Vital Surveillances

Trends in Fruit and Vegetable Intake Among the Labor Force Population — China, 2010–2018

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ABSTRACT

Introduction: This research investigates trends pertaining to the prevalence of low fruit and vegetable consumption among the labor force population in China. The study considered data derived from four nationally representative cross-sectional surveys.

Methods: The data under review for this study was derived from the China Chronic Disease and Risk Factor Surveillance (CCDRFS) carried out in 2010, 2013, 2015, and 2018, correspondingly. We utilized a food frequency questionnaire to evaluate the quantity and frequency of fruit and vegetable consumption. The estimated prevalence of low fruit and vegetable consumption was calculated for each survey, while considering factors such as sex, age, location, and socioeconomic status (SES). Participants' SES was ascertained via latent class analysis, serving to identify distinct classes based on criteria such as education, occupation, and household income per capita. Logistic regression was deployed to determine the statistical significance of trends.

Results: From 2010 to 2018, there was a notable increase in the average daily consumption of vegetables and fruits among the working population, rising from 418.6 g/day to 491.8 g/day (P<0.01 for trend). During the same period, the prevalence of low fruit and vegetable intake declined from 51.1% to 43.5% [P<0.001 for trend; −1.6% average annual percent change (AAPC)]. This downward trend was prevalent across genders, however, certain subgroups of adults (e.g., those living in rural areas or those of low SES) saw stable consumption levels throughout this period (P>0.05 for trend).

Conclusion: Over the past nine years, there has been a notable decline in the prevalence of low fruit and vegetable consumption among the labor force population in China. Moreover, the comparatively deficient intake of fruits and vegetables evident among individuals of lower SES warrants further attention.

Fruits and vegetables are widely recognized as foundational elements of a sound diet, a principle reflected in dietary guidelines issued by numerous countries, including China (*1*). The 2022 Chinese Dietary Guidelines (CDGs) for instance, advocate for the daily consumption of 200–350 g of fruit and 300 g of vegetables. Similarly, the World Health Organization (WHO) prescribes a daily intake of 400 g of these foods. Besides their nutritional contributions, fruits and vegetables have been found to proffer potential health benefits; their sufficient intake is linked with decreased incidence of cardiovascular diseases, cancer, and all-cause mortality (*2*–*3*). In China, the labor force, consisting of individuals aged between 18 and 59 years, typically grapples with demanding work and personal life demands, which may precipitate irregular eating habits or frequent dining out. However, the last ten years have seen a notable absence of regular national analysis on fruit and vegetable intake trends within China. To probe into the patterns of fruit and vegetable consumption, particularly the frequency of low intake among the labor force, we analyzed data from four cross-sectional surveys with national representation from within Chinese mainland.

METHODS

The data utilized in this study were obtained from the China Chronic Disease and Risk Factor Surveillance (CCDRFS), specifically from the intervals of 2010, 2013, 2015, and 2018. Details behind the survey design have been previously outlined (*4*). CCDRFS used a multistage stratified cluster random sampling technique to choose permanent residents for the study. Investigators, who were exhaustively trained, employed a face-to-face questionnaire survey approach to gather data on demographics, chronic diseases, and

associated behaviors. A food frequency questionnaire was leveraged to evaluate the quantity and regularity of fruit and vegetable consumption. Adhering to the standards set by the WHO, low fruit and vegetable intake is characterized as an average daily consumption of less than 400 g of these foods. In line with the 2022 CDGs' suggested minimum intakes, low fruit intake is defined as an average daily consumption of less than 200g, whereas low vegetable intake is identified by a daily average consumption of less than 300 g.

All analyses were accordingly adjusted to cater to the complexity of the sampling design, with due consideration given to stratification, clustering, and sample weights. We employed a standardization method oriented around the 2010 China census population to account for population migration, changes in age structure, and nonresponses over time. We evaluated the prevalence of low fruit and vegetable intake for each survey, considering subgroups characterized by factors such as sex, age, geographical location, and socioeconomic status (SES). A comprehensive matrix for SES, constructed through latent class analysis, helped to identify distinct classes via item-response probabilities drawn from participants' individual socioeconomic factors such as occupation, education, and per capita household income. The decision to select the number of latent classes was informed by criteria like the Akaike information criterion (AIC), Bayesian information criterion (BIC), and G^2 likelihood ratio statistic. Joinpoint statistical software (version 5.0.2, Applications Branch, National Cancer Institute, Bethesda, USA) was instrumental in calculating the average annual percent change (AAPC). Logistic regression was utilized to assess the statistical significance of trends. For each survey, daily average intake of fruits and vegetables was estimated, with data stratified by sex, setting, and SES. To test the trends in the daily average intake of fruits and vegetables across the four surveys, we applied linear regression in consideration of the complex sampling. Our statistical analysis was undertaken using SAS (version 9.4, SAS Institute Inc., Cary, USA), and latent class analysis was conducted in R (version 4.2.2, R Core Team, Vienna, Austria) employing the poLCA package. We regarded a *P*-value of less than 0.05 as statistically significant.

RESULTS

Upon excluding subjects with absent data related to fruit and vegetable consumption, the study ultimately encompassed a total of 337,179 participants. These were distributed across the respective survey years as follows: 61,611 participants in 2010, 94,529 participants in 2013, 97,941 participants in 2015, and 83,098 participants in 2018, as depicted in Table 1.

According to the distribution patterns of conditional probabilities, we identified three latent classes. These classes could be characterized as follows: 1) Low SES: This group is comprised of individuals with a primary education or less, with occupations in agriculture or manufacturing, and a per capita household income of less than 5,000 yuan. This class accounts for 54.5% of the total sample. 2) Medium SES: This group includes individuals with a junior high or senior high education, working as service providers, and a per capita household income between 5,000 and 20,000 Chinese Yuan (CNY). This class represents 29.4% of the total sample. 3) High SES: The members of this class possess a college degree or higher, hold occupations as managers or professionals, and earn a per capita household income exceeding 20,000 CNY. This class accounts for 16.1% of the total sample (Supplementary Table S1, available at https://weekly.chinacdc.cn/).

Between 2010 and 2018, there was a significant elevation in daily vegetable consumption from 332.1 g/day [95% confidence interval (*CI*): 317.5, 346.6] to 371.3 g/day (95% *CI*: 359.7, 382.9). Likewise, fruit consumption experienced an increase from 86.5 g/day (95% *CI*: 48.2, 54.5) to 120.5 g/day (95% *CI*: 113.7, 127.3). Consequently, the overall intake of fruits and vegetables saw a remarkable surge from 418.6 g/day (95% *CI*: 48.2, 54.5) to 491.8 g/day (95% *CI*: 48.2, 54.5) ($P<0.01$ for trend). Upon dividing the participants by sex and setting, stratified by SES groups, it was observed that vegetable consumption did not undergo significant alterations within individuals falling under low SES ($P>0.05$ for trend). However, fruit intake reflected an increasing trend across all SES groups ($P<0.05$ for trend) (Figure 1).

The observed prevalence of inadequate fruit and vegetable consumption demonstrated a significant decline from 51.1% (95% *CI*: 48.2%, 54.5%) in 2010 to 43.5% (95% *CI*: 41.3%, 45.6%) in 2018 ($P<0.01$ for trend; −1.6% AAPC), even when accounting for variations in age and sex. This trend exhibited relative stability amongst adults in rural areas and of low SES, yet presented a decreasing trend in urban, high SES, and medium SES adults ($P<0.01$ for trend). As of 2018, the prevalence stood at 77.1% (95% *CI*: 75.3%, 78.9%) for inadequate fruit intake, and 38.4% (95%

TABLE 1. Characteristics of the labor force population from *China Chronic Disease and Risk Factor Surveillance* from 2010 to 2018 [*n* (%)].

Characteristics	2010 (*N*=6,166)	2013 (*N*=94,529)	2015 (*N*=97,941)	2018 (*N*=83,098)
Age (years)				
18–29	11,190 (18.2)	10,689 (11.3)	12,884 (13.2)	7,489 (9.0)
30–39	15,384 (25.0)	18,687 (19.8)	18,959 (19.4)	15,078 (18.1)
40–49	20,579 (33.4)	34,650 (36.7)	33,728 (34.4)	27,172 (32.7)
50–59	14,458 (23.5)	30,503 (32.3)	32,370 (33.1)	33,359 (40.1)
Sex				
Men	31,107 (50.5)	45,777 (48.4)	50,301 (51.4)	40,430 (48.7)
Women	30,504 (49.5)	48,752 (51.6)	47,640 (48.6)	42,668 (51.4)
Location				
Urban	21,521 (34.9)	35,351 (37.4)	37,719 (38.5)	33,973 (40.9)
Rural	40,090 (65.1)	59,178 (62.6)	60,222 (61.5)	49,125 (59.1)
Education				
Primary or less	22,956 (37.3)	36,588 (38.7)	37,839 (38.6)	31,978 (38.5)
Junior high	21,484 (34.9)	34,345 (36.3)	35,458 (36.2)	29,693 (35.7)
Senior high	10,502 (17.1)	14,884 (15.8)	14,293 (14.6)	11,969 (14.4)
College or above	6,669 (10.8)	8,712 (9.2)	10,351 (10.6)	9,458 (11.4)
Occupation				
Agriculture	36,612 (59.4)	56,460 (59.7)	55,429 (56.6)	46,830 (56.4)
Manufacture	3,589 (5.8)	6,384 (6.8)	6,119 (6.3)	4,802 (5.8)
Service	5,371 (8.7)	7,296 (7.7)	9,001 (9.2)	7,652 (9.2)
Managers or professionals	10,568 (17.2)	13,807 (14.6)	14,391 (14.7)	12,080 (14.5)
Others	5,471 (8.9)	10,582 (11.2)	13,001 (13.3)	11,734 (14.1)
Household income per capita (CNY)				
<5,000	17,351 (28.2)	10,276 (10.9)	9,794 (10.0)	10,573 (12.7)
5,000–	14,260 (23.2)	15,409 (16.3)	14,159 (14.5)	13,013 (15.7)
10,000–	14,436 (23.4)	24,832 (26.3)	25,797 (26.3)	19,463 (23.4)
≥20,000	7,471 (12.1)	24,702 (26.1)	30,067 (30.7)	22,343 (26.9)
Not clear or refused to answer	8,093 (13.1)	19,310 (20.4)	18,124 (18.5)	17,706 (21.3)
SES				
High	10,053 (16.3)	13,039 (13.8)	13,920 (14.2)	12,371 (14.9)
Medium	13,423 (21.8)	23,424 (24.8)	25,854 (26.4)	21,144 (25.4)
Low	38,135 (61.9)	58,066 (61.4)	58,167 (59.4)	49,583 (59.7)

Abbreviation: SES=socioeconomic status; CNY=Chinese Yuan.

CI: 36.3%, 40.5%) for inadequate vegetable intake. A consistent downward trend, similar to the overall trend, was also observed in the prevalence of insufficient fruit consumption across all demographical subgroups (all $P<0.01$ for trend). Despite these findings, the prevalence of inadequate vegetable intake did not present a significant shift from 2010 to 2018 ($P>0.05$ for trend) (Table 2).

DISCUSSION

Drawing on extensive, sequential data from four national population surveys, our study reveals a notable decrease in the incidence of low fruit and vegetable consumption, as well as low fruit consumption specifically, within the labor force population spanning 2010 to 2018. Remarkably, however, the prevalence of low vegetable consumption did not demonstrate any

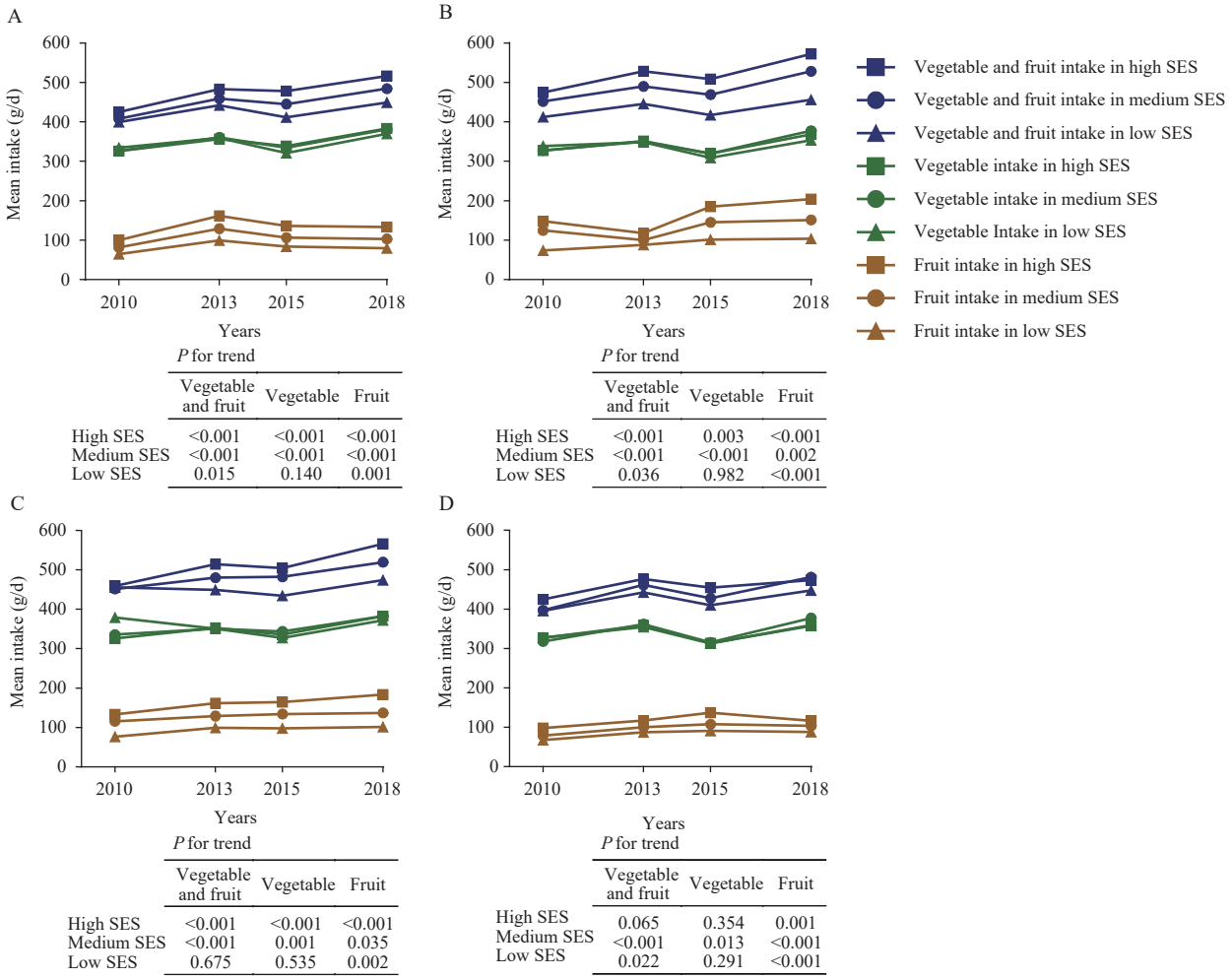

FIGURE 1. Trends in the average daily intake of vegetables and fruits among the labor force population in China from 2010 to 2018, by SES for (A) men; (B) women; (C) urban residents; (D) rural residents.
Note: Underlying data are presented in Supplementary Table S2 (available at https://weekly.chinacdc.cn/).
Abbreviation: SES=socioeconomic status.

significant alterations throughout the same time span. This trend of decline was noticeable in general, and across both genders, although particular adult subgroups (including rural and low SES) exhibited consistent consumption levels over time.

In 2020, the average global consumption of vegetables was recorded to be 186 g/day, with East Asia exhibiting the highest consumption at 349 g/day (*5*). According to the 2019 behavioral risk factor surveillance system report, only 12.3% and 10.0% of surveyed adults in America adhered to the recommended intake of fruits and vegetables, respectively (*6*). The traditional Chinese dietary structure predominantly consisted of cereals and vegetables, with a minimal inclusion of animal-based foods. However, transitions in dietary patterns, enhanced dietary diversity, and the enforcement of health policies have triggered a shift from plant-based to animal- and plant-based diets in China (*7*). Nevertheless, the consumption of fruits and vegetables in China persists at a relatively high level. The China Health and Nutrition Survey revealed a decline in the consumption of vegetables among Chinese individuals aged between 18 and 44 years from 1991 to 2011. On the other hand, fruit consumption indicated an increase (*8*). Comparable decreases in vegetable consumption have been observed in studies conducted in The Republic of Korea (*9*). In contrast, no fluctuation was noted in the daily per capita consumption of fruits and vegetables in America from 2001 to 2014 (*10*). Factors such as availability and affordability were correlated with fruit and vegetable consumption (*11*). The continuous increase in fruit and vegetable consumption is likely driven by the escalation in production and supply of these foods, as well as the enactment of sensible food pricing policies.

TABLE 2. Trends in the prevalence of low fruit and vegetable consumption among the labor force population in China from 2010 to 2018.

Characteristics	2010 [% (95% *CI*)]	2013 [% (95% *CI*)]	2015 [% (95% *CI*)]	2018 [% (95% *CI*)]	AAPC (%)	*P* for trend
The prevalence of low fruit and vegetable consumption (WHO criterion)						
Overall	51.4 (48.2, 54.5)	45.1 (43.0, 47.3)	49.5 (47.3, 51.7)	43.4 (41.3, 45.6)	−1.6	<0.001
Age, years						
18–29	52.8 (49.7, 55.9)	44.0 (41.5, 46.4)	51.1 (48.2, 54.0)	45.0 (42.3, 47.8)	−1.4	0.014
30–39	51.1 (47.6, 54.7)	44.4 (42.1, 46.8)	47.7 (44.3, 51.0)	42.1 (39.9, 44.4)	−2.0	<0.001
40–49	50.2 (46.7, 53.7)	45.7 (43.3, 48.0)	48.8 (46.5, 51.1)	41.7 (39.2, 44.1)	−1.8	<0.001
50–59	51.3 (47.7, 54.9)	47.3 (44.7, 49.8)	51.0 (48.6, 53.3)	45.8 (43.3, 48.3)	−1.0	0.051
Sex						
Men	53.3 (50.2, 56.5)	46.0 (43.7, 48.2)	50.4 (47.9, 52.8)	45.0 (42.7, 47.3)	−1.6	<0.001
Women	48.9 (45.7, 52.2)	44.1 (41.7, 46.4)	48.4 (46.2, 50.6)	41.5 (39.2, 43.7)	−1.6	<0.001
Location						
Urban	45.8 (41.9, 49.7)	42.8 (39.6, 46.0)	43.5 (40.8, 46.2)	37.0 (34.7, 39.3)	−2.6	<0.001
Rural	54.4 (50.2, 58.6)	46.4 (43.6, 49.3)	53.7 (50.7, 56.7)	48.6 (45.3, 51.9)	−0.6	0.205
SES						
High	47.0 (43.8, 50.2)	39.0 (36.7, 41.4)	42.5 (39.9, 45.1)	36.9 (34.7, 39.1)	−2.5	<0.001
Medium	51.3 (47.3, 55.3)	43.4 (40.9, 45.9)	47.6 (44.4, 50.8)	41.4 (39.0, 43.8)	−2.1	<0.001
Low	52.9 (48.8, 57.0)	48.2 (45.4, 51.0)	54.5 (51.9, 57.1)	49.1 (45.7, 52.5)	−0.2	0.522
The prevalence of low vegetable consumption (CDGs criterion)						
Overall	41.1 (37.7, 44.5)	37.9 (35.6, 40.2)	46.3 (44.0, 48.7)	38.4 (36.3, 40.5)	−0.3	0.957
Age, years						
18–29	44.4 (40.8, 48.0)	39.6 (36.6, 42.5)	49.8 (47.3, 52.3)	42.4 (39.7, 45.1)	0.2	0.558
30–39	41.7 (38.1, 45.3)	37.5 (35.0, 40.0)	46.1 (42.9, 49.3)	38.1 (35.9, 40.3)	−0.6	0.745
40–49	38.7 (35.0, 42.4)	37.2 (34.9, 39.6)	44.3 (41.7, 46.9)	35.6 (33.2, 38.0)	−0.5	0.716
50–59	38.5 (34.5, 42.4)	36.9 (34.3, 39.5)	44.2 (41.7, 46.8)	36.7 (34.1, 39.4)	0.0	0.735
Sex						
Men	41.6 (38.2, 44.9)	37.4 (35.1, 39.7)	45.4 (42.9, 48.0)	37.8 (35.6, 40.0)	−0.5	0.585
Women	40.5 (36.8, 44.1)	38.6 (35.9, 41.2)	47.5 (45.1, 49.9)	39.1 (36.8, 41.4)	0.0	0.447
Area type						
Urban	39.8 (35.9, 43.6)	40.8 (37.2, 44.3)	43.4 (40.2, 46.7)	36.6 (34.5, 38.7)	−1.4	0.222
Rural	41.8 (37.0, 46.6)	36.3 (33.3, 39.3)	48.3 (45.2, 51.5)	39.8 (36.4, 43.3)	0.7	0.455
SES						
High	42.5 (39.5, 45.5)	39.0 (36.1, 41.8)	46.0 (43.3, 48.6)	38.0 (36.0, 40.0)	−1.1	0.256
Medium	42.8 (39.3, 46.3)	38.2 (35.6, 40.8)	44.8 (41.3, 48.3)	37.3 (35.0, 39.6)	−1.3	0.120
Low	39.8 (34.9, 44.6)	37.4 (34.3, 40.4)	47.6 (44.8, 50.5)	39.4 (35.8, 43.0)	1.0	0.151
The prevalence of low fruit consumption (CDGs criterion)						
Overall	86.9 (84.9, 88.9)	81.4 (79.8, 83.0)	78.6 (77.0, 80.2)	77.1 (75.3, 78.9)	−1.5	<0.001
Age, years						
18–29	83.8 (81.0, 86.7)	77.5 (75.5, 79.5)	75.7 (73.5, 78.0)	73.9 (71.3, 76.4)	−1.5	<0.001
30–39	86.0 (83.7, 88.3)	80.3 (78.5, 82.1)	76.1 (74.1, 78.2)	74.5 (72.4, 76.7)	−1.9	<0.001
40–49	88.2 (86.5, 89.8)	83.2 (81.5, 84.9)	80.3 (78.6, 82.0)	78.2 (76.3, 80.0)	−1.6	<0.001
50–59	91.2 (89.9, 92.5)	86.6 (85.2, 88.1)	84.5 (83.1, 85.9)	84.9 (83.4, 86.4)	−1.0	<0.001

Continued

Characteristics	2010 [% (95% *CI*)]	2013 [% (95% *CI*)]	2015 [% (95% *CI*)]	2018 [% (95% *CI*)]	AAPC (%)	*P* for trend
Sex						
Men	89.2 (87.4, 90.9)	84.1 (82.7, 85.6)	81.9 (80.5, 83.4)	81.6 (80.0, 83.2)	−1.1	<0.001
Women	84.0 (81.7, 86.4)	77.8 (75.8, 79.9)	74.3 (72.4, 76.3)	71.5 (69.2, 73.8)	−2.0	<0.001
Location						
Urban	81.0 (76.9, 85.0)	74.7 (72.1, 77.3)	71.9 (69.7, 74.2)	69.2 (66.7, 71.8)	−1.9	<0.001
Rural	90.1 (88.4, 91.7)	85.1 (83.2, 87.1)	83.2 (81.2, 85.3)	83.4 (81.2, 85.7)	−1.1	<0.001
SES						
High	79.4 (76.8, 82.0)	70.5 (67.6, 73.4)	66.8 (64.6, 69.0)	65.8 (62.8, 68.7)	−2.6	<0.001
Medium	85.0 (81.0, 88.9)	80.3 (78.5, 82.1)	78.3 (76.4, 80.2)	76.7 (74.8, 78.6)	−1.1	<0.001
Low	90.4 (88.7, 92.1)	85.8 (84.0, 87.5)	84.9 (83.0, 86.8)	84.7 (82.7, 86.8)	−0.9	<0.001

Note: All calculations are weighted, accounting for the multistage cluster sampling design.
Abbreviation: WHO=World Health Organization; CDGs=Chinese Dietary Guidelines; SES=socioeconomic status; AAPC=average annual percent change; *CI*=confidence interval.

It is essential to provide consumers with the relevant information; quantified food-based dietary guidelines offer valuable scientific objectives in this regard. In light of increasing health literacy among residents, it is of paramount importance to focus on the continuous development of a variety of policies and initiatives aimed at nutrition education and promotion.

This study found that despite a general increase in fruit and vegetable consumption across the entire population, certain subgroups, particularly low SES adults living in rural areas, have consistently demonstrated low levels of intake over time. This is in line with findings from the US National Health and Nutrition Examination Survey, which identified less significant increases in fruit and vegetable consumption among individuals with lower education and income levels (*12*). Sensory and socioeconomic predictors have been recognized as powerful determinants of fruit and vegetable consumption (*13*). Socioeconomic disparities in dietary habits can be attributed to factors such as cost, accessibility, and awareness. Individuals from lower SES groups frequently display dietary patterns characterized by high intake of energy-dense foods and reduced fruit and vegetable consumption. Consequently, these individuals often present inferior nutrient profiles (*14*). A review indicated that pricing strategies, like the implementation of taxes on high-energy-density foods or subsidies on fruits and vegetables, were most effective within lower SES groups. However, dietary recommendations tend to primarily benefit those in higher SES groups (*15*). Future dietary interventions should therefore focus more heavily on individuals from lower SES backgrounds.

This study is subject to some limitations. First, the reported intake of fruits and vegetables relies essentially on self-reporting, thereby possibly incorporating recall bias. Second, our research was principally aimed at characterizing the consumption trend of low fruit and vegetable intake, without investigating the potential correlation between chronic diseases and this low consumption.

In conclusion, the nationally representative surveys conducted between 2010 and 2018 in China have manifested a notable reduction in the prevalence of low consumption of fruits and vegetables. Moreover, the comparatively low intake of these food groups amongst individuals with low SES warrants consideration. In order to actualize the objectives stated in the Healthy China Action Plan (2019–2030), sustained efforts are necessary to preserve this positive trend and assist a larger population in adhering to the recommended dietary standards. It is vital that policies persist in their endeavors to escalate the accessibility and affordability of fruits and vegetables. It is recommended that impending dietary interventions prioritize individuals with lower SES.

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SUPPLEMENTARY MATERIALS

SUPPLEMENTARY TABLE S1. Prevalence of latent classes, and item-response probabilities in models with three latent classes (%).

Item	Latent class		
	1	2	3
Prevalence	0.55	0.29	0.16
Education			
Primary or less	0.59	0.20	0.00
Junior high	0.35	0.55	0.05
Senior high	0.05	0.25	0.32
College or above	0.01	0.00	0.63
Occupation			
Agriculture	0.91	0.27	0.02
Manufacture	0.01	0.17	0.03
Service	0.004	0.22	0.12
Manager or professional	0.002	0.11	0.74
Others	0.07	0.23	0.09
Household income per capita (CNY)			
<5,000	0.23	0.05	0.03
5,000–	0.22	0.13	0.06
10,000–	0.24	0.30	0.21
≥20,000	0.13	0.34	0.51
Not clear or refused to answer	0.18	0.19	0.19

Abbreviation: CNY=Chinese Yuan.

SUPPLEMENTARY TABLE S2. Underlying data for Figure 1. Trends in average daily intake of vegetables and fruit among labor force population in China from 2010 to 2018, by SES for men, women, urban, and rural [g/day (95% *CI*)].

Characteristics	Item	2010	2013	2015	2018	*P* for trend
Men	Vegetables and Fruit					
	High SES	425.2 (407.6, 442.8)	483.2 (464.2, 502.2)	477.8 (460.5, 495.2)	516.1 (498.5, 533.8)	<0.001
	Medium SES	408.1 (387.5, 428.8)	459.2 (443.9, 474.6)	445.3 (425.4, 465.3)	484.4 (466.8, 502.1)	<0.001
	Low SES	399.2 (376.2, 422.1)	441.7 (425.4, 458.0)	411.6 (396.2, 427.0)	449.0 (425.4, 472.6)	0.015
	Vegetables					
	High SES	325.5 (312.4, 338.6)	356.5 (340.7, 372.4)	338.5 (326.2, 350.9)	383.0 (368.8, 397.1)	<0.001
	Medium SES	326.6 (311.5, 341.6)	360.5 (348.3, 372.7)	334.4 (318.1, 350.6)	381.4 (366.4, 396.4)	<0.001
	Low SES	334.7 (314.0, 355.5)	358.9 (345.5, 372.3)	321.2 (307.2, 335.2)	369.6 (349.5, 389.6)	0.140
	Fruit					
	High SES	99.7 (90.5, 109.0)	161.5 (150.1, 173.0)	135.6 (128.0, 143.3)	133. 2 (124.1, 142.3)	<0.001
	Medium SES	81.5 (70.6, 92.5)	129.1 (119.4, 138.9)	106.1 (99.7, 112.6)	103.0 (96.4, 109.7)	<0.001
	Low SES	64. 4 (58.6, 70.3)	99.1 (90.0, 108.1)	83.5 (76.6, 90.4)	79. 4 (71.2, 87.7)	0.001

Continued

Characteristics	Item	2010	2013	2015	2018	*P* for trend
Women	Vegetables and Fruit					
	High SES	475.0 (452.7, 497.2)	528.3 (504.0, 552.6)	508.9 (490.5, 527.3)	572.5 (551.1, 593.9)	<0.001
	Medium SES	451.8 (423.7, 479.8)	490.0 (468.7, 511.4)	469.2 (453.0, 485.4)	528.6 (509.5, 547.7)	<0.001
	Low SES	412.6 (389.1, 436.0)	446.1 (428.1, 464.1)	417.2 (400.9, 433.5)	456.7 (433.7, 479.6)	0.036
	Vegetables					
	High SES	327.2 (310.5, 343.9)	351.4 (334.5, 368.3)	319.8 (306.3, 333.3)	368.7 (354.4, 383.0)	0.003
	Medium SES	327.4 (311.7, 343.0)	349.9 (334.3, 365.5)	319.6 (307.1, 332.2)	377.6 (363.5, 391.6)	<0.001
	Low SES	338.7 (317.5, 359.8)	348.7 (333.8, 363.6)	308.9 (293.3, 324.6)	353.4 (334.1, 372.8)	0.982
	Fruit					
	High SES	147.8 (136.5, 159.0)	117.4 (107.5, 127.3)	185.1 (176.5, 193.8)	203.8 (190.6, 216.9)	<0.001
	Medium SES	124.4 (107.2, 141.7)	99.9 (91.1, 108.7)	145. 2 (137.2.153.2)	151.1 (141.9, 160.2)	0.002
	Low SES	73. 9 (66.6, 81. 2)	87. 7 (78.8, 96.6)	101.3 (92.7, 109.8)	103.2 (93.7, 112.8)	<0.001
Urban	Vegetables and Fruit					
	High SES	459.3 (435.6, 483.0)	513.9 (490.4, 537.4)	504.1 (484.6, 523.6)	565.6 (545.8, 585.5)	<0.001
	Medium SES	451.5 (423.7, 479.3)	479.9 (456.1, 503.7)	482.2 (465.3, 499.2)	519.3 (498.3, 540.4)	<0.001
	Low SES	455.7 (407.3, 504.1)	449.4 (419.2, 479.7)	434.7 (409.2, 460.2)	473.5 (444.5, 502.4)	0.675
	Vegetables					
	High SES	325.9 (310.7, 341.1)	352.3 (334.5, 370.1)	335.7 (322.5, 348.9)	382.4 (367.6, 397.2)	<0.001
	Medium SES	335.6 (320.7, 350.4)	350.8 (333.3, 368.2)	343.7 (331.0, 356.3)	382.3 (365.1, 399.5)	0.001
	Low SES	379.4 (335.3, 423.5)	350.4 (323.1, 377.6)	327.3 (304.0, 350.6)	371.9 (347.6, 396.3)	0.535
	Fruit					
	High SES	133.4 (120.2, 146.6)	161.5 (150.1, 173.0)	164.8 (159.0, 173.8)	183.2 (171.2.195.2)	<0.001
	Medium SES	116.0 (95.3, 136.6)	129.1 (119.4, 138.9)	134 (126.8, 141.3)	137.0 (128.1, 146.0)	0.035
	Low SES	76.4 (66.0, 86.7)	99.1 (90.0, 108.1)	97.8 (86.6, 109.0)	101.5 (90.6, 112.5)	0.002
Rural	Vegetables and Fruit					
	High SES	425.1 (393.9, 456.4)	476.4 (455.4, 497.4)	454.9 (431.3, 478.6)	473.7 (443.5, 503.8)	0.065
	Medium SES	396.9 (368.3, 425.4)	461.7 (440.8, 482.6)	427.8 (401.4, 454.2)	481.1 (455.3, 506.9)	<0.001
	Low SES	395.3 (370.3, 420.3)	442.5 (423.4, 461.7)	409.8 (391.9, 427.7)	447.5 (420.3, 474.6)	0.022
	Vegetables					
	High SES	326.9 (298.0, 355.8)	359.0 (342.5, 375.4)	313.2 (294.1, 332.3)	357.5 (334.5, 380.5)	0.354
	Medium SES	318.0 (294.0, 342.0)	361.9 (345.3, 378.4)	315.3 (292.8, 337.9)	377.6 (357.5, 397.7)	0.013
	Low SES	327.8 (305.4, 350.2)	354.8 (339.4, 370.3)	312.7 (296.1, 329.3)	359.5 (336.4, 382.6)	0.291
	Fruit					
	High SES	98.2 (89.8, 106.5)	117. 4 (107.5, 127.3)	137.2 (125.8, 148.7)	116.1 (104.9, 127.3)	0.001
	Medium SES	78.9 (70.2, 87.6)	99.9 (91.1, 108.1)	107.7 (98.6, 116.8)	103.5 (93.9, 113.1)	<0.001
	Low SES	67.5 (60.1, 74.8)	87.7 (78.8, 96.6)	90.7 (81.9, 99.6)	88.0 (77.9.98.1)	<0.001

Abbreviation: SES=socioeconomic status.