Running Head: EARLY FOOD EXPOSURE AND ALLERGIES

Food Allergies in Young Children: Early Food Exposure and Allergies

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Abstract

The purpose of our study was to determine if early introduction to solid foods to infants predisposes them for food allergies later in life. The study tested the hypothesis that children exposed to solid foods earlier than recommended will result in allergic food reactions more frequently than those who were introduced at a later time. There were 22 parents who participated in completing a survey about their 2 to 5 year old child with regards to food allergies, allergy reactions, what types of foods were introduced and if they, the parent, followed the recommended diet from pediatrician with regards to solid foods. Results indicated that children, whose parents followed the pediatrician guidelines as far as feeding, resulted in their child not having food allergies. Limitations include the sample size, and the lack of variation in the SES of the sample size. Overall, results did mildly prove that following the recommended guidelines will reduce the risk to food allergies.

Food allergies in young children: Early Food Exposure and Allergies

Have you ever pondered why your child or even you have allergies to certain foods? Who or what could be the blame? Is it nature, such as genetics during pregnancy? Or could it be nurture, such as the types of food that the parent feeds their child? Studies show 15 million people in the United States have food allergies and about 6 million of that shocking statistic is children. Every 3 minutes someone is sent to the emergency room due to an anaphylaxis reaction caused in relation to a food allergy (www.foodallergy.org). It's important to understand what causes food allergies in children so we can learn how to prevent this from occurring in children and also prevent it from being passed on to adulthood. There is developing evidence that food allergies are caused due to early exposure to certain solid foods as an infant. "Food allergens are proteins within the food that usually are not broken down by the heat of cooking or by stomach acids or enzymes that digest food. As a result, they survive to cross the gastrointestinal lining, enter the bloodstream, and go to target organs, causing allergic reactions throughout the body (http://www.webmd.com)." Research determines the most common food allergies that are found with young children are but not limited to: eggs, milk and peanuts (http://www.webmd.com).

Previous research suggests that there is a relationship between early solid feeding practices and risk of food allergies as well as other diseases such as eczema, asthma, and allergic rhinitis (Zutavern et al., 2008, p.44). For example, "children exposed to four or more different types of solid food before 4 months had risks of recurrent or chronic eczema that were 2.9 times those of children who were not exposed to early solid feeding (Fergusson et al., 1990, p.541)." This research indicates that food allergies are often associated with other diseases along with having food allergies. Perhaps, if a child is diagnosed with one of those diseases it could be probable that they have a food allergy as well. It's also important to note these affects were due

to the parent or caregiver introducing solid foods before the age of 4 months old. Another study supports this fact by stating an early introduction to a different variety of certain foods before the age of 17 weeks (which is equivalent to basically 4 months) does increase the risk of allergies as the child grows (Sausenthaler et al., 2011). Ferdman stated that "early childhood exposure to certain pesticides and herbicides have been associated with increased risk of wheeze, increased IGE, and a Th1/Th2 cytokine balance favoring the development of allergies (Ferdman et al.,2010, p.344)." In other words, Ferdman believes that organic and non-organic baby foods could be the cause of food allergies but stated there have been no studies proving this. A study by Ferdman , McMlenahan, and Falco (2010) also ruled out pregnancy having an effect on children getting food allergies by stating, "when counseling families it should be stressed that there is no conclusive data to support any dietary interventions during pregnancy (p. 340)." Ferdman stated he wouldn't recommend any dietary restrictions while the woman is pregnant because those woman we did have dietary restrictions had infants who had an increased incidences of food allergies. Therefore, their study completely ruled out pregnancy as a means to food allergies.

The current study being conducted is testing the hypotheses that children exposed to solid foods earlier than recommended will result in allergic food reactions more frequently than those who were introduced at a later time. Past studies conclude that solid food given before the age of 4 months show a relation to children having food allergies as they age as well as a connection with other diseases (Fergusson et al., 1990, p.541). However, the current study will determine if the parent/caregiver followed a doctor/pediatrician recommended diet for their child with regards to introducing solid food at a certain age and determine if this is solely linked to food allergies. Our study will also determine the severity of the food allergy reaction, in which it may be

determined if the introduction of solid foods at a particular age can lead to a more severe or less severe type of food allergy reaction. This study will build on the past studies that are already published because there is no evidence or studies that show a pediatrician recommended time to introduce solid foods or the types of reactions the children have because of it.

Method

Participants

Participants included 22 parents who filled out the survey about their child/children who were between the ages of two years to five years old. There were 14 male and 8 female children. The children's ethnic background was not considered in the survey; however, the participants were selected from a predominantly Caucasian community and in an area where the parents/caregivers have a high socioeconomic status. There was no compensation for the study, however the participants did understand that this is a study for a college level class and they understood their participation was greatly appreciated. A survey and consent form was handed out at a child care facility located in Lone tree where one of our group members currently is employed. The facility has children of all ages and was a great place to hand out the survey to the parents. Our team also handed out the survey to friends and family members who have children between the ages of two and five.

Materials

Participants completed a survey and signed a consent form regarding the study. The survey included eight questions in which the participants were asked to circle, and fill in the blanks to the open ended questions. There was one question which asked the parent to rate the severity of their child's reaction on a scale from one to five. We received approval from the director of the facility to be able to pass out the survey to the parents (see appendix for survey).

Procedure

Our team arrived at the child care facility and as the parents dropped off their child/children for the day, we briefly explained what we are doing regarding the study about allergies and solid food and asked the parent(s) if they would be able to complete the survey and sign the consent form at their convenience for our college study. Those who agreed were given an envelope which enclosed the eight question survey and consent form. We did not put a time frame for when the survey could be returned but suggested it may be easiest to return the envelope whenever they pick up their child at the end of the day. Once the parent(s) returned the survey, we debriefed them and explained the reason for the study and thanked them for their time and participation. The procedure took approximately almost 2 week to collect all of the surveys and procedure with analyzing the data.

Results

The results were tabulated using a t-test to examine if there was significance in our data. This was the best test to conduct because we are comparing a group against a known standard. There was significant in our data because the results were as follows: $t(16) = 2.08$, $p = .054$. See Table 1.

Discussion

The main goal of the study was to determine whether being exposed to solid foods earlier than recommended would result in an allergic food reaction more frequently than those who were introduced at a later time. Our team received our results from a survey that was given to the parent or caregiver at a childcare facility. The test used to obtain the results was a T-test. Our results demonstrated that those parents or caregivers who followed a pediatrician recommended

diet while starting solid foods with their child did not have any food allergies. The results showed that the results yield a true difference and not due to chance.

There are a few limitations of the research done that could have enhanced the study further. One limitation was that amount of participants that were involved. Having more parents participate in filling out the survey would have lead to more results and would have helped find more evidence toward our hypothesis. This would improve our study because we would have had more data to enter and could improve our results to make the significance even stronger. Because we only had 22 participants fill out the survey we were limited to the responses and it was not a good representation of the population. Another limitation was that the surveys were given in an SES (socioeconomic status) of a predominantly higher class white population. This was not a good representation of the world population as a whole, therefore this also limited out results. We were not able to see a difference amongst ethnicities and financial status' which could definitely have played a part in the results because perhaps the food that your able to buy if you were in a high SES, someone in the low SES may not have access to. Therefore obtaining surveys from a mix of socioeconomic statuses would have been a better representation of the population and could have been an indication of different results.

Future research could focus on looking at children who we already know have food allergies and seeing if there is a correlation between the age they were fed solid food or not. This would eliminate the children who do not have food allergies so the focus can be focused on those who do have food allergies. Another future research idea would be to see if breast feeding and the types of food the mother ate would have any effect on the child developing food allergies. This would add to the knowledge of child development because currently there are studies that prove the breast feeding is what is best for your child, but may lead caution to what the mother

consumes while breast feeding if they do not want their child to have food allergies. Lastly, a future idea could be to research the types of food allergies that exist around the world. There are some countries that do not have the same types of foods the typical Americans eat and it would be interesting to see if the other countries have the same type or different type of food allergies to different foods.

Although, the results from this research did not yield enough to determine if early exposure to food leads to food allergies, our team learned that if the parents followed a recommended diet from a pediatrician, it would prevent food allergies because all our participants who did not have allergies followed a pediatrician recommended diet. To gain more insight and have a stronger significance more participants and a more diverse population needed. This research is important to expand and continue because it could be a break through if it is determined that early food exposure does lead to food allergies. A lot of children and parents could benefit from the study and it would prevent the hassle and scare that comes along with having food allergies.

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Table 1

T-Test

[DataSet1] /Volumes/LEXAR MEDIA/Metro/Dev Research/Allergic Reaction Data.sav

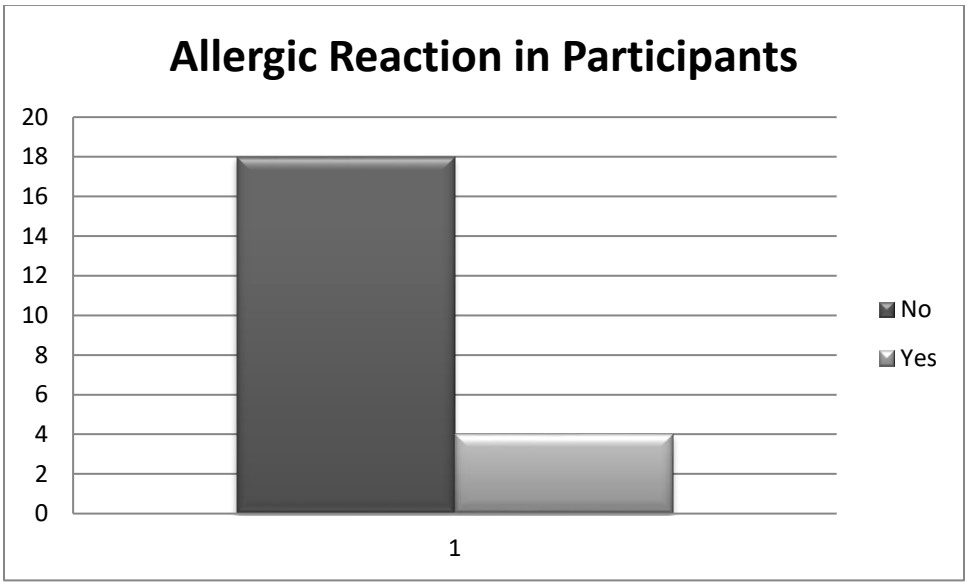
Group Statistics

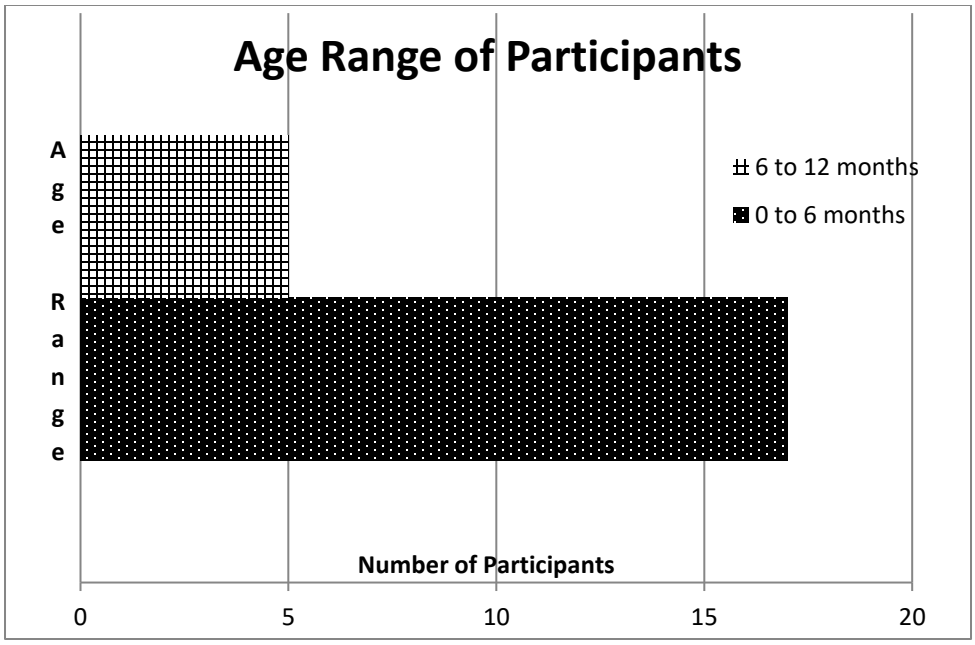
	Age intro recode	N	Mean	Std. Deviation	Std. Error Mean
1 to 5 rating scale of the severness of the allergic reaction	1.00	17	.8235	1.62924	.39515
	2.00	5	.0000	.00000	.00000

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
1 to 5 rating scale of the severness of the allergic reaction	Equal variances assumed	7.908	.011	1.111	20	.280	.82353	.74136	-.72293	2.36999
	Equal variances not assumed			2.084	16.000	.054	.82353	.39515	-.01415	1.66121

Figure Captions




Age Range of Participants
Age Range
6 to 12 months
0 to 6 months
Number of Participants
0
5
10
15
20

Appendix