

# Higher Education Food Insecurity Toolkit Development and Feedback

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## ABSTRACT

**Objective:** Develop and gain feedback on a food insecurity toolkit for higher education institutions to provide food insecurity programming on campus that will promote a food-secure campus environment.

**Methods:** A search of the literature was completed by 2 researchers to develop the toolkit. The toolkit was assessed using an online 27 item open- and close-ended survey. One hundred twenty-six stakeholders from 106 land grant institutions were contacted to provide perceptions of the developed toolkit, including usefulness, barriers to application, and recommendations for improvement.

**Results:** Thirty stakeholders from 27 institutions responded. Thematic analysis of feedback covered 4 main topics: layout, overall content, initiatives, and application. Eight themes emerged: visual appeal, organization, value, provoking, comprehensive, barriers, collaboration, and efficiency. Corrections and recommendations were provided for each topic.

**Conclusions And Implications:** The themes derived encompassed the objective of the toolkit. This toolkit serves as a resource that can be utilized by student leaders, clubs or organizations, campus stakeholders, or administrators to begin a food security initiative on campus.

**Key Words:** college students, food insecurity, initiatives, campus, toolkit (*J Nutr Educ Behav.* 2019;000:1–9.)

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## INTRODUCTION

Food insecurity, which can be defined as the limited access and availability to nutritious food, has become an acknowledged public health concern among college students in recent years.<sup>1</sup> Studies examining college students in the US show an elevated rate of food insecurity compared with the national average, with one systematic review showing rates in peer-reviewed studies ranging from 14% to 59% of

the student population as food insecure.<sup>2</sup>

Although college students are experiencing food insecurity at rates that surpass the national average, many are unable to access adequate resources that aid the general population in sustaining a food-secure lifestyle<sup>3</sup> because of limitations in the Supplemental Nutrition Assistance Program (SNAP) enrollment<sup>4</sup> which exclude most of the college students from SNAP benefits.<sup>5</sup> The Government

Accountability Office has recommended that state SNAP agencies share information to help eligible students,<sup>1</sup> and some advocacy groups have directed their efforts toward policy change to create food-secure campus environments for students.<sup>6</sup> However, development and implementation of policy changes take time, and thus there is a need for college campuses to provide alternative resources to college students.

The increase in awareness and acknowledgment of campus food insecurity has come with an increase in campus-based food security programs. These programs are created with the intent to alleviate the burden on food-insecure students and provide a resource to move toward a food-secure environment for all student well-being. The most commonly implemented strategy is the establishment of campus food pantries.<sup>7</sup> Most campus food pantries are designed to provide supplemental and emergency food assistance to students. Developing a food pantry on campus involves partnerships on many levels, often including both administrative,

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student, and community buy-in.<sup>8,9</sup> However, many university personnel do not know how to go about developing these relationships and have limited peer-reviewed resources to guide the process as to date, only 4 published manuscripts discuss college food pantries,<sup>8,10,11</sup> and only 1 fully describes the process of developing a food pantry on campus.<sup>8</sup>

Furthermore, food insecurity is a complex issue on campus and must address student-specific needs.<sup>12,13</sup> Therefore, beyond food pantries, some college campuses provide support through campus gardens, meal programs, assistance or ambassador programs, mobile applications, and policy change.<sup>7,9,14</sup> As with food pantries, publications on meal swipe programs and campus gardens are minimal.<sup>10,14</sup> Novak and Johnson<sup>14</sup> found that food insecurity students who received assistance with meal swipes demonstrated better academic outcomes than students who were waitlisted to receive swipes. Thus, the use of meal swipe programs on campus, a method beyond food pantries, provides support to students in need. In addition, these alternative programs can increase the dietary diversity for students, as food pantries are often limited to non-perishable items and lack fresh fruits and vegetables. Manry, Mills, and Ochs<sup>10</sup> presented a case study of establishing a campus garden and highlighted the contribution this garden had on the offering of the campus food pantry. Therefore, food insecurity students can receive both non-perishable and perishable items to improve the nutritional quality of their diets, which may prevent some of the associated physical and mental health factors.

Although these programs exist, the limited amount of peer-reviewed literature leaves a gap for university personnel who are looking to initiate a campus program. Nevertheless, many campus-based food insecurity programs are often highlighted in local or university-based media that can be used to increase knowledge base and provide avenues for partnership development. Reppond et al.<sup>11</sup> stated, "increased knowledge has the potential to facilitate coordinated efforts to address student food insecurity."

Furthermore, as shown, there are multiple food insecurity programming options available to address this complex issue, and university personnel should be aware of the different options available to aid in finding the best fit for student needs.<sup>12</sup> To date, no document contains multiple food insecurity programming options that university personnel can use to understand the initiative options available to help students. Thus, comprehensive documentation that highlights multiple food security initiative options and available resources to foster the development programming on campus is needed.

Providing a tangible guide in the form of a toolkit could be a viable solution for increasing the food security initiatives on college campuses nationwide. Toolkits allow for expansion of dissemination of feasible interventions beyond traditional methods and overcome dissemination and implementation barriers by offering a cheap alternative to research-driven implementation by providing resources (implementation guidelines, validated measures, strategies for change, training) directly to those will be driving the targeted change.<sup>15,16</sup>

Previous research has found toolkits to be a feasible means of facilitating change in clinical care to improve health outcomes<sup>17</sup> and for public health and health care change.<sup>18</sup> However, to date, toolkits to empower college administrators to start a food security initiative on campus are non-existent. *WISH4Campus: Well-being Increased by Security from Hunger for Campus* is a college food security initiative developed in the Lifestyle Intervention Research Lab at West Virginia University and is striving to empower college campuses to develop, implement, and sustain food security programming for student well-being. The *WISH4Campus* toolkit, described in this manuscript, is a compilation of previous food security initiatives that have been started on college campuses to aid other universities in starting programming on their campus. The objective of this manuscript is to describe the development and feedback of the *WISH4Campus* toolkit, using the theoretical backing of the Normalization Process Theory (NPT),<sup>17,18</sup> for higher

education institutions to promote a food-secure campus environment that provides adequate resources for food-insecure students.

## METHODS

This study was conducted following the Declaration of Helsinki, and the protocol was approved by the Institutional Review Board at West Virginia University (1802980009).

### Theoretical Approach

The toolkit was based on NPT, a theory that can aid in understanding the social processes that can promote or inhibit the implementation of new programming.<sup>19,20</sup> The NPT focuses on

*the social organization of the work (implementation), of making practices routine elements of everyday life (embedding) and of sustaining embedded practices in their social contexts (integration).*<sup>19</sup>

The 4 primary constructs aim at understanding: What is the program? Who does the work? How does the work get done? How is the program understood? These constructs included: (1) coherence (for those implementing the initiative, this construct encompasses the understanding of the work that will occur during implementation); (2) cognitive participation (highlights the human resources necessary for implementing a new program and the factors that promote or inhibit involvement in the program. This includes the "who" of program implementation and how to sustain the engagement of people for continued impact); (3) collective action (evaluates how the proposed initiative fits within the current operations of the community in terms of structure, functionality, and overall objectives, as well as the capacity to take on implementation); and (4) reflective monitoring (for those implementing the initiative, this construct evaluates how embedded the new program has become in the community and any modifications that must take place to ensure long term program success).

This theory guided the writing of the toolkit to highlight factors that

could promote or inhibit college campuses from making sustainable initiatives on their campus, as done previously in toolkit development.<sup>21</sup> Therefore, the toolkit was intended to encompass the NPT constructs to promote the normalization of the interventions in the toolkit. This process has been used in previous toolkit development for health care technologies, with positive reception.<sup>21</sup>

### Toolkit Development

A review of the literature was undertaken by 2 reviewers to gather all peer-reviewed and gray literature on college food security initiatives using PubMed and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases for peer-reviewed literature and Google Scholar and Google to capture any overlooked or gray literature. From the search, 1,140 articles and gray literature sources were identified, and after deleting duplicates, 452 remained. Each article was evaluated for the type of food security initiative (eg, food pantry, campus garden), location of the food security initiative (eg, university name, state, region), outcomes from the initiative if available, and any resources to guide replication of the food security initiative. Articles that did not primarily focus on the college population were not based in the US or did not describe a campus food security initiative were excluded, resulting in 6 peer-reviewed and 37 gray literature sources.

The toolkit was written by the 2 reviewers who completed the systematic search, both who have worked extensively on-campus food insecurity and nutrition issues and guided by the principal investigator who has previous experience with curriculum and toolkit development.<sup>22–24</sup> From the systematic search, 6 initiative topics were included in the toolkit, namely, food pantries, campus gardens, farmers markets, dining and recovery programs, mobile applications, and policy change. The completed toolkit consisted of 41 pages that included 10 chapters: Introduction, Measuring Food Insecurity, Campus Initiative Description, Food Pantries, Campus Gardens, Farmers Markets, Dining and Recovery Programs, Mobile Applications, Policy Change, and Conclusion.

The 6 initiative topic chapters all included an introduction to the topic, a glimpse at peer-reviewed (if available) and gray literature that highlights campuses that are running the topic, recommendations aimed to help implementers navigate the execution process, available resources on how to start a program on campus, and additional literature if applicable.

The toolkit was sent to a graphic designer to improve aesthetic appeal before evaluation. Before being evaluated by stakeholders, the toolkit underwent an internal review with a team of 6 graduate students and postdoctoral fellows to evaluate the content for grammatical errors. Revisions were made for errors and all content reviewed by the principal investigator before sending for external review.

### Stakeholder Recruitment

Stakeholders working on food insecurity issues at land grant universities were chosen to provide feedback on the *WISH4Campus* toolkit. Each university's website was accessed to identify stakeholders at land grant universities. Name, organization, title, phone, and e-mail of each stakeholder were collected as available and input in an excel sheet.

A contact from all 106 land grant universities was identified, with some universities having more than 1 contact. A total of 126 contacts were identified from the web site search and sent an invitation e-mail to participate in the evaluation. Stakeholders were given the option to pass the survey on to another interested party at their institution, including a graduate student, if they did not have time to complete the survey. Stakeholders were not be paid for their feedback but were provided the opportunity to be entered for a chance to win 1 of 2, \$200 gift cards. Those who were interested could access the Qualtrics (Qualtrics, Provo, UT, 2019) survey link that was attached to the e-mail. Stakeholders were instructed to read the informed consent, and those who accepted consent were allowed to continue with the survey. Once consent was obtained, the stakeholder was provided the option to download a portable document format version of the *WISH4Campus* Toolkit and complete the feedback survey.

Two reminder emails were sent to contacts that had not yet started the evaluation survey. Survey data collection was open from the beginning of December 2018 to the end of January 2019.

### Stakeholder Evaluation Survey

The evaluation survey was created based on a previous toolkit development survey using NPT constructs<sup>21</sup> with modifications for this topic. Modifications were guided by the principal investigator who has previous experience with survey development.<sup>25</sup> The survey was 27 questions, with 3 additional questions to gauge stakeholders' interest in future collaboration. The survey included 11 close-ended and 16 open-ended questions. With each question, stakeholders were provided with space to elaborate or provide additional feedback for improvement. Survey questions included 6 demographic questions followed by 5 dichotomous (yes/no) questions about the stakeholder's perception of food insecurity issues on college campuses and their knowledge of food insecurity on their campus. The remaining questions addressed specific toolkit components, including a rating (0–10 with 0 being poor and 10 being excellent) of the toolkit layout, overall content, and initiatives, application of the toolkit, areas that worked well, and suggested improvements. The feedback survey is available in the [Supplementary Data](#).

### Analysis

Quantitative data were analyzed in JMP software (version pro 12.2, SAS Institute Inc, Cary, NC) and included descriptive statistics and frequency analysis. Thematic analysis was used to analyze qualitative data. Coding occurred in Qualtrics (Provo, UT) with some in vivo codes guided by the NPT and the remainder based on subjective assessment of the content. Codes were reviewed multiple times and categorized into a topic and theme. Each topic also contained recommendations that were coded separately from themes. A second researcher reviewed all themes to ensure both the reliability and validity of the results occurred. If discrepancies arose, both qualitative

**Table 1.** Demographic Characteristics of Stakeholders Who Evaluated the *WISH4Campus* Toolkit (n = 30)

Variable	Value
Gender	
Male	4 (13)
Female	26 (87)
Profession	
Higher education faculty	15 (50)
Higher education staff	8 (27)
Campus dietitian	5 (17)
Graduate student	2 (6)
Work in Appalachia	
Yes	5 (17)
No	25 (83)
Work region	
Northeast	9 (30)
South	11 (36)
Midwest	5 (17)
West	5 (17)
Believe food insecurity is an issue on college campuses	
Yes	29 (97)
No	1 (3)
Involved in food insecurity issues on campuses	
Yes	27 (90)
No	3 (10)
Campus has food resources available	
Yes	28 (93)
No	2 (7)
Food insecurity rate previously measured on campus	
Yes	15 (50)
No	15 (50)
Age (years)	41 ± 13.5
Profession (years)	11.5 ± 9.8

Notes: Categorical variables presented in n (%) and continuous variables presented in mean ± standard deviation.

reviewers discussed the coding and collectively decided on themes.

## RESULTS

### Stakeholder Evaluator Characteristics

The evaluation survey was completed by 30 stakeholders (24% response rate) from 27 institutions in 23 states. Stakeholders were predominately female (87%) aged 41 (± 13.5 standard deviation [SD]) years with 11.5 (± 9.8 SD) years' experience in their profession. Almost all stakeholders (97%) believed food insecurity is an issue on college campuses and were involved in improving food security on their campus (90%). The full characteristics are shown in Table 1.

### Toolkit Evaluation

On average, the survey completion took 44 minutes. The thematic analysis highlighted 4 topics, which included 8 themes as shown in Table 2. The first topic consisted of evaluation comments related to the *layout*. The layout was rated 7.8 (± 1.7 SD) out of 10 by stakeholders. The layout topic included 2 themes: visual appeal and organization. Stakeholders (n = 7) found the toolkit to have an appealing layout that was described as "nice and colorful" with a "mixture of photos and text." The order of the materials throughout the toolkit was described as logical by several stakeholders (n = 8). Overall, stakeholders (n = 12) expressed that the toolkit was easy to follow with "headings that direct you to information relevant to your

needs." Despite the toolkit being mentioned as "long" by 3 stakeholders, the layout was suggested to be an "easy read" that is not "overly academic" and "clearly written."

The second topic, *overall content*, highlighted the usefulness of the content that was included in the toolkit but not specific to the initiatives. The overall content was rated 7.8 (± 2.2 SD) out of 10. The theme value emerged under the topic of content. Stakeholders (n = 23) expressed that the toolkit was a helpful resource that compiles much information into "one convenient document." The links to additional resources and programs were spoken highly of by stakeholders (n = 9) and considered a "feature that worked well." One stakeholder described the content as "guidance for new-comers that gives background information, shares tools to create their own food security assessments and recommend actions that can be taken on campus and throughout the community."

The third topic was *initiatives* and was rated 7.4 ± 2.3 out of 10. This topic focuses specifically on the types of initiatives within the toolkit and how useful the initiative sections were for those wanting to implement a program on campus. Two themes surfaced from the analysis: provoking and comprehensive. Stakeholders (n = 8) stated the toolkit covered a "wide variety of programs" across "diverse universities," which was expressed to be beneficial because "not all campus settings and resources are the same." One stakeholder noted that the toolkit "contained wonderful examples that could be modified" while another stated that toolkit "provides multiple strategies to suit different needs." The toolkit was also noted as a resource that was "motivating but not overwhelming" and thus can aid universities that are beginning to provide food insecurity resources on campus. Stakeholders (n = 12) found the toolkit to be a starting point for universities and mentioned the toolkit to be a "great primer for schools who are interested in starting one of these initiatives" and offers insight on "what other schools are doing as best practices."

The last topic regarded the *application* of using the toolkit. Twenty-seven

**Table 2.** Thematic Analysis of Evaluator Feedback

Topic	Themes	Related Quotes
Layout	1.1 Visual appeal 1.2 Organization	(1) "I like the sections and the consistent organization of information. It is easy to find the resources and access the information via the tool kit." (2) "Simple, to the point. Good breakdown of sections. Nice and colorful." (3) "The mixture of photos and text were appealing." (4) "The toolkit contains a lot of helpful information. Despite that, the writing is concise, but clear, and doesn't take a long time to read."
Overall content	2.1 Value	(1) "I was not sure what to expect for the tool kit. This has a number of extensive links to programs and has the information in one convenient document." (2) "There is a lot of great information on how other campuses tackle this issue. The links to additional resources are a major plus." (3) "Links to existing programs are helpful. I think it can feel daunting to address such a complex issue. Why reinvent the wheel?" (4) "This is the first type of resource that I have seen that includes this level of detail."
Initiatives	3.1 Provoking 3.2 Comprehensive	(1) "This is an excellent tool for campuses to use to start the process of addressing food insecurity." (2) "There are a lot of wonderful examples that could be modified to use. It seemed like a great primer for schools who are interested in starting one of these initiatives." (3) "I like the different types of initiatives because not all campus settings and resources are the same." (4) "I am contacted frequently by campuses looking for ideas to get started. This is a great tool to use to get started or to compare what we have already tried." (5) "It provides multiple strategies to suit different needs and addresses barriers for most of the initiatives."
Application	4.1 Barriers 4.2 Collaboration 4.3 Efficiency	(1) "Putting all the information under one roof - making access easy for colleges—makes it easier for initiatives to happen!" (2) "It saves time for those interested who likely do not have time to conduct this much research and find resources to implement these programs." (3) "I will encourage my students to contact their representatives in our state to address the lack of SNAP for students." (4) "These programs require a lot of student contribution, and I think the issue we face is having students see the outcome of their voluntary contribution of time/money etc." (5) "If it gets in the hands of the right people, then it should be helpful in assisting."

SNAP indicates Supplemental Nutrition Assistance Program.

stakeholders (90%) found this to be a useful approach to helping campuses improve student food security; however, 50% of stakeholders thought there would be barriers to implementing the toolkit. Three themes were developed regarding the application. These were efficiency, collaboration, and barriers. Stakeholders (n = 13) described the toolkit as a resource that will make it easier for university personnel to start the discussion on campus. For example, 1 stakeholder expressed "putting all the information under one roof— making access easy for colleges—makes it easier for

initiatives to happen." Another agreed that the toolkit "saves time for those who are interested who likely do not have time to conduct this much research and find resources to implement these programs." Responses (n = 4) highlighted that the toolkit could be used to create collaborations between students, administrators, and community stakeholders, which may be necessary for initiative implementation. One stakeholder stated they would "share this toolkit with the administrators" at their university, and another stated it could justify to administrators "what has been done

other places [universities]." The need for a "champion" on the campus and in the community to make successful partnerships were mentioned by 1 stakeholder, but other stakeholders (n = 4) highlighted campus stuff (eg, student service office, financial services) can provide "unrelenting support" and are often looking to "improve the initiatives on campus" however, stakeholders (n = 15) also highlight that there are barriers to the application of the toolkit. One stakeholder stated, "not everyone believes food insecurity is an issue," and thus program justification may be a challenge

**Table 3.** Recommendations for Topics Within the *WISH4Campus* Toolkit and Related Quotes

Topic	Recommendations	Related Quotes
Layout	1.1 Visual changes	(1) "Wish there was an option to hyperlink the table of contents to go straight to the sections." (2) "I like the layout, I just find the color contrast difficult to read. Accessibility standards are at least a 4:1 contrast ratio." (3) "Too hard to read - very light writing." (4) "I think that it would be good to have all the links that are included in the reading, listed again at the end under a quick reference guide." (5) "I think it could be graphically more interesting."
Overall content	2.1 Grammatical errors 2.2 More research 2.3 Additional sections	(1) "I noticed some minor grammar errors." (2) "The toolkit could use better research resources and more information about comprehensive support services for students with food and housing insecurity and other issues." (3) "The research section is sparse, although it is the beginning step for many food security initiatives. The Hope Center [formerly the Wisconsin Hope Lab], offers a research guide with detailed information." (4) "Great information, but there was nothing specific to colleges that may serve more food-insecure students by percentage because they are serving many low income, first-generation college students." (5) "Food safety should be included. Our State food bank has a great packet on food safety for food pantries, and this should be a #1 consideration for anyone thinking of opening a pantry. We even utilize the ServSafe guidelines."
Initiatives	3.1 Additional initiative 3.2 More upstream 3.3 Outcomes	(1) "SNAP should get a much bigger section, including the opportunity for campuses to join the SNAP outreach grants that many extension offices oversee." (2) "Enhancing the policy section to focus on local and state policy that could have major impacts for students in need. Again, there aren't a lot of clear examples, but some campuses are working on thinking more upstream. Food insecurity is a complex issue and a symptom of other unmet needs, such as finances. Encouraging schools to include those departments in their conversations, thinking about how to make college more affordable, provide more income for students, etc. Engaging students that are closely affected by the issue." (3) "Good initiatives, consider a pro-con of each."
Application	4.1 Steps for implementation 4.2 Evaluation	(1) "Needs data collection strategies after implementation or program creation." (2) "If you could provide some more tips on reducing stigma for students in need." (3) "I think a section on evaluating the initiatives would be helpful. Some suggestions for evaluation methods etc."

SNAP indicates Supplemental Nutrition Assistance Program.

on campus. Furthermore, staffing and funding issues may be roadblocks to ensuring program success on campus.

Recommendations were also coded for each of the topics, as shown in Table 3. Layout recommendations included visual changes. The most common visual change was regarding the font color, which was a shade of gray. Stakeholders (n = 3) found the "color contrast difficult to read" with the "very light writing." Other visual changes including adding more graphics throughout the toolkit and revising the hyperlinks.

One stakeholder suggested having a hyperlink in the "the table of contents to go straight to the sections."

Content recommendations included grammatical errors, additional sections, and more research. Many stakeholders (n = 10) suggested the addition of specific content within the toolkit, which included discussions on the determinants of food insecurity to focus on low income, first-generation college students. Another stakeholder suggested their campus was already utilizing "a great packet on food safety for food

pantries" and thought food safety should be included in the toolkit. Finally, stakeholders (n = 3) stressed the need to strengthen the research section of the toolkit. One stakeholder suggested adding a link to the Hope Center (Philadelphia, PA), which offers a "research guide with detailed information," with another suggesting campuses "sign onto the Hope survey, and they can get their own school's data from that."

The initiatives topic included recommendations for additional initiatives, more upstream, and outcomes.

Additional initiatives included a more extensive section on SNAP and a mobile application that was not included (Free Food Alert app from Johns Hopkins). Furthermore, a few stakeholders (n = 2) requested increased diversity in the universities highlighted in each section to help universities “find campuses with similar demographic and geographic qualities.” The type of initiatives was also questioned, with some stakeholders (n = 4) requesting for more of a focus on upstream solutions (ie, at the root of the problem) instead of highlighting the downstream emergency programs (ie, treating the symptoms). One stakeholder stated, “food insecurity is a complex issue and a symptom of other unmet needs, such as finances” and therefore called for more focus to be put on upstream solutions. Another agreed and stated the initiatives were “good for campuses currently doing nothing, but we should try to think more upstream.” Suggestions for upstream improvements included expanding the policy section to highlight more campuses and policy initiatives including financial literacy training, financial aid reform, cost reduction, and free school meals. Finally, stakeholders (n = 4) wanted to see more outcomes from each of the initiatives. One stakeholder highlighted, “providing some outcomes on the different approaches would be to show if the initiatives are proven to be successful.” Another stakeholder suggested that the toolkit needs to highlight more on “engaging students that are closely affected by the issue” and gauge “student feedback on the initiatives” to assess outcomes.

Recommendations regarding the toolkit application comprised a need for evaluation and steps for implementation. Stakeholders (n = 6) mentioned that the toolkit did not fully encompass how to evaluate the initiatives, and “some suggestions for evaluation methods would be helpful.” One stakeholder mentioned that overall the toolkit “needs data collection strategies after implementation or program creation.” In addition, stakeholders (n = 2) wanted to see more step-by-step of the implementation process. Specifically, 1 stakeholder stated, “creating a step-by-step guide for implementing one of the initiatives would be helpful

to understand which stakeholders to contact, how to recruit student help, etc,” thus calling for more detail of the implementation process and campus program planning.

## DISCUSSION

This study described the development and evaluation of the *WISH4Campus* toolkit. To our knowledge, this is the first toolkit that provides a comprehensive resource of the initiatives that university personnel is utilizing to address food insecurity on college campuses.

Stakeholders generally expressed favorable views of the *WISH4Campus* toolkit, with some recommendations. Content recommendations included more research and information on the determinants of food insecurity. One specific recommendation was to incorporate the Hope Center research guide and advocate for universities to sign up for the #RealCollege Survey.<sup>26</sup> Partnering with the Hope Center would allow universities to sign on for a national data college and eliminate the need for campus personnel to develop their survey. For those with limited time and resources, this can be a valuable option. Contradictory, other recommendations stress the need for campus-specific questions with student stakeholders. Gaining student input can provide insight into student desires and promote campus environment and policies to improve student success by addressing student identified needs.<sup>27</sup> Students have identified areas in which universities can increase their dedication to making the campus a more food-secure environment,<sup>12,28,29</sup> including addressing inadequate financial aid programs, unaffordable cost of living on campus, inflexibility of meal plans, unrealistic food costs on campus, and opportunities to learn life skills.<sup>12</sup> Furthermore, food pantries with discreet locations, reduction of campus food waste, and meal vouchers have also been identified by food-insecure students as a means to help students in need.<sup>28,29</sup> Thus, university personnel should look to students as stakeholders and incorporate student-directed needs.

The previously mentioned student identified programs for food-insecure students to support the promotion of

emergency food programs within this toolkit. However, some policy-driven solutions and social justice issues have been brought to light by students and align with some stakeholder recommendations regarding upstream solutions. The use of both upstream and downstream solutions have been promoted<sup>6</sup> and provide for a holistic approach to food insecurity on college campuses. As national efforts and policy change will take time to develop, ensuring student needs are met in the interim is essential to promoting student success. However, both upstream and downstream approaches are limited by the lack of peer-reviewed literature on their efficiency at increasing student food security,<sup>6</sup> and thus, future research should aim to measure the impact programming has on student outcomes.

The toolkit was developed with the backing of the NPT to help authors incorporate recommendations for successful implementation on a college campus. Based on responses in the qualitative investigation, it can be inferred that the toolkit encompasses the constructs of coherence and cognitive participation. Stakeholders were able to grasp the intention of the toolkit and understand the information on the different initiatives. Specifically, the toolkit was not “overly academic” meaning the toolkit could be easily understood by populations and increasing the coherence of the toolkit materials. The cognitive participation construct was also achieved in the toolkit with stakeholders identifying the potential champions on campus to carry out the implementation of initiatives. For example, stakeholders stated the toolkit can be “used by students to create these initiatives” and “the student services people are always looking to improve their initiatives” as avenues in which the toolkit may be implemented. However, staffing was also mentioned as a barrier and inclusion of a staffing section within the toolkit may strengthen the cognitive participation construct.

The NPT constructs collective action, and reflective monitoring was encompassed in the stakeholder recommendations and thus could be amplified with the toolkit. Stakeholders recommended adding a “step-by-step guide” to implementation, which

would improve upon the collective action construct within the toolkit by detailing how the initiative can be made part of the current campus operations. In addition, stakeholders call for suggestions on how to evaluate the program after implementation which aligns with the reflective monitoring construct. However, both guides of implementation and evaluation suggestions within the toolkit are limited because of the lacking peer-reviewed research on-campus food security initiatives.<sup>8–11</sup> Therefore, as stated above, future research should aim to describe and evaluate the implementation process and outcomes to provide a reference guide to other campuses.

Despite the positive evaluation feedback, limitations are present. The toolkit has never been implemented. Therefore, the feasibility of using the toolkit as a guide for colleges beginning the implementation process is unknown. Future research should aim to evaluate the toolkit as it is used by campus personnel. Furthermore, the initiatives within the toolkit have not been heavily evaluated as well, and many initiatives came from gray literature. It is beneficial for campus initiatives to be evaluated and reported in peer-reviewed literature to help fill the literature gap on this topic. In addition, the toolkit was only evaluated by stakeholders at land grant universities. This methodology was chosen because of the land grant institution's mission to give back to communities, thus with the hope that these campuses would use the toolkit to implement a food insecurity program on campus. However, this recruitment method lacks the representation of other institutions involved in food insecurity research including the Hope Center. Although the included stakeholders were from diverse universities throughout the US (representing 23 states), their perceptions may not be generalized to other university personnel. As community colleges, private institutions, historically black colleges, and universities are often home to different student populations, gaining insight from stakeholders on these campuses may improve the diversity of stakeholder response and should be considered in future research but was not feasible at this time because of financial

constraints. Finally, the evaluation survey may present limitations. Although the survey was guided by previous literature it was modified and may lack validity. In addition, the survey was online, and thus, qualitative feedback may be shorter and less in-depth than in-person interviews. Furthermore, the survey response rate was relatively small thus qualitative data was not able to reach saturation. Therefore, some themes only represent a small portion of participant feedback.

## IMPLICATIONS FOR RESEARCH AND PRACTICE

The implementation of this toolkit and testing of the initiatives are needed to strengthen the evidence base on this topic. Although many universities are implementing programs to assist students in need, little research is published to provide replicable methods and evaluation of the food insecurity program. Therefore, researchers should aim to document their methodological processes to developing, implementing, and evaluating student food insecurity initiatives.

With validation, the *WISH4Campus* toolkit has the potential to serve as a comprehensive resource that can be utilized by student leaders, clubs or organizations, campus stakeholders, or administrators to begin a food security initiative on campus to promote student well-being. As stated by one stakeholder, the toolkit is a "great tool to use to get started or to compare what we have already tried." With food insecurity among college students a known public health issue,<sup>1,2</sup> this novel toolkit may aid university personnel in implementing programs to promote student well-being through a more food-secure environment.

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## SUPPLEMENTARY DATA

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.jneb.2019.09.021>.

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