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Evaluating food waste knowledge, attitudes and behaviors in college students at a midwestern university

BACKGROUND

In the United States, it is estimated that 30-40 percent of food is wasted annually¹. Of this waste, the retail and consumer sector are responsible for 31%, which is the largest compared to other areas of the food system^{1,2}. The United Nations Sustainable Development Goals (Target #12.3) includes a benchmark to cut the amount of food waste at the retail and consumer level in half by 2030, a goal which still requires a great deal of progress^{3,4}. Efforts have been made to assess the amount of food being wasted as well as to understand the social, economic, and environmental consequences across the food system⁵. To achieve our food waste reduction goal, individuals, organizations, and policy makers need to engage in and facilitate food waste prevention practices⁶. However, more research is required to assist in the development of individual consumer directed reduction strategies⁷.

Creating solutions will involve the evaluation of current knowledge and behaviors of individuals. Literature is available to address awareness, attitudes and behaviors of US household consumers, however data on young adults at the transitional period during college is not highlighted⁸.

OBJECTIVE

The objective of this research is to assess current literature on knowledge, attitudes, and behaviors related to food waste in college students attending a large midwestern university. Information gleaned will provide details necessary to assist in developing interventions to mitigate consumer food waste at the collegiate level.

METHODS

A food waste survey was approved by Iowa State University IRB (ID: 20-069) and emailed to 30,773 undergraduate and graduate students enrolled in the spring of 2020. The survey was released after spring break in mid-March with two follow-up emails. A response rate of 6.3% provided a total of 1931 responses for analysis. Descriptive analysis was conducted to identify characteristics of this population.

The 38-question electronic survey evaluated knowledge and attitudes associated with food waste, concern for environmental consequences, transtheoretical model stage, and application of mitigation behaviors⁹.

RESULTS

Participants: The majority of student respondents were 18-24 years old (80.62%), undergraduate students (76.23%), and self-identified as female (69.26%).

Knowledge: In response to the question “How knowledgeable are you about ways to reduce food waste?”, most students (73.47%) were not at all (1) to somewhat knowledgeable (3) on a 5-point Likert scale from not at all knowledgeable (1) to very knowledgeable (5).

Attitudes: On a 5-point Likert scale from strongly disagree (1) to strongly agree (5), most agreed that reducing waste helped save money (69.09%), was better for the environment (89.06%), and was important because others are going hungry (87.28%) (**Figure 1**).

Behavior: Upon evaluating stage of change for reducing personal food waste, most students (57.17%) self-identified in the action and maintenance stages (**Figure 2**). Sustainable food waste management, including source reduction, feeding hungry people, feeding animals, and composting, are recommended in the EPA’s Food Recovery Hierarchy¹⁰. In response to a question regarding these practices most students reported never or rarely feeding hungry people (71.92%), feeding animals (57.53) or composting (71.78%).

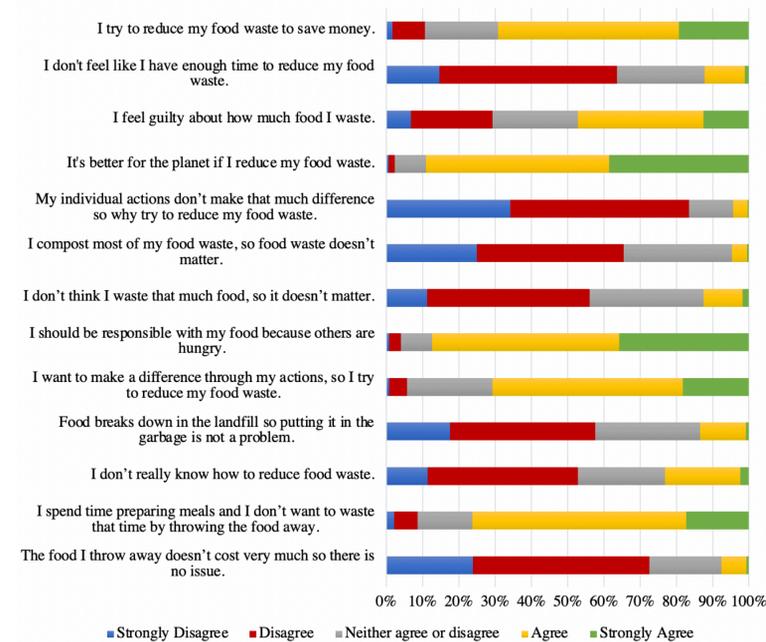


Figure 1. Distribution of student responses to statements regarding food waste attitudes and beliefs.

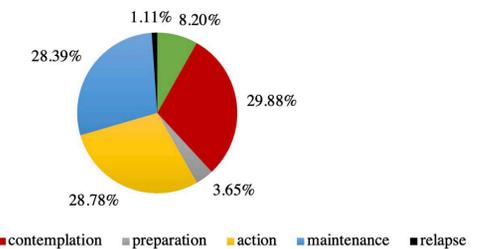


Figure 2. Student self-reported stage of change using the transtheoretical model of behavior.

CONCLUSIONS

Evidence suggests that this population self-reports not having enough knowledge regarding how to reduce food waste. In addition, limited use of sustainable food waste disposal methods (i.e. composting, feeding animals, food donation) shows the lack adherence to sustainable disposal strategies. Thus, guidance is warranted to help students gain information and skills needed to be successful. Attitudes regarding food waste and stage of change using the transtheoretical model provide evidence of student acknowledgment of the issue and openness to change.

FUTURE DIRECTIONS

- Further evaluation and understanding of attitudes and beliefs will allow for the development of specific, tailored approaches and messaging for waste reduction.
- Actions that have a high potential for reducing waste include education on date labeling and instruction on consumer household food management behaviors such as meal planning, shopping, appropriate storage, and cooking⁷.
- Food waste cannot always be avoided, so educating on responsible disposal is also a necessary step to reduce food accumulation in landfills and subsequent green house gas emissions.

REFERENCES

1. U.S. Department of Agriculture. Food Waste FAQs. <https://www.usda.gov/foodwaste/faqs>. Accessed May 29, 2021.
2. United States Environmental Protection Agency. Facts and Figures about Materials, Waste and Recycling. <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials>. Accessed May 29, 2021.
3. United Nations Development Programme. Goal 12: Responsible consumption and production. <https://www.undp.org/sustainable-development-goals#responsible-consumption-and-production>. Accessed May 29, 2021.
4. SDG Target 12.3 on Food Loss and Waste: 2020 Progress Report. SDG Target 12.3 on Food Loss and Waste: 2020 Progress Report | Champions 12.3. <https://champions123.org/publication/sdg-target-123-food-loss-and-waste-2020-progress-report>. Published September 1, 2020. Accessed May 29, 2021.
5. Conrad Z, Niles MT, Neher DA, Roy ED, Tichenor NE, Jahns L. Relationship between food waste, diet quality and environmental sustainability. *PLoS ONE*. 2018;13(4):e0195405.
6. United States Environmental Protection Agency. Sustainable Management of Food: A Call to Action by Stakeholders. <https://www.epa.gov/sustainable-management-food/call-action-stakeholders-united-states-food-loss-waste-2030-reduction>. Accessed May 29, 2021.
7. Aschemann-Witzel J, De Hooge I, Amani P, Bech-Larsen T, Oostindjer M. Consumer-related food waste: causes and potential for action. *Sustainability*. 2015;7(6):6457-6477.
8. Neff RA, Spiker ML, Truant PL. Wasted Food: U.S. Consumers' Reported Awareness, Attitudes, and Behaviors. *PLOS ONE*. 2015;10(6).
9. Velicer WF, Prochaska JO. The transtheoretical model of health behavior change. *Am J Health Promot*. 1997;12(1):38-48. doi:10.1002/9781405186407.wbiech005.
10. Food Recovery Hierarchy. EPA. <https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy>. Published December 31, 2020. Accessed May 29, 2021.