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Beverage Consumption of Parents and Children

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Abstract: This study is conducted to determine the effect of season on beverage consumption of parents and children. It was performed on randomly selected 240 families which consist of 130 girls and 110 boys at the age of 3-5 in full time preschools. While most of the children have diner with their families, it was determined that they have lunch together less frequently. It was observed that children's favorite beverages are coke, fresh-squeezed fruit juice and milk whereas they dislike water and buttermilk drink. As regards to winter and summer seasons children drink tea because parents drink tea everyday and also according to the conduct of parents, they drink fresh-squeezed fruit juice and tomato juice once in fifteen days. It was observed that in summer and winter while parents drink instant coffee or Turkish coffee in a few times a week during breakfast, children never drink instant coffee

Key words: Beverage, beverage consumption, family, beverage choices, preschool period

INTRODUCTION

Sufficient daily beverage consumption has important functions in body such as digestion, absorption of foods and their transportation to cells, control of body temperature, maintaining lubrication of joints and electrolyte flow (Baysal, 2007; Tandon et al., 2012). Insufficient beverage consumption, however, cause weakness, fatique, development problems, health problems, illnesses, constipation and skin problems (Tuncer et al., 2010). Children's beverage consumption levels change according to children's age, height, weight, gender and, daily level of activity (Baysal, 2007). Daily beverage need is 1.4 liters for children at the age of 4-8, 2.1 liters for girls and 2.4 liter for boys at the age of 9-13 (Tuncer et al., 2010). Most of starchy beverages which are children's favorites are diet beverages containing sweeteners, sports drinks, fizzy drink containing sweeteners and fruit flavored drinks (Nickelson et al., 2010). While milk consumption of children decreases, high-energy drink consumption increases. As increase in consumption of milk and diary products decreases risk of fatness, consumption of drinks containing sweeteners increases fatness level in childhood (Storey et al., 2006; Huh et al., 2010). Long time periods without eating for children cause a decrease in fasting blood glucose and an increase in need for carbohydrates. However, fast absorption of carbohydrate containing beverages and foods cause more food and drink consumption in consequence of rapid increase in glucose and insulin and development of reactive hypoglycemia in body (Koksal, 2008).

Furthermore frequent consumption of coke or sweetener containing beverages during or between meals can

cause children to gain weight for the next periods (Dubois *et al.*, 2007). Fitzpatric *et al.* (2007), stated that having dinner with parents increases children milk consumption but eating while watching tv does not affect milk consumption. Beverage consumption frequency of children differs according to family's socioeconomic state, consumption of family at home and consumption frequency of available beverages at home (Hanson *et al.*, 2005; Rodriguez-Oliveros *et al.*, 2011).

Parents are the most influential role models for children. For this reason parents should control the beverage consumption, appreciate children when they increase their health beverage consumption and assist children's behavior turn into a habit (Tuncer et al., 2010; Liu et al., 2011). In a study by Larowe et al. (2010); Pinard et al. (2011), it was stated that many factors like family's physical and social home environment, education level and socio cultural statue affects children to have a healthy and appropriate beverage consumption habit and it was necessary for family members to be an educated and deliberate model and impose limits that are not very harsh. For instance parents may allow their children to have a glass of coke or a fruit flavored beverage once in a week or two weeks. In a study by Rozenkranz and Dzewaltowski (2008); Lopez et al. (2012) it was stated that parents are responsible for children's consumption and how often they consume beverages containing sweeteners (that has 0 energy level) or beverages with nutritional level.

For this reason this study is conducted to determine beverage consumption state of children at the age of 3 to 5, with regards to summer and winter seasons.

MATERIALS AND METHODS

Participant: Survey model was used for conducting this study. It was tried to determine the beverage consumption states of parents and children at the age of 3-5 during summer and winter seasons.

This study was performed on 240 families, consist of 130 girls and 110 boys at the age of 3-5, randomly selected in four preschools which are mainstream schools subjected to Ministry of National Education, Ankara/Turkey and which serves breakfast, lunch and mid-afternoon meal. Sample of the study is parents of preschool students.

The questionnaire: A survey form that was developed by researchers is used for data collection tool. Data are collected by teachers of these preschools. The survey from which is developed to determine the children beverage consumption states and family habits' effect on this, consists of 3 parts. First part consists of questions related demographic characteristics of parents and children, second part consists of questions about meals that children have with their parents and the third part consists of questions related to beverage types that served in preschools according to seasons, children favorite drinks and the ones that they dislike and parents and children's beverage consumption frequency according to seasons.

Statistics: The data was analyzed by using "Statistical Package for Social Sciences" (SPSS for windows 15.0). Children favorite drinks and the ones that they dislike and parents and children's beverage consumption frequency according to seasons.

RESULTS

In Table 1 it was found that 54.6% of preschool children are girls and 45.4% of them are boys and also number of girls are higher than in all age groups. While 47.7% of families' first children are girls, 48.2% of second children are boys. It was determined that 36.4% of mothers and 34.0% of fathers are university graduates. 30% of parents are at the age of 36 to 40 and 48.3% of them are civil servants.

If Table 2, in which the meals that children have with their parents are shown, is analyzed it is found that 52.1% of parents have their dinner with their children and 10.8% of parents have lunch with their children. Since children are at school for all day and parents are working they have lunch together lesser.

When distribution of beverages, served in preschool in Table 3, it was determined that in winter and summer linden tea is consumed at breakfast 28.3% and 8.7%, respectively and 23.9% is consumed at lunch and 21.7% is consumed at mid-afternoon meal. In winter and summer milk consumption ratios are 21.0% and 23.3% at breakfast, 15.9% and 10.5% at lunch and 14.4% and

14.8% at mid afternoon meal. In summer and winter fruit juice consumption ratios are 23.3% and 17.3% at breakfast, 18.7% and 10.7% at lunch and 18.2% and 11.7% at mid afternoon meal. Further more children drink water 39.3% and 30.7% at lunch. The increase in fruit juice and water consumption may stem from high physical activity level and seasons.

When children's favorite and dislike beverages are analyzed as shown in Table 4, it was found that 31.4% of them like to drink coke at breakfast, 24.1% of them at lunch and 24.1% of them at mid afternoon meal. 29.5% of children like to drink fruit juice at breakfast, 25.0% of them at lunch and 20.5% of them at mid afternoon meal. Milk is consumed by 23.6% of children at breakfast, 20.1% them at lunch and 16.5% of them at mid afternoon meal. Soda pop is also consumed by 16.7% of children at breakfast, 16.2% of them at lunch and 16.5% of them at mid afternoon meal. The significant point is that 39.3% of children at this age group like to drink water. It can be said that water consumption increase because of daily physical activities. However when we examine the beverages that children don't like, we found that 19.7% of children do not like to drink buttermilk drink at breakfast, while 23.7% of them don't like to drink buttermilk drink at lunch and 24.7% of them at mid afternoon meal and 16.9% of children don't like to drink linden tea at breakfast while 19.6% of them don't like to drink linden tea at lunch and 13.4% of them at mid afternoon meal. Also 30.7% of children don't like drink water at lunch while 8.3% of them don't like to drink water at all.

It can be stated that some children don't like to drink water because of the season while some of them don't like to drink water because of the increase in consumption of beverages containing sweeteners. For this reason parents and teachers should be very careful for children to gain a conscious attitude and behaviour so that they can have an appropriate nutritional habit.

When we analyze the Table 5, in which beverage consumption frequency of parents and children in summer is shown, we can see that parents 24.1% and children 19.2% drinks fruit juice at every breakfast morning and at nights parents 26.5% drink fruit juice and children 14.9% one in 15 days. In winter parents 15.8% and children 16.6% drink fruit juice at every breakfast. Tea is also consumed by mothers 20.8%, fathers 19.1% and children 18.1% every day in summer. In winter parents 16.6% and children 15.8% drink tea in every day. Mothers 55.6% and fathers 23.8% and children 15.8% drink fruit flavored beverages at breakfast a few times a week. In winter, parents 34.8% and children 15.8% also drink fruit flavored beverages at lunch a few times a week. In summer mothers 25.8%, fathers 23.2% and children 30.0% drink coke at breakfast and in winter, mothers 24.1%, fathers 25.0% and children 32.4% drink coke once in 15 days. In summer mothers 40.7%,

Table 1: Distributions of the demographic information of children and parents

| | 3 years of age | | 4 years | of age | 5 years | of age | Total sample | | |
|-------------------------|---------------------|-------|---------------------|--------|---------|--------|---------------------------|----------|--|
| Gender | n | % | n | % | n | % | n | % | |
| Female | 43 | 54.4 | 49 | 55.1 | 39 | 54.2 | 131 | 54.6 | |
| Male | 36 | 45.6 | 40 | 44.9 | 33 | 45.8 | 109 | 45.4 | |
| Total | 79 | 100.0 | 89 | 100.0 | 72 | 100.0 | 240 | 100.0 | |
| | Female | | Female | | Female | | Total sample | | |
| Children | n | % | n | % | n | % | n | % | |
| First child | 24 | 61.5 | 19 | 45.2 | 19 | 38.8 | 62 | 47.7 | |
| Second child | 15 | 38.5 | 22 | 52.4 | 25 | 51.0 | 62 | 47.7 | |
| Third child | - | - | 1 | 2.4 | 5 | 10.2 | 6 | 4.6 | |
| Total | 39 | 16.3 | 42 | 17.5 | 49 | 20.4 | 130 | 100.0 | |
| | Male | | Male | | Male | | Total sample | | |
| Children | n | % | n | % | n | % | n | % | |
| First child | 19 | 55.9 | 14 | 43.8 | 16 | 36.4 | 49 | 44.5 | |
| Second child | 13 | 38.2 | 17 | 53.1 | 23 | 52.3 | 53 | 48.2 | |
| Third child | 2 | 5.9 | 1 | 3.1 | 5 | 11.3 | 8 | 7.3 | |
| Total | 34 | 14.2 | 32 | 13.3 | 44 | 18.3 | 110 | 100.0 | |
| | Mother | | Father | | | | Total sample | | |
| Education | n | % | n | % | | | n | % | |
| Elementary | 6 | 5.1 | - | - | - | - | 6 | 2.5 | |
| High school | 34 | 28.8 | 39 | 32.0 | - | - | 73 | 30.4 | |
| Graduate | 43 | 36.4 | 42 | 34.0 | - | - | 85 | 35.4 | |
| Univ. graduate (Ph. D.) | 35 | 29.7 | 41 | 34.0 | - | - | 76 | 31.7 | |
| Total sample | 118 | 100.0 | 122 | 100.0 | - | - | 240 | 100.0 | |
| | Mother | | Father | | | | Total sar | nple | |
| Age groups | n | % | n | % | | | n | % | |
| 19-25 | 9 | 7.6 | 12 | 9.7 | - | - | 21 | 8.8 | |
| 26-30 | 27 | 23.1 | 28 | 23.0 | - | - | 55 | 22.9 | |
| 31-35 | 29 | 24.8 | 33 | 27.0 | - | - | 62 | 25.8 | |
| 36-40 | 38 | 32.5 | 34 | 28.0 | - | - | 72 | 30.0 | |
| 41-45 | 11 | 9.4 | 14 | 11.0 | - | - | 25 | 10.4 | |
| 46-50 | 3 | 2.6 | 2 | 1.6 | - | - | 5 | 2.1 | |
| Total sample | 117 100.0 Mother | | 123 100.0 Father | | | | 240 100.0 Total sample | | |
| | | | | | | | | · | |
| Occupation | n | % | n | % | | | n | % | |
| Unpaid job | 25 | 24.3 | - | - | - | - | 25 | 10.4 | |
| Civil servants | 50 | 48.5 | 66 | 48.0 | - | - | 116 | 48.3 | |
| Worker | - | - | 23 | 17.0 | - | - | 23 | 9.6 | |
| Self-employment | 23 | 22.0 | 40 | 29.0 | - | - | 63 | 26.3 | |
| Retired | 5 | 4.8 | 8 | 5.8 | - | - | 13 | 5.4 | |
| Total | 103 | 100.0 | 137 | 100.0 | - | - | 240 | 100.0 | |

Table 2: The distribution of parents of children eating meals (n = 240)

| 2.0) | |
|--------|---------------------------|
| n | % |
| 81 | 33.8 |
| 26 | 10.8 |
| 125 | 52.1 |
| 8 | 3.3 |
| le 240 | 100.0 |
| | n 81 26 125 8 |

fathers 41.5% and children 54.1% drink instant coffee at breakfast and in winter parents 33.3% and children 65.7% drink instant coffee once in 15 days. Tomato juice

consumption at breakfast in summer is determined as 34.9% for mothers, 33.3% for fathers and 37.5% for children and for winter the consumption of tomato juice is determined as once in 15 days for 34.1% of mothers, 33.3% of fathers and 31.6% of children.

DISCUSSION

When the findings of this study are examined it was found that most of the parents have dinner with their children and they have lunch together fewest. This may stem from children being at school and mothers at work

Table 3: The distribution of beverages to children in preschool

| Types of beverages | Summer | | | | | | | Winter | | | | | | | | |
|--------------------|-----------|-------|-------|--------|---------------|------|-----------|--------|-------|------|---------------|------|--------------|-------|--|--|
| | Breakfast | | Lunch | | Mid-afternoon | | Breakfast | | Lunch | | Mid-afternoon | | Total sample | | | |
| | n | % | n | · % | n | % | n | % | n | % | n | % | n | % | | |
| Tea | 55 | 25.6 | 34 | 15.8 | 27 | 12.6 | 42 | 19.5 | 27 | 12.5 | 30 | 13.9 | 215 | 100.0 | | |
| Linden tea | 8 | 8.7 | 12 | 13.0 | 4 | 4.3 | 26 | 28.3 | 22 | 23.9 | 20 | 21.7 | 92 | 100.0 | | |
| Milk | 54 | 21.0 | 41 | 15.9 | 37 | 14.4 | 60 | 23.3 | 27 | 10.5 | 38 | 14.8 | 257 | 100.0 | | |
| Buttermilk | - | - | 21 | 22.8 | 21 | 22.8 | - | - | 32 | 34.8 | 18 | 19.6 | 92 | 100.0 | | |
| Fruit juice | 50 | 23.3 | 40 | 18.7 | 39 | 18.2 | 37 | 17.3 | 23 | 10.7 | 25 | 11.7 | 214 | 100.0 | | |
| Fruit flavored | 81 | 13.4 | 113 | 18.7 | 120 | 20.0 | 81 | 13.4 | 92 | 15.3 | 116 | 19.2 | 603 | 100.0 | | |
| Coke | - | - | 4 | 80.0 | 1 | 20.0 | - | - | - | - | - | - | 5 | 100.0 | | |
| Water | 24 | 7.3 | 128 | 39.3 | 37 | 11.3 | 10 | 3.1 | 100 | 30.7 | 27 | 8.3 | 326 | 100.0 | | |

Table 4: Distribution of beverages, favorite and dislikes of children in preschool

| | Favo | Favorite beverages | | | | | | Dislike beverages | | | | | | | |
|-------------|-----------|--------------------|-------|------|-----------------------|------|-----------|-------------------|-------|------|-----------------------|------|--------------|-------|--|
| | Breakfast | | Lunch | | Mid-afternoon meal | | Breakfast | | Lunch | | Mid-afternoon Meal | | Total sample | | |
| Types of | | | | | | | | | | | | | | | |
| beverages | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| Tea | 33 | 23.1 | 26 | 18.2 | 19 | 13.3 | 20 | 13.9 | 20 | 13.9 | 25 | 17.5 | 143 | 100.0 | |
| Linden tea | 23 | 20.5 | 16 | 14.3 | 17 | 15.2 | 19 | 16.9 | 22 | 19.6 | 15 | 13.4 | 112 | 100.0 | |
| Milk | 67 | 23.6 | 58 | 20.1 | 47 | 16.5 | 36 | 12.6 | 44 | 15.4 | 33 | 11.6 | 285 | 100.0 | |
| Buttermilk | 2 | 2.1 | 15 | 15.4 | 14 | 14.4 | 19 | 19.7 | 23 | 23.7 | 24 | 24.7 | 97 | 100.0 | |
| Fruit juice | 39 | 29.5 | 33 | 25.0 | 27 | 20.5 | 9 | 6.8 | 10 | 7.6 | 14 | 10.6 | 132 | 100.0 | |
| Soda pop | 99 | 16.7 | 96 | 16.2 | 98 | 16.5 | 115 | 19.4 | 94 | 15.9 | 91 | 15.3 | 593 | 100.0 | |
| Coke | 26 | 31.4 | 20 | 24.1 | 20 | 24.1 | - | - | 6 | 7.2 | 11 | 13.2 | 83 | 100.0 | |
| Water | 24 | 7.3 | 128 | 39.3 | 37 | 11.3 | 10 | 3.1 | 100 | 30.7 | 27 | 8.3 | 326 | 100.0 | |

for all day. Wyse and et al. (2001) found that since children are at school and parents are working they have lunch together fewest and they have dinner 7 days in a week at most. This result is parallel with findings of research conducted in similar subjects. An increase was observed in children's fruit juice consumption in breakfast, lunch and mid afternoon meals in summer and winter. It is due to children's daily physical activities depending on their ages and effect of the season. Raynor et al. (2007) found that in summer children usually drink semi skimmed milk, ice tea and fruit juice at breakfast. Vereecken and et al. (2008) determined that in preschools children are served sugared milk at breakfast and milk containing sweeteners at mid afternoon meal in summer.

It was observed that children like to drink tea. milk, fruit flavored beverages at breakfast, lunch and mid afternoon meal. Because of the traditional family culture tea is soaked for breakfast, lunch and dinner and high levels of fruit juice purchasing affects children's beverage consumption. Children like coke probably because it contains sweeteners. However this is worrisome for nutrition. It can be said that parents and teacher should be a more careful and conscious model for children's beverage consumption behaviors. In a research by Sanlier and Arikan (2002) it was determined that 2% of primary school students with different socio economic backgrounds like to drink coke and fruit juice. Isiksolugu (2001) indicated that since tea, coffee and coke, etc contains caffeine and cause addiction and also because of its negative effects of nervous and digestion

system, children should get used to drink these beverages. It was observed that children don't like to drink buttermilk drink and water at breakfast, lunch and mid afternoon meal. It can be inferred that as the consumption of beverages containing sweeteners buttermilk and water consumption decreases. When beverage consumption frequency according to seasons is examined it was determined that while parents and children usually drink fruit flavored beverages a few times in a week at lunch during summer, the drink fruit flavored beverages once in 15 days during winter at dinner. Demory-Luce et al. (2005), studied Chinese and American preschool students' eating behaviors and found that 100.0% children prefer fresh squeezed fruit juice at breakfast and granulated fruit juice containing sweeteners at snacks. In our study it was determined that in summer and winter while parents drink instant and Turkish coffee a few times a week at breakfast, children never drink Turkish coffee or instant coffee. Asik (2006) found that parents aged 30 and below drink instant coffee mostly and parents aged 30 and above drink Turkish coffee mostly. To get children adopt a health and appropriate beverage consumption habit parents and teacher should be a right and strong model. In family and school environment parents should establish an environment that stimulates children to have an appropriate beverage consumption and they should make it fun for children to adopt a healthy beverage consumption habit through games. Since mothers work most of the day they should obtain information when they get home about what kind

42.0

14.0

34.9 13 25.0 33.3 33.2 4.8 1.6 24.6 24.4 33.1 33.9 Lunch Breakfast Winter 9.0 18.2 16.7 13.4 7.5 Table 5: Beverage consumption frequency of parents and children in summer and winter (%) 16.5 12.4 13.2 15.2 22.5 22.5 50.0 39.6 27.4 24.1 30.8 8.9 8.0 10.6 46.2 48.9 69.9 69.9 16.6 21.5 71.1 22.4 25.9 12.5 22.4 24.1 9.2 83 Lunch 4.1 16.6 55.6 23.8 18.1 50.8 14.9 39.1 36.5 (1: Everyday, 2: a few times a week, 3: once in 15 days) Breakfast Summer Father Child Mother Father Mother Mother Mother Mother Mother Child Mother Mother Mother Father Father Father Father Father Father Child Child Types of beverages Turkish coffee Instant coffee Fruit flavored Tomato juice Fruit juice Linden tea

of foods and beverages that their child consumed during day time and by this way they should give beverage supplement and children's beverage need should be met.

Further research can be performed to determine if there are any differences in beverage consumption of children according to seasons and their parents' demographic characteristics by comparing public and private preschools.

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