

A national policy on reduction of Trans fatty acid Content in edible oils: Iran's experience

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Ministry of Health & Medical Education

Health Policy Research Center

14-15 November 2011

Health-related implications of TFA

- TFA have a significant role in changing various metabolic risk parameters related to coronary heart disease (CHD) and several trials have also shown their adverse effects on type II diabetes, cancers, strokes and food sensitivities.
- High intakes of Trans Fatty Acid (TFA) were shown to be directly correlated with the risk of developing coronary heart disease.
- Overall by considering the attribution of fatty acids on CVD and risk factors for heart diseases, it seems reasonable for health sector policy makers to confront this serious and yet modifiable risk factor for CVD by focusing on food industries responsible for production of TFAs.

Current status of Iran

- An increasing trend in incidence of CVD and its related risk factors has been observed in Iran in the last two decades.
- According to official reports of Ministry of Health and Medical Education (MOHME), the prevalence of diabetes mellitus is increasing.
- 14/1% of people have serum cholesterol higher than 240 mg/dl (Ministry of health's report 2008,).

Current status of Iran

- The current situation has encouraged health policy makers to design a national plan and agenda in order to modify these CVD risk factors and improve the lifestyle, quality control of food products and set up a surveillance system to monitor the situation and efficacy of these policies.
- Hence one of the main targets of policy makers has been the level and amount of TFAs in food industry.

Iran's Health Policy on TFA and SFA

- As the first step, a thorough situation analysis and evidence gathering was conducted by experts at MOHME.
- in 2002:
 - 20.33% sop vegetable oil
 - 79.67% solid oil.
- Furthermore there was no restriction on the acceptable amount of TFAs

Iran's Health Policy on TFA and SFA

- ❑ In-depth analysis of the findings provided evidence that:
- ❑ by replacement of TFA with cis-unsaturated fats in Iranian homes:
- ❑ 39% of coronary heart diseases would be prevented prospectively.

The program's framework comprised three main aspects:

- ◆ 1) Campaigning on Public education with an emphasis on increase in knowledge and attitude of the public regarding adverse health effects of TFA especially in processed foods and edible oils used for cooking food.
- ◆ 2) Negotiation of MOHME representatives with food processing companies and setting regulations on restricting the amount of TFAs from >20% to less than 10% along with the amount of sugar and salt in their products.
- ◆ 3) Establishment of a national committee including experts of MOHME and representatives of major food industries to coordinate all policy makings on food production at national and local levels.

Year	Permissive limit of TFA	Permissive limit of SFA‡
2002	Without limitation	25%
2003	Without limitation	25%
2004	Without limitation	25%
2005	20%	20%
2006	20%	20%
2007	10%-20% (From Nov 2007: 10%)	20%
2008	10%	20%

Table1. premissive limit of SFA and TFA content of edible oil production in Iran from 2002 to 2008
Trans Fatty Acid; ‡Saturated Fatty Acid

Year	<i>Total Production of Edible Vegetable oil in Iran(Kg)</i>		<i>Total Production of <u>Sop</u> Vegetable oil in Iran</i>		<i>Total Production of <u>Solid oil</u> in Iran</i>	
	(Kg)	%	(Kg)	%	(Kg)	
2002	1,160,397	20.33	235,942	79.67	924,455	
2003	1,306,377	21.40	279,673	78.60	1,026,704	
2004	1,257,762	25.59	321,937	74.41	935,825	
2005	1,465,090	30.04	440,161	69.96	1,024,929	
2006	1,527,488	37.50	572,952	62.50	954,536	
2007	1,515,360	42.93	650,694	57.07	864,666	
2008	1,477,000	48.72	705,000	51.27	742,000	

Table2. Pattern and trend of edible oil production in Iran from 2002 to 2008

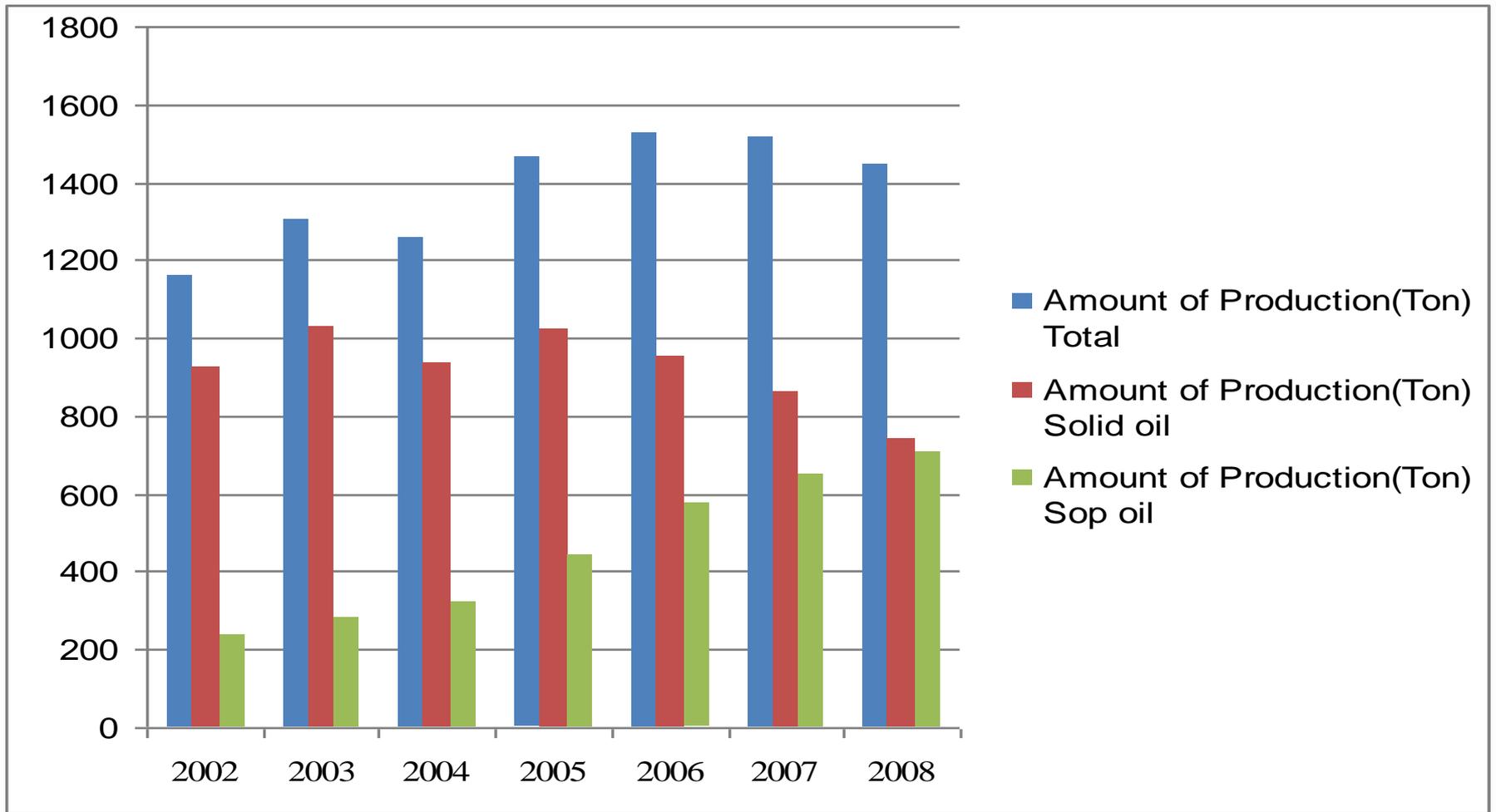


Figure1. Pattern of edible Oil production in Iran from 2002-2008

Assessment for efficacy of the policy

- Samples of oil prepared from oil Production Company.
- The total lipids of samples were extracted and subjected to TFA and SFA .
- A total of 181 samples of edible vegetable oil products from local manufacturers and the retail market were analyzed for their trans-fatty acid compositions and contents by capillary gas chromatography.
- Samples were gathered randomly in a 6-year period from 2003 to 2008 (2 year before and 3 years after implementation of the policy) from different national edible oil manufacturers.

Assessment for efficacy of the policy

- Tests were conducted by the national referral laboratory in Tehran, Iran.
- The detection limit of this method is 0.1%.
- In 4 years after implementation of the policy on limiting the amount of TFA in edible oil to 10%, a dramatic decline is observed in TFA content of edible oils in Iran from 28.8% in 2002 to 5.62% in 2008. (Table 3.)
- This significant success in reduction of TFA content of edible oil favors the success of this policy in Iran which involved a collaborative program between companies, MOHME and mass media in Iran to decrease the amount of TFAs in edible oil along with increase people's awareness and demand on purchasing cooking oils with minimum amount of TFA and higher SFA content.

Year	2003	2004	2005	2006	2007	2008
Total number of Samples	36	36	30	33	38	30
‡SFA Content (%)	26.68%	24.1%	26.1%	24.5%	22.2%	21.5%
TFA Content (%)*	28.8%	31.2%	31.2%	18.2%	13.7%	5.62%

Table3. Trans Fatty Acid and Saturated Fatty Acid Composition (Content) of Edible oil in Iran Company (Results of Random Sampling of Surveillance Department of Oil Production Company)*TFA: Trans Fatty Acid; ‡SFA: Saturated Fatty Acid



TRANS FATS

Conclusion

- Reducing trans fat profile from the oil supply will enhance the lipid profiles of millions of persons without requiring complex behavioral efforts and may decrease the need for medication .
- In addition, it is important to recognize that the changing fatty acid content of edible oil will have a significant influence on the assessment of fatty acid intake by the population. By this way we can reduce incidence of cardiovascular disease.
- TFA and SFA intake can be decreases by Proper guidance and education of people, Voluntary reduction of these fats content by the oil industry and Oil Labeling TFA and SFA composition along with Legislation about TFA and SFA reduction in edible oil (legislation to ban these fats)

Conclusion

- Other policies such as:
 - ⊕ Replacement of trans fatty acids with vegetable oils high in polyunsaturated and monounsaturated fatty acids.
 - ⊕ Independently evaluate the level of trans fats in production process.
 - ⊕ Our study indicated soap oil production is increased at an accelerated pace while solid oil production is reduced. Furthermore, TFA and SFA content of oil are scale down. One of the limitations of our study is that we don't access to original data.

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Acknowledgment :

Food and Drug Control Laboratories, Ministry of
Health and Medical Education of Iran

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*Thanks for your Attention and
Time During This Presentation!
Have a Great Day!
EVERY DAY!*

