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Enhancing vegetable intake in infants & toddlers through parental complementary feeding education

An Honors Thesis submitted in partial fulfillment of the requirements of Honors Studies
in Nursing

By

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Eleanor Mann School of Nursing

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Enhancing Vegetable Intake in Infants and Toddlers

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This research project investigated the outcomes of educating parents of infants between the ages of 6 months and 12 months on the importance of including vegetables in complementary feedings on the infant's vegetable consumption. The efficiency of teaching was measured by comparing physical measurements and quantity of vegetables consumed by infants whose parents received education with the same data from infants whose parents did not receive education on inclusion of vegetable in complementary feedings. The results found contributed to Dr. Shreve's research on childhood obesity in the Northwest Arkansas population and to the knowledge of parental education with regard to complementary feeding in regard to vegetable consumption in infants.

Background

Complementary feeding, or the introduction of alternative foods into an infant's diet, an important advancement in the development of dietary behavior (Hetherington, Schwartz, Madrelle, Croden, Nekitsing, Vereijken, & Weenen, 2015). This period of nutritional development affects both behavioral and nutritional elements, future physiological growth and overall health of the infant (Schwartz et al., 2011). Vegetables are known to be nutritionally rich foods that contain essential vitamins required for optimal childhood development. Adequate intake of vegetables is correlated with reduced risk of cardiovascular disease, diabetes, and some forms of cancer (Koh, Scott, Woodman, Kim, Daniels, & Magarey, 2014). The recommended quantity, frequency, and variety of these foods consistently fall short and have documented inadequate vegetable consumption in many countries including the US (Koh et al., 2014; Breifel, Reidy, & Devaney, 2004). Complementary feeding is the process of introducing foods when breast

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milk is no longer sufficient to meet the nutritional requirements of infants (World Health Organization [WHO], 2015). This stage generally begins at the age of six months and continues through twenty-four months of age when table foods become the primary nutritional source for toddlers. Zieve and Kaneshiro (2011) noted children should be offered four servings of vegetables a day, with each serving consisting of two to three tablespoons of food starting between the ages of six to eight months. However, with recent statistics indicating the prevalence of overweight children in the United States and worldwide, one causal factor may be inadequate intake of vegetables within the first 2 years of life (Bourke, Whittaker, & Verma, 2014; Saavedra, Deming, Dattilo, and Reidy, 2013).

Families that do not promote healthy lifestyles and eating habits put their children at risk of being overweight or obese (Campbell, Lioret, McNaughton, Crawford, Salmon, Ball, and Hesketh, 2013). Though children may be genetically predisposed to obesity, healthy lifestyle behaviors of children are heavily influenced by parent's health knowledge, beliefs, and demonstration (Bourke et al., 2014).

The purpose of this study is to evaluate the effectiveness of complementary feeding education at 9 and 12 months with emphasis on the introduction of vegetables into infants' diets at age 6 and 9 months.

Study Question: Does education on the importance introduction of vegetables at ages 6 and 9 months to parents result in an increase in consumption of vegetables in infants at age 12 months?

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Research Design and Methods

Design

This study was designed as a two group randomized pretest/post test survey study in which the experimental group of parents received complementary feeding education via email as compared to a control group of parents who did not receive the complementary feeding education component. The study was performed following approval by the University of Arkansas Institutional Review Board and consent from the pediatric practice in which the study was to be conducted. Consent to enter the study was implied by both groups of parents upon initiation and completion of survey. The initial email survey and reminder were sent by the pediatric clinic's email address in an attempt to ensure trust. A reminder email was sent two weeks after initial email to parents who had not completed a survey. With lack of response from initial surveys, the second month email surveys and reminders were sent by principal investigator's email address.

Sample

The sample included 122 parents whose infants are seen at a local Pediatric Clinic in Bentonville, AR. Surveys were sent to parents after their child had received their four-month wellness exam. Participants of the study were required to understand both written and spoken English and have the capability of receiving emails, as surveys were sent via email. The sample was randomly divided into two groups of 61, the experimental and control group.

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Results

Demographics

Five respondents completed the survey, because the response rate was only 6%, statistical analysis was not performed. A total of five participants were included in the study, four of which were male. All of the respondents that answered the surveys were mothers. Four of the respondents were Caucasian, and 1 was Native American. Two respondents were between the ages of eighteen and twenty-five, the other three respondents were between the ages of twenty-six and thirty-three, and thus, all parents who responded to the survey were between the ages eighteen and thirty-three. Four of our respondents were married and 1 was divorced. Three respondents were Bachelor's prepared students, 1 was Master's prepared, and 1 held a GED. All respondents were able to read and understand fluent English. Four out of the five respondents had 1 child and 1 respondent had five children. Three of the participants had their last wellness checkup at six months and two participants had last visited the clinic at nine months of age. Three of the five parent respondents stated that "Yes" they had received education at the clinic and two said that they had not. Four of the five parent respondents stated that they had not received education via email, curiously, all parent respondents rated the education via e-mail question on a scale of "not helpful" to "very helpful."

Vegetable Intake Log

Two parent respondents did not complete the vegetable intake log, but we kept their demographic data for reference. It is not clear if these two respondents chose not to complete the survey based on personal preference, or if neither them nor their infants had

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consumed any vegetables. Three parents reported they themselves had consumed vegetables, and their infants had consumed vegetables as well.

Discussion

Limitations

There were several limitations to this study, the first being that the survey did not include an option for parents to report “no consumption of vegetables”. It is possible that this survey deficit influenced respondents to disregard the vegetable intake log. Another limitation was that half of the providers, two of the four, left the pediatric clinic mid-study. Because patients of these physicians no longer associated themselves with the clinic, this could have played a role in the low survey participation. In tandem, providers involved did not discuss the study with the parents during the four month well visit, allowing much room for discord. After poor response rate to research project further research regarding the average response rates of online-moderated surveys was conducted. Medway and Fulton (2012) noted online survey response rates range from 4%-52% of total participants receiving email requests to participate in an online survey. This evidence highlights the oversight of not investigating research methodology, such as average online survey response rates, prior to beginning the study as a final limitation.

Conclusion

Out of the total 122 surveys distributed, 5 responses were recorded, leaving the study completion rate at 6%. Though this study ended with five participants and partial data, far from the expected outcomes of this project, there is now evidence available to researchers looking to pursue similar studies. Future research would include promotion of the study by healthcare providers at the clinic. It is important to investigate changes occurring

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within collaborative partner's organization, such as addition or loss of providers, to anticipate and allow accommodation for factors influencing response rate. It would also be of benefit to explore and develop a different means of surveying parents in future studies.

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