

Abstract

A 2015 system-wide study by the University Office of the President (UCOP) demonstrated that 42% of all University of California (UC) students experience food insecurity. At UC Davis, steps have been taken to mitigate the effects of food insecurity by addressing campus food access. However, informal student interviews as well as formalized focus groups suggest that further steps to improve total food security status should further be considered, and should include ways to further encourage an improved diet quality. Furthermore, those affected by food insecurity at the highest rate are largely students coming from underrepresented communities in higher education, and may not necessarily be the ones utilizing the resources. As such, the primary objective of this study is to assess perceptions of healthy eating that may serve as barriers to healthy eating behavior. The perceived barriers will include convenience, finances, cooking skill self efficacy, and cultural background. Secondly, this study will explore potentially using social media to mitigate these perceived barriers. Likert scale questions were created for each of the measured perceptions and were then grouped to create composite variables. Cronbach's alphas were calculated for each of the composite variables to ensure internal consistency. Mann Whitney U-Tests were used to analyze the differences in the composite variables between represented and underrepresented student groups. Underrepresented student groups scored higher in the perceived barriers of convenience ($p < 0.001$), and finances ($p < 0.001$), demonstrated lower cooking skill self-efficacy ($p < 0.002$), and preferred more familiar food choices ($p < 0.001$). There were no differences in the perceptions of healthy options ($p < 0.114$). The most popular social media platforms among UC Davis students include Facebook, Instagram, and YouTube. Future studies can expand upon addressing these perceptions using social media platforms using more targeted marketing approach.

Background

- A 2015 UCOP System-wide Study determined that about 42% of total student population is food insecure, with about 23% experiencing reduced quality diet classified as low food security status.
- Resources to aid in food accessibility have been created, or have been expanded upon to address these concerns at UC Davis, including Fruit and Veggie Up!, The Pantry, and teaching kitchens.
- Although these resources are available, swipe card data have suggested that these resources are currently underutilized by those who are experiencing food insecurity, especially those from more underrepresented backgrounds.
- Informal interviews have suggested that perceived barriers of convenience, finances, cooking skill self-efficacy, and growing up with healthy options and food preferences may contribute as barriers affecting healthy eating practices and thus low food security status.
- There are documented relationships of the disparities between underrepresented and represented communities in higher education related to health, socioeconomic status, and food security.
- Underrepresented identities include communities as follows: Black/African American, Chicano/Latino/Hispanic, Pilipino, Southeast Asian, Pacific Islander, Native American/Alaskan Native and LGBTQIA+ students.

Objectives

- To develop a needs assessment questionnaire that assesses perceptions that may be barriers to healthy eating. Barriers to healthy eating include perceptions of convenience, finances, cooking skill, and cultural background (measured through the composite variables "healthy options" and "food preferences").
- To determine if there are differences in these perceptions between represented and underrepresented student populations.
- To determine the most commonly used social media platforms that are used amongst UC Davis Students.

Methods

Development of the Needs Assessment

- A needs assessment was developed to determine students perception surrounding healthy eating and to explore social media use.
- The perceptions assessed (convenience, finances, cooking skill self efficacy, growing up with healthy options, and food preferences) were determined through informal student conversations, formalized focus groups, and a literature review.
- Likert scale items were developed to assess student perception.
- Demographic information was collected to better understand the student population; however, all students remained anonymous.

Methods

Needs Assessment Distribution

- Distribution occurred through available listservs using a modified Dillman approach and through UC Davis marketing channels, such as the "MyUCDavis" Homepage.
- Ten \$25 UC Davis Coffee House Gift Cards were raffled off to interested students as an incentive to complete the needs assessment.

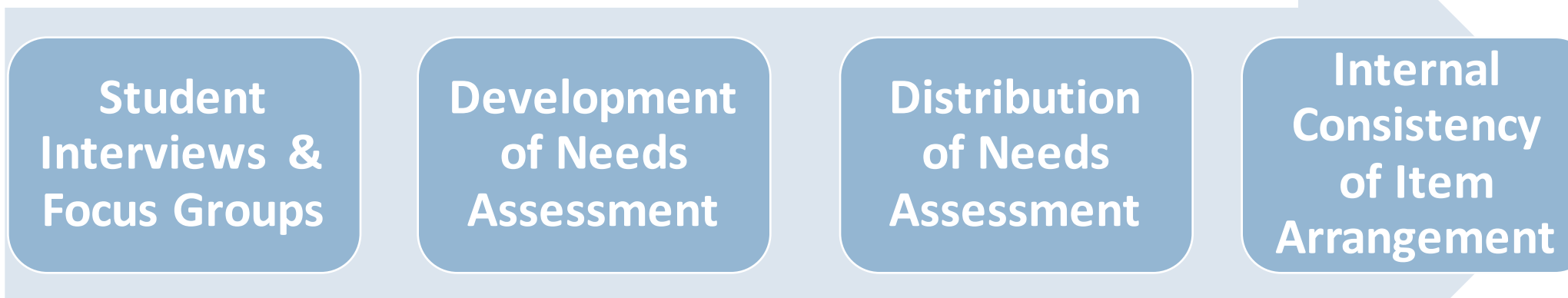


Figure 1. Study overview outlining overall study design.

Statistical Analyses

- Cronbach's alpha was conducted to verify the internal consistency within the grouped items.
- Composite variables were created for the grouped items.
- Independent Sample t-test or Mann-Whitney U-Tests will be used where appropriate to determine differences between the represented ($n = 701$) and underrepresented ($n = 605$) student groups.
- All analyses were done using SPSS statistical software (IBM, Armonk, NY). Statistical significance is set at $P < 0.05$.

The protocol was approved by UC Davis Institutional Review Board.

Results

Convenience Cronbach's Alpha: 0.72	<ul style="list-style-type: none"> Cooking takes a lot of time Time prevents me from wanting to cook meals. Convenience is the most important factors when I choose meals. I prefer to eat out for most of my meals. I tend to grab packaged convenience items when I am really hungry.
Finances Cronbach's Alpha: 0.71	<ul style="list-style-type: none"> Healthy eating is expensive. I do not buy produce because it is expensive. Buying fast food is cheaper than preparing healthy food.
Self-Efficacy Cronbach's Alpha: 0.85	<ul style="list-style-type: none"> I am confident in my cooking skills. I know how to correctly use cooking equipment. I am comfortable preparing and cooking food from a recipe. I feel like my current cooking abilities prevents me from eating healthy.
Improvement Cronbach's Alpha: 0.68	<ul style="list-style-type: none"> I would like to increase my cooking skills. I would cook more if I had better cooking skills.
Healthy Options Cronbach's Alpha: 0.63	<ul style="list-style-type: none"> I see foods from my culture/background as healthy eating options. Foods that I grew up with are healthy.
Food Preference Cronbach's Alpha: 0.50	<ul style="list-style-type: none"> I prefer to eat foods that others are eating around me. I prefer to foods from my culture or background. I am more willing to eat healthier foods that I am familiar with.

Figure 2. Questions that were grouped for each of the measured barriers. Associate Cronbach's alpha is reported for each grouping.

Table 1. Participant characteristics of the needs assessment. Sample size ranges from 1,315 to 1,320 due to questionnaire attrition.

		Participants (n=1,315)
Gender	Male	250 (19.0)
	Female	1006 (76.5)
	Non-Binary / Transgender	37 (2.9)
	Prefer Not to Answer	22 (1.7)
		Participants (n=1,317)
Ethnicity / Race	White /Caucasian / European Descent	593 (34.5)
	Black / African American	289 (1.6)
	Latino	252 (14.7)
	Middle Eastern / South Asian	97 (5.6)
	East Asian	258 (15)
	Southeast Asian	139 (8.1)
	Pilipino	81 (4.7)
	Native Hawaiian / Pacific Islander	6 (0.3)
	Native American / Alaska Native	27 (1.6)
Other	20 (1.2)	
		Participants (n=1,317)
LBTQ+ Identified	Identified	250 (14.6)
	Non-Identified	1065 (85.4)
		Participants (n=1,320)
Year in School	1st Year Undergraduate	189 (11.0)
	2nd Year Undergraduate	179 (10.4)
	3rd Year Undergraduate	303 (17.6)
	4th Year Undergraduate	241 (14.0)
	5th Year or More Undergraduate	57 (3.3)
	Graduate or Professional Student	328 (19.1)
	Prefer Not to Answer	23 (1.3)

Results

Table 2. The variable scores for represented and underrepresented student groups presented as mean ranks determined by the Mann-Whitney U-Test

Variable	Represented	Underrepresented	Significance
Convenience	627.2	693.8	0.001*
Finances	613.6	708.4	< 0.001*
Cooking Skill Self-Efficacy	689.3	623.8	0.002*
Interest in Cooking Skill Improvement	622.8	695.5	< 0.001*
Healthy Options	672.2	640.0	0.114
Food Preference	609.3	713.3	0*

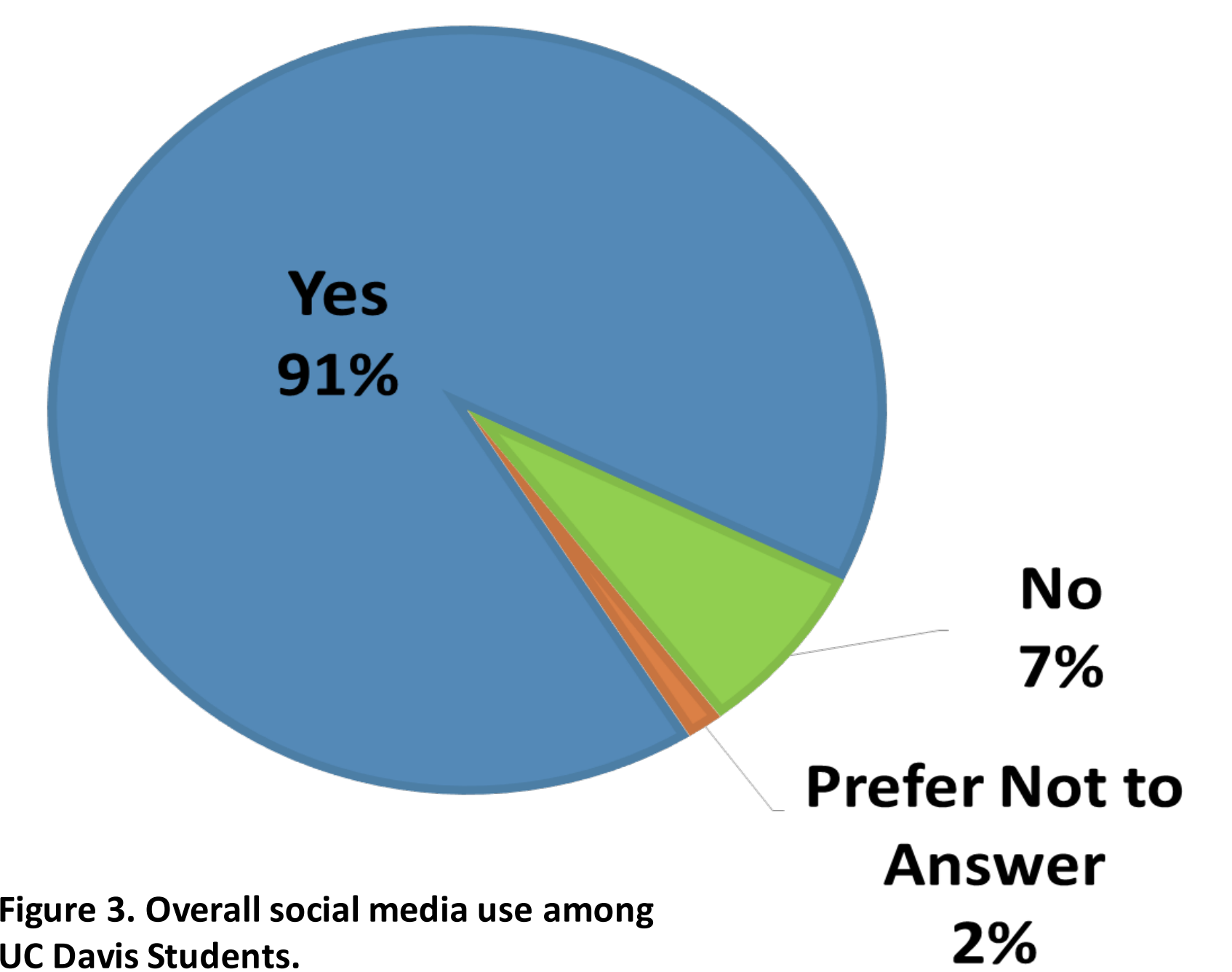


Figure 3. Overall social media use among UC Davis Students.

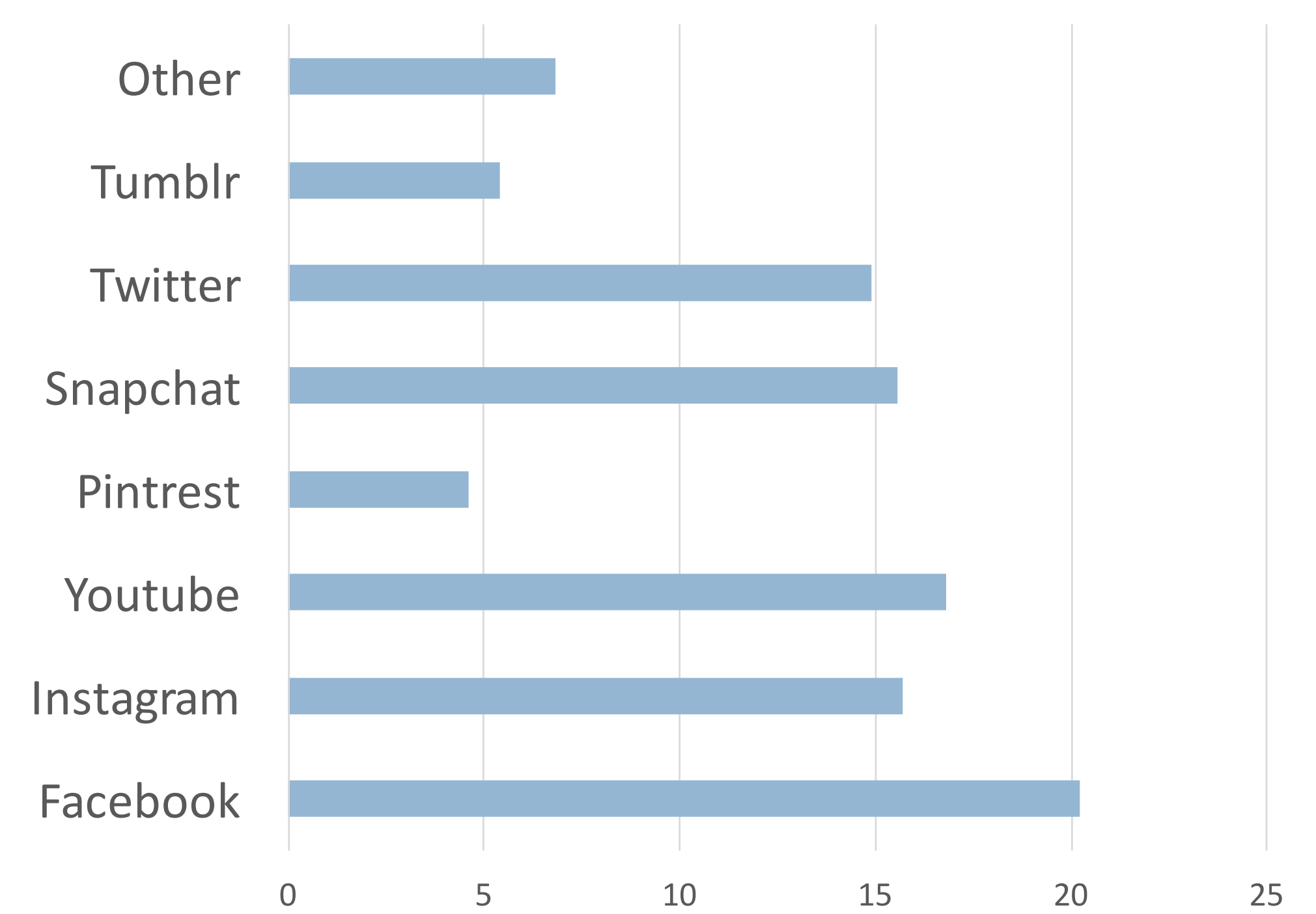


Figure 4. The types of social media platforms used by overall student body. Facebook, YouTube, Snapchat, and Instagram are the most used amongst students.

Conclusions

- Underrepresented students scored higher in the composite variables measuring convenience, finances, and food preferences. Represented students scored higher in cooking skill self-efficacy. This suggests that the measured perceptions contributing as perceived barriers to healthy eating affect underrepresented students more than represented students.
- Although underrepresented students demonstrated lower cooking skill self-efficacy, these students demonstrated a higher interest in increasing their cooking skills.
- Facebook, Instagram, and YouTube may be platforms to consider if one is trying to improve healthy eating through social media platforms.
- Future projects should consider the measured perceptions alongside the differences between represented and underrepresented students. This may provide a solution with a more targeted approach to addressing the perceptions contributing as barriers to healthy eating.

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