



Parental Purchase Behavior and the Development of a Cow's Milk Allergy Product for Lactose Intolerant Children

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Received 18 April 2021; Received in revised form 7 June 2021

Accepted 23 July 2021; Available online Day Month year

Abstract

This research investigated the appropriated appearances of snacks, required by parents of lactose intolerant children. Qualitative research was used to collect data from 12 people. The findings are divided into five themes, (1) food allergy in children, including; types of allergic food, symptom identification, manifestation, allergic factors and symptom development of lactose intolerant children, (2) how to treat lactose intolerant children, including; caregivers of lactose intolerant children, how to take care of lactose intolerant children, how to treat a child with allergic symptoms and how to avoid food with cow's milk, (3) eating habits and Alternative food and snack for children with cow's milk allergy, including; collective behavior for food and snack eating, food intake, snack intake, factors affecting snack intake of lactose intolerant children, normal snack desire, frequency of snack intake, why lactose intolerant children are allowed to eat snacks, types of food and snacks permitted by parents, (4) purchasing decisions, including; parent's cognition, price, store, salesperson, advertisement, membership and promotion, and (5) parental purchase decision to buy snacks for lactose intolerant children. This theme includes an ideal snack for lactose intolerant children below 10-year-old, purchase decision influencer, decision makers, purchase decision factors and reason to purchase alternative snack. Purchase decision factors include purchase period, purchase quantity, packaging size, purchase frequency, price range and store.

Keywords

Lactose Intolerant, Cow's milk allergy product, Alternative snack, Purchase behavior, Product's development

Introduction

Malnutrition in children remains an important public health problem (World Health Organization, 2016). One in ten children worldwide dies because of malnutrition (Psaki et al., 2012). Normally, children consume snacks during the day because they need a high level of nutrients for their growth and development. Although their stomach is small, their nutrition intake per day must be abundant. Three meals per day is not enough for children. Snacks are therefore needed for their growth and because they can help boost nutrition and provide energy for their growth (Saraphan, 2007). In addition, snacks enhance children's emotion and mind. It helps reducing stress (Palitpolkarnpim, 2016; Khopornprasert, 2008).

Nevertheless, there is a group of children who have allergies to some kinds of food, and they may have a severe effect on their health such as malnutrition, and snacks for lactose intolerance children are difficult to find in the market. As a result, parents feel anxiety because they have to take care of their children's consumption (Pongsiripipat, 2019; EuroMonitor, 2020).

Allergenic substances are mostly found in cow's milk, eggs, beans, cereal and grain, seafood, meat, and fruit (Srisuk, 2016). Lactose intolerant is mostly found in children, especially in 2017, newborn children sensitize cow's milk at 2.85 percent (Jirapinyo, 2017), and continuously increase every year (Saowapark, 2018).

Consequently, this research aims to investigate suitable snacks for lactose intolerant children below 10-year-old. Parental purchase behavior was selected to study because parents are directly responsible for children's consumption. Moreover, the information can be applied to develop alternative snack to respond to parent's need.

Literature Review

Lactose intolerance is an abnormal reaction to protein within milk. The reaction causes the immune system to be sensitized which affects functional systems within the body, such as the respiratory and gastrointestinal system. Presently, there are various kinds of alternative milks in the market, and production of alternative milk occurs to respond to consumer's demand, especially lactose intolerant consumers (Limhirana et al., 2002). Lactose intolerance is an effective limitation for consumer's needs and affects their purchase behavior and interest.

Product's owner or manufacturer considers relevant factors to plan and develop required products and services for consumers. The products or services should have standards and safety, and their product capacity can be evaluated as well. Product's element mainly consists of quality, physical appearance, price, brand, package, design,

composition, variety, color, guarantee, service, raw material, safety and standard. The above elements have relation and connection. If there is some element developed to enhance product, it will influence other elements as well. Therefore, product's design is much important for product's development (Hanna and Wozniak, 2001; Schiffman and Wisenblit, 2019). If there is a change in some element of a product, consumer's behavior can be influenced and changed.

Engel, J. F., Blackwell, R. D., and Kollat, D. T. (1968) define consumer's behavior as an individual action to choose, use or dispose of a product or service. Consumer's behavior occurs from internal and external factors depending on individual reason, emotion, acknowledgment, marketing factors, culture, society, situation and environment. Basically, there are five stages in the customer decision process in the first stage of customer decision process, customer awards of problem motivated by individual needs and wants, marketing factors and environment factors. Information of available product to solve the problem is well searched by customer. A consideration set is developed in the light of demographic factors, psychographic factors and time or situation factors. Once the consideration set have developed, a choice reduction have made into the final decision, known as purchase. Once purchase, levels of satisfaction are related to the post-behavior such as recommendation, repurchase or develop royalty. (Lamb, Hair and McDaniel, 1992; Philip, Gary, and Marc, 2019)

Methodology

Data was collected from 12 key informants who were selected by a criterion-based selection method. The key informants were parents of lactose intolerant children below 10-year-old and they lived in Thailand. Semi-structured interviews were used to collect information from the key informants. A researcher collected in-depth information relating to the nurturing of lactose intolerant children, purchase decision and parenting style. (Buaraphan, 2013; Nontaphatamadul, 2011)

Data were collected from the selected participants until data were saturated and duplicate (Nastasi and Schensul, 2005). Interviews were transcribed word by word and categorized into themes, categories and sets of factors. Cramer's V was employed to identify the correlation of the variables. The findings explained why parents buy snacks for their children and their purchase intention. Cramer's V can be calculated by using the following formula (Wanichbancha, 2002; Angsuchot, 2017).

$$V = \frac{X^2}{n(kk-1)}$$

V = Values of correlation range 0 – 1, described as the following details.

0 indicates reliable with none of relationship.

0.01 – 0.25 indicate reliable with low relationship.

0.26 – 0.55 indicate reliable with medium relationship.

0.56 – 0.75 indicate reliable with high relationship.

0.76 – 0.99 indicate reliable with the highest relationship.

1 indicates reliable with complete relationship

X² = Value of Chi-Square n n = Total amount of reliable

k = Less value between row and column

Results

The findings showed that there were various issues concerning purchase behavior of parents to buy snacks for their lactose intolerant children. These issues include food allergy, caring and treating, eating behavior, marketing, and parental purchase decision.

1. Food Allergy in Children

There are five factors to consider when discussing children with food allergies. These include types of allergies, symptom identification, manifestation, allergic factors, symptom development.

1.1 Types of allergies

Lactose intolerant children are mostly sensitized to protein, carbohydrates, vitamins, and other ingredients in food, such as monosodium glutamate.

"... My child is allergic for wheat flour, yeast, egg, peanut, oyster, chocolate."
(4th informant)

1.2 Symptom identification

Symptom identification of a child's food allergy is identified by parents and clinically diagnosed.

"...I found rash on my child skin because of drinking a cup of milk, and a doctor made a blood test to certify the symptom." (11th informant)

1.3 Manifestation

The most frequent allergy manifestation is found on skin and within the respiratory system. Moreover, gastrointestinal symptoms are another manifestation of food allergy in children. The symptoms can occur at the same time or have one or other symptoms.

*"...I found rash on my child skin, so I took my child to meet a doctor,"
(9th informant)*

1.4 Allergic factors

There are many factors that cause allergic symptoms in children. Some cases occur because of children's behavior, and some cases happens because of their food intake.

"...My child used to have severe allergy. My mother painted my child face teasingly with cake cream, then there were red spots on my child face and neck." (8th informant)

1.5 Symptom development of lactose intolerant children

Allergy symptom can be either improve or worse. In the earlier case, their immune system is fully developed and hardly finds the allergy problem. In the latter case, the symptom is greater as their parents are not well supervised of their children's eating habit.

"... No starvation, a doctor said, because it can possibly have allergic symptom immediately, and it is quite dangerous." (1st informant)

2. How to Treat Lactose Intolerant Children

Cow's milk allergy treatment involves four factors, including caregivers, how to take care lactose intolerant children, how to treat a child with allergic symptom and how to avoid food with cow's milk.

2.1 Caregivers of lactose intolerant children

A mother is a key person to nurture a child with cow's milk allergy. The other person includes father and cousin. There is some problem occurred, when the child is nurtured by cousin, for example, they give a child allergic food. They believed that eating allergic food can relieve allergic symptom.

“... My parent also helps take care my child sometimes, but they have old belief that allergic symptom can be treated by eating allergic food, a child can eat allergic food

little by little to heal the symptom.” (12th informant)

Likewise, a doctor is a person to take care a child with allergic symptom indirectly. The doctor has a duty to give suggestions and information concerning allergic treatment.

“...I took my child to meet a doctor, and a doctor suggested that I should change type of milk, or select alternative milk for an allergic child.” (5th informant)

2.2 How to take care lactose intolerant children

There are two ways to take care a child with cow's milk allergy. The first way involves with a child living with parent, and the second involves with a child studying at school. Observation is a method to take care a child living with parents. If a child has allergic symptom, parents will recall what a child eat, the food may activate the allergy symptom.

“... If my child has allergic symptom, we will think about causes and what my child eaten. If we know, we will avoid the food.” (4th informant)

For children spending their life in school, parents must inform allergic food to teachers. If teachers know the allergic food, they will aware what children eat during a day in school.

“...School has a list of allergic food for intolerant children, such as egg or cow's milk”. (8th informant)

2.3 How to treat a child with allergic symptom

There are different treatments for allergic case. It depends on severity of the symptom. The first step of treatment is first-aid and healing. The most first-aid is lotion treatment and takes allergic medicine. If the symptom is still severe, the next step of treatment is to meet a doctor.

“...The first step is to take medicine and brings my child to take a bath and applies lotion.” (9th informant)

2.4 How to avoid food with cow's milk

The key informants in this research strictly concern food of their child. They will not purchase food that is possible to have allergic ingredients. When their child has outgrown, their strictness is moderated and change type of food and snack for their child.

This research has found that some key informant still worries about lack of nutrition in their child, such as calcium and essential vitamins.

“... I am afraid that my child will be lack of essential nutrition because he cannot eat many kinds of food.” (3rd informant)

Lack of nutrition is not only their anxiety but eating food in other place or outside is also their concern. Therefore, parents must give knowledge to their child, such as symptom of allergy and how to take care themselves.

“...My boy knows what he can eat and cannot eat.” (8th informant)

3. Eating Behavior and Allergic Food for Lactose Intolerant Children

There are eight factors relating to eating behavior and allergic food for children with cow's milk allergy, including collective behavior for food and snack eating, food intake behavior, snack intake behavior, factors affecting snack intake of children with cow's milk allergy, normal food desire, frequency of snack intake, why children with cow's milk allergy are allowed eating snack, and types of food and snack, permitted by parents.

3.1 Collective behavior for food and snack Eating

Lactose intolerant children always recognize what he or she is sensitive, for example; they will ask ingredients of food and snack before eating.

“... My child will ask me before eating food or snack.” (3rd informant)

3.2 Food intake behavior

Caregiver and children can identify allergic symptom, for example; eating time is determined by caregivers, and food selection or food preference depends on children's decision.

“... When my child knows what he likes to eat, he eats only rice and doesn't eat other food.” (6th informant)

3.3 Snack intake behavior

Caregiver and children can identify allergic symptom. It is the same as food intake behavior, for example; children will be permitted to eat snack after school. Interest of snack depends on children's decision.

“...Children will eat snack after meal, they can select what snack they love to eat.” (12th informant)

3.4 Factors affecting snack intake of lactose intolerant children

There are two factors involved cow's milk allergies in children, including product factor and physical factor. On product factor, children love to eat sweet taste and crispy texture. On physical factor is hungriness.

"... Much salty and sweet taste is my child favorite." (12th informant)

Children with cow's milk allergy don't like to eat some type of snack because of two following factors. On product factor, such as snack's image and texture. On physical factor, such as children's satisfaction in snack.

"...Dragon fruit, there are many seeds in it, my child doesn't like to eat." (6th informant)

3.5 Normal snack desire

Children with cow's milk allergy always ask for normal snack because they imitate mother's habit. When they are in school, their desire in snack is from friends.

"...My child saw friend's snack and need to eat it." (5th informant)

3.6 Frequency of snack intake

Eating frequency of children with cow's milk allergy is uncertain. Sometime, eating frequency is one or two time per day.

".... Someday, my child doesn't eat, it depends on him." (9th informant)

3.7 Why lactose intolerant children are allowed to eat snacks

Snacks help children to relieve their hunger, fulfil their feeling on incapability to have normal snack, and control their persistent.

"...Today, food delivery is delayed. My child may spend a lot of energy to play sport, so I let my child eating snack." (1st informant)

3.8 Types of snacks permitted by parents

The types of snacks for lactose intolerant children must certify that there are none of allergic ingredients (i.e., cow's milk, egg, bean, cereal and grain, sea food, meat, and fruit). Most parents allow lactose intolerant children to have as a snack are fruit-based snacks. Other types of snack or snack with allergy ingredients are prohibited.

"... This snack must have nutritional benefits. Cereal and grain should be ingredients in the snack." (2nd informant)

4. Factors Influencing Purchase Decision

There are six factors that motivate parental purchase decision, including ideal snack, price, store, salesperson, advertisement, and promotion.

4.1 Ideal snack

Ideal snack of the informants relates to packaging and brand. The required snack should be portable and easy to eat. Its production must be standard and quality must be certified. On packaging issues, parents concentrated on the label's information, especially ingredients, allergy information and nutrition. This research also found that parents don't have an ideal brand. They only want trusted or brands.

"...I concentrate on the product's label. The label must identify food allergy, such as specific ingredients or none of cow's milk. (2nd informant)

4.2 Price

This research found that parents mostly considered the price from quality of each product. However, parents will primarily buy snacks based on their child's interest. Sometimes, the price doesn't affect their purchase decision.

"... I emphasize on quality of product. It's normal that some snack is the same type, its ingredients or price is different." (1st informant)

4.3 Store

Online and offline stores have different factors to activate purchase decisions. However, there is the same factor that affects their decision. The store must guarantee that their product is safe for lactose intolerant children.

"...The sample snack must be packed nicely and clean." (3rd informant)

4.4 Salesperson

The salesperson must have product knowledge, especially allergy and nutrition facts, and have service-mind.

"...A salesperson can remember what we like to buy and presents his hospitality for customers. For example, he asked the taste of snack that we bought. (8th informant)

4.5 Advertisement

Advertisements do not influence parent's interest or purchase decision.

“...I have known this product from a group in social media, I always follow the group. If I find this product from ads, I will not interest. (3rd informant)

However, if the groups of informants receive information from parental groups on social media, they can feel increasingly interested in a product.

“...Youtuber is also an influencer, and I watch family program in YouTube Channel sometimes. I taste what they eat in the channel sometimes. (6th informant)

4.6 Promotion

Promotions do not impact purchase decisions because parents always buy what their children like to eat.

“...If I buy the product that my child does not interest, he will not eat it. So, the promotion is useless. (5th informant)

An immediate benefit from membership subscription will motivate purchase decision.

“...I will apply for membership, if the brand has my purchase history and offers interested promotion.” (8th informant)

5. Parental Decisions on Whether to Buy Snacks for Their Lactose Intolerant Children

According to the collected information on parental purchasing decisions, the information can be separated into four groups. Which, (1) influencer, (2) decision maker, (3) purchase decision factors, and (4) reasons to purchase.

5.1 Influencer

Children is the primary influencer of their parents when comes to alternative snacks purchase decision. The second influencer was a group of mothers on social media, such as Facebook. Other influencers included husbands, cousins and doctor's pages on social media.

“...If my child like to eat it, I definitely buy it. (1st informant)

5.2 Decision maker

The mother of lactose intolerant children are authorities who decide what snacks are appropriate for their children.

“...I read all ingredients on product's label, and decide to buy it for my child.” (7th informant)

5.3 Relevant factors to buy snack

To select appropriate snacks for their lactose intolerant children, parents emphasized the importance of ingredients, package size, expiry date and brand identity. Ingredients are the most relevant factor that parents consider. They focus on allergic information, and preference products that have natural ingredients.

Secondly, parents consider characteristics of snack such as size, portability, and specific for children. The taste should be neutral, not too sweet or salty.

*“...I don't like to eat Thai dessert because it contains too much sugar.
(2nd informant)*

5.4 Reason to buy snacks

Parents always buy snacks based on their children's preference. Parents always buy snacks based on their children's preferences. They stock lactose tolerant snack at home as they are difficult to find in the market.

“...Tasty snack for allergic people should stock at home, if my child wants to eat, he can eat immediately.” (4th informant)

6. Parental Intention to Buy Snacks for Their Lactose Intolerant Children

There are six purchase intention behavior found in the findings, which are purchase period, purchase quantity, packaging size, purchase frequency, price range and store.

6.1 Purchase period

Parents buy snacks on both the weekdays and weekend. The most common purchase period was uncertain. It depends on when they are free.

“...I always buy food and snack on Thursday and Friday. I take a rest on Saturday and Sunday and spend my time with my children. (5th informant)

6.2 Purchase quantity

Purchase quantity is varied, mostly dependent on children's preferences, distance from home to the selling premise, and budget for snacks. For those who bought in a big amount tends to store for certain period of time. Unlike a group of parent, who purchase in small amount for immediate consumption.

“...I buy a lot because I like to stock for later consumption snack.” (6th informant)

6.3 Packaging size

Parents buy food or snacks for one serving and many servings.

“...The snack is packed with a proper size. It is comparable to my palm, and I can eat it only one time.” (3rd informant)

6.4 Purchase frequency

Frequency of purchase of the alternative product is not certain. Basically, it is the weekly or monthly basis.

“...I buy some stuff to my house almost every day or day by day.” (6th informant)

6.5 Budget

Parent can afford to buy alternative snack differently. A number of them limits not over 100 baht per unit, but many accept higher price range over normal snack price in the market. It should be noted that an underpriced alternative snack may discourage parents to purchase as they cannot trust on ingredient.

“...I will consider that snack’s quality, and the price should be reasonable. If the product is expensive, ingredients should be good quality.” (2nd informant)

6.6 Distribution channel

Parents buy alternative snacks from different channels, such as online and offline stores.

“...I buy allergic snack from Central and Tops. Central has specific store for children.” (2nd informant)

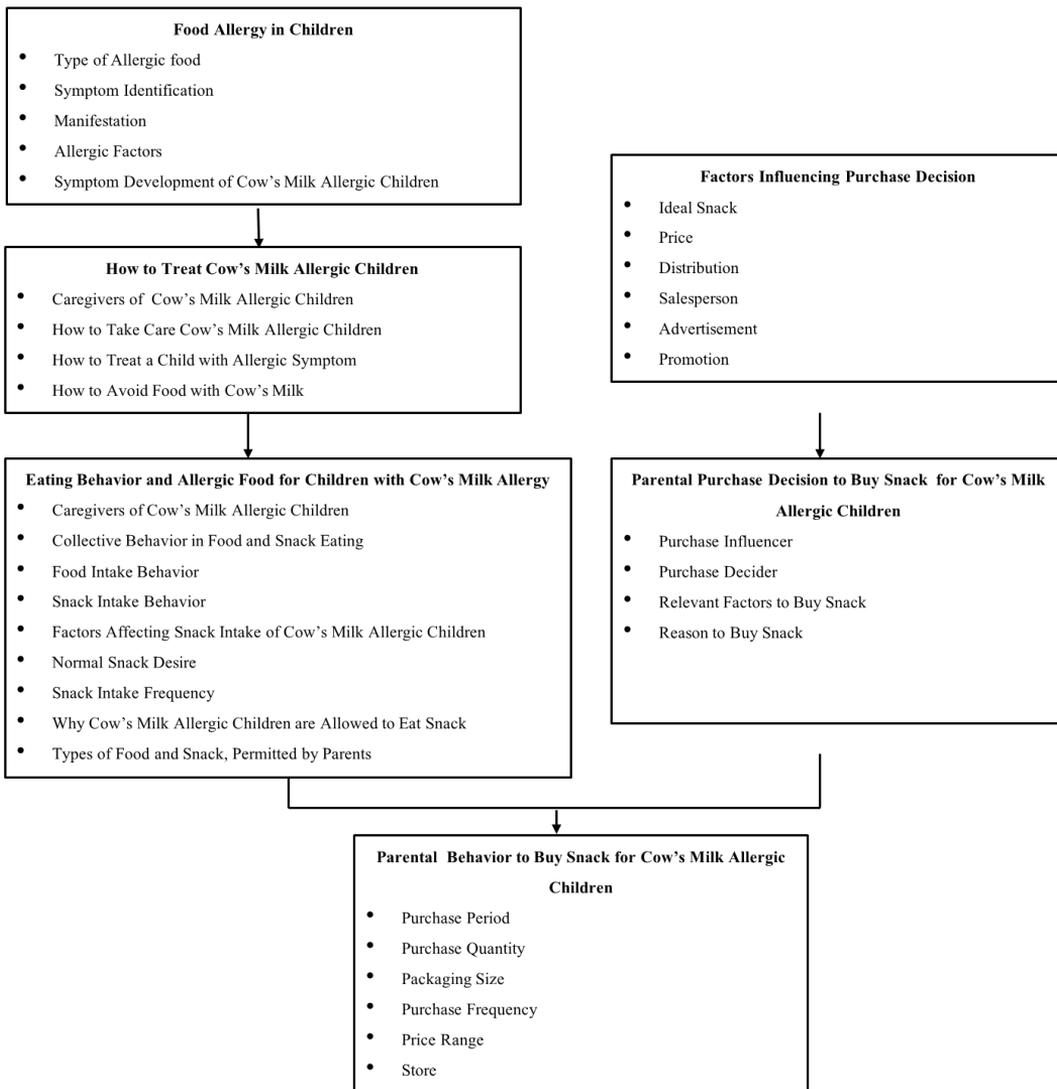


Figure 1 Relation between Variables and Parental behavior.

Charmer's V is conducted to verify correlation of factors. Unfortunately, the research cannot find correlation of factors as some expected frequency in the finding is lesser than 1.

Discussion

Food allergy motives parents at different demographic profile to have different parenting style over lactose tolerance children, especially in the eating habit. Eating habit

of children is absorbed by parents' behavior and caretakers. (Wangnun, 2017). Social and environmental factors explain this behavior mainly compose of various consumer behaviors (Jaturongkul, 2003).

The theory of structure of purchase decision explains that. Parents consider purchasing time, snack quality, packaging size, purchase frequency, price and distribution channel, differently, depending on various factors at the time of purchase. Those factors are product quality, safe and hypoallergenic product function. According to parental need, a product's price, distribution and promotion are the key to activate their purchase. Normally, their purchase decision is distinctive. A primary motivation to purchase alternative snack is the need of their children. The consumer behavior theory suggests that end consumers can influence the decision maker on both motivations to purchase and consideration sets before purchasing behaviors is observed. (Engel, Blackwell, and Kollat, 1968)

Implication for practice

The study shows that lactose tolerance children is the motivation factors for parent to purchase alternative snack, as children product preference are the primary factors for their purchase decision. The study is limited to parents' perspective, not from lactose tolerance children perspective. So the implication to children product development shall be used with caution.

Nevertheless, the findings suggest the target market of the product is female (mother of lactose tolerance children). Basically, they worry about ingredients of food or snacks their children's consume. Thus, they are actively aware and monitor of what their lactose tolerance children are having daily. Thus, their lactose tolerance children's snack needs to be verified for lactose tolerance children and certified by accredited organization.

In regarding to ideal alternative snacks for lactose tolerance children, the product should be characterized as (1) easy to handle by children hands; (2) only natural color added; (3) supplement or nutrition added such as fiber and vitamin; (4) neutral taste; (5) immediate consumption size and package; (6) convenient to keep if they cannot finish at once such as zip lock package; (7) full information disclosure such as nutrition fact, ingredient, good manufacturing practice, allergy information, export date..

Digital media is the primary source of product awareness and brand development, particularly on the Facebook group (parent with lactose tolerance children). Influencer is also critical for product promotion. The most credible influencers are

Facebook page or page administrators those who are mother with lactose tolerance children or medical doctor.

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