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Age-Period-Cohort Analysis of Obesity and Overweight in Iranian Children and Adolescents

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Abstract

Background: To date, few studies looked upon obesity and overweight in children and adolescents through the 3 different temporal dimensions of age, period, and cohort. The current study aimed at evaluating the trends of these health issues among children under 19 years old using the age-period-cohort (APC) analysis.

Methods: Data gathered through 5 cross sectional studies including 2 national health surveillance (1990 - 91 and 1999), and 3 CASPIAN surveys (2003, 2009, and 2011). Subjects were classified by their body mass index (BMI) into 3 groups of normal (BMI < 85th percentile), overweight-obese (85th percentile < BMI < 95th percentile), and obese (95th percentile < BMI). Intrinsic estimator method was used to analyze the effects of age, period, and birth cohort on obesity and overweight among the subjects.

Results: A total of 80,698 children and adolescents under 19 years old, including 40,419 (50.09%) males and 40,279 (49.91%) females, were evaluated. The prevalence of obesity decreased progressively by age in males and females with minor discrepancies. It increased from 1990 to 2009 in both genders, but from that point on remained quite constant in males and dropped significantly in females. The prevalence of obesity was steady in earlier birth cohorts, but increased significantly after the birth cohorts from 1986 to 1990.

Conclusions: Environmental factors and social stresses during neonatal and infantile periods (birth cohort effect) along with other variables influencing the children later in their lives (period effect) affect the prevalence of overweight and obesity substantially. Moreover, a decrease in the prevalence of obesity and overweight was observed by age increase (age effect).

Keywords: Obesity, Overweight, Prevalence, Age-Period-Cohort Analysis

1. Background

Nowadays, obesity and overweight are recognized as important health problems both in the developed and developing countries (1-6). Rapid growth occurs early in childhood; therefore, it is suggested to start taking preventive measures against obesity during this period to regulate the periodic changes of growth and metabolism according to the requirements of the body (7, 8). Another important issue about obesity in childhood is its correlation with adulthood obesity. Most obese children today will be the obese adults of the future (9, 10).

Various surveys from different parts of the world show that the trend of obesity varies according to the population (11-16). According to these surveys, it seems that the trend of obesity follows various patterns correlated with ethnicities and lifestyles of the subjects, confirming the importance of evaluating this matter among different populations.

To assess the changes of a variable in time, epidemiologic studies look upon the trends through 3 temporal dimensions; i.e., age, period, and cohort (APC) (17). Birth cohort effects refer to the changes of the variable in individuals who experience similar life events due to a common birth year. Age effects reflect the changes in the variable over one's lifetime, and period effects refer to the changes in the environmental factors that affect an entire population at the same time with probably disparate effects on each individual. These 3 models generally act concurrently and present the changes of a variable in time (18).

To date, various surveys evaluated obesity, its incidence, prevalence, and changing trends worldwide; but most of them only assessed the age or period effects alone and few considered the simultaneous effects of all the 3 aspects. Moreover, the important effects of this health issue on cardiovascular diseases and diabetes call for continuous surveillance on obesity, especially among children and adolescents; therefore, the current study aimed at evaluating the changing trends of obesity in Iranian children and adolescents under 19 years old, considering the effects of APC.

2. Methods

2.1. Study Design and Setting

In the present study data gathered through 5 cross sectional studies including 2 national health surveillance (1990 - 91, 1999) (19) and 3 CASPIAN surveys (2003, 2009, and 2011) were used to analyze the effects of age, period, and birth cohort on obesity and overweight among Iranian population under 19 years old. The study designs were approved by the local ethics committee.

2.2. Data Collection

2.2.1. Nationwide Health Surveys 1990 - 91 and 1999

Data on demographic characteristics including weight, height, and body mass index (BMI) of the subjects were collected with collaboration of universities of medical sciences countrywide under the supervision of Iranian ministry of health and Medical education. The first survey was carried out from June 1990 to March 1992, gathering data from 18,194 subjects and the second one was conducted from April 1999 to February 2000 including 22,623 children and adolescents. Random cluster sampling method was used to the total urban and rural population of each province with a fraction of 1/1000.

2.2.2. CASPIAN 2003, 2009, and 2011

The 3 surveys of CASPIAN I (2003), CASPIAN III (2009) and CASPIAN IV (2011) gathered anthropometric data from 20,936, 5637, and 13,308 subjects, respectively. The details of these 3 nationwide surveys are presented in previous literature (20, 21). Data collection in CASPIAN I survey was performed from 2003 to 2004 in 23 provinces of Iran. CASPIAN III included children and adolescents from 27 provinces from 2009 to 2010 and data gathered from 31 provinces from 2011 to 2012 were included in the CASPIAN IV survey. Multistage random cluster sampling method was used to collect data from elementary, guidance, and high schools of urban and rural areas.

2.3. Height, Weight, and Body Mass Index Measurements

In all the 5 nationwide surveys, height was measured via a stadiometer to the nearest 0.1 cm in upright standing, barefooted subjects with full extended knees. Weight was also measured in barefoot subjects without heavy clothing by a daily calibrated standard scale to the nearest 0.1 kg. BMI was calculated by dividing the body weight of the subjects in kilograms by their squared height in meters. Subjects were classified by their BMIs according to the growth charts presented by the world health organization (WHO) (22) into 3 groups of normal (BMI < 85th percentile), overweight-obese (85th percentile < BMI < 95th percentile) and obese (95th percentile < BMI).

2.4. Statistical Analysis

APC models are the means of interest in the statistical studies of human populations. To overcome the problem of collinearity between age, period, and birth cohort, Yang developed the intrinsic estimator (IE) method, which applies the principal component regression analysis of the APC models (23, 24). The current study aimed at evaluating the APC effect on the prevalence of overweight-obesity and obesity in Iranian children and adolescents using the IE model. The study also analyzed the effects based on gender. Analysis was performed using the "apc-ie" command statement in STATA software version 11.0 (Stata Corp., College Station, TX, USA). Since 5-year periods were required for the APC analysis, the overweight-obesity and obesity rates were estimated by regression analysis in 1995 and 2005.

3. Results

Data from 80,698 children and adolescents under 19 years old including 40,419 (50.09%) males and 40,279 (49.91%) females were examined in the present study. The largest proportion of the study sample came from the subjects that participated in 1999 (28.03%) and the smallest proportion was from the year 2009 (6.99%) (Table 1).

Table 1. Sample Sizes Based on Gender and the Study Year[a]

Study Year	Age Range, y	Male	Female	Total	Total Percentage Based on Total
1990	5 - 18	9001 (49.47)	9193 (50.53)	18194 (100)	22.55
1999	5 - 19	11063 (48.90)	11560 (51.10)	22623 (100)	28.03
2003	6 - 19	10775 (51.47)	10161 (48.53)	20936 (100)	25.94
2009	10 - 18	2829 (50.19)	2808 (49.81)	5637 (100)	6.99
2011	7 - 19	6751 (50.73)	6557 (49.27)	13308 (100)	16.49
Total		40419 (50.09)	40279 (49.91)	80698 (100)	100.0

[a]Values are expressed as n (%).

3.1. Prevalence of Obesity

3.1.1. According to Age

Table 2 presents the prevalence of overweight-obesity and obesity in the study population based on age in the assessed periods. In the nationwide surveys of 1990, 1999, and 2003 the prevalence of obesity decreased with increasing age in both genders while the figures were quite steady up to the age of 19 from 2009 to 2011. A similar pattern was observed for overweight-obesity among males, but the trend was more fluctuating among females in such a way that the prevalence of overweight-obesity decreased with age up to the age of 12 in almost every period and after the age of 12 it increased and stayed quite constant up to the age of 19 (Table 2).

3.1.2. According to the Survey Period

The prevalence of obesity was mostly increasing among males in the 21-year assessment. It rose from 2.76% in 1990 to 4.79% in 1999, 7.98% in 2003, 6.72% in 2009, and 8.03% in 2011. On the other hand, the slope of the rising curve was lower among females, compared with males. The lowest prevalence was 3.12% in 1990, which reached its peak at 6.53% in 2003. A similar pattern was observed for the prevalence of overweight-obesity in both genders (Table 3).

3.1.4. According to Birth Cohort

According to the data presented in Table 3 based on the surveys of 1990, 1999, and 2003, the prevalence of obesity in males with earlier birth cohorts was lower than that of the male subjects of recent birth cohorts. According to the studies of 2009 and 2011, the prevalence was not affected by the birth cohort. The prevalence of obesity and overweight-obesity among females was also affected by the birth cohorts, but the changes were fluctuating. For instance, the prevalence of obesity among the females, evaluated in 2003, was higher in the subjects born in recent cohorts, compared with the females born in earlier cohorts. But, assessment of the females from 1990 revealed that the prevalence was quite similar in all the birth cohorts (Table 3).

3.2. Effects of Age, Period, and Cohort

According to the aforementioned results, the prevalence of obesity and overweight-obesity is affected by the 3 factors; therefore, the current study assessed the independent effect of each factor while controlling the other 2.

3.2.1. Age Effect

The coefficients of age effect on the prevalence of obesity and overweight-obesity in males and females are presented in Table 4 and Figure 1A and 1B separately. As it can be observed, the prevalence of obesity decreased among males progressively based on age. The coefficient decreased by 0.028 units when the age increased from 5 to 10 years and it decreased by 0.008 units when the age increased from 10 to 15. The same figures for females showed 0.019 and 0.009 decrease in the units of coefficients, respectively.

According to the effects of period and cohort, the prevalence of overweight-obesity also decreased under the effect of age among males. Coefficient of age effect decreased by 0.032 units when the age increased from 5 to 10, and by 0.015 units when the age increased from 10 to 15. As for the females, the prevalence of overweight-obesity was not affected by the age (Table 4 and Figure 2A and 2B).

3.2.2. Period Effect

The prevalence of obesity among males increased from 1990 to 2009. The highest coefficient of period effect on the prevalence of obesity in males was observed from 2003 to 2009 (coefficient difference = 0.019). The calculated coefficient decreased from 2009 to 2011 (coefficient difference = -0.002) while the prevalence of obesity remained quite constant during these years (Table 4 and Figure 1C). The prevalence of obesity also increased among females from 1990

Table 2. Prevalence of Overweight and Obesity Based on Age, Study Year, and Gender

Age and Gender	Period									
	1990		1999		2003		2009		2011	
	Obesity	Overweight and Obesity	Obesity	Overweight and Obesity	Obesity	Overweight and Obesity	Obesity	Overweight and Obesity	Obesity	Overweight and Obesity
Males										
5	7.74	15.24	10.88	19.79						
6	5.51	11.50	9.15	18.97	10.10	17.42				
7	5.07	10.60	7.58	16.03	9.49	19.73			9.34	15.97
8	3.06	7.84	5.67	15.01	7.96	16.84			9.06	18.73
9	1.67	7.94	4.76	12.44	8.33	18.28			8.11	17.74
10	1.99	6.77	5.53	12.35	8.92	19.38	8.33	12.50	9.78	15.75
11	1.75	6.34	4.02	11.38	6.22	18.35	4.74	13.74	7.36	17.77
12	2.04	6.86	4.19	11.64	8.05	20.37	7.36	19.04	9.88	22.67
13	1.34	4.34	3.25	11.15	5.35	14.79	6.96	19.30	9.26	21.05
14	0.74	6.08	2.29	10.64	6.38	16.53	7.37	21.75	7.73	22.91
15	2.12	7.84	3.05	10.74	3.85	13.70	8.66	20.47	8.38	20.22
16	2.83	7.55	1.97	10.30	3.35	14.31	7.64	22.22	8.42	23.03
17	1.37	4.67	4.14	9.55	4.23	13.78	6.44	18.40	8.68	20.80
18	1.41	3.87	3.13	8.90	3.68	11.04	3.01	10.53	4.47	12.23
19			2.25	8.50	4.41	5.88			3.92	14.71
Females										
5	7.56	14.05	10.04	17.61	18.18	27.27				
6	4.18	9.48	6.01	15.70	9.09	15.58				
7	3.95	7.89	4.09	11.53	9.91	19.66			7.58	16.85
8	2.51	6.15	3.86	13.43	7.54	17.42			6.34	16.64
9	1.70	5.61	4.12	11.31	9.01	19.77			8.73	18.66
10	1.97	4.99	3.75	10.77	6.57	16.69	7.94	14.29	7.51	16.05
11	1.56	4.82	4.27	12.20	5.88	17.03	3.61	9.64	5.21	13.57
12	2.65	9.66	3.86	13.45	6.34	20.69	5.58	13.59	6.68	17.06
13	3.36	9.76	3.53	14.35	5.44	17.33	5.13	14.53	7.27	18.95
14	2.41	9.09	2.56	12.37	5.46	18.93	3.93	12.79	5.01	16.80
15	2.63	14.56	2.70	15.53	3.44	14.72	3.36	12.23	5.09	16.81
16	1.90	10.44	2.80	13.61	2.82	11.56	4.39	12.50	5.31	17.61
17	2.74	14.11	3.35	14.19	2.41	10.99	6.19	14.69	6.36	15.41
18	2.72	10.62	2.72	12.56	3.14	10.45	4.60	13.00	3.79	13.38
19	5.00	5.00	3.09	14.49	2.78	9.72			0.85	10.26

to 2009, but it dropped significantly in 2011. According to the data presented in Table 4, the maximum difference between the coefficients of period effect on prevalence of obesity among females was observed from 2003 to 2009 (coefficient difference = 0.014). The decrease of this coefficient from 2009 to 2011 was 0.013 units (coefficient difference = -0.013) (Table 4 and Figure 1D). Tables 4 and Figures 1 and 2 present the changes in the coefficients of period effect on the prevalence of overweight-obesity for both genders. As depicted, the trends of changes were similar to the patterns of changes for the prevalence of obesity.

3.2.3. Birth Cohort Effect

The effects of birth cohorts on the prevalence of obesity and overweight-obesity are presented in Table 4 and Figures 1E and 1F and 2E and 2F. The coefficient of birth cohort effect on the prevalence of obesity among males with earlier birth cohorts was rather steady. The difference in coefficients of estimation between the males from birth cohorts of 1986 to 1995 was 0.019 units, but the prevalence decreased among the males born from 2000 to 2005. Different patterns were observed in females. The coefficient of birth cohort effect on the prevalence of obesity showed a significant drop among the females born from 1976 to1980 and remained steady for the female subjects born from 1986 to 1990. The rise in coefficients of birth cohorts from 1991 to 1996, and this point on, indicated an increase in the prevalence of obesity in females born during this period. Table 4 presents the changes in coefficients of birth cohort effect on the prevalence of overweight-obesity in both genders. Accordingly, considerable similarities are observed between these data and the patterns of obesity.

Table 3. Prevalence of Overweight and Obesity Based on Birth Cohort, Period Year, and Gender

Birth Cohort	Period									
	1990		1999		2003		2009		2011	
	Obesity	Overweight and Obesity	Obesity	Overweight and Obesity	Obesity	Overweight and Obesity	Obesity	Overweight and Obesity	Obesity	Overweight and Obesity
Male										
1971 - 1975	1.93	5.98								
1976 - 1980	1.57	6.08								
1981 - 1985	4.61	10.62	2.91	9.60						
1986 - 1990			3.86	11.43	3.90	11.74				
1991 - 1995			7.61	16.45	6.98	17.88	6.44	17.91	6.77	18.20
1996 - 2000					13.06	23.87	6.95	17.27	8.80	20.03
2001 - 2005									8.83	17.48
Total	2.76	7.67	4.79	12.49	7.98	17.83	6.72	17.55	8.03	18.74
Female										
1971 - 1975	3.00	10.94								
1976 - 1980	2.39	7.66								
1981 - 1985	3.98	8.64	2.93	14.08						
1986 - 1990			3.59	12.63	2.92	11.49				
1991 - 1995			5.62	13.92	5.94	18.13	4.64	13.11	4.28	14.69
1996 - 2000					10.75	19.94	5.24	12.97	6.34	16.48
2001 - 2005									7.55	17.39
Total	3.12	9.08	4.05	13.54	6.53	16.52	4.97	13.03	5.83	16.00

4. Discussion

The results of the present study revealed a significant relationship between APC effects, and the prevalence of overweight-obesity and obesity. With increasing age, the prevalence of obesity decreased in both genders but the prevalence of overweight-obesity among females was not affected by age. Furthermore, the yielded results were indicative of a rise in the prevalence of obesity from 1990 to 2009 in both genders of the Iranian population. From 2009 onwards, the patterns of overweight-obesity and obesity differed between the 2 genders in such a way that the prevalence of obesity from 2009 to 2011 remained constant among males while a decline was observed among females. Finally, it was shown that the prevalence of overweight-obesity and obesity was higher among the children born in recent birth cohorts compared to the subjects born in earlier cohorts.

Although many studies evaluated child obesity in different populations, few looked upon obesity and overweight in children and adolescents through the 3 different temporal dimensions of age, period, and cohort. Most surveys assessed only the effects of age and period on this health issue. In one of these studies, Thomsen et al. evaluated APC effects on obesity among males born from 1930 to 1975 and found a significant rise in weight of the children born from 1947 to 1949, which reached a plateau and remained unchanged until the 1970's (25). Although the evaluated birth cohorts in the present study were much more recent than the survey conducted by Thomsen et al., similar patterns were observed between the 2. The current study also found a higher prevalence of obesity in children born in recent cohorts, compared to the earlier ones.

The increased prevalence of obesity in the recent cohorts could be attributed to the changes in the lifestyle of the Iranian population. Alterations in diet, preference for consuming high-fat foods and fast foods and limited physical activity are known as the risk factors of obesity, all of which increased significantly among the Iranian population in recent years (26-28).

It is noteworthy that the birth cohort effect represents the effects of environmental factors and life style related variables during pregnancy and the first years of the subject's life such as maternal dietary habits and breastfeeding (23, 29). Moreover, the prevalence of obesity and overweight increased from 1990 to 2011, which can be due to the changes in contents of the regular diet in Iranian population. In this period, a transition occurred from dairy products, fruits, and vegetables towards fats, various oils, and sugars (30).

Ogden et al., assessed the trend of changes in the prevalence of obesity among American children from 1999 to 2010 (period effect) and found no significant changes in the prevalence of obesity in children aged 2 to19 years (13). On the other hand, Heude et al., found an increase in the prevalence of obesity in both genders in their 8-year survey conducted in France. The rise was more prominent among

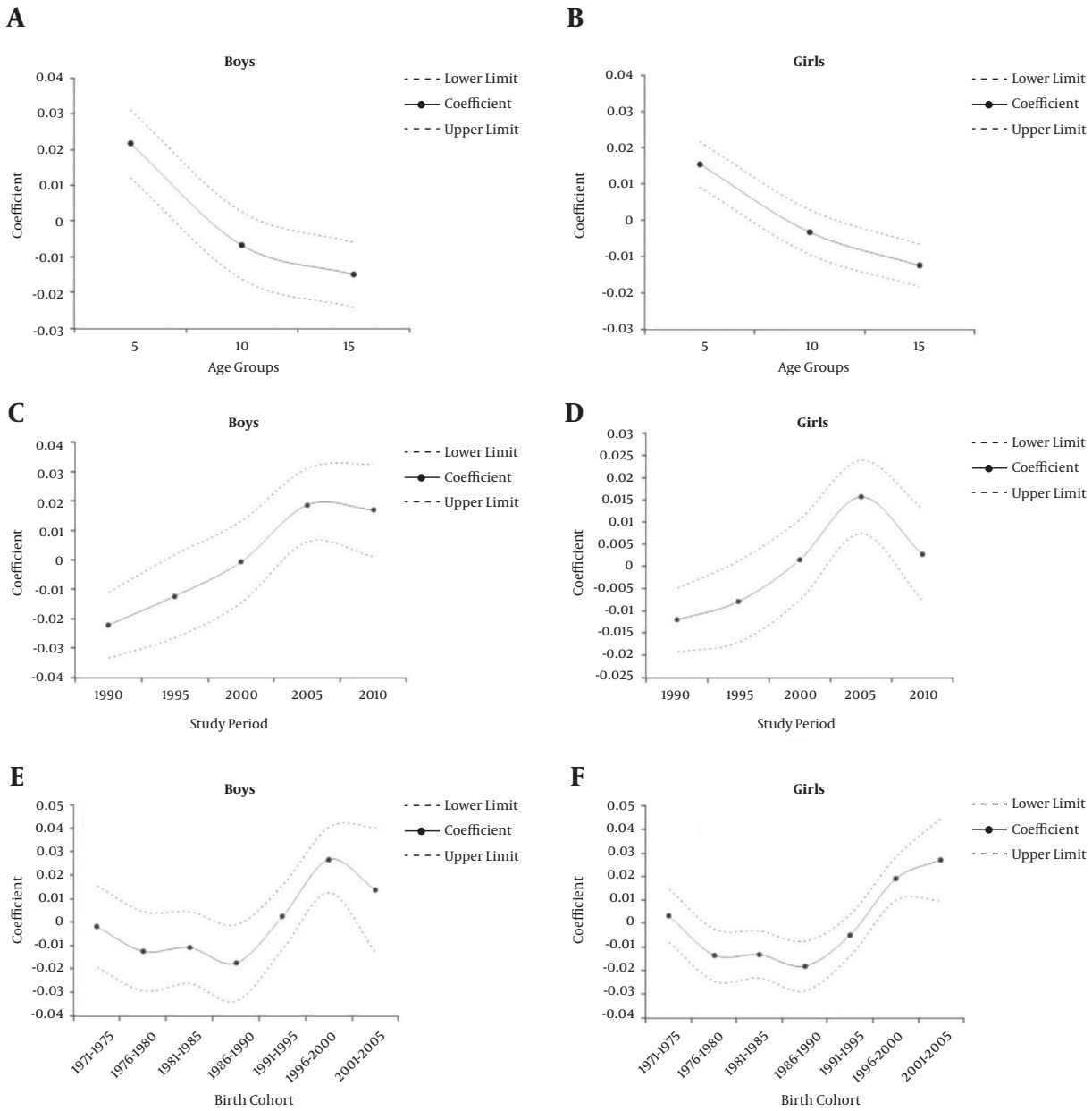

Figure 1. Coefficient of Age Effect (A and B), Period Effect (C and D), and Birth Cohort Effect (E and F) on the Prevalence of Obesity

males (14). Their results were similar to those of the current study, which showed considerable increasing trends in the prevalence of obesity in both genders (more eminent among males) from 1990 to 2011.

Despite the increasing application of APC analysis on various variables, the current study was the first study using this method on the prevalence of overweight and obesity among children and adolescents. The current study found a rise in the prevalence of these health issues from the period of 1986 to1990 onwards, which coincided with the years led to end of Iran-Iraq war. Such a disaster might affect the nutritional habits of a population through the changes it brings about in the life style of the people. After the Iran-Iraq war, the nutritional status of Iranian people changed and consumption of high-fat foods and unhealthy nutritional patterns increased. Consequently, the

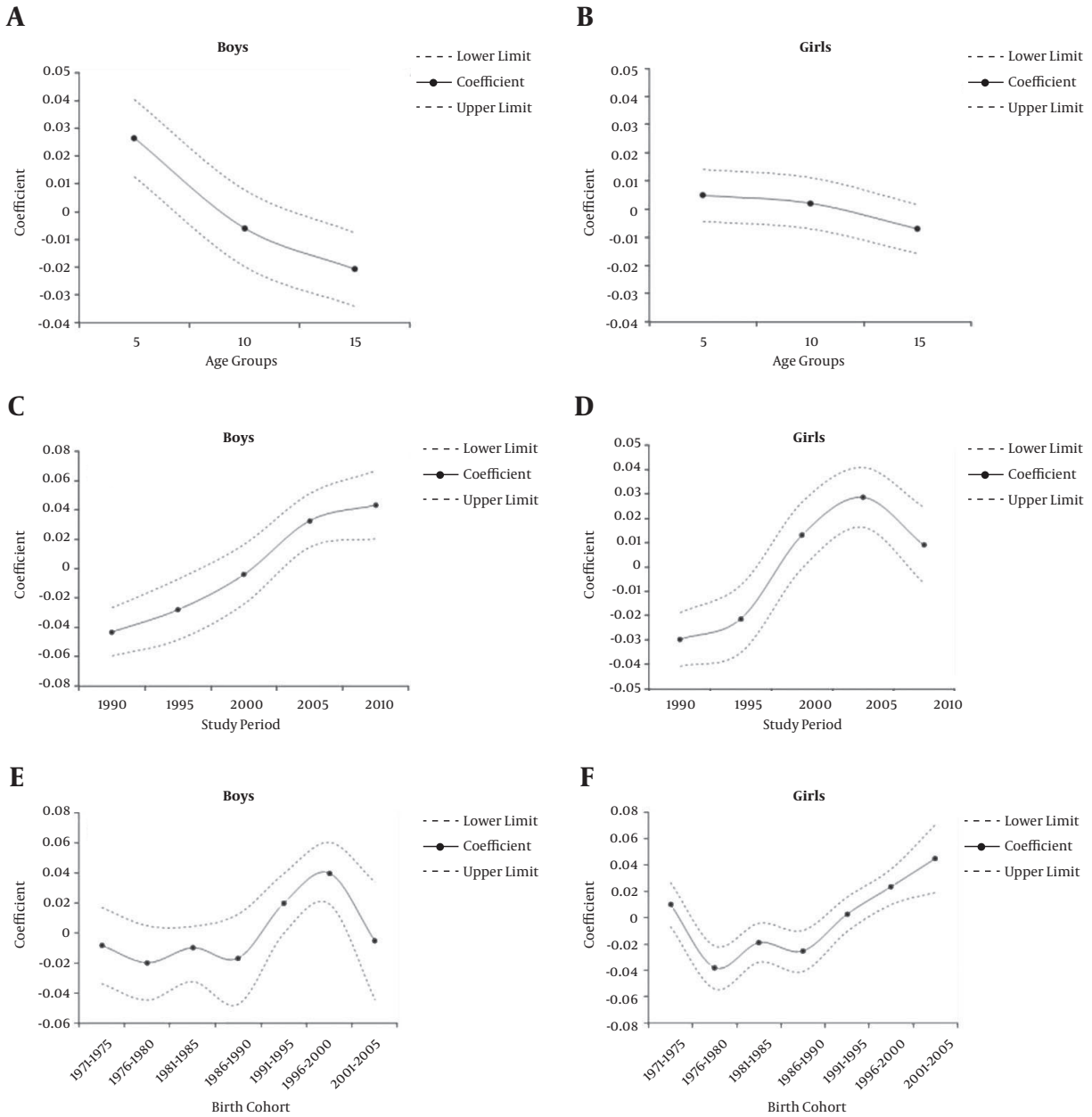

Figure 2. Coefficient of Age Effect (A and B), Period Effect (C and D), and Birth Cohort Effect (E and F) on the Prevalence of Overweight and Obesity

prevalence of obesity rose among the children born during this period.

Age is another factor that affects the prevalence of obesity in children and adolescents. A general evaluation of the rough figures of overweight and obesity prevalence (Table 1) indicates that the prevalence decreases with advancing the age. This finding was in agreement with the results of the study conducted by Kelishadi et al., reporting a negative correlation between age and prevalence of overweight and obesity (28). It was also quite compatible with the reports from the United States indicating a decline in the prevalence of overweight and obesity with advancing age in healthy children (31). However, the exact reason for this correlation is not identified yet.

4.1. Conclusions

Overall, it can be concluded that changes in life styles and environmental factors and social stresses such as war and famine (birth cohort effect) during neonatal and infantile periods and the early years of life affect the prevalence of overweight and obesity substantially. On the other hand, there are other environmental and social factors which occur later in a child's life that can affect obesity and overweight among children and adolescents in similar patterns such as the transition of dietary habits (period effect). Moreover, a decrease in the prevalence of obesity and overweight was observed by age increase (age effect).

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Footnotes

Authors' Contribution: Study design, Mostafa Hosseini, Mahmoud Yousefifard, Kazem Mohammad, Roya Kelishadi; data acquisition, Masoud Baikpour, Neamatollah Ataei, Mostafa Qorbani, Ramin Heshmat, Mohammad-Esmail Motlagh, Behnaz Bazargani, Arash Abbasi; analysis of data, Mostafa Hosseini; interpretation of data, Mostafa Hosseini, Mahmoud Yousefifard; Kazem Mohammad, Roya Kelishadi; drafting the manuscript, Mahmoud Yousefifard, Mostafa Hosseini; revising the draft critically for important intellectual content, All authors.

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Table 4. Intrinsic Estimates for the Rate of Obesity of Iranian Males and Females

Variables	Obesity			Overweight and Obesity		
	Coefficient	95% CI	P Value	Coefficient	95% CI	P Value
Males						
Age, y						
5 - 9	0.0217	0.0122 - 0.0312	< 0.0001	0.0266	0.0127 - 0.0404	0.0000
10 - 14	-0.0068	-0.0162 - 0.0026	0.1570	-0.0059	-0.0196 - 0.0079	0.4030
15 - 19	-0.0149	-0.0240 - -0.0059	0.0010	-0.0207	-0.0339 - -0.0075	0.0020
Period						
1990	-0.0222	-0.0334 - -0.0111	< 0.0001	-0.0433	-0.0597 - -0.0270	< 0.0001
1995	-0.0124	-0.0265 - 0.0017	0.0840	-0.0282	-0.0488 - -0.0075	0.0070
2000	-0.0008	-0.0147 - 0.0131	0.9110	-0.0042	-0.0245 - 0.0161	0.6850
2005	0.0186	0.0060 - 0.0311	0.0040	0.0326	0.0142 - 0.0509	< 0.0001
2010	0.0169	0.0010 - 0.0327	0.0370	0.0432	0.0200 - 0.0663	< 0.0001
Cohort						
1971 - 1975	-0.0019	-0.0192 - 0.0154	0.8310	-0.0082	-0.0335 - 0.0170	0.5230
1976 - 1980	-0.0125	-0.0294 - 0.0043	0.1460	-0.0198	-0.0445 - 0.0048	0.1150
1981 - 1985	-0.0109	-0.0262 - 0.0044	0.1640	-0.0098	-0.0322 - 0.0126	0.3900
1986 - 1990	-0.0175	-0.0336 - -0.0013	0.0340	-0.0167	-0.0403 - 0.0069	0.1660
1991 - 1995	0.0023	-0.0113 - 0.0158	0.7420	0.0199	0.0001 - 0.0397	0.0480
1996 - 2000	0.0267	0.0127 - 0.0407	< 0.0001	0.0399	0.0194 - 0.0604	< 0.0001
2001 - 2005	0.0138	-0.0130 - 0.0405	0.3130	-0.0053	-0.0444 - 0.0338	0.7910
Constant	0.0574	0.0501 - 0.0647	< 0.0001	0.1313	0.1207 - 0.1420	< 0.0001
Females						
Age, y						
5 - 9	0.0155	0.0093 - 0.0217	< 0.0001	0.0049	-0.0044 - 0.0142	0.2990
10 - 14	-0.0032	-0.0093 - 0.0030	0.3120	0.0021	-0.0070 - 0.0113	0.6460
15 - 19	-0.0124	-0.0182 - -0.0065	< 0.0001	-0.0070	-0.0158 - 0.0017	0.1150
Period						
1990	-0.0120	-0.0193 - -0.0048	0.0010	-0.0297	-0.0406 - -0.0188	< 0.0001
1995	-0.0079	-0.0171 - 0.0013	0.0940	-0.0212	-0.0349 - -0.0074	0.0030
2000	0.0015	-0.0076 - 0.0106	0.7410	0.0131	-0.0004 - 0.0266	0.0580
2005	0.0157	0.0074 - 0.0239	< 0.0001	0.0287	0.0165 - 0.0409	< 0.0001
2010	0.0027	-0.0076 - 0.0131	0.6040	0.0090	-0.0064 - 0.0245	0.2510
Cohort						
1971 - 1975	0.0034	-0.0079 - 0.0147	0.5610	0.0102	-0.0067-0.0270	0.2370
1976 - 1980	-0.0134	-0.0245 - -0.0024	0.0170	-0.0378	-0.0542 - -0.0214	< 0.0001
1981 - 1985	-0.0132	-0.0232 - -0.0032	0.0100	-0.0189	-0.0338 - -0.0040	0.0130
1986 - 1990	-0.0181	-0.0287 - -0.0076	0.0010	-0.0251	-0.0408 - -0.0094	0.0020
1991 - 1995	-0.0048	-0.0137 - 0.0040	0.2830	0.0028	-0.0104 - 0.0160	0.6750
1996 - 2000	0.0190	0.0099 - 0.0282	< 0.0001	0.0237	0.0100 - 0.0374	0.0010
2001 - 2005	0.0272	0.0097 - 0.0447	0.0020	0.0451	0.0191 - 0.0712	0.0010
Constant	0.0510	0.0463 - 0.0558	< 0.0001	0.1360	0.1290 - 0.1431	< 0.0001