

UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Healthy Beverage Initiative (HBI) Hydration Stations

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FNH 473

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Executive Summary

Obesity is a common and current health issue in the world today, as it poses multiple risks to a person's physical and mental health. The high intake of sugar sweetened beverages (SSBs) has contributed to the increasing rate of obesity both in Canada and internationally. Factors such as taste, cost, and food environments are among the many considerations that influence beverage choice. In an effort to address this problem, UBC Wellbeing has launched a hydration station pilot project in collaboration with FNH 473 students, which is being implemented as part of the Healthy Beverage Initiative.

The Hydration Station Pilot Project aimed to improve the diet quality and lifestyle habits of the UBC community by encouraging tap water consumption over SSBs. Using the Community Organization Theory and Health Belief Model for guidance, this initiative involved the establishment and evaluation of two tap water stations for UBC staff and students to use as an alternative to SSBs. We also developed and distributed two post-intervention surveys as another output and as a means of evaluating the project. We used these online questionnaires to qualitatively and quantitatively assess behavioural changes and level of satisfaction resulting from the hydration stations. It was found that 84% of users increased their water consumption and 50% of users reported a decrease in their SSB intake, indicating that the project had a positive impact on the health of UBC staff and students who used the stations. In addition, the hydration stations were found to be feasible and easy to maintain by caretakers and suggested an interest in expanding the project to implement more stations around campus.

Introduction

The University of British Columbia (UBC) has been actively involved in creating a “nutritionally sound campus” through the creation of a framework to guide food and nutrition strategies (UBC Wellbeing, 2017). Our project is part of a Healthy Beverage Initiative (HBI) developed by the framework to promote the use of tap water and inform consumers on healthy beverage options. The target population of the HBI and our project are students and staff of UBC’s Vancouver campus.

The high sugar content of sugar-sweetened beverages (SSBs) provides little satiety and excess calories, therefore it may contribute to weight gain (Malik et al., 2006). The increased likelihood of weight gain from SSBs increases the risk for further health complications such as diabetes, high blood pressure, and heart disease (Dietitians of Canada, 2017). The increasing prevalence of this issue calls for public health strategies to discourage consumption of SSBs to promote a healthy lifestyle.

Our contribution is based on the community organization theory, which acknowledges common issues and priorities within UBC and identifies approaches to reach collective wellbeing in the community (USDHHS, 2005). In this case, the HBI has identified the need for healthier and more sustainable beverage options on campus. Additionally, our project uses the Health Belief Model to encourage community members to change their beliefs on the use of tap water and consequently change their actions on SSB consumption. With consideration of these theories, our project’s intervention of implementing hydration stations provides a possible strategy to support community members in actively participating in both personal and community health.

The Problem

Obesity is defined by the World Health Organization as having “an abnormal or excess fat accumulation that presents a risk to health” (WHO, 2018). Numerous studies have been conducted around the world on the regional prevalence of excess fat accumulation. As a result of these studies, the common method to assess an individual’s nutritional status is through their Body Mass Index (BMI) (Shields et al., 2008). A person with a BMI higher than 30 is considered obese (WHO, 2018).

Over the recent years, reports have indicated that the rate of obesity in Canada has consistently risen (Shields and Tjepkema, 2006). In 1986, 13% of Canadian men and 16% of women were obese. By 2004, the percentage of both obese men and women had significantly risen to 23%. A similar significant increase has also been observed in the rest of the world (Tjepkema, 2006). A summary gathered by Statistics Canada (2014) indicated that 20.2% of Canadians aged 18 years or older reported a BMI which classified them as obese.

The adverse health consequences that result from this excess weight status are well known. Obesity is a risk factor for type 2 diabetes, cardiovascular diseases, high blood pressure, osteoarthritis, and other conditions (Tjepkema, 2006). On top of the physiological detriments, Cheng et al. (2016) also reported that psychosocial and mental health issues are commonly seen in obese persons due to overall public stigma and discrimination.

Contributing factors to the increased onset of obesity include an increase in fast food availability, growing portion sizes, and a sedentary lifestyle (Le Petit and Berthelot, 2006). Hu (2013) found that sugar-sweetened beverages (SSBs) have a large role to play

in excess energy intake and that reduction in SSB intake may reduce the prevalence of obesity and its related diseases.

Behaviours

According to a systematic review conducted by Malik et al. (2006), the consumption of SSBs is positively associated with weight gain and/or obesity. It is proposed that the low satiety of SSBs causes users to consume more food in their subsequent meals.

Dietitians of Canada (2017) recommend that added sugars should be limited to 13 teaspoons or less per day. Consuming SSBs alone may contribute more sugar than this recommended amount (Dietitians of Canada, 2017). For example, a 355 mL can of pop contains 10 teaspoons of added sugar, 473 mL of specialty coffee contains 17 teaspoons of added sugar, and a 1000 mL slushie contains 24 teaspoons of added sugar (Dietitians of Canada, 2017). 78% of British Columbians were found to have at least one SSB a week, with their top choices being fruit juice, specialty coffee or tea, and regular soda, pop, or slushies (Rasali et al., 2014). Data from Brisbois et al. (2014) estimates that “added sugars average about 11%-13% of total energy intake” among Canadians.

In terms of SSB intake among students, 65% of undergraduate students surveyed at the University of Arkansas indicated that they consume SSBs everyday (West et al., 2006). Researchers predicted that students had an average of 543 ± 671 kcal per day from SSBs alone (West et al., 2006). Another survey conducted in Bangladesh found that 54% of university students consumed SSBs more than two times a week (Bipasha et al., 2017). Both studies reported that male students were more likely to consume SSBs than female students (Bipasha et al., 2017; West et al., 2006).

Park et al. (2011) found that various unhealthy behaviours were also associated with high SSB consumption. The odds for drinking SSBs were higher for adults who smoked, were physically inactive, watched television for prolonged periods of time, or frequently visited fast-food restaurants (Park et al., 2011).

Mediating Factors

Factors on the individual level for behaviours around sugar-sweetened beverage consumption include income, convenience and personal preference. According to the Centre for Disease Control (2017), SSB consumption is higher amongst lower income adults and families. Additionally, SSB and fast-food purchases can be influenced by taste and cost-effectiveness (Bipasha, Raisa & Goon, 2017). Taste in particular, can serve as a barrier to reduce SSB consumption, as humans have a natural liking for sweet foods. Additional barriers include peer and family influences on beverage choice, which tie into the interpersonal level.

Institutional factors that influence the consumption of SSBs among university students include the drink options provided in their school environment. In the survey conducted in Bangladesh, 95% of students reported that they would pick healthier drinks such as lemon water if given the choice in their food environment (Bipasha et al., 2017). Previously, the IWK Health Centre in Nova Scotia implemented hydration stations in their institution. As a result of the removal of SSBs from the facility, 66% of people felt that their water consumption had increased and 52% felt their juice/pop consumption had decreased since the implementation of the hydration stations (Connell and Macdonald, 2017). Therefore, policies, which can determine what drink options are available in vending machines, cafeterias, and so forth, also play a large role in an individual's

decision to drink SSBs. As mentioned above, Dietitians of Canada have made recommendations in regards to SSB consumption, but it is evident that most people do not follow these guidelines. If policies could be implemented at the institutional and/or national level, there may be higher adherence to these recommendations.

Many community-based approaches center around the ever-growing forms of media available to citizens (Falbe et al. 2016). In one study, messages emphasizing the health risks of SSBs were distributed through television, digital channels, and local organizations. 53% of survey respondents gained new beliefs about the risks associated with SSBs (Farley et. al 2017). Following this shift, SSB sales decreased 3.4% and soda sales dropped 4.1% during the same time frame, 15 weeks.

Public health policy is considered to have the highest level of impact, as it regulates the entire population. There are currently no known policies regarding the purchase and consumption of any amount of sugar sweetened beverages in Canada. In 2015, an excise tax was implemented in the community of Berkeley, California (Falbe et al. 2016). The excise tax was expected to play a prominent role in the purchasing patterns of consumers as they would see higher shelf prices before making a firm decision (Falbe et al. 2016; Dietitians of Canada 2016).

The researchers in California found that, over a one-year period from when the excise tax was introduced, SSB consumption decreased 21% overall. A meta-analysis of SSB taxation indicated that higher SSB prices led to a reduction in SSB consumption. This reduction in consumption resulted in decreased BMI and ultimately, a low prevalence of obesity (Escobar et al. 2013).

Limitations:

Our first limitation is a lack of data regarding current SSB consumption among UBC students. If time permitted, it would have been ideal to have conducted a pre-study survey to assess the current use of SSBs and the knowledge on their link to obesity. We also used information from universities around the world and based our project off of the hydration stations implemented at the IWK Health Centre. Therefore, another limitation would be the lack of a comparable project conducted specifically in a university setting.

Health Behaviour Theories

Community Organization Theory (Community level):

The first theory that has contributed to our project planning is the Community Organization theory. As discussed in *Theory at a Glance*, this theory involves identifying common problems within a community, mobilizing resources and implementing strategies to reach collective goals (USDHHS, 2005). Problems are initially voiced by community members, to which health professionals respond by launching programs that help deal with issues of concern (USDHHS, 2005).

We chose this model to use for overarching guidance as we were able to identify these criteria within our project. As advocates for health and wellness at UBC, our community partners identified the issue of SSB consumption on campus, thus initiating the launch of the hydration station pilot project. We hope that through these stations, we will provide students and staff on UBC campus with a physical resource to access healthy beverage options, as well as the knowledge to make healthy beverage choices on a day-to-day basis.

Health Belief Model (Intrapersonal level):

The Health Belief Model was also chosen to consider change in behaviour around SSBs at the individual level. The Health Belief Model aims to determine why people may or may not partake in a behaviour (USDHHS, 2005). It involves determining an individual's perceived threat to a health problem, the benefits of avoiding the threat, and revealing what factors influence one's decision to act (USDHHS, 2005). Therefore, this model fit well with the scope of this project, as it aims to discourage consumption of sugar-sweetened beverages and raise awareness about the development of chronic diseases such as obesity and diabetes. We considered the 6 main constructs of the Health Belief Model and will address certain constructs in our intervention. The 6 main constructs outlined in the Health Belief Model are as follows:

1. Perceived susceptibility: Do students and staff on UBC campus believe they are susceptible to developing obesity or diabetes later in life based on SSB consumption?
2. Perceived severity: Do students and staff on UBC campus understand the implications of obesity or diabetes on quality of life?
3. Perceived benefits: Do students and staff on UBC campus believe that choosing healthier beverage options can reduce their risk of obesity or diabetes later in life?
4. Perceived barriers: Do students and staff on UBC campus believe that the costs of decreasing SSB consumption are outweighed by the benefits?
5. Cues to action: Will the posters providing information on the benefits of reducing SSB consumption prompt UBC students and staff to consume more tap water?
6. Self-efficacy: Following the hydration station interventions, will students and staff on UBC campus feel confident to make healthy beverage choices more often in the future?

Project Goals and Objectives

Overall Goal:

To improve the diet quality and lifestyle habits of the UBC community to minimize risk of chronic diseases.

Short-term Objectives (2 months to 1 year):

- By Feb 26th, 2018 implement 2 hydration stations for UBC students and staff to use as an alternative to consuming sugar sweetened beverages.
- By March 2018 increase by 2 the number of UBC staff members who feel confident and capable of maintaining the use of the hydration stations
- By March 2018, the majority of UBC students and staff members who used the hydration station will show positive attitudes towards the use of the hydration stations

Medium-term Objectives (1-5 years):

- Increase by 2, the number of hydration stations on UBC campus that promote the use of tap water within the next 12 months.
- Increase by 10% the percentage of UBC community members who are aware of the impact of SSBs on health
- Increase by 10% the awareness of UBC community members about the benefits of drinking tap water on personal and environmental health
- Increase by 2, the number of collaborations between organizations within UBC to support the healthy beverage initiative within 5 years

Long-term Objectives (over 5 years):

- UBC will continue to promote the use of tap water and reduction of sugar sweetened beverage intake through the implementation of more hydration stations and/or other similar initiatives.

Note: An outline of our logic model can be found in Appendix A.

Outputs

Hydration Stations

Structure:

Our main intervention is the piloting of 2 hydration stations around campus to assess the use and potential changes in beverage consumption habits. Based on the community organizational theory, identifying common issues and implementing possible strategies using resources within the community is effective in reaching collective goals (USDHHS, 2005). Similarly, UBC has identified a need for healthier and more sustainable beverage options on campus and our intervention aims to promote UBC's collective goal of being a "nutritionally sound campus". Having an appealing hydration station with fruit and herb infused water will provide an alternative to SSBs. We predicted that it would encourage the UBC community to drink more tap water; thus, reducing sugar intake and promoting hydration in our target population. The location of these stations were determined to be the UBC Recreation Center student office and the UBC War Memorial Gym office space. These locations were chosen based on the perspective of the stewards (staff members in-charge of maintenance of the station) and how easy it would be to refill the stations and popularity of the location. Thus, these locations were chosen because of their proximity to kitchen areas and high traffic of staff and students.

Content:

The hydration station comes with an infusion beverage dispenser (3- or 5-gallon), a cutting board and knife, tent cards indicating water flavours, an instruction and maintenance sheet, checklist sheet, and an infographic (Appendix B (i-v)). The infographic contained information such as a project summary, benefits of drinking water,

and reasons for reducing consumption of SSBs. This educational material was intended to inform participants of the constructs of the Health Belief Model and will serve as a “cue to action” by prompting UBC community members to consume more tap water in replacement of SSBs. Particularly, the infographic outlines the perceived benefits of drinking tap water over SSBs and contributes to the perceived severity of SSBs increasing risk for developing obesity, diabetes, and heart disease. The maintenance sheet is a user-friendly guide to maintaining the operation of the hydration station. It includes information on set-up, suggested water flavours, clean-up, and how to use the provided checklist. The checklist is a record of the usage and maintenance of the station. The facilities were instructed to record the number of times the beverage dispenser was refilled, the water flavour(s) used, and to provide other comments about the station. This information was used for data collection purposes in our evaluation to determine the popularity of the station.

Delivery:

Our community partners, Melissa Baker and Heather Quigley, connected us with the facilities to inform them about the nature of our project and to ask for permission to implement a hydration station in their facility. Before the intervention began, our group members met with stakeholders of these facilities to go over set-up (i.e. using the checklist). The facilities were responsible for acquiring the ingredients for the hydration stations but were reimbursed by UBC Wellbeing. The duration of the intervention took place over a 3-week period. During the intervention, our group members had a check-in meeting to observe the progress of our intervention.

Post-intervention Surveys

Structure:

We developed 2 questionnaires to be distributed at the end of our intervention. Survey A was for the staff and students who shared the space in which our hydration stations were placed. Survey B was for the caretakers who were in charge of the hydration stations and completing tasks such as cleaning and refilling the water. The purpose of our questionnaires was to determine the feasibility of implementing hydration stations in terms of maintenance, and to also collect data on student and staff support of the stations. We decided to do a survey as we wanted to reach a large group of people. It was a convenient and efficient way to receive their feedback.

Content:

Survey A consisted of questions that asked participants about their usage, any behavioural changes after implementation and their opinions on the hydration stations. For example, in order to address the perceived benefits and barriers using the Health Belief Model, we asked users to select what made them decide on the hydration station over another option, providing choices such as “convenience”, “cost-effective”, “taste”, and so on. We also wanted to measure the effect of the hydration station on the participants’ behaviour, so we included the question “Do you feel your water consumption has increased since the implementation of the hydration station?”. As previously mentioned, the hydration stations also came with an infographic highlighting the benefits of drinking water. We wanted to determine if the infographic was an effective “cue to action” and therefore, we asked users if the infographic increased their motivation to drink more tap water. Additional sample questions included in survey A can be found in Appendix C(i).

Survey B targeted staff members who were involved in maintaining the hydration stations, otherwise known as the “caretakers”. We wanted to collect general feedback about the station as well as obtain any recommendations and improvements for future implementation of hydration stations to make it easier and simpler to maintain. Specifically, we were interested in how easy or difficult the caretakers felt it was to upkeep the hydration station and any challenges they faced. Again, specific questions included on survey B can be found in Appendix C(ii).

Delivery:

We developed our surveys through the UBC Qualtrics software and distributed our surveys online. Our community partner, Melissa Baker, emailed the questionnaires to Heather and Mike Tan—the lead person in charge of the hydration stations at the War Memorial Gym and UBC Rec Center—respectively. These two lead contacts then distributed the email to their staff and students using the spaces. Surveys were available to complete for approximately one week following the last day of the intervention. After data was collected we were able to analyze and summarize the results regarding the feasibility and the likeability of the hydration stations.

Evaluation

Evaluation is an important component of project planning as it helps ensure goals are being met and that funds are being used effectively (Rideout, 2015). Evaluation methods administered for the Hydration Stations were used primarily to ensure the short-term goals were achieved, and to work towards goals in the long-term. Both formative and impact evaluation were used for our project.

Formative evaluation is used to ensure that the intervention is being delivered as planned, as well as for improving ongoing activity (Hammond, 2018). During the intervention, we checked in with our partners to assess the implementation of the hydration stations. We ensured the equipment, cleaning procedures and intervention documentation instructions were clear and being followed. It also allowed our community partners to ask questions and provide feedback on what was going well, and/or how we could better support them. For each hydration station, we provided a checklist including a section to record the number of refills needed each day, and any comments about the popularity of the flavours or the station in general. This allowed us to assess the amount of work needed to upkeep each station as well as the popularity of the stations. Monitoring provided qualitative data during the intervention. It also ensured that the stations were being managed and implemented properly, as to increase the likelihood of achieving our objectives.

Impact evaluation was used in order to assess achievement of our outcome objectives. This was done through the development and distribution of two surveys, which included questions evaluating popularity of the station with station users and the ease of upkeep with station caretakers. We used these surveys as an indicator of our project's

success. Responses provided both quantitative and qualitative data. Refer to Appendix C for sample survey questions. As the implementation of the hydration stations was a small-scale pilot study, we hoped that through our evaluation we would gain an idea of the feasibility of the project for the future.

The user survey results were fairly positive overall. 84% of users indicated an increase in their water consumption and 50% noted a decrease in their SSB intake over the two weeks. 95% of users believed that more hydration stations on campus would positively impact their (or other's) water consumption. For a complete summary of the user survey results please refer to Appendix D(i). For the caretaker survey, both respondents ranked the experience as extremely easy or somewhat easy and noted they would do the project again. One challenge that was noted was keeping up with the refilling process during the busier periods. For a summary of the caretaker survey results please refer to Appendix D(ii). Overall this project was well received by station users and quite feasible from the point of view of the caretakers.

Because our intervention was only two weeks, it was difficult to measure the feasibility of a long-term project. Caretakers were eager to participate in this project again, but permanently integrating the upkeep of the hydration stations into their daily tasks may pose challenges. More thought into possible funding strategies for a long-term program is needed, as UBC Wellbeing would currently be only able to cover half of maintenance costs. We recommend that future projects look into ways of evaluating the extent to which the distribution of hydrations throughout campus are able to decrease consumption of SSBs. This may require collaboration with UBC Food Services and other stakeholders on campus to measure this.

Conclusion

In conclusion, the pilot Hydration Station project conducted this semester provided great insight into the feasibility of implementing future hydration stations on the UBC campus. Key contributions by our team included an educational infographic, data evaluation through completion of two surveys, as well as a final newsletter report that will be provided to stakeholders who oversaw the HBI projects.

For future experimental designs, we recommend that recurrent communication between the FNH 473 students and project invigilators be established and maintained throughout the semester, as it is not uncommon for new questions and concerns to arise. This communication would also be beneficial towards achieving one of our medium-term objectives: to collaborate with other organizations on the UBC campus to promote more hydration stations. As well, proper deadlines should be confirmed early on in the project, as the ambiguity of our deadlines proved to be difficult as the semester drew to an end.

Due to the timeline of our project, it was difficult to assess whether the hydration station users and caretakers would still be as eager for a permanent hydration station as they were with our pilot project. This proves to oppose a long-term objective that we set: for UBC to continue to promote the usage of tap water and reduction of SSB intake through the implementation of more hydration stations and/or similar initiatives. The next steps required to reach our objectives should be to elucidate the long-term impacts that a permanent hydration station entails. Such impacts include caretaker compliance, departmental costs of maintenance, as well as the association between increased water intake and decreased SSB consumption.

Author's Contributions

The research and literature review was split equally between all members of the group. Joy and Shara researched existing interventions that were similar to the idea of the hydration stations and Queena, John and Jamie researched current SSB intake levels in BC as well as their link to chronic diseases. Joy, Shara, Jamie and Queena attended all group meetings on Mondays and all 5 students attended multiple meetings with community partners. Shara conducted all email contact with our community partner, Melissa Baker. During our group meetings everyone contributed to making our checklist and instructions for the hydration stations as well as our survey questions. Queena made the finalized survey on Qualtrics and tent cards on Canva to label the flavours of each water station, and Shara made the informational poster to go with each station. When writing our situational assessment, Joy worked on the introduction, project goals and objectives, Queena worked on the mediating factors and behaviours sections, John worked on the mediating factors section, Jamie worked on the mediating factors and the health behaviour models sections, and Shara reviewed and edited the paper. Everyone contributed to the logic model presentation over reading week. When writing the final report, Joy and Queena wrote the Outputs section, while Jamie and Shara wrote the Evaluation section. Shara also summarized all author's contributions and John wrote the conclusion. Queena wrote the executive summary and Shara created the table of contents and title page. Joy compiled everything needed for our Appendices and John organized our Reference page. Joy also created our Newsletter (Appendix E) to send to our community partners and John and Queena created the slides for our presentation.

Finally, Jamie and Shara completed all Teamwork Session Evaluation forms and edited our final report.

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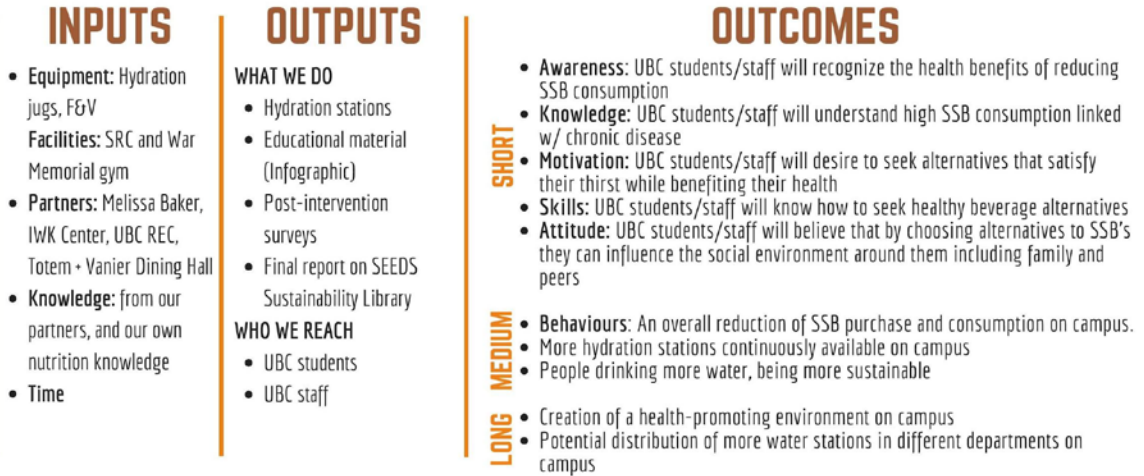
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Appendix

A) Logic Model

SITUATION: SSB



EXTERNAL INFLUENCES, ENVIRONMENTAL, RELATED PROGRAMS

- UBC's promotion of Wellbeing
- Healthy Beverage Initiative (HBI)
- UBC's Tap Water Commitment
- IWK Health Centre's Intervention
- Availability of vending machines and fast food outlets on campus

B) Hydration Station and Resources

i) Hydration Stations

(Left - UBC REC Centre Athletics Staff Room, Right - War Memorial Gym Staff Room)



ii) Tent cards



iii) Instructions and Maintenance Sheet

Hydration Station Instruction and Maintenance Sheet

Set up (a.m)

- Cut up fresh fruits or use frozen fruits (see below for suggested flavours)
- Fill up the clean infusion beverage dispenser with tap water using pitcher provided and add fruit and/or herbs
- Place tent card beside the hydration station for informational purposes
- Refill beverage dispenser with water as needed; track refills using the sheet provided
- Replace fruit once a day at minimum (or more often as needed depending on number of times dispenser is refilled)

Suggested water flavours

- Lemon Water
 - 3 gallon: 2 lemon, sliced
 - 5 gallon: 4 lemons, sliced
- Strawberry and Mint
 - 3 gallon: 15 mint leaves, 2 cups strawberries, sliced
 - 5 gallon: 25 mint leaves, 4 cups strawberries, sliced
- Pineapple Water
 - 3 gallon: 2 cups pineapple, cubed
 - 5 gallon: 4 cups pineapple, cubed
- Cucumber Water
 - 3 gallon: 1 cucumber, sliced
 - 5 gallon: 2 cucumbers, sliced

Cleaning (p.m)


- Remove filter from infusion beverage dispenser and discard fruit.
- Hand-wash each piece separately with hot soapy water.
- Leave pieces to air-dry overnight.

Using the checklist

- Each time you refill the water, properly record the date and times of refill
- Record any relevant pieces of information in the comment section.
- Sign off with the caretaker initials

iv) Checklist Sheet

Hydration Station Location: _____

Date	What fruit or vegetable is in the water? (please complete a separate line for each station)	How many times did you refill this station today? (Can keep track with ticks in below box)	Any feedback from users?	Initials
				I 

v) Infographic

HYDRATION STATIONS

This is a student-led collaboration with staff as part of the SEEDS Sustainability Program

Why are we doing this?



The goal of this pilot is to determine if providing hydration stations promotes water consumption and displaces sugar sweetened beverage (SSB) consumption

Why reduce consumption of SSBs?

High intake is linked with increased risk of obesity, diabetes and heart disease



Benefits of Drinking Water



- Increases energy levels
- Calorie-free!
- Aids digestion
- Keeps you hydrated throughout day

C) Survey Questions

i) Survey A

Survey A: Staff/Students

1. Did you utilize this hydration station? Y/N
 - a. If you didn't use the station, why not?
 2. How much did you enjoy using this hydration station?

1	2	3	4	5
---	---	---	---	---
 3. Do you have your own beverage container? Y/N
 - a. Would you have used this station if cups were provided? Y/N
- Did you use your own beverage container? Y/N If not what did you use?**
4. What made you decide on the hydration station over another option? Choose all that apply.
 - a. Informational poster
 - b. Convenience
 - c. Cost-effective
 - d. Taste
 - e. Environmentally friendly/ Sustainability
 - f. Health benefits of water
 - g. Other?
 5. Did the poster increase your knowledge and/or change your attitude towards sugar-sweetened beverages?
 6. Did the poster increase your motivation to drink more tap water?
 7. Would you utilize this water station again?
 8. Do you feel your water consumption has increased since the implementation of the hydration station?
 9. Do you feel that an increase in water stations on campus would positively impact your or others daily water consumption? **Y/N**
- Comments
10. Do you feel your juice/pop consumption has decreased since the implementation of the hydration station?
 11. Would you like to see more hydration stations on campus?

ii) Survey B

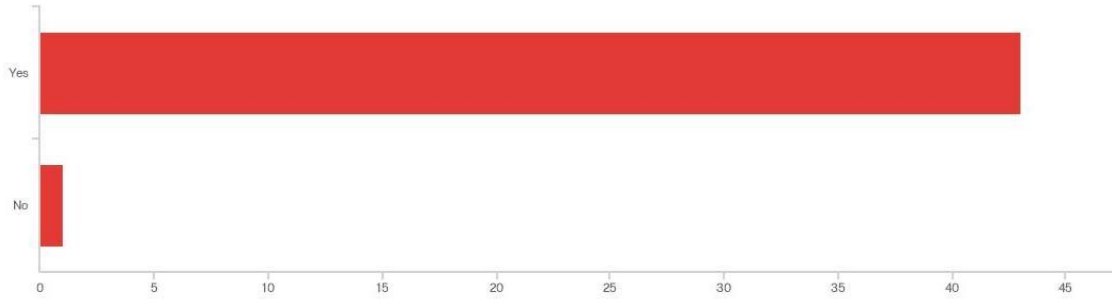
Survey B: Caretakers (in charge of refilling and maintenance)

12. How easy was it to upkeep the hydration station? 1-5
Explain.
13. What did people like (or dislike) about the hydration stations?
14. What, if any, were the challenges associated with upkeep of the hydration stations?
15. Would you be willing to continue the upkeep of the hydration stations?
16. What are some recommendations for future implementation of the hydration stations around campus?

D) Survey Results:

i) General User (Staff/Students) Survey Results

Q3 - Did you utilize this hydration station?



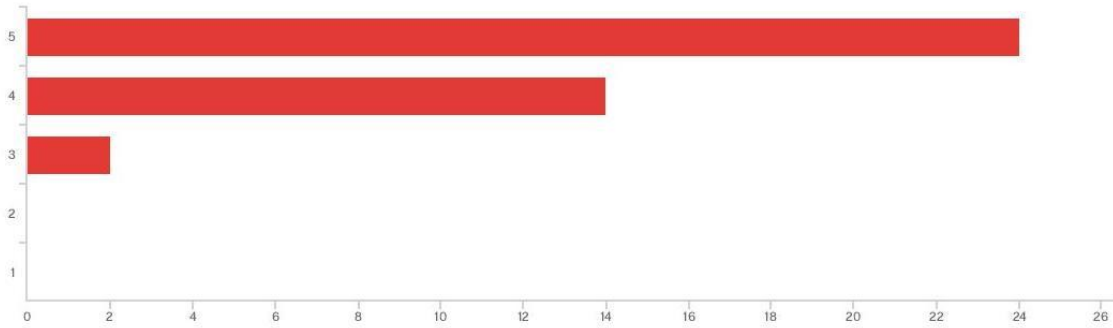
#	Field	Choice	Count
1	Yes	97.73%	43
2	No	2.27%	1
			44

Q6 - If you didn't use the station, why not?

If you didn't use the station, why not?

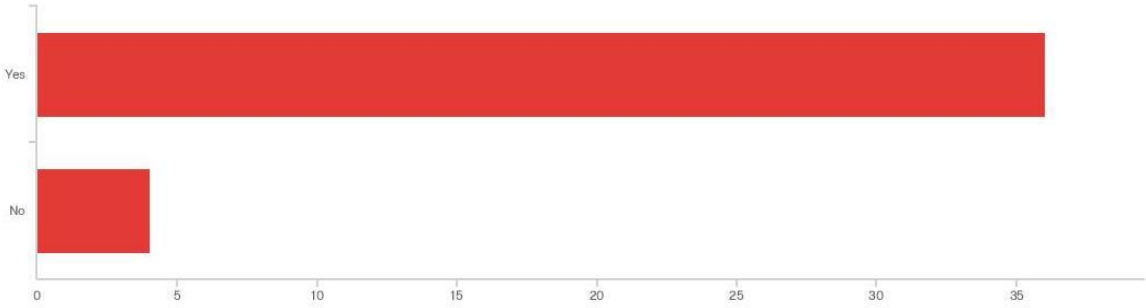
I already fill my water bottle at a nearby fountain

Q7 - How much did you enjoy using this hydration station? (1 being the least, 5 being the greatest)



#	Field	Choice Count
1	5	60.00% 24
2	4	35.00% 14
3	3	5.00% 2
4	2	0.00% 0
5	1	0.00% 0
		40

Q8 - Did you use your own beverage container? If not, what did you use?



#	Field	Choice	Count
1	Yes	90.00%	36
2	No	10.00%	4

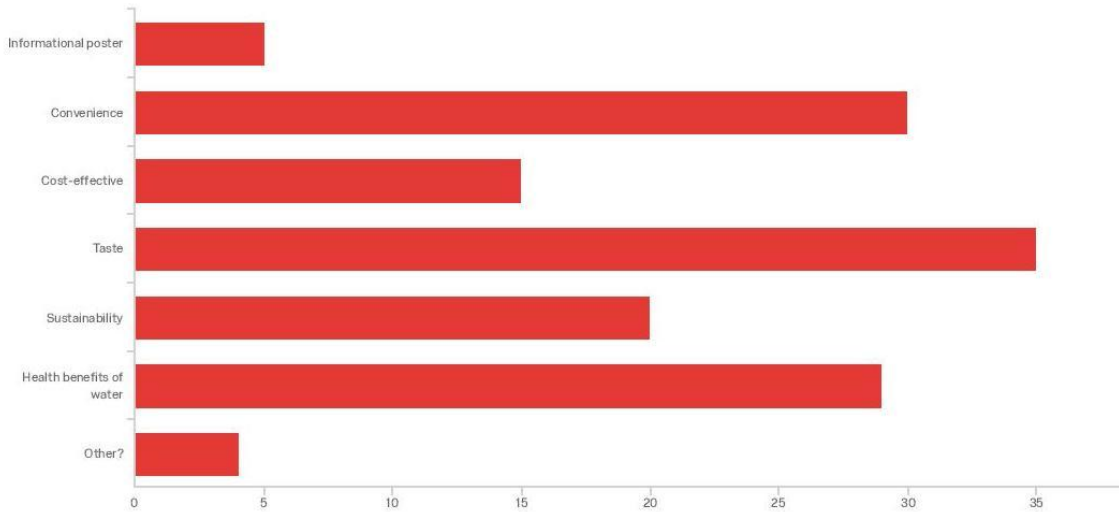
Showing Rows: 1 - 3 Of 3

No

No

- plastic cup (not proud)
- plastic cup
- glass
- cup

Q10 - What made you decide on the hydration station over another option? Choose all that apply.



#	Field	Choice Count
1	Informational poster	3.62% 5
2	Convenience	21.74% 30
3	Cost-effective	10.87% 15
4	Taste	25.36% 35
5	Sustainability	14.49% 20
6	Health benefits of water	21.01% 29
7	Other?	2.90% 4

138

Showing Rows: 1 - 8 Of 8

Other?

Other?

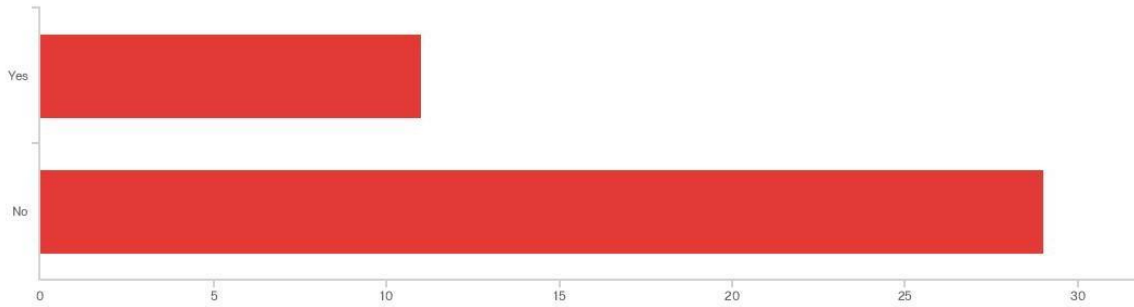
Visually appealing

Staff Enthusiasm

Love that good cucumber mint

Q11 - Did the poster increase your knowledge and/or change your attitude towards sugar-

sweetened beverages? Explain.



#	Field	Choice	Count
1	Yes	27.50%	11
2	No	72.50%	29
			40

Showing Rows: 1 - 3 Of 3

Yes

Yes

I feel less likely to purchase sweetened beverages

I have never been a big sugar-sweetened beverage drinker already but seeing the station and reading the poster made me excited that a program like this was being tested.

informative

Linkage with obesity and heart disease

yes it di blkfmffd fkdmdkdmm

Showing Records: 1 - 5 Of 5

No

No

I don't recall seeing a poster

Already didnt like them

I don't drink sweetened beverages

I honestly didn't look at the poster once

I don't consume many sugar sweetened drinks

already know they are bad

did not see the poster

Nothing I didn't already know

i didn't see the poster

Didn't realize there was a poster to be honest.

I know the downfalls of sugary drinks, easy of access to the station was a factor in drinking more water

I already don't drink sugar-sweetened beverages very often

I don't drink sugar-sweetened beverages except on special occasions anyway

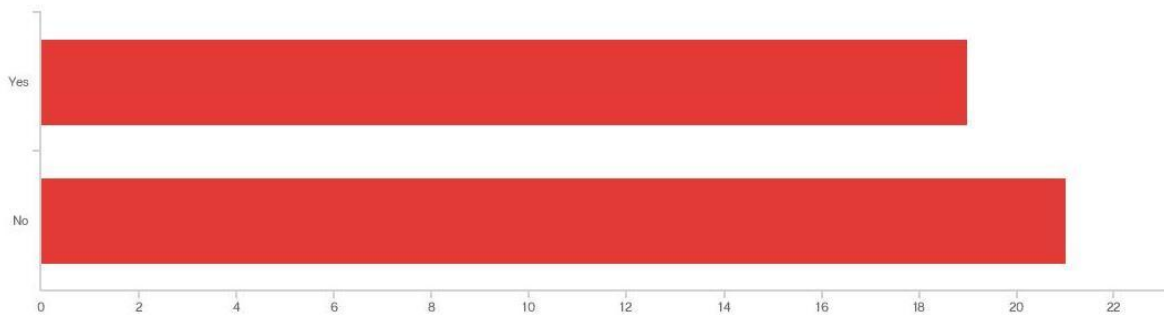
I didn't even read it

There was no poster

I already avoid sugar-sweetened beverages

Don't usually drink pop

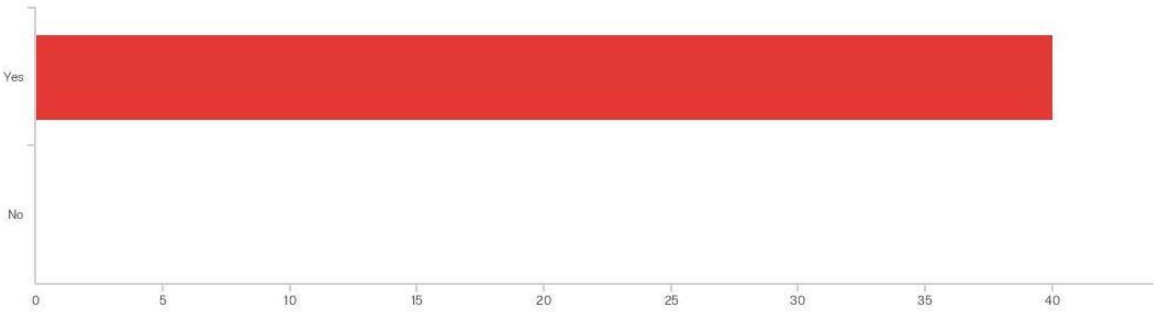
Q12 - Did the poster increase your motivation to drink more tap water?



#	Field	Choice Count
1	Yes	47.50% 19
2	No	52.50% 21

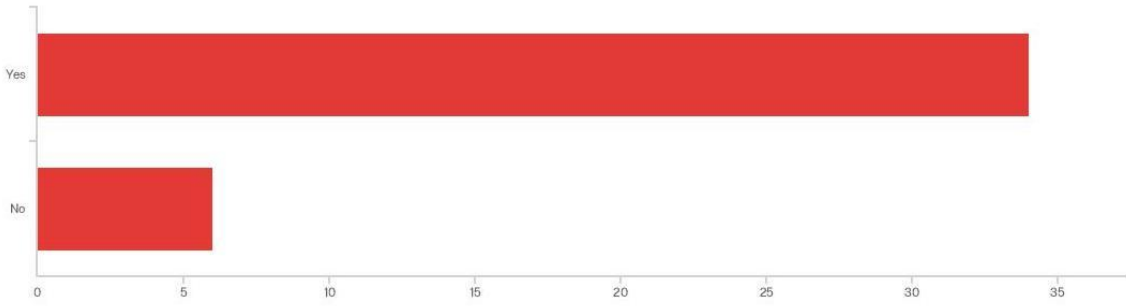
40

Q13 - Would you utilize this water station again?



#	Field	Choice Count
1	Yes	100.00% 40
2	No	0.00% 0
		40

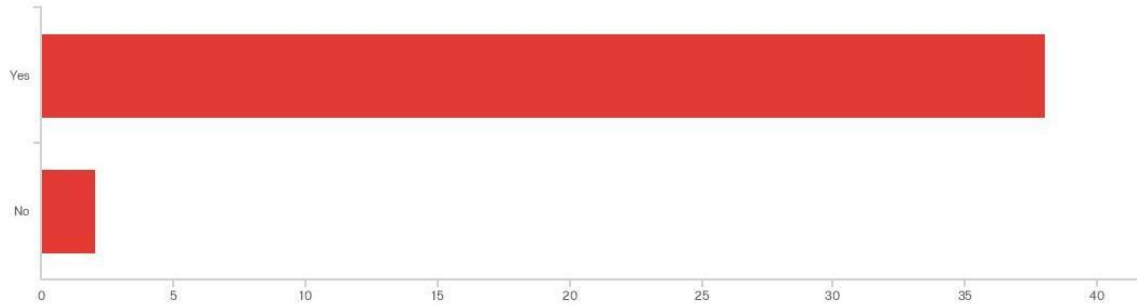
Q14 - Do you feel your water consumption has increased since the implementation of the hydration station?



#	Field	Choice Count
1	Yes	85.00% 34
2	No	15.00% 6
		40

Q15 - Do you feel that an increase in water stations on campus would positively impact

your or other's daily water consumption? Explain, or provide any comments.



#	Field	Choice	Count
1	Yes	95.00%	38
2	No	5.00%	2

Showing Rows: 1 - 3 Of 3

Yes

Yes

I think convenience is a large decision making factor

With flavour to water, it encourages those that need a boost to water to consume it.

Flavoured water is always a treat. I don't enjoy plain water

Yes because they would be convenient and the flavoured options are more desirable than ordinary tap water

Flavoured is the biggest factor, I would indulge much more if there were flavoured options

Absolutely, real fruit infused water tastes great and is healthy! Win win!

Water over coffee

The convenience would increase others consumption. I drink a lot of water anyways so it didn't affect me much.

More water refill stations would be great.

Fruit water is delicious

Yes! Sometimes the biggest reason I don't just drink tap water is because I'm craving flavour. This totally solved that problem.

If more water stations are accessible I think people would refill their bottles + not get drinks from single use bottles

I heard some comments from others saying that it's encouraging them to drink more water

People thought it was fun!

The convenience of water stations would increase my level of water drinking.

Especially flavoured water, they are popular in res dining halls too

more convenient

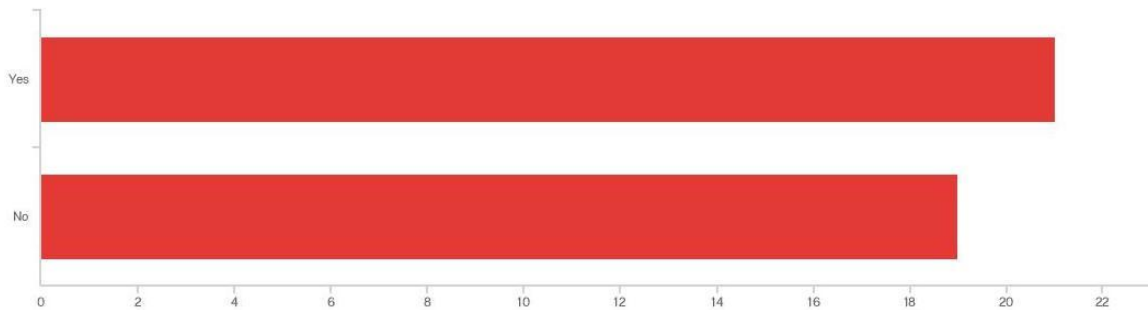
Showing Records: 1 - 17 Of 17

No

No

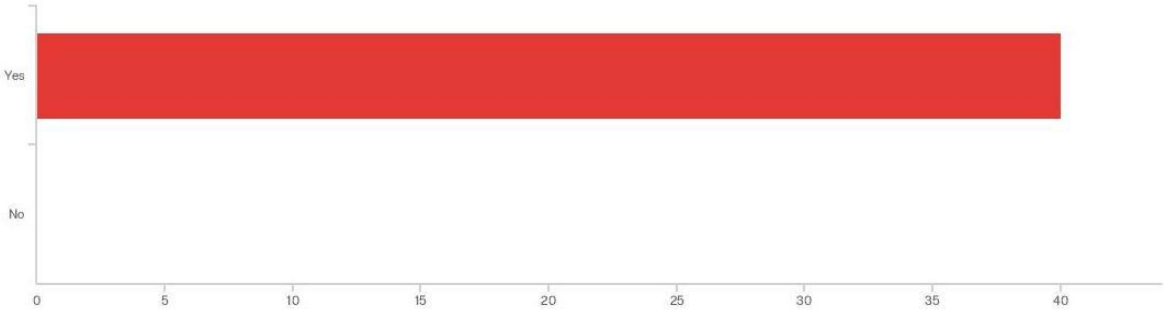
I drink a lot of water already

Q16 - Do you feel your juice/pop consumption has decreased since the implementation of the hydration station?



#	Field	Choice	Count
1	Yes	52.50%	21
2	No	47.50%	19
			40

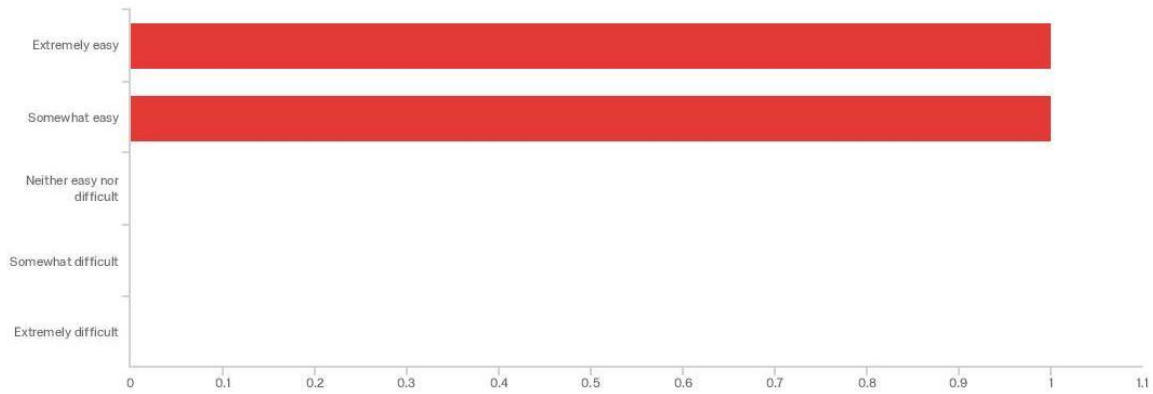
Q17 - Would you like to see more hydration stations on campus?



#	Field	Choice Count
1	Yes	100.00% 40
2	No	0.00% 0
		40

ii) Caretaker Survey Results

Q1 - How easy was it to upkeep the hydration station?



#	Field	Choice Count
1	Extremely easy	50.00% 1
2	Somewhat easy	50.00% 1
3	Neither easy nor difficult	0.00% 0
4	Somewhat difficult	0.00% 0
5	Extremely difficult	0.00% 0
		2

Q3 - What, if any, were the challenges associated with upkeep of the hydration stations?

What, if any, were the challenges associated with upkeep of the hydration s...

During busy times ... more time spent on shopping for veggies, cutting them up and cleaning the container. Have hydration stations 2-3x week could work.

Upkeep was easy. Re-filling was not

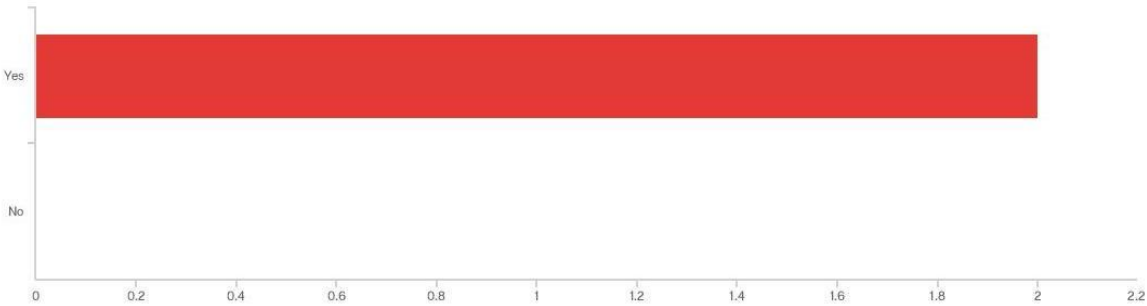
Q2 - What did people like (or dislike) about the hydration stations?

What did people like (or dislike) about the hydration stations?

Some liked mint, while others don't. Some thought the water was not cold or fresh enough kept at room temperature.

Different flavours of water

Q4 - Would you be willing to continue the upkeep of the hydration stations?



#	Field	Choice	Count
1	Yes	100.00%	2
2	No	0.00%	0
			2

E) Newsletter Article

Healthy Beverage Initiative: Hydration Stations



A group of 5 students in an applied public health nutrition course worked together on a community nutrition project targeting staff and students at UBC. The aim of the implementation of the hydration stations was to improve the diet quality and lifestyle habits of the UBC community to minimize the risk of chronic diseases

As our community health project comes to an end, we want to thank our community partners for helping us with the implementation of our hydration stations and providing their expertise. We appreciate both the benefits and challenges that comes with working with the UBC community. In our initial stages, we found it difficult to understand the scope of our project – as public health projects tend to be long and complex processes that target a large population level. However, from our survey feedback from the hydration stations, we began to see the impact of the hydration stations and how it increased positive attitudes and behaviors towards water consumption over sugary beverages.

One valuable thing we learned as a group was that we can put our nutrition knowledge into practice to create change in the community. From observing our hydration stations, speaking to community members, and looking at our survey results, we learned from the UBC community that there is a willingness for a healthier campus environment by the support received from the implementation of our hydration stations. This project required critical thinking, organization, and communication in all stages of the intervention--from planning to evaluation. In conclusion, we appreciate the chance to practice public health nutrition and we hope that we leave behind groundwork for future implementation of hydration stations around UBC campus.

