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Assessment of the Situation and the Cause of Junk Food Consumption in Iranians: A Qualitative Study

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***Abstract*—**The consumption of junk food in Iran is alarmingly increasing. This study aimed to investigate the influencing factors of junk food consumption and amendable interventions that are criticized and approved by stakeholders, in order to presented to health policy makers. The articles and documents related to the content of study were collected by using the appropriate key words such as junk food, carbonated beverage, chocolate, candy, sweets, industrial fruit juices, potato chips, French fries, puffed corn, cakes, biscuits, sandwiches, prepared foods and popsicles, ice cream, bar, chewing gum, pastilles and snack, in scholar.google.com, pubmed.com, eric.ed.gov, cochrane.org, magiran.com, medlib.ir, irandoc.ac.ir, who.int, iranmedex.com, sid.ir, pubmed.org and sciencedirect.com databases. The main key points were extracted and included in a checklist and qualitatively analyzed. Then a summarized abstract was prepared in a format of a questionnaire to be presented to stakeholders. The design of this was qualitative (Delphi). According to this method, a questionnaire was prepared based on reviewing the articles and documents and it was emailed to stakeholders, who were asked to prioritize and choose the main problems and effective interventions. After three rounds, consensus was obtained. Studies revealed high consumption of junk foods in the Iranian population, especially in children and adolescents. The most important affecting factors include availability, low price, media advertisements, preference of fast foods taste, the variety of the packages and their attractiveness, low awareness and changing in lifestyle. Main interventions recommended by stakeholders include developing a protective environment, educational interventions, increasing healthy food access and controlling media advertisements and putting pressure from the Industry and Mining Ministry on producers to produce healthy snacks. According to the findings, the results of this study may be proposed to public health policymakers as an advocacy paper and to be integrated in the interventional programs of Health and Education ministries and the media. Also, implementation of supportive meetings with the producers of alternative healthy products is suggested.

***Keywords*—**Junk foods, situation, qualitative study, Iran.

I. Introduction

JUNK foods include high-calorie foods, particularly fats and added sugars with low value of micronutrients (vitamins and minerals) such as chocolate, candy, pastries, a variety of drinks and artificial fruit juices, drinks, chips, French fries, tortilla, corn puffed, cakes, biscuits, sandwiches and fast food, and popsicles, fruit bars, chewing gum [1], [2].

Nowadays consumption of junk foods as snacks has increased among children, especially primary school students [3]. It is estimated that snacks can provide 40% of the daily energy requirement of Iranian students [4]. Changing patterns of food consumption during the last decade led to the replacement of high calorie snacks and junk foods rather than nutritious snacks [5]. Excessive consumption of low value foods decreases the opportunity of consuming high nutrient density foods in main meals by filling the stomach and reducing appetite. On the other hand, high content of sugar, salt and fat of the junk food, are predisposing factors of chronic diseases later in life [6].

The potential consequences of consuming too much junk food include under-nutrition, obesity, or both [7]. Studies have shown that factors such as taste preferences, habits and prices affect food choices [8]. Many dietary habits and eating patterns are formed in childhood and remain through a person's life. Proper nutrition during this early period promotes the proper growth and development of children, in addition to reducing the risk of chronic diseases in adulthood [8]. This study aimed to determine the situation and cause of junk food consumption in Iran by reviewing the documents and suggesting interventions for consumption reduction to policy makers.

II. Methods

The related articles and documents were obtained by using the following keywords: junk food, carbonated beverage, chocolate, candy, sweets, industrial fruit juices, potato chips, French fries, puffed corn, cakes, biscuits, sandwiches, prepared foods and popsicles, ice cream, bar, chewing gum, pastilles and snacks, and by searching with engines such as google.com and databases like scholar.google.com, eric.ed.gov, cochrane.org, magiran.com, medlib.ir, irandoc.ac.ir, who.int, iranmedex.com, sid.ir, pubmed.org and sciencedirect.com. Articles were selected based on the including criteria such as the Farsi and English language, and published after the year 2000. The content of articles was evaluated and unrelated or duplicated ones were excluded from the study. The selected articles were assessed and information was collected based on the following:

1. The current situation and the trend of junk food consumption in Iran.
2. The factors related to tendency toward consumption of

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junk food in Iranians
3. Administered and recommended interventions for reducing its consumption.

The key points listed above were included in the checklist and qualitatively analyzed, and a summarized abstract was prepared based on the current documents in the format of a questionnaire to be presented to stakeholders.

The questionnaire contained three questions as follows:
1. What interventions are suggested according to the current structures of the health system (Primary Health Care (PHC), family physician and the private sector) in order to improve the situation?
2. What is your opinion about the requirements of the proposed interventions (funding, staffing, organizational structures, inter-sectoral collaborations, etc.)?
3. Other suggestions and comments.

After identifying and prioritizing stakeholders through the stakeholder analysis in the public and private sectors and non-governmental organizations (NGO), the questionnaire was given to stakeholders and the problems in the consumption of junk food in the country and acceptable and executable interventions was extracted and prioritized.

The stakeholders consisted of 10 faculty members of medical universities, the president of the National Institute of Nutrition and Food Technology, as well as supervisors and experts of the Nutrition Improvement office, the director of the Association of Food and Nutrition Health Support, director of the General Administration of Food and Drug Administration and the president of the Association of Obesity.

Then, according to the study method (Delphi), questionnaires were emailed to the stakeholders, who were asked to select and prioritize the problems and interventions, and consensus was reached after three rounds.

In this study, all ethical considerations related to compliance with the qualitative approach were respected.

III. Results

According to the study, 23 articles were obtained. Table I shows the selected articles characteristics. The results of the study were divided into three parts: 1) the situation of consumption of junk food in Iran, 2) the causes of tendency to consume, and 3) the interventions provided by stakeholders.

A. Status of Junk Food Consumption in Iran

In general, few studies have comprehensively examined the consumption of junk food in the country. One related research was the study of the knowledge, attitude and practice of the urban and rural health care workforce (NUTRIKAP) in 2011. It noted in the final report that urban and rural households consume weekly, sausages 8.9% vs. 10.7%, pizza 5.2% vs. 4.1%, carbonated drinks 21.5% vs. 27.2%, snacks (chips and snacks, etc.) 20.3% and 25.8%, sandwiches 15.4% and 11.0%, chocolates and sweets 30.8% and 33.2%, respectively.

Most studies in this area were conducted on children and adolescents. Assessing the junk food consumption trends in the country showed that 47.1% of urban children and 51.2% of rural children in the age range of 6-12 months, and 90.3% of urban and 87.7% of rural 12-24 months old, consumed junk foods. On average, the weekly consumption of junk foods was nine servings. This figure was even higher in the older age groups.

TABLE I
STATUS AND THE RELATED FACTORS OF JUNK FOOD CONSUMPTION IN IRAN

Articles Area	Number of Articles	Authors/year
Status of Junk Food Consumption in Iran		
National Studies	3	Sayari 2002 [1], Kolahdooz 2004 [5], Azemati 2012 [9]
Studies in Capital City (Tehran)	2	Esfarjani 2005 [10] and Malekshahi 2005 [11]
Studies in Other States	7	Kelishadi 2005 [3], Kafshany 2015 [12], Malekshahi 2005 [11], Taei 2005 [13], Naghibzadeh [14] 2005 2009 Ghiyasvand [15], Maddah 2008 [16]
Factors Influencing Junk Food Consumption		
Taste preferences and pleasure	2	Karimi 2010 [17]
The high access	2	Karimi 2010, 2008 [17], [18]
The low price	3	
Habit	2	Karimi 2010 [17]
Diversity and attractive appearance and type of packaging	1	Karimi 2008 [18]
Peer pressure	2	Karimi 2010 [17], Alborzimanesh [2]
Insufficient knowledge	1	Karimi 2008 [18]
Attention to health outcomes	1	Karimi 2010 [17]
Lifestyle Change	1	Pooretedal 2008 [19]
Watching television or playing computer and video games	1	Amini 2007 [20]
Having pocket money	1	Alborzimanesh [2]
Advertising media	3	Amini 2007 [20], Karimi 2011, 2009 [17], [18]
Effect of Education	3	Ghiyasvand [15]
Parental influence	3	Amini 2007 [20], Karimi 2011, 2009 [17], [18]

Also, a national study showed that the consumption of low value foods was high in children less than three years old in both urban and rural areas, and was again higher in older children and their junk food consumption was about three times higher than nutritious foods required for children`s growth and development.

The Caspian study showed that in Iranian adolescents, the mean frequency of consumption of sweets (cookies, cakes, candies, candy, toffee, sweets and confectionery, and drinks sweetened) was 10 times a week and the consumption of fatty and salty foods was 4.9 times a week. Also in adolescents, the most consumed items among teenagers consisted of a variety of cakes, sandwiches, fruit, chips, fruit juice and carbonated beverages.

B. Factors Influencing Junk Food Consumption

Based on studies carried out in the field of nutrition, factors such as taste preferences, habits and price affected food choices. On the other hand, social and psychological studies

attributed nutrition to cognitive theories of social variables such as self-efficacy, attitudes and normative beliefs as the fundamental determinants.

A national study, using the Theory of Planned Behavior (TPB) as the theoretical framework, showed that main the determinants of junk food consumption in adolescents included taste, lack of priority to the issue of health, peer pressure and the influence of parents, the wide reach of junk food, media advertising, price, and inadequate awareness. Adolescents' attitudes to junk food consumption were influenced by five factors: obesity, loss of appetite, enjoy the taste, growth and development decrease and disease. From all the mentioned factors, the pleasure of taste accounted for the largest share in the predicted attitude. In other studies, diversity and appearance and attractive packaging of junk food were the main determinants of higher junk food consumption.

On the other hand, several studies showed a positive and strong relation between the time spent on sedentary activities, such as watching TV or playing computer and video games and the consumption of snacks and refreshments.

Parents are directly or indirectly involved in the consumption of junk food by their children. Food habits and tastes developed in childhood, the purchase of junk foods by parents, parental awareness of unhealthy products such as soft drinks and snacks, were shown to be very important factors in their children tendency towards junk food.

C. Proposed Interventions to Reduce Junk Food Consumption

The proposed interventions, after consensus of the stakeholders was reached, include the following items:

1. Given the side effects of excessive intakes of junk foods, replacing junk foods with healthy alternatives by industries and households and strengthen educational programs, including educating parents and school administrators, education and training for the traders and the food industry with the aim of promoting the use of traditional nutritious snacks according to the food culture of different regions of the country should be considered.
2. Increasing food and culture literacy, in particular the level of awareness of parents is necessary for improving childhood nutrition status and should be a priority of the country's health programs.
3. Given that meals during school hours are one of the most important, nutritional education should be given in schools, with the main objective of this training being to increase the children's knowledge and attitudes in relation to the types of food eaten at school.
4. Use of attractive and enticing packaging to attract attention and encourage an increase in the consumption of healthy foods.
5. The designed interventions, with the aim of reducing junk food consumption, should focus on promoting nutritional awareness and strengthening behavioral control using motivation approaches in adolescents.
6. Due to the increasing trend of snack foods consumption in students, organizing the school buffet in order to increase their access to food with high nutritional value is an important step towards changing the eating behavior of students.

IV. Discussion

Studies showed that the improper food habits of children and adolescents are the most important nutritional challenges and that modifying these risk factors can reduce the risk of many nutrition-related diseases. Depicting the model of common dietary patterns and identifying bad food habits and taking action to improve it, are appropriate ways to promote healthy lifestyles in the community.

The country presents a significant consumption of low value snacks, especially in children and teenagers. The main factors determining junk food consumption in children and adolescents include taste, lack of priority of health issues, peer pressure and parental influences, wide availability of junk food, media advertising, price, habits and inadequate knowledge.

The most popular snacks according to Iranian studies include sweets and chocolates, cakes and sandwiches, sweet and carbonated drinks and salty snacks (chips and puffy corn), respectively.

A review of studies in other countries show that in Scotland, chips, with an average consumption of a pack a day, was the most popular snacks among the low-value snacks consumed by 7-8 year-old school children [21]. While for American teenagers, junk food studies reported the high consumption of candy and various soda pops, desserts, sweet drinks and salty snacks. North Carolina reported increased calorie density mainly due to the consumption of snacks high in salt and sweet drinks [22].

According to Iran publications, the portion of energy from snacks was more than main meals and about 38% of daily energy needs was provided by snacks that was much higher than consumption of other countries such as China, Russia, European countries and United States where the junk food portion from total calorie was 1%, 16%, 25%, and 56%, respectively [23]-[25]. But as with Iranian children and teenagers, the share of energy intake from snacks was also high in countries such as Canada and Scotland. So that the children of Canadian obtained 597 kcal from refreshments from the 2624 kcal of total daily supply [26], and in Scotland, snacks provided about 35% of the daily energy intake [27].

In accordance with Iran studies, researches carried out in other countries confirmed the important impact of cultural, social and economic factors [28], media and advertising [29], low price of junk food products [30], the influence of peers, increased time watching television [31], low physical activity [32], low education level of parents [28], and residing in neighborhoods with low socioeconomic status [33] on increasing the tendency to snacks and fast foods consumption.

Based on the results, the following strategies to reduce junk food consumption are recommended:

1. The results of this review can be presented as a rallying sheet including factors contributing to the rise in consumption of junk food in the country and ways to

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reduce their use to health policy makers.
2. Integration of the operational programs and packages of services in the Ministry of Health.
3. Announcing the warning status of junk food consumption in Iran and its health consequences through the media in order to inform the public and raise awareness and promoting participation
4. Confirm the status quo in order to make the necessary changes in nutrition education for students.
5. Meet with manufacturers to gain support for the production of healthy food alternatives.
6. Meet with importers and gain their support.
7. Meet with members of the Grocery Store Union to enlist its support.

V. Conclusion

Overall, concerning the situation of the high consumption of unhealthy snacks in Iranian society, especially in younger age groups, was rooted in ignorance and low nutritional literacy, low cost of production and high availability of junk foods, extensive advertising of these products and limited variety of alternative healthy products.

References

[1] Sayayri A. A., Sheykholeslam R., Naghavi M., Kolahdouz F., Abdollahi Z. Surveying the amount of junk food consumption in under-3-year-old children of rural and urban areas, 1998. KAUMS Journal (FEYZ). 2002; 6 (1): 71-75 (full text in Persian).

[2] Alborzimanesh M., Kimiagar M., Rashidkhani B. ,Atefi-Sadraini S. The relation between overweight and obesity with some lifestyle factors in the 3rd–5th grade primary schoolgirls in Tehran City 6th district. Iranian Journal of Nutrition Sciences & Food Technology. 2011; 6 (3): 75-84 (full text in Persian).

[3] Kelishadi R., Ardalan G., Gheiratmand R., Sheikholeslam R., Majdzadeh S., Delavari A., et al. Do the dietary habits of our community warrant health of children and adolescents now and in future? CASPIAN Study. Iranian Journal of Pediatrics. 2005; 15 (2): 97-109 (full text in Persian).

[4] Dadkhah P. M., Amini M., Houshyarrad A., Abd E. M., Zoughi T., Eslami M. Qualitative and Quantitative Dietry Assessbent of Primary School Children in Tehran. 2008; 3(1):31-44. (full text in Persian).

[5] Kolahdooz F., Sheykh A. R., Naghavi R. M., Abdollahi Z. Junk Food Consumption: an Indicator of Changing Dietary Habit in Iranian Children 2004; 13: S121-124. (full text in Persian).

[6] Zahedi H., Kelishadi R., Heshmat R., Motlagh M. E., Ranjbar S. H., Ardalan G., et al. Association between junk food consumption and mental health in a national sample of Iranian children and adolescents: The CASPIAN-IV study. Nutrition-7. 2014: 30(11): 1391-1397.

[7] Whitney E., DeBruyne L., Pinna K., Rolfes S. R. Nutrition for Health and Health Care. Fourth edition, Cengage Learning press, USA 2010: 33-34.

[8] Choobineh M., Hesari S., Hossain D., Haghighizadeh M. Study of Nutritional Knowledge of Ahwaz High School Girls and the Education Effect. Journal of Birjand University of Medical Sciences. 2009; 16 (1): 23-30. (full text in Persian).

[9] Azemati B., Heshmat R., Sanaei M., Salehi F., Sadeghi F., Ghaderpanahi M., et al. Nutritional Knowledge, Attitude and Practice of Iranian Households and Primary Health Care Staff: NUTRIKAP Survey. J Diabetes Metab Disord. 2013; 12 (12): 1-4.

[10] Esfarjani F., Hajifaraji M., Houshyarrad A., Roustaei R., zoghi T., Eslami M., et al. Evaluation of Snack Consumption Pattern of Adolescents in Schools of East Tehran. 9th national congress of Nutition; 2006, Tabriz, Iran (Abstact in Persian).

[11] Malekshahi F., Malekshahi M. Investigation of Hoosing Snacks by Children and Adolescents and its Related Factors. 9th National Congress of Nutition; 2006, Tabriz, Iran (Abstact in Persian).

[12] Kafeshani O., Sarrafzadegan N., Nouri F., Mohammadifard N. Major Dietary Patterns in Iranian Adolescents: Isfahan Healthy Heart Program, Iran. ARYA Atheroscler 2015; 11(1): 8-16.

[13] Taei N., Dalvand Sh., Ramesh T. Evaluation of Dietary Habits in Schoolchildren, the City of Khorramabad. 9th National Congress of Nutition; 2006, Tabriz, Iran (Abstact in Persian).

[14] Naghibzadeh M. Prevalence of Malnutrition among Students in Yazd Academic Year 2005-2006. 9th national congress of Nutition; 2006, Tabriz, Iran (Abstact in Persian).

[15] Ghiasvand R., Ashrafi M., Ashrafzadeh E., Asgari Gr., Hasanzadeh A. Relationship between Junk Foods Intake and Weight in 6-7 Year Old Children, Shahin Shahr and Meimeh, 2008. Health System Research 2010; 6(2): S 0-7.

[16] Maddah M., Rashidi A., Mohammadpour B., Vafa R., Karandish M. In-school Snacking, Breakfast Consumption, and Sleeping Patterns of Normal and Overweight Iranian High School Girls: a Study in Urban and Rural Areas in Guilan, Iran. Journal of nutrition education and behavior. 2009; 41 (1): 27-31.

[17] Karimi-Shahanjarini A., Omidvar N., Bazargan M., Rashidian A, Majdzadeh R., Shojaeizadeh D. Iranian Female Adolescent's Views on Unhealthy Snacks Consumption: a Qualitative Study. Iranian journal of public health. 2010; 39 (3): 92-99.

[18] Karimi A., Shojaeizadeh, Rashidi A., Omidvar N. Combined Approach Determinants of Snack Undervalued in Adolescents. Journal of Nutrition and Food Technology 2008;2(13):61-70 (full text in Persian).

[19] Pouretedal Z., Salekzamani Sh., Vahidkia N., Ebrahimi M. Changes in Food Consumption Patterns of Students of Tabriz University of Medical Sciences after Admission to the University. 2008; 30(1): 37-42 (full text in Persian).

[20] Amini M., Kimiagar M., Omidvar N. Which Foods do TV Food Advertisements Entice Our Children to Eat? Iranian Journal of Nutrition Sciences & Food Technology. 2007; 2 (1): 49-57. (Abstact in Persian).

[21] Verger P., Covhet A., Draussin G. Effect of a Snack Taken in the Morning on Food Intake During the Whole Day. Medicine-et nutrition journal. 1995; 8: 231-233.

[22] Zizza C., Siega-Riz A. M., Popkin B. M. Significant Increase in Young Adults' Snacking between 1977-1978 and 1994-1996 Represents a Cause for Concern! Preventive medicine. 2001; 32 (4): 303-10.

[23] Adair L. S., Popkin B. M. Are Child Eating Patterns being Transformed Globally? Obesity Research. 2005; 13 (7): 1281-99.

[24] Skinner J. D., Ziegler P., Pac S., Devaney B. Meal and Snack Patterns of Infants and Toddlers. Journal of the American Dietetic Association. 2004; 104(1): 65-70.

[25] Matthys C., De Henauw S., Devos C., De Backer G. Estimated Energy Intake, Macronutrient Intake and Meal Pattern of Flemish Adolescents. European Journal of Clinical Nutrition. 2003; 57 (2): 366-75.

[26] Piernas C., Popkin B. M. Trends in Snacking among US Children. Health Affairs. 2010; 29 (3): 398-404.

[27] Shepherd R. Commentary on Shepherd, R. & Towler, G. Nutrition Knowledge, Attitudes and Fat intake: Application of the Theory of Reasoned Action. Journal of Human Nutrition and Dietetics. 1992; 5(6): 387-397.

[28] Cullen K. W., Baranowski T. ,Rittenberry L., Olvera N. Social–environmental Influences on Children's Diets: Results from Focus Groups with African-, Euro-and Mexican-American Children and Their Parents. Health Education Research. 2000; 15 (5): 581-90.

[29] Powell L. M., Szczypka G., Chaloupka F. J. Adolescent Exposure to Food Advertising on Television. American journal of preventive medicine. 2007; 33 (4): 251-6.

[30] Schroeter C., Lusk J., Tyner W. Determining the Impact of Food Price and Income Changes on Body Weight. Journal of health economics. 2008; 27 (1): 45-68.

[31] Kuriyan R., Bhat S., Thomas T., Vaz M., Kurpad A. V. Television Viewing and Sleep are Associated with Overweight among Urban and Semi-urban South Indian Children. Nutr J. 2007; 6 (25): 1-4.

[32] Yaniv G., Rosin O., Tobol Y. Junk-food, Home Cooking, Physical Activity and Obesity: The Effect of the Fat Tax and the Thin Subsidy. Journal of Public Economics. 2009; 93 (5): 823-30.

[33] Hopping B., Erber E., Mead E., Sheehy T., Roache C, Sharma S. Socioeconomic Indicators and Frequency of Traditional Food Junk Food, and Fruit and Vegetable Consumption amongst Inuit Adults in the Canadian Arctic. Journal of human nutrition and dietetics. 2010; 23 (1): 51-8.

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