"Health impact of banning TV food advertisement in Spain"

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Abstract

This study investigates the influence of food advertisement exposure on children's dietary preferences in Spain. Conducted with 288 children across diverse schools in Barcelona from June 2022 to January 2023, the research unveils unexpected gender dynamics. Treated females exhibit a significant increase in choosing unhealthy snacks. Social media hours emerge as a potent influencer, impacting both immediate and future food preferences. Exploring interactions between treatment and gender/social media, contrary to expectations, the treatment does not magnify existing effects. Instead, it reduces or neutralises influential drivers, suggesting a nuanced interplay with individual characteristics. Implications for public health underscore the need for tailored interventions considering gender-specific dynamics and social media influence. This study contributes novel insights, informing targeted policies to foster healthier dietary choices among Spain's younger population.

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1 Introduction

Obesity and overweight have increased among the population, especially in developed countries. Weight status problems can lead to non-communicable diseases, such as cardiovascular diseases, Type II diabetes, musculoskeletal disorders and even some types of cancer. The relationship between chronic diseases and obesity among adults is of considerable interest to policy-makers and with the excruciating factor of the increase in its prevalence among the paediatric population, obesity is then acknowledged as one of the major public health problems in developed economies, thus being considered as a pandemic.

Unhealthy diets at the infant age are related to child obesity and overweight, which are also strongly associated with weight-related diseases in adulthood. Food marketing and advertisement can be key factors that influence children's preference and caloric consumption of High Fat, Salt, and Sugar (HFSS) foods, inducing a greater intake of energy-dense products. Child obesity or overweight has become a public policy issue to the extent that the World Health Organisation released in 2010 a set of recommendations on the limitation of food marketing and advertisement, given the existent evidence (World Health Organization, 2010).

Children exposed to food advertisements, not only on TV but in various media, suffer from higher increases in calorie intake, a phenomenon which is magnified among overweight and obese children. In the literature, the experimental evidence shows that the effect is direct, and it is not compensated in the subsequent meals, leading to a caloric surplus throughout the day. The persistent exposure and consequent effect of advertisement induce unhealthy dietary habits and aggravate already existent patterns. (Halford et al., 2004, 2007; Norman et al., 2018).

In Spain, the "Informe ALADINO", a study of children's nutrition, physical activity, infant development, and obesity that is published periodically since 2011, shows the prevalence of overweight and obesity among young children (between 6 and 9 years) is 23.3% and 17.3% respectively. While obesity is more prevalent among boys, girls show a higher percentage of overweight (Ministerio de Consumo and Agencia Española de Seguridad Alimentaria y Nutrición, 2020).

Since the experimental literature on food advertisement and child obesity or overweight seems to have clearly stated the existent relation between both variables, the debate on what public policies should be applied is open. The current situation in Europe is that the advertisers should self-restrict their child content, however, the quantity of food advertisements on channels or content for children is significant and increasing. Many countries like Canada, the UK, Chile, and Spain have announced the possibility of

prohibiting or limiting food advertisements.

The Ministry of Consumption in Spain, Alberto Garzón, announced in October 2021 the possibility of banning food advertisements in 2022 in Spain, taking into account the already mentioned experimental evidence and the alarming increase in the share of children suffering from obesity or overweight.

While existing studies have established a clear connection between food advertising and child obesity, there are specific aspects that require closer examination. Current research has focused on the direct impact of food ads on children's calorie intake. However, there's a need for a more in-depth understanding of the underlying psychological and behavioural factors at play. Additionally, much of the available literature draws from global perspectives, and there is a gap in research specifically tailored to the unique cultural and media landscape of Spain. As discussions around public policy intensify, it is essential to assess the effectiveness of existing self-restrictions imposed by advertisers and the potential consequences of more stringent regulations, as proposed by the Ministry of Consumption in Spain. This study aims to address these specific aspects by examining the intricacies of the relationship between food advertising and child behaviour, considering both global insights and the distinct dynamics present in the Spanish context. The objective of this paper is to explore and quantify the influence of food advertisement on children in Spain.

2   Literature Review

The exploration of media exposure and child obesity began with an influential experiment by Halford et al. (2004) in the UK. Conducted in schools with children aged 9-11, the study revealed intriguing patterns in food advertisement exposure and subsequent food intake. Notably, obese and overweight children exhibited a higher ability to recognize food-related advertisements, and this recognition correlated with increased food consumption. A follow-up experiment by Halford et al. (2007) with younger children (5-7) reinforced these findings, demonstrating a significant increase in food intake after exposure, irrespective of weight status. These patterns have found support in subsequent experimental literature, as evidenced by Norman et al. (2018) in Australia.

The literature consistently points to the influence of food advertisements on subsequent food intake, with a clear correlation between consumption and the weight status of children. Overweight or obese children, in particular, exhibit heightened responsiveness, and this increased ability to recognize food-related adverts does not lead to compensatory behaviours. This trend is supported by studies such as Boyland and Halford (2013) and Norman et al. (2018).

While there is no consensus on the type of media, a unanimous observation emerges—greater exposure amplifies the impact of food advertisements on food consumption and preferences. Factors such as TV viewing hours and multiple media exposure play key roles, affecting both unhealthy food choices and preferences. This impact is observed more significantly among younger children, who prove to be more susceptible to advertisements, and is more pronounced among boys than girls, as noted by Boyland and Halford (2013), Norman et al. (2018), and Sadeghirad et al. (2016).

The literature introduces a nuanced perspective on influencing food preferences. Positive incentives, exemplified by nutritional workshops, have been shown to affect food preferences positively, as indicated by Mora and Lopez-Valcarcel (2018). However, the impact of peers cannot be dismissed, particularly in encouraging unhealthy choices.

A separate but integral body of literature underscores the established relationship between sugar drinks and child obesity. Consumption of sugary drinks is directly linked to an increase in Body Mass Index (BMI) in children, influencing behavior and academic achievement. This connection has been consistently supported by Brownell et al. (2009), Ludwig et al. (2001), and Schiltz and Witte (2021).

In a simulation cost-benefit analysis by Mytton et al. (2020), the withdrawal of food adverts in the UK is estimated to result in a significant decrease in daily calorie consumption among children, emphasizing potential future public health benefits. Additionally, a review by Smith et al. (2019) accentuates the detrimental consequences of excessive energy intake from food advertisements in younger populations, providing robust support for the restriction of food advertisements targeting children.

This study breaks new ground by offering the first experimental evidence on the impact of food advertisements on children's preferences in Spain, exploring immediate and future food choices, the research uncovers unexpected gender dynamics. The study's innovative approach, including interactions between treatment and influential variables, advances our understanding of the intricate factors shaping children's dietary preferences, contributing uniquely to the existing literature.

3   Methodology

3.1   Participants

A total of 288 children aged between 11 and 17 participated in the experiment. The students were enrolled in five different educational centres in the Province of Barcelona. Thus, in every centre the students were divided into two groups; treatment and control.

3.2   Materials

The materials used in the experiment consist of audiovisual content and a questionnaire. Three videos were used, containing a children's programme and two advertisement videos, one food related and a non-food related. To capture the food preferences as well as other indicators, the students were asked to complete a printed questionnaire where they could select the food among 6 options and answer other questions, where some of which are used as proxies. There were two types of questionnaires, only with a modification in the order of the two food choices questions. In the questionnaire type A, had the immediate food choice first and the future second, whereas type B had the future choice first.

3.3   Procedure

Firstly, the experimental design was approved by the Bioethical Committee of the Universitat de Barcelona. Educational centres were contacted at least two weeks prior to the experiment and the schools interested in participating were communicated. The parents were informed about the experiment, but not about the objectives of the study in order to avoid possible biases. The students that wished to participate, had to present a consent form signed by their legal guardians.

The experiment was tested only once in every centre. The students were told about the exposure to audiovisual content but were not aware of the existence of advertisements. The chosen programme lasted for approximately 12 minutes, with an advertisement break of 30 seconds. The audiovisual content was edited to have the adverts at the same minute. The treatment and control groups were tested simultaneously in different environments, with the exception of one school (but the groups had no contact with each other). Immediately after the exposure, the participants were asked to fill out the questionnaire, in which they had to choose a snack for that day and for the next week. The students had no limited time to complete the questionnaires, and the end of the experiment was marked by the handing of the last student in the room.

3.4   Descriptive Statistics

Through the questionnaire, we captured various socioeconomic characteristics of the participants which are used in the analysis to observe other possible relations with the preferences for HFSS foods. The summary of these characteristics can be consulted in Table 1, and the T-Test to account for significant differences between groups is shown in Table 2, where it is noticeable that there are no major contrasts, therefore the groups are balanced. Additionally, the summary statistics by group can be found in Table A1.

Table 1: Descriptive Statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Hours of TV	285	1.586	1.571	0	10
Hours of Social Media	287	3.282	2.469	0	10
Hours of Streaming Platforms	286	2.566	2.144	0	11
Sleeping Hours	286	7.853	1.443	0	10
Hours of Study	287	2.066	1.818	0	10
Strictness	286	4.220	2.440	0	10
Parental SM Control	284	3.239	3.006	1	50
Parental Compliance	282	2.309	0.541	1	4
Number of Books	243	166.7	669.1	0	10,000
Punctuality	283	3.300	0.728	1	4
Age	245	12.71	0.704	11.50	17.15

Table 2: T-Test

	(1)	
HFSS Immediate	-0.0157	(-0.27)
HFSS Future	0.0521	(0.87)
Age	-0.131	(-1.45)
Hours of TV	0.182	(0.98)
Hours of Social Media	-0.0708	(-0.24)
Hours of Streaming Platforms	0.212	(0.83)
Sleeping Hours	0.290	(1.70)
Hours of Study	-0.0344	(-0.16)
Strictness	0.167	(0.58)
Parental SM Control	0.299	(0.84)
Parental Compliance	0.125	(1.95)
Number of Books	-97.07	(-1.13)
Punctuality	0.165	(1.91)
Observations	288	

t statistics in parentheses
*** $p<0.001$, ** $p<0.01$, * $p<0.05$

4 Preliminary Results

4.1 Food Choices

The snack chosen by the participants to eat the same day is considered an immediate food choice, whereas the snack for the next week is considered a choice for the future. n Figure 1, a clear distinction is visible in the percentages of immediate food preferences between the treatment and control groups. Notably, the treatment group demonstrates a higher inclination towards choosing unhealthy snacks, with a notable 2-percentage-point difference compared to the control group. Despite this divergence, both groups exhibit a marked preference for healthier snacks. This finding suggests that while exposure to food advertisement may influence immediate food choices, a considerable preference for healthier options persists across both groups.
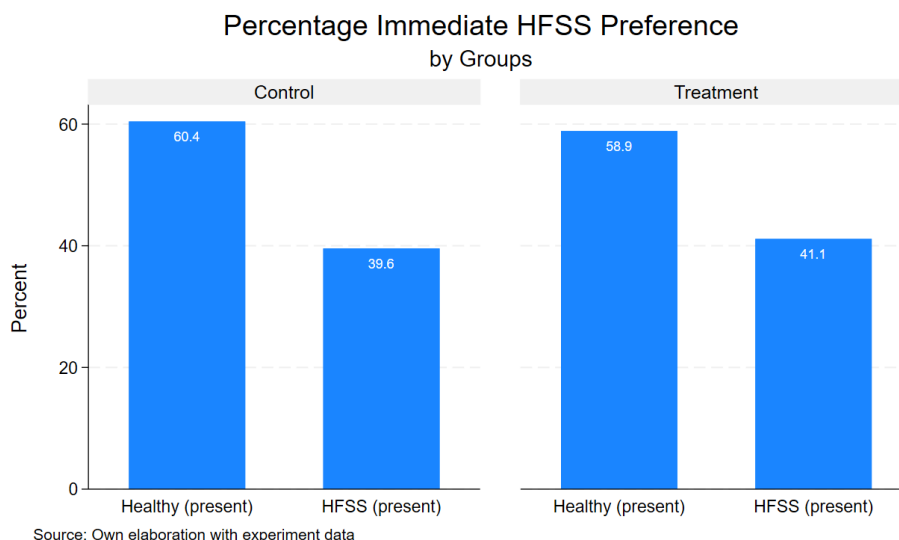

Figure 1: Immediate Food choices

Contrary to the immediate food preferences depicted in Figure 1, Figure 2 unveils a different trend in future food choices. Here, the treatment group leans towards selecting more healthy food options compared to the control group. This intriguing result suggests that, despite the exposure to unhealthy food advertisements, the treatment group's future preferences remain largely unaffected. This resilience in future food preferences underscores the complexity of factors at play and prompts further investigation into the lasting impact of food advertisement on children's dietary choices over time.

When delving into immediate food preferences by gender, a striking pattern emerges. Treated females appear to be the driving force behind the 2-percentage-point difference highlighted in Figure 3. These treated females exhibit a substantial 5-percentage-point

Percentage Future HFSS Preference
by Groups

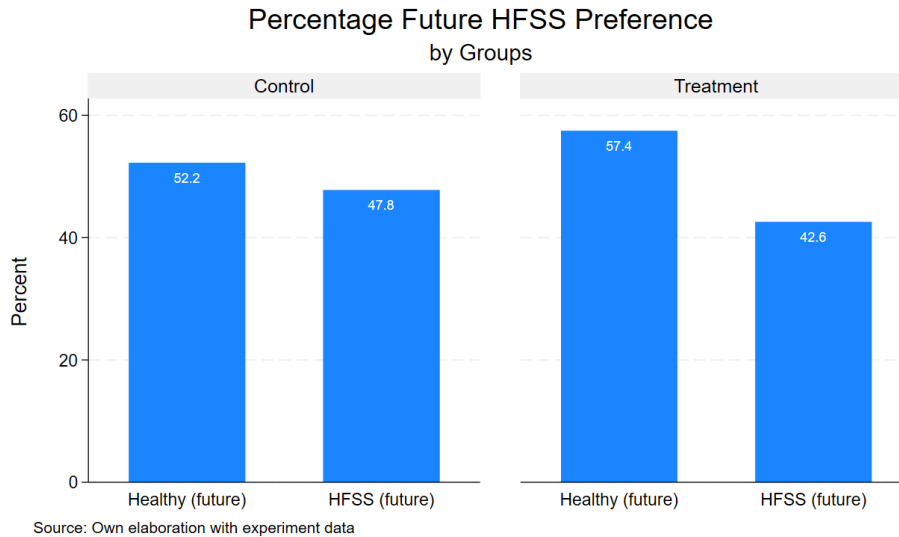Source: Own elaboration with experiment data

Figure 2: Future Food choices

difference in choosing unhealthy snacks compared to their control group counterparts. In contrast, males in the treatment group display an unexpected result, opting for more healthy food than their control group counterparts. This finding contradicts previous experimental literature, challenging the conventional notion that boys are more susceptible to the influence of marketing tools than girls. The gender-specific nuances in immediate food choices underscore the need for a nuanced examination of the impact of advertisement on different segments of the population.

Percentage Immediate HFSS Preference
by Groups and Gender
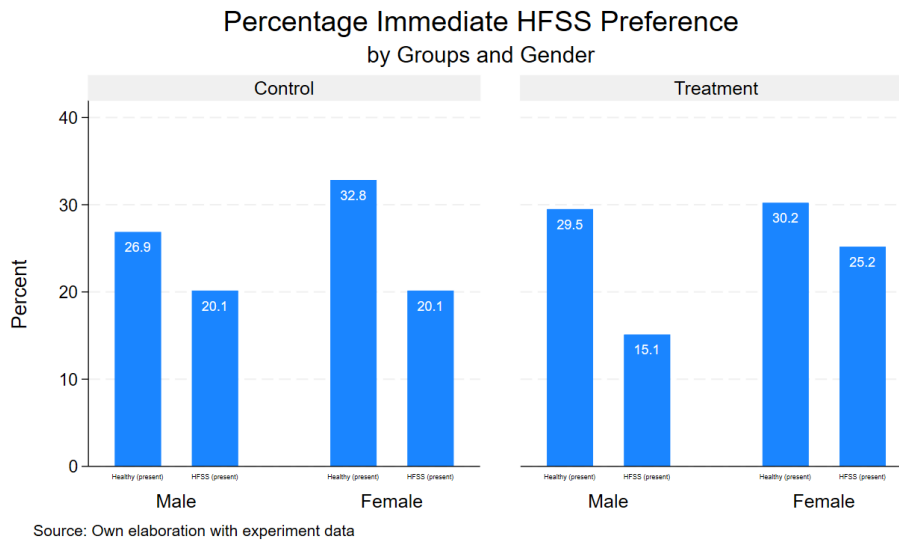

Source: Own elaboration with experiment data

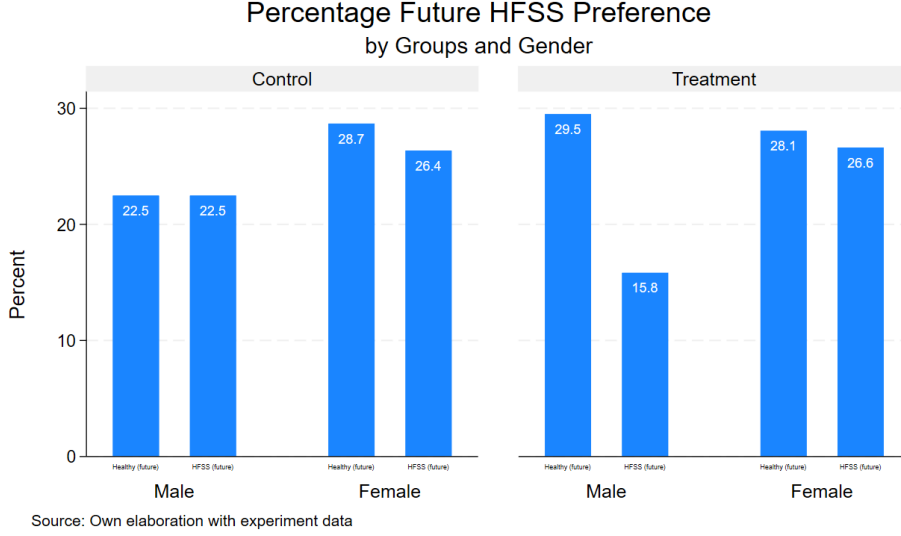Figure 3: Immediate Food Choices by Gender

Figure 4: Future Food Choices by Gender

Turning to future food preferences observable in Figure 4, intriguing distinctions arise between genders. Females in both the control and treatment groups demonstrate nearly identical preferences for healthy and unhealthy food options. This parity suggests that, despite notable differences in immediate choices, the impact of advertisement on future food preferences is remarkably consistent among females. In contrast, males in the treatment group exhibit a distinct preference, favouring healthy snacks by almost 7 percentage points. This disparity raises questions about the longevity of effects and whether the initial interest in High Fat, Salt, and Sugar (HFSS) snacks diminishes over time or fades when exposed to advertisements. The gender-specific dynamics in future food choices necessitate a closer examination of the temporal aspects of the influence of advertisement on dietary preferences.

4.2 Regression Analysis

Given the nature of the data, the model we use to estimate the effect of food advertisement on the food choices of children is a Linear Probability Model (LPM), consisting of a Ordinary Least Squares (OLS) regression where the dependent variable is binary. Our estimated equation is the following:

$$HFSS_i = \beta_0 + \beta_1 Treatment_i + \beta_2 Gender_i + \beta_3 Age_i + \beta_4 X_i + \epsilon_i \tag{1}$$

Where $HFSS_i$ is the choice of healthy (value of 0) or unhealthy (value of 1) food for the participant i. The effect of advertisement is captured in the variable $Treatment_i$

which is binary and depends on whether the student was part of the treatment or control group. The remaining variables are controls, where X_i is a matrix of individual and family controls that we captured through the questionnaire.

Our initial analyses offer an insightful glimpse into the relationship between food advertisement exposure and children's food choices. The summary of the main preliminary results is shown in Tables 3 and 4, however, the expanded tables can be consulted in the Appendix (Tables A2 and A3) which include the detailed variables.

The analysis of immediate food choices, as indicated by a series of regressions using a Linear Probability Model (LPM), revealed a positive sign for the coefficient of the treatment variable, aligning with prior expectations. However, it's crucial to note that the treatment did not exhibit statistical significance across various specifications. Referencing the expanded Table A2, the only statistically significant variable pertained to family controls, specifically parental compliance. Notably, parental compliance exhibited a negative sign with a 1% level of significance, indicating that more credible parents—those who consistently keep their promises—were associated with a lower probability of children choosing unhealthy food.

Table 3: LPM Immediate Food Choices with School Clustered Robust SE

VARIABLES	(1) HFSS Imm.	(2) HFSS Imm.	(3) HFSS Imm.	(4) HFSS Imm.
Treatment	0.0157	0.0303	0.0115	0.0140
	(0.0406)	(0.0532)	(0.0454)	(0.0324)
Gender		0.0605	0.0459	0.0684
		(0.0867)	(0.109)	(0.0955)
Age		-0.0275	-0.0482	-0.0301
		(0.0801)	(0.0752)	(0.0893)
Constant	0.396***	0.716	0.873	0.550
	(0.0343)	(0.983)	(0.796)	(0.833)
Observations	280	232	227	221
R-squared	0.000	0.005	0.067	0.088
Individual Controls	NO	NO	YES	YES
Family Controls	NO	NO	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Turning to future food choices, the treatment variable demonstrated a negative but non-significant effect. This suggests that exposure to advertisements had little to no significant

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impact on children's food preferences over time. However, noteworthy patterns emerged in the data. Contrary to existing literature, girls exhibited a higher probability of choosing High Fat, Sugar, and Salt (HFSS) foods, as illustrated in Figure 3 and 4. While these results should be interpreted cautiously due to the volatile level of significance, the observation of a more predominant taste for unhealthy food choices among girls challenges conventional expectations. This deviation from the norm, where girls tend to opt for healthier choices and less risky behaviour, could be a compelling avenue for further research.

In addition, the expanded Table A3 indicated that having siblings was associated with a positive and highly significant coefficient, implying that the family structure, specifically having any sibling at all, increased the probability of selecting HFSS food by approximately 8%. This finding suggests a potential influence of family dynamics on children's food choices. Moreover, parental compliance continued to exhibit a negative and slightly significant coefficient, reinforcing the earlier observation of credible parents mitigating the likelihood of children selecting unhealthy food.

Table 4: LPM Future Food Choices with School Clustered Robust SE

VARIABLES	(1) HFSS Fut.	(2) HFSS Fut.	(3) HFSS Fut.	(4) HFSS Fut.
Treatment	-0.0521	-0.0414	-0.0529	-0.0605
	(0.0879)	(0.108)	(0.0929)	(0.105)
Gender		0.0895	0.0797*	0.0860
		(0.0639)	(0.0450)	(0.0666)
Age		-0.0201	-0.0440	-0.0532
		(0.0454)	(0.0642)	(0.0899)
Constant	0.478***	0.685	1.020	1.065
	(0.0609)	(0.586)	(0.800)	(1.000)
Observations	275	228	224	218
R-squared	0.003	0.010	0.063	0.102
Individual Controls	NO	NO	YES	YES
Family Controls	NO	NO	NO	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

A noteworthy development has emerged upon further examination of the data, revealing the relevance of a previously included but underexplored variable—hours of social media usage. This variable has shown positive and significant effects at the 1% level for both immediate and future food choices, as indicated in Tables A2 and A3. The discovery of this

variable introduces a significant nuance to our understanding of the factors influencing children's food preferences.

The positive and significant effects of social media usage on food choices raise intriguing questions about the evolving landscape of media consumption among children. It suggests a potential generational shift in the way children interact with audiovisual content, moving beyond traditional television exposure.

The observed 2% increase in the likelihood of choosing unhealthy food for each additional hour of social media usage implies a considerable impact. This may indicate that social media platforms, with high levels of advertising content, play a substantial role in shaping children's dietary preferences. These findings prompt a reevaluation of the role of traditional TV food advertisement in influencing food choices. It appears that the observed effects may be driven, at least in part, by the changing media consumption patterns of the younger generation. The prevalence of advertising content on social media platforms could be a significant driver of the observed preferences for unhealthy food.

In an effort to delve deeper into the nuanced dynamics of food choices, interactions between treatment and two influential variables, gender and hours of social media usage, were examined and can be observed in Table 5. Notably, both gender and social media usage alone demonstrated significant effects on the likelihood of choosing High Fat, Salt, and Sugar (HFSS) food options (as observed in Table A3, with social media hours exhibiting a particularly pronounced and significant impact.

Surprisingly, when interactions between treatment and gender were introduced into the Linear Probability Model (LPM) for future food choices, the significant effects observed for gender in isolation diminished. The magnitude of the coefficient for the interaction between treatment and gender was notably reduced compared to the coefficient for gender alone in the previous LPM models. Most importantly, the interaction exhibited no significant level, suggesting that the treatment did not amplify existing gender-driven effects; rather, it appeared to attenuate or negate them.

A similar trend was observed with the interaction between treatment and social media usage. While social media usage in isolation had a substantial impact on the likelihood of choosing unhealthy food options, introducing the treatment interaction led to a reduction in the coefficient magnitude, and the interaction lost its significance. This implies that the treatment did not enhance the influence of social media on food choices; instead, it seemed to diminish the existing impact.

These findings raise intriguing questions about the interplay between treatment exposure and the drivers of food preferences. Contrary to the expectation that treatment might magnify existing effects, the results suggest a trend of reduction or neutralization of influ-

ential factors. This warrants a closer examination of the intricate relationships between treatment and individual variables to better understand the nuanced mechanisms at play in shaping children's food choices.

Table 5: LPM Interactions of Immeadite and Future Food Choices with School Clustered Robust SE

| | (1) HFSS Imm. | (2) HFSS Imm. | (3) HFSS Fut. | (4) HFSS Fut. |
VARIABLES				
TreatmentxSocial		0.0115		-0.00144
		(0.00870)		(0.0119)
Gender		0.0857		0.0984
		(0.117)		(0.0702)
Age	-0.00320	-0.00930	-0.0431	-0.0421
	(0.0837)	(0.0942)	(0.0764)	(0.0779)
TreatmentxGender	0.0781		0.00470	
	(0.0646)		(0.0747)	
Constant	0.565	0.556	1.130	1.027
	(0.782)	(0.878)	(0.914)	(0.832)
Observations	221	221	218	218
R-squared	0.046	0.051	0.081	0.089
Individual Controls	YES	YES	YES	YES
Family Controls	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5   Conclusion

In the pursuit of unravelling the complex interplay between food advertisements, individual characteristics, and children's dietary preferences, this study embarked on an unprecedented journey within the Spanish context. The exploration of immediate and future food choices among 288 children from five diverse schools in the province of Barcelona during the period from June 2022 to January 2023 has yielded insightful findings that contribute to the nascent field of experimental evidence in Spain.

This study stands as the first of its kind in Spain, providing pioneering insights into the impact of food advertisements on children's preferences. The endeavor to secure permissions from schools and parents, amid the challenges imposed by COVID-19 restrictions,

underscores the dedication required to advance our understanding of this critical public health issue. By focusing on real-world scenarios and utilizing a diverse sample, this research aims to bridge the gap in the existing literature concerning the influence of food advertisements on children's food choices in the Spanish context.

One of the notable revelations of this study pertains to the unexpected gender dynamics in the relationship between food advertisement exposure and children's preferences. While previous experimental literature has often emphasized the susceptibility of boys to marketing tools, our results suggest a nuanced picture. Treated females demonstrated a significant increase in the likelihood of choosing unhealthy snacks, challenging conventional expectations. The emergence of such gender-specific nuances highlights the need for tailored interventions and a deeper understanding of how different segments of the population respond to food advertisements.

A significant and previously unexplored variable, hours of social media usage, emerged as a potent influencer on children's food choices. The positive and significant effects of social media hours, both for immediate and future food preferences, raise questions about the evolving landscape of media consumption among the younger generation. The prevalence of advertising content on social media platforms seems to be a driving force behind the observed preferences for unhealthy food.

The introduction of interactions between treatment and influential variables, such as gender and social media usage, aimed to unravel the complexity of factors shaping food preferences. Contrary to expectations, the treatment did not magnify existing effects; rather, it seemed to reduce or neutralize influential drivers. This intriguing dynamic suggests that the impact of food advertisement exposure might be contingent on a nuanced interplay with individual characteristics, leading to varying outcomes.

As we contemplate the implications of these findings, there is a compelling case for reevaluating public health strategies aimed at mitigating the impact of food advertisements on children's dietary choices. Tailored interventions that account for gender-specific dynamics and the influence of social media could be more effective in addressing the root causes of unhealthy food preferences. Moreover, these results warrant further exploration into the temporal aspects of advertisement influence and the lasting effects on children's dietary habits.

In conclusion, this study serves as a groundbreaking endeavour that extends our understanding of the intricate relationships between food advertisements, individual characteristics, and children's food preferences within the Spanish context. As we navigate the complexities of the modern media landscape, the insights gleaned from this research can inform targeted interventions, policies, and future investigations aimed at fostering healthier dietary choices among the younger population.

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Appendix

Table A1: Descriptive Statistics by Group

VARIABLES	N	mean	sd	min	max
Treatment Group					
Hours of TV	145	1.497	1.329	0	6
Hours of Social Media	145	3.317	2.530	0	10
Hours of Streaming Platforms	145	2.462	2.239	0	11
Sleeping Hours	145	7.710	1.654	0	10
Hours of Study	144	2.083	1.981	0	8
Strictness	145	4.138	2.516	0	10
Parental SM Control	143	3.091	1.106	1	5
Parental Compliance	142	2.246	0.508	1	3
Number of Books	127	213.0	912.6	0	10,000
Punctuality	142	3.218	0.764	1	4
Age	128	12.77	0.759	11.52	17.15
Control Group					
Hours of TV	140	1.679	1.788	0	10
Hours of Social Media	142	3.246	2.415	0	10
Hours of Streaming Platforms	141	2.674	2.044	0	10
Sleeping Hours	141	8	1.177	2	10
Hours of Study	143	2.049	1.646	0	10
Strictness	141	4.305	2.366	0	10
Parental SM Control	141	3.390	4.121	1	50
Parental Compliance	140	2.371	0.567	1	4
Number of Books	116	116.0	157.0	0	900
Punctuality	141	3.383	0.683	1	4
Age	117	12.64	0.635	11.50	14.09

Table A2: LPM Immediate with School Clustered Robust SE

VARIABLES	(1) HFSS Imm.	(2) HFSS Imm.	(3) HFSS Imm.	(4) HFSS Imm.
Treatment	0.0157	0.0303	0.0115	0.0140
	(0.0512)	(0.0611)	(0.0433)	(0.0442)
Gender		0.0605	0.0459	0.0684
		(0.111)	(0.100)	(0.112)
Age		-0.0275	-0.0482	-0.0301
		(0.115)	(0.0883)	(0.0974)
Hours of TV			0.0187	0.0254
			(0.0220)	(0.0254)
Hours of Social Media			0.0500***	0.0484***
			(0.00662)	(0.0120)
Hours of Streaming Platforms			-0.0259	-0.0295
			(0.0175)	(0.0229)
Sleeping Hours			0.0141	0.0176
			(0.0311)	(0.0415)
Sport's Practice			-0.0748	-0.0427
			(0.129)	(0.134)
Weekly Hours of Sport			-0.00623	-0.00540
			(0.0132)	(0.0130)
Hours of Study			-0.0162	-0.0299
			(0.0281)	(0.0292)
Strictness				0.0123
				(0.0225)
Siblings				0.0951
				(0.0902)
Parental SM Control				0.0355
				(0.0515)
Parental Compliance				-0.0824*
				(0.0452)
Constant	0.396***	0.716	0.873	0.550
	(0.0343)	(1.375)	(0.859)	(0.875)
Observations	280	232	227	221
R-squared	0.000	0.005	0.067	0.088

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A3: LPM Future with School Clustered Robust SE

VARIABLES	(1) HFSS Fut.	(2) HFSS Fut.	(3) HFSS Fut.	(4) HFSS Fut.
Treatment	-0.0521	-0.0414	-0.0529	-0.0605
	(0.0826)	(0.113)	(0.0980)	(0.0957)
Gender		0.0895	0.0797**	0.0860
		(0.0731)	(0.0376)	(0.0600)
Age		-0.0201	-0.0440	-0.0532
		(0.0502)	(0.0613)	(0.0992)
Hours of TV			0.0186	0.0260
			(0.0171)	(0.0186)
Hours of Social Media			0.0244***	0.0242**
			(0.00872)	(0.0107)
Hours of Streaming Platforms			-0.000315	-0.00411
			(0.0169)	(0.0215)
Sleeping Hours			0.00521	0.00906
			(0.0303)	(0.0384)
Sport's Practice			-0.167	-0.145
			(0.143)	(0.152)
Weekly Hours of Sport			-0.0131	-0.0135
			(0.0168)	(0.0239)
Hours of Study			0.00729	0.00244
			(0.0263)	(0.0334)
Strictness				0.0191
				(0.0169)
Siblings				0.183***
				(0.0551)
Parental SM Control				-0.000580
				(0.0368)
Parental Compliance				-0.0881
				(0.0544)
Constant	0.478***	0.685	1.020	1.065
	(0.0606)	(0.638)	(0.735)	(1.156)
Observations	275	228	224	218
R-squared	0.003	0.010	0.063	0.102

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1