

Eating Habits and Side-Effects of Beverages Among Adolescents in Rajasthan

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Abstract

Consumption rate of soft drinks in children and young working class has become increasingly alarming over the past few decades. This can lead to serious health abnormalities in the future. Major shift in eating habits and change in lifestyle along with less physical exercises is a serious concern. In the present study, which cold beverages are preferred, eating habits and negative effects of beverages are analysed. Sixteen cold beverages are selected in the present study. The cold beverages include carbonated (cola), flavoured water, sparkling water, iced-tea, sweetened fruit or vegetable juices and nectars, squashes, fruit punch, root beer, soda, sports and energy drinks, vitamin water drinks, fruit powders and ginger ale. The eating habits include taking breakfast daily, consumption of junk food, number of meals in a day, and impact of beverages on health.

Key Words

Beverages, Lifestyle, Eating Habits, Diseases

INTRODUCTION

The urbanisation and economic development have brought about a major shift in eating habits from a traditional to a westernized diet, where the quality and quantity of food have changed. This has been accompanied by an increase in consumption of heavily processed and highly caloric foods such as breakfast cereals, candy, bakery products, and sweetened beverages. Out of these products, soft drinks have come to light as having a drastic rise in consumption especially

in children and young working class. This rising consumption of energy dense foods has led to the displacement of essential nutrients from the diet. The unhealthy diet along with a lack of physical activity has been linked to the onset of many non-communicable diseases. National surveillance also shows that these unhealthy lifestyles are already an issue among the children and youth.

REVIEW OF LITERATURE

Taste preferences and soft drink purchasing habits of parents can also influence beverage consumption of children (Grimm *et al.*, 2004; Patrick and Nicklas, 2005; De Bruijn *et al.*, 2007, Wouters *et al.*, 2010). Sweetened beverages can also be consumed as snacks at friends' homes or in fast-food restaurants. Grimm *et al.* (2004) reported that 80% of children stated that carbonated soft drinks were readily available in the home and if parents regularly drank carbonated soft drinks, children were almost "three times more likely to consume carbonated soft drinks five or more times per week". This was also linked to parental education. Children belonging to families with less parental education were more likely to have relaxed restrictions on the consumption of soft drinks (Nilson *et al.*, 2010).

The social habit of breakfast consumption is an important daily event which can affect the probability and frequency of increasing or decreasing the prevalence of eating breakfast. Michelson (1999), in the USA, found that 81.4% of breakfast-eaters prepared their own meal. Moreover, Paxson and Schady (2007), in Ecuador, stated that children are more active in food purchasing and preparation when they belong to a single-parent family or when their parents go to work earlier; that is, before their child's breakfast time. Levin *et al.* (2012), in Scotland, discussed this phenomenon and found that breakfast consumption occurred less frequently when eaten alone and with no participation from the family.

School children appear to have many excuses and reasons for skipping breakfast (ALBashtawy, 2015; Isaksson *et al.*, 2011). According to Bagwell (2000), most of the breakfast skippers are busy until late into the night, with variety of interest. They go to bed late most of the time, get up in a hurry and then rush off to school; as a result, breakfast is missed (Bagwell, 2000).

Several research studies have been showed to analyse breakfast skipping among school children. Numerous of studies indicate that breakfast skipping appeared greater between girls than boys (Haddad *et al.*, 2009; Buxton, 2014) in contrast, other studies showed no differences between boys and girls (Yahia *et al.*, 2008; A L Bashtawy, 2015). This variation and inconsistencies between boys and girls may be explained by different culture, age groups, race and variety of studies designs (Mullan and Singh, 2010).

METHODOLOGY OF THE STUDY

Objectives of the Study

- To determine the patterns of soft drink consumption among adolescents.
- To identify the socio-environmental factors associated with the consumption of soft drinks among adolescents.

Data

The study was conducted in Jaipur, Rajasthan, India. These respondents were more than 12 years of age. No discrimination was made between genders for participation in the study. Thus, both males and females were included in the study. The total number of the respondents in the targeted sample was 400. The respondents below 12 were not included in the study as they would not have sufficient knowledge about the health effects involved in the increased consumption of soft drinks and would not be able to comprehend and answer the questions pertaining to this matter. Descriptive statistics were used to analyze frequencies and contingency Table are computed. Chi-square test was used to determine associations between variables. Each computed statistical value was compared to the critical value in the statistical Table to determine its significance. Only the 382 questionnaires which had been correctly and fully completed were used for statistical analysis. Data were cleaned, coded and transferred into SPSS 22 for analysis.

ANALYSIS AND RESULTS

Table 1 provides the preference of respondents on the basis of gender. Carbonated drinks are the most favoured cold drinks among males (34.3%) and females (29.6%) followed by squashes 24.1 per cent in males and 16.7 per cent in females. Third preferred cold drink is sweetened fruit juices (21.3%) in case of males and in females iced-tea / cold coffee (11.1%). The four cold drinks, namely carbonated drinks, squashes, fruit juices and iced tea / iced coffee are most popular among males and females. The least preferred cold drinks are ginger ale, root beer, vitamin water drinks, flavoured water and sparkling water.

Overall, 63.9 per cent of the respondents gave first preference to carbonated drinks followed by squashes (40.7%), sweetened fruit juices (29.6%), iced tea / iced coffee (25.9%), soda (22.2%), and sweetened vegetable juices (21.3%). In rest of the drinks, less than twenty per cent of the respondents gave their preference.

Table 1

| | Gender | | | | Total | |
|----------------------------|------------|--------------|------------|--------------|------------|---------------|
| | Male | | Female | | | |
| Carbonated Drinks (Cola) | 111 | 34.3% | 96 | 29.6% | 207 | 63.9% |
| Flavored Water | 21 | 6.5% | 15 | 4.6% | 36 | 11.1% |
| Sparkling Water | 18 | 5.6% | 21 | 6.5% | 39 | 12.0% |
| Iced Tea / Cold Coffee | 48 | 14.8% | 36 | 11.1% | 84 | 25.9% |
| Sweetened Fruit Juices | 69 | 21.3% | 27 | 8.3% | 96 | 29.6% |
| Sweetened Fruit Nectars | 39 | 12.0% | 18 | 5.6% | 57 | 17.6% |
| Sweetened Vegetable Juices | 48 | 14.8% | 21 | 6.5% | 69 | 21.3% |
| Vegetable Nectars | 24 | 7.4% | 21 | 6.5% | 45 | 13.9% |
| Squashes | 78 | 24.1% | 54 | 16.7% | 132 | 40.7% |
| Fruit Punch | 18 | 5.6% | 18 | 5.6% | 36 | 11.1% |
| Sodas | 48 | 14.8% | 24 | 7.4% | 72 | 22.2% |
| Fruit Powders | 18 | 5.6% | 12 | 3.7% | 30 | 9.3% |
| Sports and Energy Drinks | 36 | 11.1% | 21 | 6.5% | 57 | 17.6% |
| Vitamin Water Drinks | 21 | 6.5% | 24 | 7.4% | 45 | 13.9% |
| Root Beer | 3 | 0.9% | 3 | 0.9% | 6 | 1.9% |
| Ginger Ale | 9 | 2.8% | 0 | 0.0% | 9 | 2.8% |
| Total | 180 | 55.6% | 144 | 44.4% | 324 | 100.0% |

Note : Percentages and totals are based on respondents.

Eating Habits

The eating habits are studied and the consumption of beverages among the respondents. The respondents were asked the following questions in order to assess their consumption patterns, perceptions and attitudes.

- How often do you eat breakfast before going to school/work?
- How many meals do you usually eat?
- How often do you eat fast food?
- In a week do you exercise or participate in any physical activity for at least 20 minutes
- Do your family members ever discourage you from drinking soft drinks? In order to address the above questions, the respondents' responses were cross-tabulated with variables like : gender, background and age. Chi-square test statistic depicted the significance of the association with the corresponding variables.

Association of Eating Breakfast with Demographics

In order to analyze the consumption pattern of beverages, the respondents' dietary habits were analyzed. In this section, we will analyze the breakfast consumption pattern with the demographics of the respondents: It is observed that most of the respondents miss the breakfast due to busy schedule. Hence, in the present study, how many people take breakfast in the morning regularly, few times in a week or once in a week. This aspect is analyzed with respect to gender, background, age and level of education.

Eating Breakfast Before Going to School/Work and Gender

Majority of respondents take breakfast (54.4 per cent) every morning. Females are more particular in comparison to males in taking breakfast every morning. 35.5 per cent of the males take breakfast few times in a week whereas 20.8 per cent females take breakfast few times in a week. Taking breakfast once in a week is reported by 16.5 per cent of the respondents. Taking breakfast once in week is nearly same in males and females.

Since Chi-square value is higher than Table value at 2 degrees of freedom. The p-value is 0.011 which is less than 0.05. this provides a sufficient evidence to reject the null hypothesis. Hence, there is a significant difference in the responses of males and females. Females appear to be more conscious in taking breakfast than males.

Table 2

| | Gender | | Total |
|------------------------|---------------|---------------|---------------|
| | Male | Female | |
| Every Morning | 88 | 90 | 178 |
| | 48.1% | 62.5% | 54.4% |
| Few Times in a Week | 65 | 30 | 95 |
| | 35.5% | 20.8% | 29.1% |
| Once in a Week or Less | 30 | 24 | 54 |
| | 16.4% | 16.7% | 16.5% |
| Total | 183 | 144 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 9.061, df = 2, p-value = 0.011

Eating Breakfast Before Going to School/Work and Background

When respondents' breakfast-eating habit was analyzed with background of the respondents, then it was observed that 66.7 per cent of the

rural background people have breakfast as compared to 46.8 per cent of the urban respondents. Also, the same pattern is observed in the category few times in a week, suggesting that rural people very rarely miss their breakfast (11.9 per cent) whereas the urban respondents have 39.8 per cent only. The Chi-square value also is also very high 29.379 and the corresponding p-value is .000 which is certainly less than .05, hence forcing us to reject null hypothesis. There is significant difference between the breakfast consumption pattern of rural and urban respondents. Rural people are more particular in taking breakfast than urban people.

Table 3

| | Background | | Total |
|------------------------|---------------|---------------|---------------|
| | Rural | Urban | |
| Every Morning | 84 | 94 | 178 |
| | 66.7% | 46.8% | 54.4% |
| Few Times in a Week | 15 | 80 | 95 |
| | 11.9% | 39.8% | 29.1% |
| Once in a Week or Less | 27 | 27 | 54 |
| | 21.4% | 13.4% | 16.5% |
| Total | 126 | 201 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 29.379, df = 2, p-value = 0.000

Eating Breakfast Before Going to School/Work and Age

Almost the same pattern is observed when eating breakfast before going to school was compared with age distribution of the respondents, 52.7 per cent of the students less than 20 years of age reported that they have breakfast every morning while 56.1 per cent of the students between 20-35 years of age reported that they had breakfast every day. Similarly, 31.2 per cent of the respondents less than 20 years of age stated they have breakfast few times in a week as compared to 28.8 per cent of the respondents who are in the age bracket of 20-35 years. Moreover, the Chi-square test statistic is 0.657 which is greater than .05, hence the null hypothesis is accepted. There is no significant relationship between eating breakfast before going to school and age of the respondents.

Table 4

| | Age | | | Total |
|------------------------|---------------|---------------|---------------|---------------|
| | <20 | 20-35 | 35-50 | |
| Every Morning | 49 | 111 | 18 | 178 |
| | 52.7% | 56.1% | 50.0% | 54.4% |
| Few Times in a Week | 29 | 57 | 9 | 95 |
| | 31.2% | 28.8% | 25.0% | 29.1% |
| Once in a Week or Less | 15 | 30 | 9 | 54 |
| | 16.1% | 15.2% | 25.0% | 16.5% |
| Total | 93 | 198 | 36 | 327 |
| | 100.0% | 100.0% | 100.0% | 100.0% |

Chi-square = 2.433, df =4, p-value = 0.657

Association of Number of Meals Taken During a Day with Demographics

Number of Meals Usually Eaten During a Day and Gender

When compared with number of meals' consumption gender-wise, then it is observed that there is significant difference between the categories. 54.1 per cent male respondents reported that they have meals 2 times a day as compared to females only 37.5 per cent. Similarly, 24.6 per cent male respondents reported that they have meals 3 times a day as compared to

Table 5

| Number of Meals | Gender | | Total |
|-----------------|---------------|---------------|---------------|
| | Male | Female | |
| 1 | 30 | 9 | 39 |
| | 16.4% | 6.3% | 11.9% |
| 2 | 99 | 54 | 153 |
| | 54.1% | 37.5% | 46.8% |
| 3 | 45 | 78 | 123 |
| | 24.6% | 54.2% | 37.6% |
| 4 | 9 | 3 | 12 |
| | 4.9% | 2.1% | 3.7% |
| Total | 183 | 144 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 32.203, df = 3, p-value = 0.000

females 54.2 per cent. Moreover, the Chi-square value with 3 degrees of freedom is 32.203 and p-value is less than .05 that is 0.000, this provides a sufficient evidence to reject the null hypothesis. Hence, there is a significant difference in the responses of males and females. Females appear to be more particular in taking three meals in a day than males.

Number of Meals Usually Eaten During a Day and Background

When compared the number of meals with the background, then it is observed that both rural and urban respondents have similar pattern in the number of meal consumption. 38.1 per cent rural respondents reported that they consume three meals per day as compared to 37.3 per cent urban respondents. Similarly, the difference is negligible in other meal consumption categories too. The same observation is further confirmed through Chi-square p-value which is greater than 0.05 i.e. 0.510, hence the difference is not significant. It reveals there is no significant relationship between the number of meals consumption pattern between urban and rural respondents.

Table 6

| Number of Meals | Background | | Total |
|-----------------|---------------|---------------|---------------|
| | Rural | Urban | |
| 1 | 18 | 21 | 39 |
| | 14.3% | 10.4% | 11.9% |
| 2 | 54 | 99 | 153 |
| | 42.9% | 49.3% | 46.8% |
| 3 | 48 | 75 | 123 |
| | 38.1% | 37.3% | 37.6% |
| 4 | 6 | 6 | 12 |
| | 4.8% | 3.0% | 3.7% |
| Total | 126 | 201 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 2.313, df = 3, p-value = 0.510 Chi-square = 27.565, df = 9, p-value = 0.001

Number of Meals Usually Eaten During a Day and Age

On comparing the number of meals categories age-wise, it is observed that less age group respondents prefer to have 2 meals a day, whereas 42.4 per cent respondents in age bracket of 20-35 years consume three meals as compared to 25 per cent in 35-50 age category. The Chi-square value is also very high with 43.920 value, degree of freedom 5 and p-value is 0.000. This provides a sufficient evidence to reject the null hypothesis. Hence, there is a significant difference in the

responses of respondents in terms of age levels and no of meals taken in a day. As less than 20 years and 20 to 35 age groups have a tendency for two meals in a day. Majority of the respondents in age group greater than 35 have one meal per day. There is a sufficient evidence that there is association between age and no of meals taken per day.

Table 7

| Number of Meals | Age | | | Total |
|-----------------|---------------|---------------|---------------|---------------|
| | <20 | 20-35 | 35-50 | |
| 1 | 15 | 9 | 15 | 39 |
| | 16.1% | 4.5% | 41.7% | 11.9% |
| 2 | 45 | 96 | 12 | 153 |
| | 48.4% | 48.5% | 33.3% | 46.8% |
| 3 | 30 | 84 | 9 | 123 |
| | 32.3% | 42.4% | 25.0% | 37.6% |
| 4 | 3 | 9 | 0 | 12 |
| | 3.2% | 4.5% | 0.0% | 3.7% |
| Total | 93 | 198 | 36 | 327 |
| | 100.0% | 100.0% | 100.0% | 100.0% |

Chi-square = 43.920, df = 6, p-value = 0.000

Association of Eating Fast Food with Demographics

Frequency of Eating Fast Food and Gender

There is a marked difference between the frequency of eating fast food among males and females. 52.5 per cent of the male respondents reported occasionally taking fast food while 8.2 per cent said never. Similarly, 54.2 per cent of female respondents reported occasionally and 12.5 per cent reported never. Female respondents are less interested in fast food than males. The significant difference among males and females' responses is supported by Chi-square p-value also which is 0.026. Since it is less than .05, hence we will reject the null hypothesis and will conclude that there is difference in their opinion of frequency of eating fast food among males and females. Females are less interested in fast foods than males.

Table 8

| | Gender | | Total |
|------------------|---------------|---------------|---------------|
| | Male | Female | |
| Never | 15 | 18 | 33 |
| | 8.2% | 12.5% | 10.1% |
| Occasionally | 96 | 78 | 174 |
| | 52.5% | 54.2% | 53.2% |
| Once in a Week | 36 | 27 | 63 |
| | 19.7% | 18.8% | 19.3% |
| 2-3 Times a Week | 18 | 12 | 30 |
| | 9.8% | 8.3% | 9.2% |
| Once in a Week | 12 | 0 | 12 |
| | 6.6% | 0.0% | 3.7% |
| More Often | 6 | 9 | 15 |
| | 3.3% | 6.3% | 4.6% |
| Total | 183 | 144 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 12.751, df = 5, p-value = 0.026

Frequency of Eating Fast Food and Background

When frequency of eating fast food is compared with the background of the respondents then, it is analyzed that there is a statistically significant difference between the rural and urban respondents. 14.3 per cent rural respondents reported that they never have fast food as compared to urban only 7.5 per cent. Also, 52.5 per cent of the rural and 53.7 per cent urban respondents reported occasionally taking fast food. The Chi-square test statistic is .057 and hence we accept the null hypothesis and will conclude that there is no significant difference in the opinion of rural and urban respondents regarding fast food.

Table 9

| | Background | | Total |
|--------------|------------|-------|-------|
| | Rural | Urban | |
| Never | 18 | 15 | 33 |
| | 14.3% | 7.5% | 10.1% |
| Occasionally | 66 | 108 | 174 |
| | 52.4% | 53.7% | 53.2% |

Contd.

Contd. Table 9

| | | | |
|------------------|---------------|---------------|---------------|
| Once in a Week | 18 | 45 | 63 |
| | 14.3% | 22.4% | 19.3% |
| 2-3 Times a Week | 15 | 15 | 30 |
| | 11.9% | 7.5% | 9.2% |
| Once in a Week | 6 | 6 | 12 |
| | 4.8% | 3.0% | 3.7% |
| More Often | 3 | 12 | 15 |
| | 2.4% | 6.0% | 4.6% |
| Total | 126 | 201 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 10.746, df = 5, p-value = 0.057

Frequency of Eating Fast Food and Age

The frequency of eating fast food shows variation within the age categories, too. In 20-35 yrs of age category, 4.5% respondents reported never whereas 60.6% reported occasionally and 16.7% reported once in a week.

Table 10

| | Age | | | Total |
|------------------|---------------|---------------|---------------|---------------|
| | <20 | 20-35 | 35-50 | |
| Never | 15 | 9 | 9 | 33 |
| | 16.1% | 4.5% | 25.0% | 10.1% |
| Occasionally | 45 | 120 | 9 | 174 |
| | 48.4% | 60.6% | 25.0% | 53.2% |
| Once in a Week | 21 | 33 | 9 | 63 |
| | 22.6% | 16.7% | 25.0% | 19.3% |
| 2-3 Times a Week | 3 | 21 | 6 | 30 |
| | 3.2% | 10.6% | 16.7% | 9.2% |
| Once in a Week | 3 | 6 | 3 | 12 |
| | 3.2% | 3.0% | 8.3% | 3.7% |
| More Often | 6 | 9 | 0 | 15 |
| | 6.5% | 4.5% | 0.0% | 4.6% |
| Total | 93 | 198 | 36 | 327 |
| | 100.0% | 100.0% | 100.0% | 100.0% |

Chi-square = 37.981, df = 10, p-value = 0.000

Similarly in less than 20 yrs of age category, 16.1% of the respondents reported never, 48.4% reported occasionally and 3.2% respondents reported 2-3 times a week. The Chi-square test statistic is highly significant .000 and hence, we reject the null hypothesis and conclude that there is significant difference between the frequency of eating fast food in different age categories.

Association of Exercise / Physical Activity and Demographics

Exercise or Physical Activity in a Week and Gender

Table 11 shows that males are better off in a doing physical activity (73.8%) as compared to their female counterparts (62.5%) resulting in overall response rate of 68.8%. The Chi-square test statistic is also significant .029, leading us to reject null hypothesis and forcing us to conclude that there is a significant difference in the response rate of males vs females as males are better off in doing physical activity as compared to females.

Table 11

| | Gender | | Total |
|--------------|---------------|---------------|---------------|
| | Male | Female | |
| Yes | 135 | 90 | 225 |
| | 73.8% | 62.5% | 68.8% |
| No | 48 | 54 | 102 |
| | 26.2% | 37.5% | 31.2% |
| Total | 183 | 144 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 4.769, df = 1, p-value = 0.029

Exercise or Physical Activity in a Week and Background

While analyzing background wise the act of doing physical activity it is observed that there is no significant difference between the rural and urban background and both are equally well in doing physical activity, rural do bit more (73.8%) as compared to Urban respondents (68.8%) and the same is also evident by Chi-square test statistic 0.122, which is greater than .05 and hence stating that there is no significant difference between the responses of rural an urban as far as exercise or physical activity is concerned.

Table 12

| | Background | | Total |
|--------------|---------------|---------------|---------------|
| | Rural | Urban | |
| Yes | 93 | 132 | 225 |
| | 73.8% | 65.7% | 68.8% |
| No | 33 | 69 | 102 |
| | 26.2% | 34.3% | 31.2% |
| Total | 126 | 201 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 2.390, df = 1, p-value = 0.122

Exercise or Physical Activity in a Week and Age

The same trend is observed when we analyze the physical activity association with the age group of respondents. In all the age groups, almost same pattern of response rate is observed, In less than 20 yrs of age, 74.2% response rate is observed where as in the 20-35 yrs of age category 66.7% and in 35-50 yrs age bracket 66.7% response rate is observed. Hence, the response rate is almost uniform in all the categories and there is no difference in the categories forcing us to conclude that there is no statistically significant difference as p-value is 0.415 which is greater than .05 and hence we accept the null hypothesis and conclude that there is no significant relationship between exercise or physical activity and age groups of the respondents.

Table 13

| | Age | | | Total |
|--------------|---------------|---------------|---------------|---------------|
| | <20 | 20-35 | 35-50 | |
| Yes | 69 | 132 | 24 | 225 |
| | 74.2% | 66.7% | 66.7% | 68.8% |
| No | 24 | 66 | 12 | 102 |
| | 25.8% | 33.3% | 33.3% | 31.2% |
| Total | 93 | 198 | 36 | 327 |
| | 100.0% | 100.0% | 100.0% | 100.0% |

Chi-square = 1.757, df = 2, p-value = 0.415

Family Members Discourage Drinking Soft Drinks

Family Members Ever Discourage from Drinking Soft Drinks and Gender

It is observed that the family members invariably discourage for soft drink consumption especially male respondents reported that nearly 52.5% times family members discourage for soft drinks and female respondents in the same category reported for 43.8%. Also, 22.9% females reported that the family always discourage them while in the "always" category 13.1% males reported the same. The Chi-square value is also high 25.650 with df 4 and p- value .000. which is certainly less than .05, hence the test is significant i.e. the relationship between the gender and family members discouraging is significant.

Table 14

| | Gender | | Total |
|--------------|---------------|---------------|---------------|
| | Male | Female | |
| Never | 21 | 0 | 21 |
| | 11.5% | 0.0% | 6.4% |
| Rarely | 24 | 30 | 54 |
| | 13.1% | 20.8% | 16.5% |
| Sometimes | 96 | 63 | 159 |
| | 52.5% | 43.8% | 48.6% |
| Usually | 18 | 18 | 36 |
| | 9.8% | 12.5% | 11.0% |
| Always | 24 | 33 | 57 |
| | 13.1% | 22.9% | 17.4% |
| Total | 183 | 144 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 25.650, df = 4, p-value = 0.000

Family Members Ever Discourage from Drinking Soft Drinks and Background

It is observed that even the background also influences in discouraging the soft drink consumption. Rural respondents reported 54.8% that their family members discourages the soft drink consumption while urban respondents reported 44.8% .In always category , rural respondents reported 11.9% times while urban respondents reported 20.9% times their family members discouraged the soft drink consumption. The same observation is validated by the Chi-square p-value too

which .055 which is significant i.e. the relationship between the background and family members discouraging is significant.

Table 15

| | Background | | Total |
|--------------|---------------|---------------|---------------|
| | Rural | Urban | |
| Never | 12 | 9 | 21 |
| | 9.5% | 4.5% | 6.4% |
| Rarely | 18 | 36 | 54 |
| | 14.3% | 17.9% | 16.5% |
| Sometimes | 69 | 90 | 159 |
| | 54.8% | 44.8% | 48.6% |
| Usually | 12 | 24 | 36 |
| | 9.5% | 11.9% | 11.0% |
| Always | 15 | 42 | 57 |
| | 11.9% | 20.9% | 17.4% |
| Total | 126 | 201 | 327 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 9.278, df = 4, p-value = 0.055

Family Members Ever Discourage from Drinking Soft Drinks and Age

When discouragement is analysed with the age group of the respondents, then it is observed that the age bracket of 20-35 yrs reported high in all the categories indicating, the responsive behavior of them whereas less than 20 yrs age respondents response percentage is very low. In the 20-35 yrs age category 39.4% response rate is observed in "sometimes" category while in "always" category it is 25.8%. In the 35-50 yrs. age bracket highest recorded percentage is in "sometimes" category i.e.83.3%. Also, the Chi-square value is very high 66.857 with df=8 and p-value 0.000 which is highly significant i.e. the relationship between the age level and family members discouraging is significant.

Table 16

| | Age | | | Total |
|--------------|---------------|---------------|---------------|---------------|
| | <20 | 20-35 | 35-50 | |
| Never | 6 | 15 | 0 | 21 |
| | 6.5% | 7.6% | 0.0% | 6.4% |
| Rarely | 30 | 24 | 0 | 54 |
| | 32.3% | 12.1% | 0.0% | 16.5% |
| Sometimes | 51 | 78 | 30 | 159 |
| | 54.8% | 39.4% | 83.3% | 48.6% |
| Usually | 3 | 30 | 3 | 36 |
| | 3.2% | 15.2% | 8.3% | 11.0% |
| Always | 3 | 51 | 3 | 57 |
| | 3.2% | 25.8% | 8.3% | 17.4% |
| Total | 93 | 198 | 36 | 327 |
| | 100.0% | 100.0% | 100.0% | 100.0% |

Chi-square = 66.857, df = 8, p-value = 0.000

Increased Drinking of Soft Drinks Causes Harm and Gender

In context to the increased drinking of soft drinks and gender is depicted in Table 17. Both males (91.7%) and females (93.6%) agreed that soft drinks have ill effects. Only 6.7 per cent of males and 4.3 per cent of the females did not agree that consumption does not lead to ill health. Chi-square value is very low and p-value is greater than 0.05. The test accepts the null hypothesis, hence there is

Table 17

| | Gender | | Total |
|--------------|---------------|---------------|---------------|
| | Male | Female | |
| True | 165 | 132 | 297 |
| | 91.7% | 93.6% | 92.5% |
| False | 12 | 6 | 18 |
| | 6.7% | 4.3% | 5.6% |
| Do Not Know | 3 | 3 | 6 |
| | 1.7% | 2.1% | 1.9% |
| Total | 180 | 141 | 321 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 0.942, df = 2, p-value = 0.624

no difference in the opinion of males and females regarding increased consumption of soft drinks and ill effect on the health.

Increased Drinking of Soft Drinks Causes Harm and Background

Rural (90.5%) and urban (93.8%) agreed with the opinion that consumption of soft drinks have harmful effect on our body. 7.1 per cent of the rural and 4.6 per cent of the urban respondents did not agree with the aforesaid opinion. Like gender, it was observed that null hypothesis is accepted (p-value 0.534) for background too with the increased drinking of soft drinks leads to ill health. Both rural and urban respondents' have same opinion with respect to increased consumption of soft drinks leads to ill health.

Table 18

| | Background | | Total |
|--------------|---------------|---------------|---------------|
| | Rural | Urban | |
| True | 114 | 183 | 297 |
| | 90.5% | 93.8% | 92.5% |
| False | 9 | 9 | 18 |
| | 7.1% | 4.6% | 5.6% |
| Do Not Know | 3 | 3 | 6 |
| | 2.4% | 1.5% | 1.9% |
| Total | 126 | 195 | 321 |
| | 100.0% | 100.0% | 100.0% |

Chi-square = 1.257, df = 2, p-value = 0.534

Increased Consumption of Soft Drinks and Side-effects

Overweight and obesity has been rated as the number one side-effect of soft drinks by both males and females. Diabetes was rated as number two side-effect by males and females. Dental decay as number three side-effect.

Table 19

| | Gender | | | | | |
|------------------------|--------|-------|--------|-------|-------|-------|
| | Male | %age | Female | %age | Total | %age |
| Overweight and Obesity | 108 | 15.38 | 87 | 17.06 | 195 | 16.09 |
| Skin Cancer | 42 | 5.98 | 21 | 4.12 | 63 | 5.20 |
| Pain in Joints | 51 | 7.26 | 36 | 7.06 | 87 | 7.18 |
| Weak Eye Vision | 45 | 6.41 | 30 | 5.88 | 75 | 6.19 |
| Dental (Tooth) Decay | 84 | 11.97 | 72 | 14.12 | 156 | 12.87 |
| Weak Bones | 81 | 11.54 | 57 | 11.18 | 138 | 11.39 |
| Diabetes | 93 | 13.25 | 66 | 12.94 | 159 | 13.12 |
| High Blood Pressure | 54 | 7.69 | 33 | 6.47 | 87 | 7.18 |
| Kidney Stones | 42 | 5.98 | 24 | 4.71 | 66 | 5.45 |
| Darkening of Skin | 24 | 3.42 | 6 | 1.18 | 30 | 2.48 |
| Addiction | 48 | 6.84 | 60 | 11.76 | 108 | 8.91 |
| Fracture of Bones | 30 | 4.27 | 18 | 3.53 | 48 | 3.96 |

Increased Consumption of Soft Drinks and Side-effects (On the Basis of Background)

Both rural (14.11 per cent) and urban (17.43 per cent) rated overweight and obesity as the number one side-effect followed by diabetes, dental (tooth) decay and weak bones. While Diabetes and dental decay is rated as the number two and

Table 20

| | Background | | | | | |
|------------------------|------------|-------|-------|-------|-------|-------|
| | Rural | %age | Urban | %age | Total | %age |
| Overweight and Obesity | 69 | 14.11 | 126 | 17.43 | 195 | 16.09 |
| Skin Cancer | 39 | 7.98 | 24 | 3.32 | 63 | 5.20 |
| Pain in Joints | 36 | 7.36 | 51 | 7.05 | 87 | 7.18 |
| Weak Eye Vision | 30 | 6.13 | 45 | 6.22 | 75 | 6.19 |
| Dental (Tooth) Decay | 60 | 12.27 | 96 | 13.28 | 156 | 12.87 |
| Weak Bones | 63 | 12.88 | 75 | 10.37 | 138 | 11.39 |
| Diabetes | 57 | 11.66 | 102 | 14.11 | 159 | 13.12 |
| High Blood Pressure | 27 | 5.52 | 60 | 8.30 | 87 | 7.18 |
| Kidney Stones | 30 | 6.13 | 36 | 4.98 | 66 | 5.45 |
| Darkening of Skin | 12 | 2.45 | 18 | 2.49 | 30 | 2.48 |
| Addiction | 39 | 7.98 | 69 | 9.54 | 108 | 8.91 |
| Fracture of Bones | 27 | 5.52 | 21 | 2.90 | 48 | 3.96 |

number three side-effect by Urban respondents and rural respondents. There is slight difference in ranks in urban and rural respondents but overall opinion is more or less same. Regarding other side effects / diseases, less than 10 per cent of respondents irrespective of background agreed that soft drinks consumption leads to these diseases.

CONCLUSION

Overall, the respondents gave first preference to carbonated drinks followed by squashes, sweetened fruits juices, iced-tea/iced-coffee, soda and sweetened vegetable juices. In rest of the drinks, less than twenty per cent of the respondents gave their preference.

Females are more particular in comparison to males in taking breakfast every morning. Rural people are more concerned with breakfast as compared to urban respondents. When compared with number of meals consumption gender-wise, then it is observed that females are more conscious about taking three meals than males. When compared the number of meals with the background then it is observed that both rural and urban respondents have similar pattern in the number of meal consumption.

It is observed that female respondents take more meals with their family always as compared to males. Nearly 9 per cent of the males and females never take their meals with family. Overall, 38 per cent of the respondents take their meals with family. There is a significant difference in meal consumption with family members between males and females. It is observed that there is not much of a difference between rural and urban respondents' response in terms of having meals with their family members.

Males are better off in doing physical activity as compared to their female counterparts. While analyzing background-wise the act of doing physical activity it is observed that there is no significant difference between the rural and urban. Rural people do bit more as compared to urban respondents, but statistically there is no significant difference in their opinion. The same trend is observed when we analyze the physical activity association with the age group of respondents. In all the age groups, almost same pattern of response rate is observed.

Overweight and obesity has been rated as the number one side-effect of soft drinks by both males and females. Diabetes was rated as number two side-effect by males and females. Dental decay as number three side-effect. There is slightly difference in ranks in urban and rural respondents but overall opinion is more or less same.

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