

Associations between decline in household income and dietary and lifestyle changes during the COVID-19 pandemic

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SUMMARY

This study examined associations between changes in household income and changes in diet, dietary behavior, and lifestyle during the coronavirus disease 2019 (COVID-19) pandemic in Japan. An online cross-sectional questionnaire survey was conducted in November 2020 with 6000 Japanese adults (aged 20–64 years).

Of the 5158 participants analyzed, 1144 (22.2%) reported decreased household income since before the COVID-19 pandemic (November 2019) to the present (November 2020). In this group, a high proportion were in their 50s, were high school graduates, and had household income under 2 million yen in 2019. Decrease in household income was negatively associated with vegetable intake, time spent on breakfast, and time spent exercising, and positively associated with frequency of drinking and time spent on lunch. This study suggested that decrease in household income during the COVID-19 pandemic was associated with expansion of economic disparities and changes in dietary habits.

BACKGROUND

- ✓ The COVID-19 pandemic has had a large impact on employment and work environments.
The number of people who have lost their jobs or taken time off increased.
⇒ Household income was negatively impacted.
- ✓ Socioeconomic status such as household income affects dietary habits.
E.g., low-income groups have low intake of vitamins, dietary fiber, vegetables, fruits, and fish, and high intake of carbohydrates.
- ✓ Changes in household income during the COVID-19 pandemic is also considered to be related to changes in eating habits and lifestyle habits.

OBJECTIVE

This study aimed to examine characteristics and changes in diet, dietary behavior, and lifestyle of people who reported decreased household income since before the COVID-19 pandemic (November 2019) to the present (November 2020) in Japan.

1. What kind of people reported decreased household income during the COVID-19 pandemic?
2. Did the diet, dietary behavior, and lifestyle of the people who reported decreased household income change?



METHODS

Study design and subjects

An online cross-sectional study involving 6000 individuals aged 20–64 years who were registered with a Japanese research company was conducted in November 2020. The participants agreed to participate in the questionnaire survey and were chosen at random. They were representative of the population of each prefecture in Japan, and deviations in age and sex were adjusted for. This study was approved by the Ethics Committee of the University of Nagano (No. E20-3).

Measures

- ◆ Changes in diet, dietary behaviors, and lifestyle
Question: “How has the frequency and amount of the following items related to your current diet, dietary behaviors, and lifestyle changed over the past month?”
⇒ Select one answer from “decreased,” “increased,” and “no change”
- ◆ Demographics and socioeconomic status
(gender, age, educational background, household income in 2019, etc.)
- ◆ Change in household income; Question: “Has your household income in the past 1 month (October 2020) changed since October 2019?”
⇒ Select one answer from “decreased,” “increased,” and “no change”

Analysis

- ◆ χ^2 test: changes in household income, demographics, and socioeconomic status
- ◆ Multiple logistic regression analysis (forced entry method)
Dependent variable: household income; Independent variables: changes in diet, dietary behaviors, and lifestyle; Adjusted variables: sex, age, educational background, business category, employment status, and annual household income (2019)

RESULTS

5158 respondents (eligibility rate 86.0%) were included in the analysis.
⇒ 1144 participants (22.2%) reported decreased household income.

1. Characteristics of participants according to changes in household income since before the COVID-19 pandemic to the present (Table 1)

Demographics and socioeconomic status	Total N = 5158	Current household income		P value
		Decreased n = 1144	Increased or No change n = 4014	
Age (years)				
20–29	870 (16.9)	192 (16.8)	678 (16.9)	0.020
30–39	1111 (21.5)	229 (20.0)	882 (22.0)	
40–49	1405 (27.2)	284 (24.8)	1121 (27.9)	
50–59	1211 (23.5)	302 (26.4)	909 (22.6)	
60–64	561 (10.9)	137 (12.0)	424 (10.6)	
Educational background				
Junior high school	105 (2.0)	26 (2.3)	79 (2.0)	0.007
High school	1264 (24.5)	323 (28.2)	941 (23.4)	
Professional school	582 (11.3)	138 (12.1)	444 (11.1)	
Junior colleges or technical college	514 (10.0)	110 (9.6)	404 (10.1)	
College or university	2380 (46.1)	489 (42.7)	1891 (47.1)	
Graduate school	313 (6.1)	58 (5.1)	366 (6.4)	

N = 5158, χ^2 test, n (%)

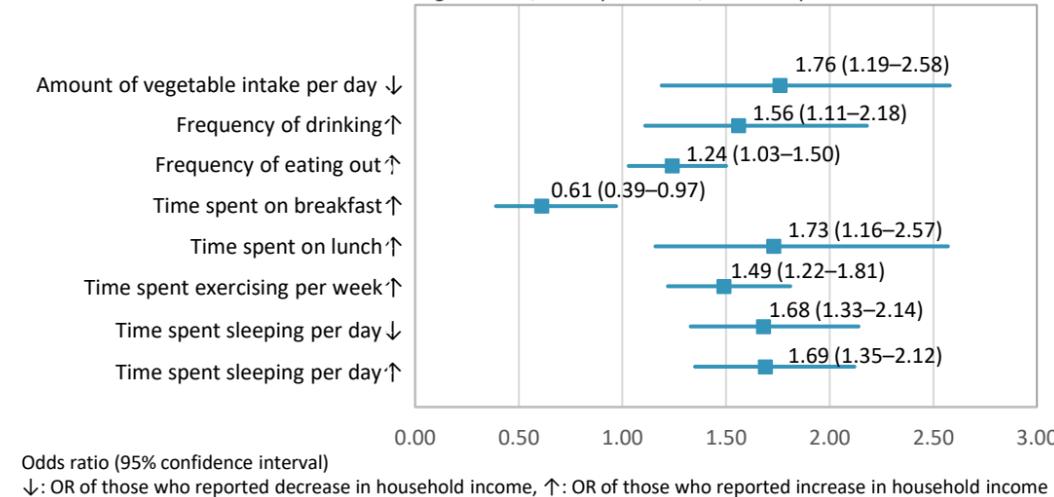
(Table 1 Continued)

Demographics and socioeconomic status	Total N = 5158	Current household income		P value
		Decreased n = 1144	Increased or No change n = 4014	
Employment status				
Regular employment	2257 (43.8)	403 (35.2)	1854 (46.2)	<0.001
Temporary workers	139 (2.7)	33 (2.9)	106 (2.6)	
Part-time worker	1022 (19.8)	234 (20.5)	788 (19.6)	
Executive officers	61 (1.2)	8 (0.7)	53 (1.3)	
Self-employed business owner	355 (6.9)	138 (12.1)	217 (5.4)	
Family employee	54 (1.0)	13 (1.1)	41 (1.0)	
Domestic pay work	39 (0.8)	9 (0.8)	30 (0.7)	
Not working	1231 (23.9)	306 (26.7)	925 (23.0)	
Household income (2019) †				
<2 million yen	662 (12.8)	171 (14.9)	491 (12.2)	0.007
2–6 million yen	2423 (47.0)	552 (48.3)	1871 (46.6)	
≥6 million yen	2073 (40.2)	421 (36.8)	1652 (41.2)	

N = 5158, χ^2 test, n (%), †1 million yen = US \$9366 (as of 1 Mar, 2021)

2. Changes in diet, dietary behavior, and lifestyle according to changes in household income since before the COVID-19 pandemic to the present (Multiple logistic regression analysis [forced entry method])

Graph shows items with significant differences among all items related to changes in diet, dietary behavior, and lifestyle.



Odds ratio (95% confidence interval)

↓: OR of those who reported decrease in household income, ↑: OR of those who reported increase in household income

CONCLUSION

1. Individuals whose household income decreased compared with before the COVID-19 pandemic had lower household income before the pandemic
⇒ Economic disparities widened due to COVID-19.
2. Decrease in household income was negatively associated with vegetable intake, frequency of eating out, time spent on breakfast, and time spent exercising, and positively associated with frequency of drinking and time spent on lunch.

FUNDING

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