

Snack Attack at Chuva: UBC Child Care Case Study
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Executive Summary

The nutritional status of twelve toddlers from Chuva Daycare were assessed using dietary and ecological methods. Assessment methods included a five day food record, a staff nutrition survey, and qualitative observations collected during one morning snack session. Based on data collected from the dietary assessment, we did not find a significant nutritional concern in terms of excessive carbohydrate or caloric intake. Food records and observations showed that the servings and food groups of the snacks provided appropriately adhered to the Canada's Food Guide for children under the age of three. Based on the nutritional survey, we recognize that the staff are giving their best efforts to ensure that healthy snacks are available and accessible to the children in consideration with ecological factors. We observed the presence of certain food aversions as a result of pickiness and disinterest, and diagnosed that this could prevent children from consuming optimal quantities of fruits and vegetables. We constructed the following PES statement: sub-optimal fruit and vegetable intake from snacks related to lack of appeal and disinterest derived from the taste and textures of certain fruits and vegetables as evidenced by observations of eating patterns and reported child pickiness. We suggest three research-based interventions that address our findings. The first strategy, which can produce results in the short term, is strategic pairing. It is implemented by serving snacks together that are similar in popularity to encourage consumption of both snacks. The second strategy can be employed in the long-term, which is to plan multiple re-exposures to new or initially unpopular types of snacks in order to promote eventual acceptance. The third strategy is to reduce portion sizes to generate a sense of autonomy and control in the child when he or she is able to successfully finish their plate and ask for seconds. Supporting resources were also provided to the daycare staff in the form of a brochure containing a variety of snack ideas for each food group and suggestions on how to integrate these into the children's diets.

Introduction

During the first three years of life, nutritious foods play a vital role in supporting the rapid development of a child's brain (Child Development, n.d.). Therefore, children of these ages require foods that will meet their high energy and nutrient needs (Cowbrough, 2010). However during this time, children are also developing their food preferences and eating habits as they are being introduced to a wide variety of foods, which can pose current and future challenges to meeting these nutrient needs if the children are fussy eaters (Cowbrough, 2010). Because more children are entering child care programs, there is an utmost importance to ensure that the food being served at these programs positively contributes to these children's health, and that there are strategies in place to encourage the development of healthy eating habits (Sinha, 2015). The purpose of this report is to investigate the snacks that are served to twelve children under the age of three at UBC's Chuva daycare to identify a potential nutritional concern regarding the snacks, and to make recommendations that would provide support to the daycare staff and be beneficial to the health of these children.

Nutrition Screening

An interest in improving the snacks at UBC childcare facilities was initially brought forward to Dr. Gail Hammond, the professor of FNH 370 at UBC. A meeting with the manager of children's programs at UBC, Deb Thompson, was arranged to determine whether a detailed nutritional assessment would be required. Deb expressed concerns that the snacks served by the childcare staff in the afternoon at Chuva daycare are too filling and are too rich in carbohydrates. In other words, we identified a potential risk of excessive carbohydrate and caloric intakes in children at Chuva and determined that the development of a Nutrition Care Process Model would benefit these children and the staff at this facility.

Nutrition Assessment

Dietary and ecological methods were used for nutritional assessment. Dietary methods allowed for the consideration of the data concerning the food children are consuming during snack time, whereas ecological methods allowed for the consideration of the accessibility and availability of healthy and appropriate foods for these children under three years of age.

Observations were completed by two group members during a morning snack at Chuva between 9:30 am and 10:30 am. This hour is considered an 'open' snack time, where the snack is ready and the children eat when, and if, they choose to. The purpose of observations was to determine the children's attitudes towards food and their eating habits. The morning snack on this day was oatmeal served with water and fruit (ie. apples, oranges, and grapes). Eight out of the twelve children were present, and from these children, we noted common patterns in eating habits. Six out of the eight children ate a small bowl of oatmeal and many of these children asked for more oatmeal. In regards to fruit intake, some children only ate fruit, others had apples and grapes, and the rest of the children ate no fruit. Interestingly, no child ate the orange slices.

The staff showed us their weekly snack menu and the fixed shopping list, which only varies slightly due to seasonal availability of certain foods. All of the snacks would be considered 'wholesome', as they have a whole grain product, a fruit or vegetable, and occasionally a dairy product. Our initial impression was that the afternoon snacks were too caloric and carbohydrate-rich. We deduced that the afternoon snacks were not of concern as the children appear to consume, at most, 1 serving of grain products and 1 serving of fruits and vegetables. Canada's Food Guide (2016) recommends about 3 grain servings and 4 fruit and vegetable servings per day for a child between 2 and 3 years old, and we therefore, support that the snacks help contribute to these recommendations, but not in excessive or concerning amounts.

The nutrition survey was given to Sara, the individual in charge of purchasing the foods for the snacks at Chuva (see Appendix for nutrition questionnaire given to Sara). The survey was intended to better understand the planning of the snacks in terms of how nutrition, budgets, nutritional education, beliefs, and the children's preferences play a role. After looking at the survey responses and discussing the snacks with the daycare staff, we found that the daycare makes a conscious effort to buy foods that are whole wheat, and low in fat and sugar. Therefore, the children at Chuva have healthy and appropriate foods that are available and accessible to them during snack time. However from the survey and discussions with the staff, we noted a concern for inadequate intake of fruits and vegetables despite these foods being accessible and available during snack time due to the children showing disinterest in these foods, which is behaviour we observed during the morning snack.

Nutrition Diagnosis

The evidence substantiating our diagnosis are the signs of child eating behaviours objectively observed by the team during assessment, and staff-reported concern about getting the children to consume a variety of fruits and vegetables. The children have access to an adequate selection of fruits and vegetables every day, but the nutrition related problem we identified was the challenge of getting them to consume a variety of the snacks offered.

This was a specific problem for which a suitable diagnostic term was not available in the IDNT Reference Manual. The closest diagnostic label of the problem would perhaps be "Undesirable Food Choices" under the behavioural domain of nutritional diagnosis (nutrition diagnostic code NB-1.7). However, it is not ideal to say that the problem was due to undesirable food choices, given that the snacks provided were all healthy. Alternatively, it appears that the children have preferences for some snacks and disfavor others. In particular, orange slices were one of the least popular snack items. In general, fruits—especially grapes—are favored over vegetables. The children have the agency to choose what to eat and they often choose what tastes good to them. There is a possibility that some children have not yet

developed a taste for a wider variety of snacks. Birch (1999) reports that learned food preferences are established slowly, particularly if the food is neither sweet nor salty, which is often the case for vegetables or other “healthy” foods (Birch, 1999). Since the NB-1.7 diagnostic label of “Undesirable Food Choices” is not specific enough to apply to our case, we tailored our PES statement to more adequately describe our food-related issue as follows: Sub-optimal fruit and vegetable intake from snacks related to lack of appeal and disinterest derived from the taste and textures of certain fruits and vegetables as evidenced by observations of eating patterns and reported child pickiness.

Nutrition Intervention

Based on our food record, we noted that there is at least one serving of fruit or vegetable in every snack, and the children are offered two snacks per day as a supplement to their 3 regular meals. However, the issue is that they are not consuming all of the foods presented to them. Additionally, the daycare has worked with nutritionists in the past to re-design snack choices, to little effect. Given that our primary goal of increasing vegetable and fruit intake will not be easily solved by snack re-design, we will focus on the implementation of techniques that combat picky eating habits and promote better eating behaviour.

Our first suggested intervention is to pair food items strategically, based on popularity. There is evidence that shows that individuals partially base their evaluation of a food on what that item is served alongside with. According to Jimenez et al. (2015), foods are less attractive to the consumer when served with something that is more liked, while the same food is seen as more palatable when paired with a dish that is less liked. In other words, the daycare could make fruits and vegetables more appealing by selecting a less popular co-dish when planning snack options. However, we understand that the daycare cannot eliminate all desirable foods paired with fruits and vegetables. One possible strategy to plan the snacks could be to pair fruits and vegetables alongside items with similar popularity. According to Ishdorj et al. (2015), when popular entrées and vegetables were paired together, there was less combined plate waste as compared to two items that had differing taste satisfactions. By using this approach, the daycare

could benefit from the advantages of the pairing method, while still incorporating desirable food choices for the children.

Our second suggestion will help the daycare make decisions about newly introduced fruits and vegetables. We suggest that for fruits and vegetables that are initially unpopular, the children should be re-exposed to them multiple times before they are deemed unsuccessful. According to Birch and Marlin (1982), children require up to ten exposures to new food options before they are willing to accept them. Therefore, re-exposing them to fruits and vegetables they rejected previously may help them change their minds, which could eventually result in their acceptance. In addition, we suggest presenting new fruits and vegetables as options, rather than as components of a mandatory meal. According to Birch and Fisher (1998), if a child feels forced to consume something, their dislike for that item will only strengthen. Therefore, if the daycare wants the children to accept a new fruit or vegetable, the best approach is to allow the children to change their own minds.

Our last suggestion is a technique that addresses portion and choice. We suggest increasing options of fruits and vegetables for each snack. Due to their age group, the children are beginning to explore independence by asserting their autonomy on their surroundings (Cathey & Gaylord, 2004). In the context of snacks, taste is not the only determining factor of acceptance. There is also a sense of personal input involved. Therefore, we suggest that snacks have at least two choices of fruits or vegetables, if possible. Another method to grant children independence is to reduce portion sizes. Cathey and Gaylord (2004) also showed that toddlers feel more in control when they can finish their plate and ask for more food. By presenting smaller portion sizes, the children will be encouraged to finish their plate, and feel personal independence to ask for seconds. Hopefully, this translates into more fruits and vegetables consumed.

Conclusion

By suggesting snack strategies of strategic pairing, increasing exposure, and limiting portion sizes, we feel that these tactics can make the most impact, with the time and circumstances given. For similar future interventions, we hope to increase the amount of data we collect. While a 5 day food record was sufficient, we were only able to witness eating habits during one observational session. Perhaps with more time, we could investigate the avenue of snack alteration as well. However, there are other ecological factors to consider, such as daycare food budget and how open the kids are to change. Given the importance of creating goals that are S.M.A.R.T., we believed in snack strategization over modification.

Critical Questions

1. Which intervention method would be the most effective strategy to address issues of inadequate fruit and vegetable intake?

In regards to short-term intervention strategies, strategic pairing appears to be a more appropriate strategy. From discussions with the child care staff, we recognize that the staff have a strong understanding of the children's preferences for certain fruits and vegetables. Therefore, this strategy could be easily implemented by the staff identifying the fruits and vegetable that are most popular among the children. Another advantage to using this strategy in the short term is that it does not require any changes to the food they are serving, thus allowing for immediate application.

In contrast, the most effective long-term intervention strategy would be re-exposure to foods to allow for gradual acceptance. For obvious reasons, re-exposing foods in a short time frame would not be effective, and, thus, this method is suitable when it is possible to monitor and evaluate the results over time.

However, we recognize that using both of these strategies would produce the strongest results. For example, re-exposing children to the same pairings of foods may encourage acceptance of these snacks.

2. What would be appropriate indicators to monitor and evaluate our goal of increasing consumption of fruits and vegetables in the children at Chuva?

To monitor and evaluate our intervention strategies, we would continue with observations of the children's attitudes and eating habits during snack time, and frequently communicate with the child care staff. By observing the children's behaviour during snack time, we would be able to make note of whether the children are less selective of fruits and vegetables, and eating more of these foods. By communicating with the staff, we would be able to keep record of the snack times

that we are unable to observe. Staff observations would also ensure that our presence during snack time is not influencing the children's eating habits by distracting them or making them feel nervous.

APPENDIX

Nutrition Questionnaire for Child Care Staff

Circle one answer or fill in the blanks or check all that apply. Please answer all questions to the best of your ability; if a question is not applicable, write N/A.

1. Have you received any education in nutrition? Yes / No
2. If yes, please indicate the type of education you received.
 - a. High school course
 - b. Continuing education/workshop/certification
 - c. Undergraduate
 - i. Individual course(s): _____
 - ii. Degree: _____
 - d. Professional degree: _____
 - e. Other: _____
3. What is your job title/role at the daycare centre? _____
4. Do you hold a current Food Safety Certification? Yes / No
5. On a scale of 1-10 (10 being important), how important is nutrition when making food for yourself? _____
6. On a scale of 1-10 (10 being important), how important is nutrition when making food for children? _____
7. On a scale of 1-10 (10 being always), how often do you encourage children to drink water? _____

8. What beverages are provided to the children? Check all that apply.

water

pop

milk

other (please specify below)

juice

9. Are snacks prepared on the day of, day before or earlier? _____

10. Approximately how long does it usually take to prepare a snack?

<15 mins / 15-30 mins / >30 mins

11. What do you do with any leftover food? _____

12. Who usually prepares the snacks? _____

13. If you play a role in preparing the snacks, on a scale of 1-10 (10 equal to having very big influence), how much does your ethnic background and dietary patterns influence what kind of snacks you decide to prepare? _____

14. Is there a budget for food? Yes / No

If yes, what is it? _____

Who determines this budget? _____

15. Where does the food for the snacks come from? Please check all that apply.

local grocery store

wholesale (ex. Costco)

designated food supplier (ex. Sysco)

other (please specify) _____

16. Who usually buys this food? _____

17. Who usually plans the snacks? _____
18. On a scale of 1-10 (10 being very nutritious), how nutritious do you think the provided snacks are? _____
19. Are whole grains incorporated into the snacks? Always / Sometimes / Never
20. Roughly what percentage of the snacks are organic? <33% / 33-67% / >67%
21. Does the daycare make a conscious effort to avoid snacks high in sugar? Yes / No
22. Does the daycare make a conscious effort to avoid snacks high in fat? Yes / No
23. How often are fruits and vegetables served as part of a snack?
Once per week / 2-3 times per week / 3-5 times per week / More than 5 times per week

Thank you for taking the time to complete this survey. We truly value the information you have provided.

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