[5].

This paper describes the theoretically and commercially derived development of a mobile app called VegEze aimed to increase vegetable variety and consumption. The development of this app was conducted using the IDEAS* framework as scientific basis.

The app's target behavior: "*Eat 3 different vegetables at dinner*"

Less than 4% of Australian adults have a sufficient consumption of vegetables to meet the Australian Dietary Guidelines (3). Also, participants who reported "always" having 3 different types of vegetables at dinner had higher overall vegetable consumption and were more likely to meet the recommended daily intake. Therefore, the initial target behavior was to "eat 3 different vegetables at dinner".

Among barriers to increase vegetables intake, participants reported reasons related to:

- their capability (37%): e.g. planning and cooking skills, knowing how to eat more vegetables;
- motivation (33%): e.g. developing better plans and a habit of eating more vegetables;
- opportunity (30%): having more time and triggers to eat more vegetables.

How potential users of the app received the target behavior?

94% to 99% of the 1,068 respondents (84% female, with an average age of 56 years) reported that they consider "important" or "very important" to eat enough and a wide variety of vegetables daily.

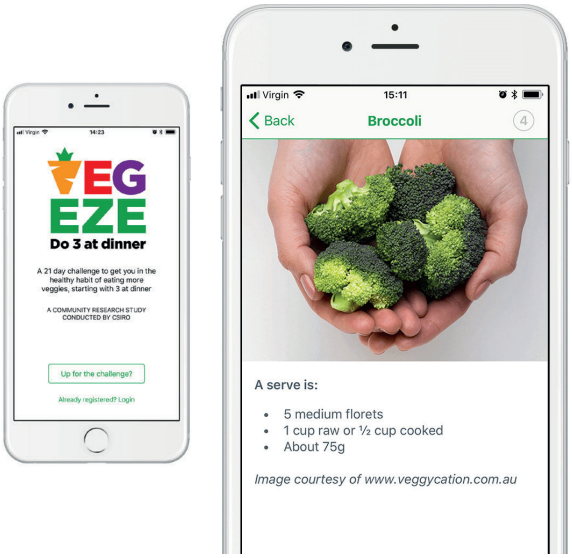
93% of respondents felt they were "likely" or "very likely" to regularly achieve this target behavior.

In addition, 56% of respondents were "interested" or "very interested" in an app that could specifically help with eating 3 types of vegetables at dinner. Potential users reported that they expected as app features:

- recipes and meal ideas (82% of users),
- functionality to track their vegetables intake (62%), and
- information on how to prepare vegetables (51%).

An app based on behavior change technique

Simple and quick tracking of varieties and servings of vegetables intake was a core feature of the app. A list of 125 vegetables was created to click through and record the type and amount of vegetables consumed at each meal. Three types of notification messages including daily feedback as well as content and recipe notifications would be sent on a random schedule 3 to 4 times per week.



Effectiveness and usability of the app

Few days after using the app, 69% found the app useful. Also, 81% of users felt their experience was positive, and about one-third of users felt they would use the app for 1 to 3 months.

The overall impact of the app on increasing daily vegetable consumption after 21 and 90 days will be evaluated in an uncontrolled, quantitative study. VegEze app is expected to reach over 5,000 people and achieve an average increase between ¼ to ½ servings per day.

* Integrate, Design, Assess, and Share

Based on: Hendrie, G. A., James-Martin, G., Williams, G., Brindal, E., Whyte, B., & Crook, A. The Development of VegEze: Smartphone App to Increase Vegetable Consumption in Australian Adults. JMIR formative research, 2019; 3(1): e10731.

References

1. World Health Organisation. 2018. Chronic diseases and health promotion
2. Lee-Kwan SH. Centers for Disease Control and Prevention. 2017. Disparities in State-Specific Adult Fruit and Vegetable Consumption - United States, 2015
3. Australian Bureau of Statistics. Canberra; 2016. Australian Health Survey: Consumption of food groups from the Australian Dietary Guidelines
4. Office of Disease Prevention and Health Promotion. Chapter 3: Everyone Has a Role in Supporting Healthy Eating Patterns
5. Mummah SA, et al. Iterative development of Vegethon: a theory-based mobile app intervention to increase vegetable consumption. Int J Behav Nutr Phys Act 2016 Aug 8; 13(90):90.