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Consumption Pattern of Fruit Juices among College Girls

Leena Jatrana
Lecturer,
Deptt. of Home Science,
Govt. Girls College,
Gurgaon

Abstract

Sugar today is a relevant ingredient in many food and beverage products. The beverage market today hosts an abundance of sugar sweetened beverages, including a wide range of packaged fruit juices. Sugar-sweetened beverages provide little nutritional benefit and amplify weight gain and probably the risk of diabetes, fractures, and dental caries. The present study was undertaken with the objective of studying the consumption pattern of fruit juices among college girls in Gurgaon city. Consumption pattern was obtained using an interview schedule and dietary analysis on a sample of 100 college girls, 50 each from two different colleges. Low cost emerged as the main reason for preference of packaged fruit juices. A significant association ($p < 0.05$) was obtained between BMI of respondents and amount of fruit juices consumed at a time. Regular consumption of sugar sweetened beverages should not be encouraged and need to be replaced by other healthier options such as low fat milk, green tea etc, as it can cause weight changes and affect the BMI status of an individual which can ultimately increase the risk for various chronic diseases.

Keywords: Sugar-Sweetened Beverages, Packaged Fruit Juices, Diabetes, BMI, Chronic Diseases, Consumption Pattern, Weight Gain Dental Caries.

Introduction

Sugars are basically carbohydrates. Sugars are a ubiquitous component of our food supply and are consumed as a naturally occurring component of a lot of foods and as add-ons to foods during processing, preparation, or at the table (Murphy and Johnson, 2003). However, harmful health effects may occur when sugars are consumed in large amounts.

Excess of sugary foods may lead to obesity and elevated blood lipids. For prevention of diet-related chronic diseases, sugars should be used sparingly (Dietary guidelines for Indians, NIN, 2012). NIN recommends about 20gm /d (4 teaspoons) or 100 calories of sugar intake for both men and women with sedentary lifestyle. **Sugar-sweetened beverages** (SSBs) are drinks sweetened with sugar, high-fructose corn syrup, or other caloric sweeteners, and include soft drinks, fruit drinks, iced tea, and energy and vitamin water drinks. Processed and packaged fruit juices have now become a permanent item in the household grocery purchase. In India fruit juice market is about Rs 100 crores, which is rising each day.

The consumption of sugar-sweetened beverages has been linked and shown to increase the risks for obesity, diabetes, and heart disease; therefore, a compelling case can be made for the need for reduced consumption of these beverages (Malik et al, 2006; Vartanian et al, 2007). A direct association exist between adulthood overweight and BMI and an increase in consumption of sugar-sweetened soft drinks in young women (Nissinen et al, 2009).Regular consumption of SSBs is associated with a higher risk of Chronic heart disease in women, even after other unhealthy lifestyle or dietary factors are accounted for. (Fung et al, 2009).

Objective

In the present retail scenario, a young adult entering a shop has a wide variety of beverages (fruit juices) to choose from. However there is a scarcity of data on customer's perception about them and the factors which drive or influence customers to purchase them. As the consumption pattern of these beverages is expected to be high among college girls. Therefore, the present study was undertaken with the objective to ascertain the consumption pattern of these beverages in college going girls.

Methodology

The study focused on studying the consumption pattern of fruit juices among college girls. It refers to trends in consumption of products by real/actual consumers and factors influencing the same. The study was conducted in months of January 2014 and February 2014.

Locale of Investigation

The study was conducted on college going girls.

Sampling Procedure

Purposive sampling technique was employed. Respondents who were keen, willing and could be persuaded to participate were included in the sample.

Sample Size

Sample consisted of 100 subjects (college-going girls), 50 each from both the colleges.

Tools and Techniques

Interview

A standardized interview schedule was developed and pretested on a sample of ten subjects. It was modified accordingly before administration.

Anthropometric Measurements

In this study anthropometric parameters including weight and height were measured using standardized equipments and techniques for the 100 subjects.

Dietary Assessment

The questionnaire developed was used to elicit dietary data of the subjects. This data was gathered in three forms: Questionnaires (close ended), 24-hour diet recall and a food frequency questionnaire.

Statistical Treatment of Data

1. All the data collected both quantitative and qualitative was consolidated and systematically coded in Microsoft excel 2007.
2. All the statistical tests were performed at 5% level of significance, using SPSS version 16.
3. Chi square was used to establish a relation between :
   a. Amount of beverages (fruit juices and soft drinks) consumed and BMI status of the respondents.
   b. Living status of respondents and frequency of consumption of juices.
   c. Pocket money received and frequency of consumption of juices.
   d. Living status and frequency of consumption of soft drinks.

Results

The consumption pattern was studied on a sample of 100 college girls selected on the basis of their willingness to participate in the study. The objective was to determine the pattern in consumption of carbonated sodas and factors influencing their choice of selection.

Profile of Respondents

Age

The mean age of the selected college girls was 20.67 years. The maximum age was 25 years (n=1) and minimum age was 18 years (n=5)

Anthropometric Profile

Height and weight of respondents (n=100) was taken in triplicates, from which BMI (Body Mass Index) was computed. The anthropometric profile of the respondents is shown in Table 1.

Table 1

Anthropometric Profile of the Respondents

Variable	Mean± SD	Minimum Value	Maximum Value
Height (m)	1.59±0.0439	1.52	1.72
Weight (Kg)	53.29±6.6215	40	80
BMI (Kg/m²)	21.10±2.4312	16.6	31.3

On the basis of current WHO BMI cut-off points for Asians (Lancet 2004), the respondents were categorized as underweight, normal, overweight and obese. 78 out of 100 respondents were found to be having normal BMI as per WHO cut-offs, while 11 were underweight and 8 were found to be overweight and 3 were obese.

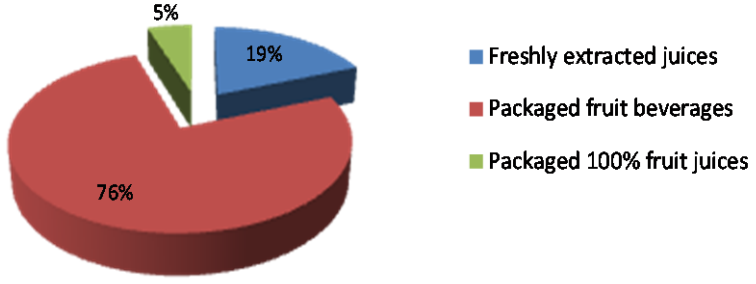
Intake Pattern

It was found that 94 out of 100 respondents consumed fruit juices while 6 did not consume any kind of fruit juice at all.

Type of Fruit Juices Preferred

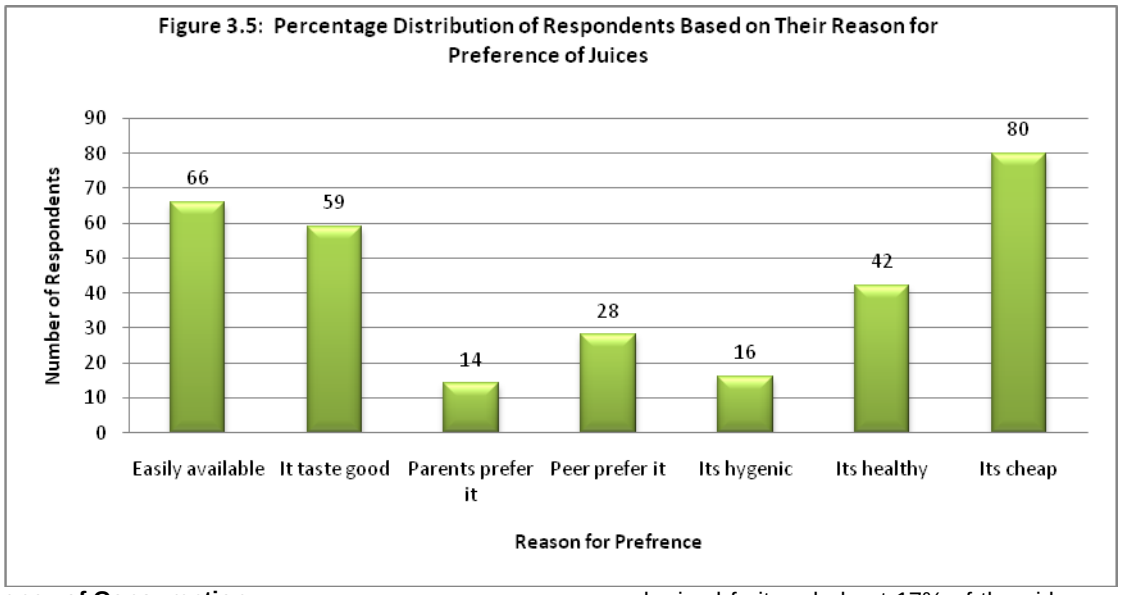
As shown in figure- 3.4 , 76% of respondents said that whenever they purchase juices they opt for packaged juice beverages such as Real juices, Tropicana juices etc, while 19% chose freshly extracted juices and only 5% opted for packaged 100% fruit juices such as real active, Tropicana 100% etc. This shows that the so called health advantage of these packaged 100% juices has not made much impact in these customers.

Figure 3.4: Percentage Distribution of Respondents Based on the Type of Juices Preffered



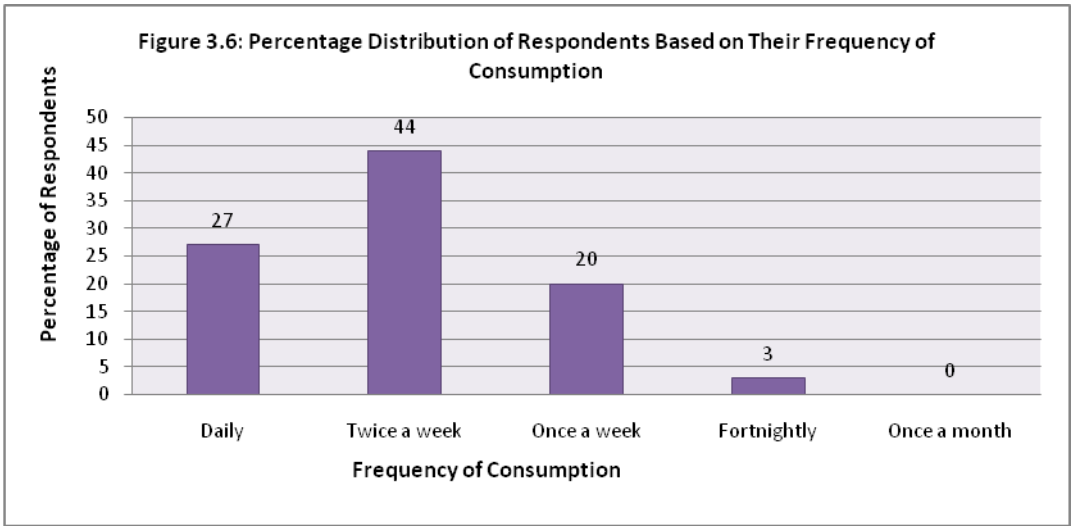
Reason for Preference

Since college students are not self dependent and usually have limited pocket money, 80% of the respondents said that due to the low cost of fruit juices available in the market they tend to prefer them over other beverages like the milk- based beverages which are comparatively costlier. Other reasons cited for preference included easy availability (66%) and good taste (59%). Figure-3.5 shows percentage distribution of respondents based on their reason for preference of juices.



Frequency of Consumption

As depicted in figure- 3.6, 44% of college going girls consumed fruit juices twice a week, while 27% consumed these juices daily. This data was also supported by qualitative beverage frequency questionnaire according to which 26% of the girls consumed packaged juices, specifically apple, orange and mixed fruit and about 17% of the girls consumed packaged and fresh fruit juices especially orange and mixed fruit daily. This shows that there is a regular consumption of fruit juices among college going girls. Eighty percent of girls said that they consume fruit juices with meals, mostly with breakfast (72%) or with tea time snacks (39%).



Amount Consumed

Almost 63% percent of respondents consumed about 250-500 ml of fruit juice in at a time, while 20% consumed in the range of 200-250 ml at a time and 3 respondents opted for more than 500 ml at a time.

Relation between BMI and Amount Consumed

Data revealed that respondents consuming <500ml of juices at a time were having normal BMI as per WHO cut-offs. Only one respondent reported consumption of >500ml of juices at a time and was overweight. Regular consumption of higher amounts of fruit juices over a long period of time might have contributed to changes in the BMI status in this case.

A relation was thus derived between BMI of respondents and amount consumed at a time.

Table 3.11
Relation between BMI Category of Respondents and Amount of Juices Consumed at a Time

Amount Consumed in One go in ml	Normal	Obese	Overweight	Under Weight	Total
≤200	8 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	8 (100.00)
200-250	17 (85.00)	0 (0.00)	1 (5.00)	2 (10.00)	20 (100.00)
250-500	47 (74.60)	1 (1.59)	6 9.52	9 14.29	63 (100.00)
≥500	0 (0.00)	2 (66.67)	1 (33.33)	0 (0.00)	3 (100.00)
No consumption	6 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	6 (100.00)
Total	78 (78.00)	3 (3.00)	8 (8.00)	11 (11.00)	100 (100.00)

Key:
Frequency Pearson chi= 51.8421 Pr = 0.000
Row percentage in Parenthesis

A significant association (p <0.05) was obtained between BMI of respondents and amount consumed at a time. This indicates that increased consumption of fruit juices plays an important role in influencing the BMI status of an individual. Present research supports this data, as it has been shown that a direct association exists between adulthood overweight and BMI, and an increase in consumption of sugar-sweetened beverages in young women (Nissinen et al., 2009). Obesity and overweight occurs due to a wide spectrum of factors, hence increase in BMI cannot be completely attributed to overconsumption of fruit juices, and it can therefore be regarded as one of the risk factors.

Eating out Pattern

About 50% of the respondents ate outside at least twice a week and 22% said they were eating out on a daily basis. Also 41% respondents said whenever they eat outside; they opt for packaged fruit juices as a beverage. This shows that the overall consumption of juices has increased widely.

Availability of Juices in College

Ninety seven percent of the respondents said that juices are always available in their colleges. Ninety six percent of girls said packaged juices are available in the canteen. Freshly extracted juices were not available in either of the colleges.

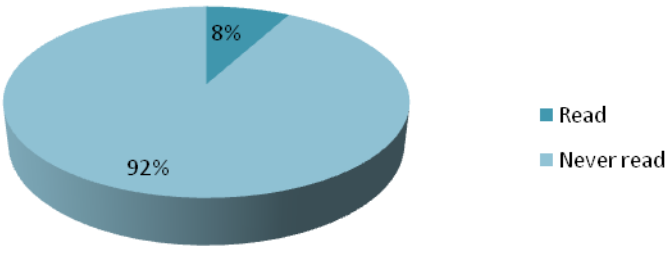
Perception about Fruit Juices

Ninety six percent of respondents said that they don't consider fruit juices healthier than a complete fruit, this shows that the respondents are aware of the fact it is better to consume a whole fruit than juices, but are unable to follow this habit. The main reasons for not going for a complete fruit included easy handling, easy availability and cheaper cost of fruit juices available in market.

Habit of Reading Labels

The data revealed that 92% of respondents had never read the labels of packaged fruit juices, while only 2% said they had once or twice read the labels of these juices.

Figure 3.8: Percentage Distribution of Respondents on Basis of Habit of Reading Labels



Conclusion

It is of utmost importance to know about the amount of excessive sugars present in these beverages which is unknowingly consumed. Since sugar is addictive, the recommended allowance of 4 teaspoons of sugar is easily exceeded. It is apparent that a regular consumption of sugar sweetened beverages should not be encouraged and should be replaced by other healthier options such as low fat milk, green tea etc, as it can cause weight changes and affect the BMI status of an individual which as can increase the risk for various chronic diseases such as diabetes and metabolic syndrome.

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