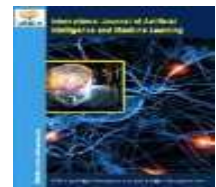




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Research Paper

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Quantifying the Impact of Over-the-Top Digital Platforms on primary school Children's Dietary Food Preferences and Health: An Empirical Analysis Through a Structural Equation Modeling Approach

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Abstract

The current research takes the form of a Structural Equation Modelling (SEM) to examine the impact of Over the Top (OTT) digital platforms on the dietary food and the health of school children. The extensive use of OTT platforms had a important influence on young children in the form of their eating food habits and health related outcomes, eating preferences and exposure to OTT content are correlated. In the case of the study, cross section survey on a varied sample of school children aged 5 -12 years shall be carried out. The objective of the survey was to collect information about the viewing behavior of the children. To fully understand the impact of OTT content sources on the food choice and health of children using Structural Equation Modelling (SEM). The findings show that there is a connection between exposure to OTT content the emergence of unhealthy dietary habits. There is unmistakable evidence with regard to unhealthy eating habits and their adverse health effects like obesity/kin. Therefore, this study, also find the potential moderators and mediators of these correlations, which provides insights about how children's dietary habit and how their Physical, emotional and mental health affected by OTT content. This study is significant as it uses real world data to unravel the complex relationships between children's health outcomes and exposure to OTT that helps in providing information for parents, healthcare professionals and policymakers. The significance consequences of this research is beyond scholarly discussions. In it, the authors provide practical recommendations to help children's in developing their media and their eating choices. In today's digital era, this study helps in investigating the connections between media consumption, eating patterns and their health outcomes. The implications of this study. It contains suggestions on an initiative which help youth in developing wholesome media and dietary habits of children's. It presents feasible recommendations for initiatives that are designed to help youth establish wholesome media and healthful eating practices. This study joins the existing body of research studying the links between food, media-consumption and health in the digital age. It has special focus on evaluative analysis of the characteristics of the impact of OTT platforms on eating habits of kids as well as general health. Protecting the welfare of future generations in a world where media is having an increasing impact is the main goal.

Keywords Youngsters, eating habits, food preference, health, Over the Top, digital platform.

Introduction

The rise of Over-the-Top (OTT) digital platforms has had a fundamental impact on kids' media consumption patterns (Jimenez-Marin et al., 2020), that could influence their dietary preferences and their overall health (Matthes et al., 2024). Specifically, the Structural Equation Modeling approach is used in this study, in order to untangle the profound interplay of these factors as a robust approach to analysis these direct and indirect effects (Kelly et al., 2023). The research was specify the diseases and structural variations that are determined by the frequency of exposure to various forms of contents on these platforms, which varies from preference for unhealthy foods as they are highly advertised, to the overall diet quality (Harris & Bargh, 2009). Along with, the research was examine how these dietary changes, which may be mediated through higher levels of sedentary behavior associated with the use of platforms go on to affect a range of health indicators of children, for example, weight status and cardiometabolic health. This is a detailed analysis that attempts to extend over the available information about this phenomenon to add to the empirical evidence on the pervasive influence of digital platforms on the well-being of children to deliver targeted public health interventions and policy formulations (Khan et al., 2025) (Trigueros et al., 2021). Moreover, it is important to understand the perception and interpretation of food marketing in children through various digital media platforms to develop the effective strategies to mitigate the negative effects on their dietary behaviours (Carroll et al. 2024) (Kelly et al. 2023). This research utilizes a qualitative research design making it possible to have an in-depth discussion on the issue of ethics in AI-driven digital marketing (Shah et al, 2024). The advent of Generative AI explicitly aggravates this landscape facilitating drastic scale and speed in market research; which enables marketers to optimise touchpoints and target

children through a range of sophisticated and data driven approaches (Polimerou and Spais). Therefore, having a sufficient awareness of the different mechanisms, in which these platforms exercise their power, is very important to ensure the protection of children's health in the digital age (Maksi et al. 2024). This escapes to the study of algorithmic bias in an AI marketing system may be a broad area of major ethical and practical issues, such as, due to these biases, the trust of the consumer population could be diminished, this could lead to a reinforcement of unhealthy diets in children (Spais & Chryssochoidis, 2025) (Saura et al., 2024). Addressing such ethical elements as potential for AI manipulation and need for transparency and informed consent on data gathering has paramount importance to ensuring that digital marketing practices are done responsibly (Shah et al., 2024). This paper was exploring the impact of the OTT digital platforms, sometimes exploiting the use of AI-based, digital marketing methods, on the dietary food preferences and health outcomes of primary school children (Maksi et al., 2024; Saura et al., 2024). It was critically analyze the mediating role of the children's dietary food preferences in relation to the OTT platforms and its impact on children's health by adopting a solid methodological framework (Guimaraes et al., 2025) (Maksi et al., 2024).

Specifically, this research wants to identify the direct and indirect channels through which exposure to digital marketing, especially the methods that are becoming more embedded into children's digital lives through AI-enabled Internet marketing techniques, impacts their food choices and their health. The study was also involve aspects relating to implications for policy and practice, especially that of regulating digital marketing targeted at children and encouraging those children to develop healthier dietary habits in a digitally saturated environment. It was also cover the ethical considerations associated with the practices of using artificial intelligence in digital marketing targeting children, the importance of marketing practices that was fair and inclusive, and that was prevent discrimination and stereotyping (Shah et al., 2024) (Ruiz, 2024). In addition, the research was examine how AI systems are being developed to determine the marketing of food to children on digital media and in support of efforts to monitor adherence to policies limiting the marketing of food to children (Olstad & Boyland, 2023). This includes looking at AI algorithms that analyze consumer data, including their demographics, preferences, and browsing history to generate customized content and targeted advertisements that may have an impact on kids eating habits (e.g., Shah et al., 2024). The ethical implications of messing with our own population by such marketing strategies in relation to AI technology are profound, because it raises a question about a user's data, user's autonomy, the user's manipulation, especially when the targeted population is a vulnerable pool of users such as children (Saura et al., 2024).

Moreover, the research was also tackle the ethical dilemma of AI algorithms helping consumers to make purchasing decisions, without their explicit consent - which raises important questions about data privacy and informed choice (Shah et al, 2024). This inquiry is especially relevant in the light of global public health efforts to prevent non-communicable diseases, in which the early experience of childhood exposure to unhealthy food marketing plays a large role (Boyland, 2023). The study uses from ethical perspective - that digital platforms owing to its sophisticated artificial intelligence techniques for marketing contribute to the formation of children's dietary landscape and shape their subsequent health trajectory. importance of having stronger ethics and regulation framework and a call for validation of such ethics. It further aims to find some intervention points on public health campaigns and regulatory bodies for the adverse effect of AI-based digital marketing on children diet and overall well-being. This involves a critical look at the role of automated decision-making processes, which are often not open and this plays into the ethical complexities involved with AI in marketing (Saura et al., 2024). By systematically exploring these complex relationships, this research aims to inform the way that regulatory policies and ethics policies for digital marketing to children may be developed and how.

Specifically, it was promulgate about the moral issue of calculate AI-generated personalized methods of digital marketing that might block the progress of the ethical problems to exploit vulnerable people like children. This includes an evaluation of how consumer data is being used without necessarily informing the consumers, to serve as the basis for producing personalised content and targeted advertising fragments that can precociously affect the choice of food consumption by children (Saura et al., 2024) (Shah et al., 2024). Moreover, it is important to understand how these AI algorithms work and what data they use to ensure transparency and responsible implementation of these algorithms in digital marketing (Shah et al., 2024). Such an investigation is important to building strong ethical frameworks that can be used to govern the application of AI in marketing, especially where vulnerable demographics are concerned, ensuring that the developments in technology was not undermine public health initiatives inadvertently. Therefore, the impact of different AI-based marketing strategies used by OTT platforms on children's dietary preferences was discussed especially by quantifying the direct and indirect pathways that lead to unhealthy food choices. It was further discuss the ethical implications of real-time tracking and surveillance that are integrated within these platforms, which provide for the user personalized content, but in many instances lack any strong connections to privacy or ethical considerations (Saura et al., 2024). This includes careful analysis on the effect in which AI-based digital marketing, although it is efficient as well as providing

personalization of marketing, makes security and privacy risks even higher as a result of extensive data collection via multiple connected devices (Saura et al., 2024).

This particular and comprehensive analysis was therefore added to the existent literature by offering empirical evidence regarding the complex interactions between highly effective digital marketing approaches, dietary behaviors of children, and health conditions overall while subsequently informing policy production for the ethical implementation of AI in marketing (A'yun & Setyaningsih, 2025). Therefore, the impact of different AI-driven marketing measures utilized by OTT platforms on children's dietary preferences is a specific objective of this research in order to quantify the direct and indirect channels that contribute to unhealthy dietary choice. It was also examine the role of advancements in artificial intelligence, especially conversational AI and AI-based content generation in more personalized and effective marketing strategies that could have a disproportionate impact on children's dietary preferences (Spais & Chryssochoidis, 2025).

Literature review

Literature review synthesizes research in a number of disciplines, including media studies, public health, psychology and marketing, in order to provide a sound underpinning theory for the empirical analysis (Maksi et al., 2024). In particular, it examines the process by which child exposure to digital marketing, which is often saturated with AI-driven personalized marketing, affects children's food choices and, subsequently, their health (Harris & Taillie, 2023; Khamoushi, 2024).

This review was providing a critical analysis of how AI and machine learning algorithms are being exploited by OTT platforms, such as Netflix or YouTube, to produce highly targeted and persuasive food advertisements that may be able to circumvent parental supervision and ethical considerations (Shah et al., 2024) (Saura et al., 2024). It was also exploring the prevailing setting of regulations and identify gaps in policies that seek to safeguard children from potentially harmful marketing practices on digital platforms (Eid et al., 2024). Along with, this section was evaluating the limitations of current research, specifically in regards to the fast-paced development of AI-based marketing techniques as well as the challenge of identifying and quantifying the exact impact of AI on children's eating habits and overall health (Olstad & Boyland, 2023) (Dwivedi et al., 2019).

2.1. Theoretical foundation

It is used to identified the extremes of how children are exposed to and learn dietary preference through observing and participation in digital content particularly when they are manipulated by the cutting-edge AI algorithms in targeting content on individual profiles (Labib, 2024). The framework also integrates elements from the model of Food and Beverage Cues in Digital Marketing that focuses on the powerful use of digital media in general and the use of OTT platforms that employ specific cues to affect children's perceptions and desires for certain foods (Maksi et al., 2024). Moreover, it views "digital nudging" with how subtle prompts and recommendations on these platforms using artificial intelligence language can sway the kids into particular food selections, without even them being aware of the manipulative intent behind them. This framework goes further by recognising the privacy paradox, in the rush towards personalised digital experiences, which can sometimes result in persons being uncomfortable with the wholesale collection of data and its later use in targeted marketing (Saura et al. 2024; Prybutok et al., 2024; Maksi et al., 2024).

2.1.1. Over the Top (OTT) Digital platforms

Over-the-top digital platforms include a wide variety of services that distribute content directly to consumers via internet and bypass traditional distribution paths (Polimerou & Spais, 2025). These platforms represented by video streaming services, social media, and gaming platforms have become ubiquitous in children's daily lives and have significantly increased their exposure to many different forms of content, including marketing (Baldwin et al., 2018). This ubiquitous presence enables advanced data gathering and analysis so that highly specific advertising plans can be implemented which can affect children's diet preferences (Saura et al., 2024). These platforms utilize AI-based methods, including emotional marketing, social peer pressure and interaction features that promote consumption of energy drinks, sugar-rich beverages, snack foods and food items often eaten as fast food, which are associated with poor diet quality as well as an adverse health profile (Maksi et al., 2024).

The integration of AI and machine learning and data analytics through these platforms further create the power of targeted and persuasive marketing messaging, often promoting calorie-rich food (Spais & Chryssochoidis, 2025) (Labib, 2024). This advanced and targeted approach tends to be done without the express permission of parents, raising serious ethical concerns about data privacy and the opportunities for manipulation. (Saura et al., 2024) The sophisticated features of the artificial intelligence in marketing and its collaborative machines and drones for deliveries are making advancements day by day which wants a comprehensive understanding of its features which are mentioned above and also contextual variables which was a factor in its implementations (Labib, 2024).

2.1.2. Children's dietary Food Preferences

Children's dietary food preference is influenced by a complex balance between physiological, psychological, and environmental factors (Harris et al., 2024). This influence is often described through persuasive cues that bring forth nutrient-poor foods and children may therefore prefer these foods and even force parents to buy them (Albardan & Platat, 2025). This exposure can result in the development of preference to unhealthy brands of food which tend to persist from childhood into adolescence and adulthood leading to higher risk of chronic diseases including cardiovascular diseases, diabetes and obesity (Valderrama et al., 2023). In addition, repeated exposure of children to these adverts directly affects their food selection and eating patterns, very often choosing and consuming highly processed, energy-rich foods as the alternative to healthy choices (Guimaraes et al., 2025).

The positive normalization of unhealthy food intake through these platforms can lead to a significant psychological connection between digital entertainment and these products, which becomes more difficult for children to make healthy food choices (Levine et al., 2021). Along with, the more sophisticated analytical capabilities of AI mean that platforms can identify and target vulnerable children with specific food advertising, which increases the establishment of unhealthy eating habits (Shah et al., 2024) (Harris & Taillie, 2024). These targeted campaigns often exploit cognitive biases that are common in the developing minds of children, and this means that it is especially challenging for children to critically saturate and resist the impact of marketing camels (Mulligan et al., 2025).

2.1.3. Children's Health

The concept of Children Health encompasses holism with regard to health which extends beyond the lack of disease and is multidimensional, covering physical, mental and social health. This broad definition demands that now, the degree of influence of the external variable such as digital platform exposure and consumption habits is of tremendous implication on these two dependent spheres of growth (Harris and Taillie, 2024). In particular, the excessive promotion of bad foods on too-promoting platforms may lead to rampant physical health concerns in children because it promotes the use of bad food options, hence increasing the possibility of becoming obese and also developing associated metabolic illnesses (Cathaoir, 2018) (Harris et al., 2024). These marketing ideas exploit the mental capacities of growing-up children which is why children are even most susceptible to methods of persuasive marketing that request the propagation of undesirable culinary tastes and dietary habits (Hebestreit & Sina, 2024). Also, in combination with, the screen time connected with the use of OTT platforms can result in an inactive lifestyle that is also independently connected with high obesity rates and other physical health complications occur in children (Neugnot-Ceroli and Laurenty, 2024; Hebestreit and Sina, 2024; Lopes et al., 2025).

3. Empirical literature Review

3.1. Relationship between OTT platforms & Children's dietary Food Preferences

The ubiquity of OTT platforms has a substantial impact on the food preferences of children for those who are consuming growing foods in order for their food offerings in targeting and multiplex algorithms and these designs in young people to become more susceptible to powerful advertising technologies (Boyland et al., 2020). These campaigns often endorse energy-rich, nutrient-deficient foods, which would have encouraged the liking for these and may result in poor eating habits (Strassner et al., 2015). Specifically, exposure to such advertisements is linked to increased inclination for sugary and fatty food, along with an increased consumption of sugar-sweetened beverages (Bianchi et al., 2015). This exposure, at a very young age, can also be the cause of shaping life-long preferences towards the unhealthy foods that will help to increase the risks posed by the dental issues linked to junk food and the other health-related complications (Taylor et al., 2015) (Davis and Regi, 2020). Together with, the violent character of these marketing strategies in combination with the insufficient regulation of the digital media space leaves the children highly susceptible to these advertising procedures that promote unhealthy eating (Silva et al., 2021). This continuous digital onslaught does not just influence children in the choices of their food, but also influences their demand of consuming some food types, which puts even greater pressure on the parents (Kent et al., 2024). In addition, these tendencies can be reinforced by the immersive and interactive characteristic content on the OTT because it confines unhealthy food with entertaining stories and makes it somewhat uncomfortable to children to divide between entertainment and commercialists (Saura et al., 2024).

The fact that online influencers and kid influencers promote these websites and showcase unhealthy food products also contributes to the fact that these online influencers are even more attractive as a result of the circles influencing young viewers through the atmosphere of aspirational content and covert marketing (Kent et al., 2023). These endorsements, often with little transparent disclosure, take advantage of parasocial bonds that children develop with these digital personalities, to subconsciously influence their dietary choices and their choices to purchase (Pettersen-Sobczyk, 2023) (Driessen et al., 2025). This digital environment therefore requires a more in-depth investigation into the role of the sophisticated marketing techniques on OTT platforms that contributes to the normalising and desirability of calories dense and nutritionally deficient food among children (Elliott et al., 2025) (Kent et al., 2022). This omnipresent influence transcends preference to the actual consumption of these products, as children are more likely to reach out to and consume these advertised products because of their cognitive vulnerability and susceptibility to marketing appeals (Vergeer et al., 2025) (Miksi et al., 2024).

3.2. Relationship between OTT platforms - Children's Health

The prevalence of OTT platforms is increasingly being considered as an important factor of children's health outcomes, as direct physiological effects as well as the indirect behavior-effects that compromise overall health and well-being. Specifically, studies have found there is very strong correlations between an increased amount of screen time on these platforms and higher rates of childhood obesity, mainly due to a decrease of physical activity and exposure to unhealthy food advertising. The marketing on these digital channels of ultra processed foods adds to this problem given their high content of sugar, fat and sodium and high consumption by Canadian children (Guimaraes et al., 2025). Along with, sedentary behaviour of prolonged OTT consumption is directly related to reduction in energy expenditure and, as such, increases risks of weight gain and associated metabolic syndromes.

In terms of overall health, not only is it affecting the physical health of children, the continuous interaction with digital information on OTT platforms is also affecting the eye health of children, which is quite common with digital eye strain, myopia progression, and irregular sleep patterns due to blue light light exposure, and these effects can be very serious for eye health and cognitive development in the long term (Pauze & Kent, 2021). Moreover, the mental cost of constant digital engagement can also present itself in a form of anxiety, depression and social isolation especially in situations when children are surrounded by fine-tuned images of "how" life ought to be or themes of cyberbullying. The rampant marketing of unhealthy foods which are presented on these platforms, which often becomes integrated into entertaining content, has further amplified these health risks by affecting children's dietary choices and causing them to eat poorly (Kent et al., 2024). This systematic exposure to persuasive material, including product placements and brand presentations in the form of YouTube videos, has a significant impact on children's food preferences towards products that are high in fat, salt or sugar (Matthes et al. 2024). This direct link between engagement with digital platforms and dietary choices highlights the importance of conducted adequate studies to determine the exact mechanisms in which OTT platforms might have an impact on children's health, both their physical and mental well-being (Kent et al., 2022, 2024; Valderrama et al., 2022).

Consequently, the World Health Organization has drafted specific guidelines promoting limitations to daily screen time in order to curb these negative health impacts, however, these guidelines are confronted due to the increase usage of digital media especially during times such as the Covid-19 pandemic (Priftis and Panagiotakos, 2023). The increased digital exposure in such times highlights the importance of an understanding of the complex interaction between OTT platforms and children's overall health, beyond the quantity of screen-time, and the qualitative dimension of the content consumption and its long-term impact on physiological and psychological development (Priftis & Panagiotakos, 2023). For example, too much screen time, especially in adolescents, may exceed two hours per day, has been repeatedly demonstrated to cause negative health outcomes such as obesity, sedentary behavior, as well as mental health challenges such as depression and anxiety in the pediatric population (Gonzalez-Perez et al., 2025). As well as, extended exposure to smart screens - often linked with the use of OTT platforms - can lead to addictive eating habits and a disruption in atypical sleep patterns, which can further exacerbate the dangers of obesity and impaired development (Mekawky & Abdel-Haleem, 2022). Moreover, a lack of sleep, which is usually worsened by heavy screen use before bed, is positively linked to higher susceptibility to obesity, asthma, anxiety and depression in children, further worsening their general well-being (Welian-Polus et al., 2023) (Signal et al., 2023).

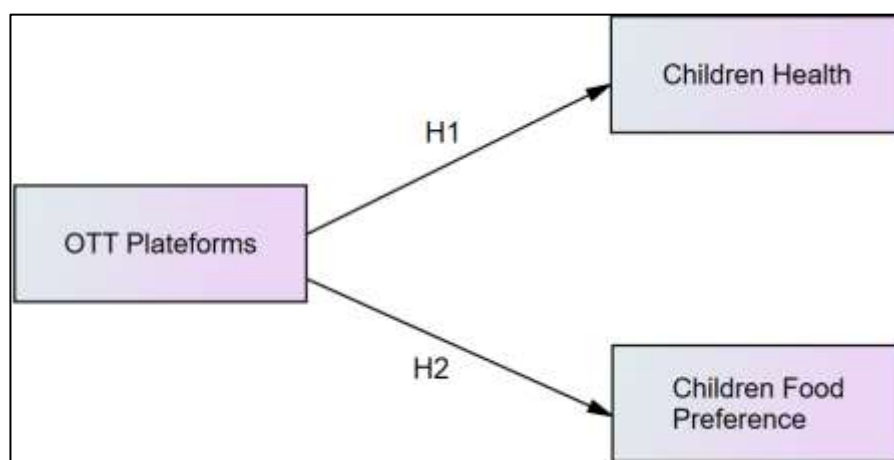


Figure 1. Conceptual Framework

4. Research Methodology

The purpose of the present study was to estimate the influence of Over-The-Top (OTT) platforms on food preference and health among children via an empirical test in the form of Structural Equation Modeling

(SEM). This research was conducted using structured questionnaire on children living in Jammu and Kashmir, India. The study design used was cross-sectional to enable the researcher to look at the variables and their relationship at one point in time.

4.1 Sampling Method

Multi-stage sampling is used so that the sample can represent the children with different backgrounds in Jammu and Kashmir. During the first step, districts of the region were randomly chosen. In each of the selected districts, schools were then sampled at random. Lastly, the sample included students of various grades aged 5-12 years in the schools of interest.

4.2 Sampling Calculation

The sample size was determined using the formula for estimating proportions infinite populations, considering a confidence level of 95% and a margin of error of 5%. The population size was estimated based on the total number of students enrolled in schools within Jammu and Kashmir.

4.3 Questionnaire Details

The questionnaire was constructed on a literature review of the studies on impact of media on children's dietary patterns and health. Also, the input of specialists in child psychology, nutrition and media studies was included to make the questionnaire relevant and comprehensive

4.3.1. Measures

Over the Top (OTT) digital platforms

In order to measure the correct degree of exposure to the Over the Top digital platforms, this study was use a multiple item scale measuring the frequency and duration of use across a variety of devices (e.g., smartphones, tablets, smart TVs) (Jensen et al., 2022). This was involves a detailed questionnaire given to parents, querying daily involvement of their children in streaming services, social media, and online video streaming platforms (Resor-Oyer et al., 2022). Along with that, self-report measures, where age-appropriate, was generated for children concerning their perceived exposure to marketing messages within these platforms (together with the specific types of content children consume) (Davis & Regi, 2020). The scale was also incorporate elements of measuring parental mediation strategies towards children's digital consumption, because of the significant role of guardians in Protestant patterns of exposure and lessen the potential adverse effects. The collection of data on specific commercial screen media use was differentiated between free and paid versions of services for the better enumeration of commercial screen media exposure and its dietary impact (Kelly et al., 2023).

Children's dietary Food Preferences

To identify children's dietary food preferences, a validated questionnaire was used that was adapted from previous research materials, and it focused on children's consumption frequency and attitudes toward various food categories, both healthy and unhealthy foods (Subih et al., 2018) (Verma et al., 2023). This questionnaire was further developed by including aspects of validated dietary assessment questionnaires, for example, those that assess the intake of fruits, vegetables, sugary drinks, and processed snacks etc., to provide a complete picture of the habitual food choices among children (Mukherjee and Chaturvedi, 2017). The instrument was contain questions that was specifically aim to measure children's interest in food products advertised on OTT platforms, and how influential they are in children's food preferences and consumption patterns (Mekkawy & Abdel-Haleem, 2022). Along with, dietary habits and food-related parenting styles was determined by caregivers to offer a comprehensive understanding of the home food environment and its effect on children's dietary preferences (Ghattas et al., 2022).

Children's Health

Children's health was assessed ensuring a multi-dimensional approach, including contributions from parental which where possible included objective, to describe a complete picture of physical and mental health. This approach included self-reported Health-related quality of life for children eight years and older and parental reports for children younger than eight years, using validated instruments, such as the Pediatric Quality of Life Inventory (Taveras et al. 2015). Objective measures such as height, weight and waist circumference, evaluated according to standardized procedures of the World Health Organization, were also added to determine anthropometric data to identify possible indicators of obesity or malnutrition (Ferreira et al., 2020). The assessment was also involve questions regarding the physical activity levels of children as well as sedentary behaviors and was make use of known questionnaires in an attempt to capture information pertaining to the non-activity time of children whether it is screen time or participation in organized sports (Nuss et al., 2022). Psychosocial variables like parental distress, peer victimization, stigma, food insecurity, and depressive symptoms were also taken into account given what is known to influence effectiveness of the programmes and well-being in general (Davis et al., 2019).

4.4 Data Collection

The structured questionnaire was administered to children of a selected school in Jammu i.e Akhnoor, Samba and Jammu by trained researchers. Both children and their guardians provided informed consent and ethical approval was sought out by the concerned institutional review board before the data was collected within a specified period of time to cover a representative sample of children with various socio-demographic backgrounds across the region.

4.6 Data Analysis

After the data collection, data were tabulated to a secure electronic database and subjected to stringent quality check procedures then SEM procedures were employed to establish the relationship between variables, and pathways through which OTT exposure influences food preferences and health outcomes in children's.

Structural Equation Modeling (SEM) was applied to find out how OTT influences the dietary preference and health condition of children. We examined the correlation between variables regarding SEM and we concluded that there were very strong correlations between the food preferences of OTT and Children and their health. The study was also educative to people in practice and policymakers who would want to enhance the wellbeing of children and make them adopt healthier lifestyles. The structural equation modeling (SEM) analysis was employed to give the details analysis of the multi-faceted relationships between the health outcomes, dietary choices, and time management of children.

5. Results

5.1. Measurement Model

Table 1. Factor Loading

Indicators	Food Perception	Health	OTTS
FP1	0.707		
FP2	0.739		
FP3	0.757		
FP4	0.748		
FP5	0.743		
H1		0.792	
H2		0.714	
H3		0.821	
H4		0.834	
H5		0.741	
OTTS1			0.716
OTTS2			0.779
OTTS3			0.719
OTTS4			0.723
OTTS5			0.799

Source: Author's Calculation In Smart PLS

All the indicators are related to each other, with regard to Food preferences, the indicators FP1toFP5 are strongly correlated, with a range of 0.707 to 0.757. With regard to Health, there is a strong correlation in value among the indicators chosen H1 to H5 with a range of 0.714 to 0.834. With regard to Organized Time to Spend, the indicators FP1toFP5 are strongly correlated with the range of 0.707 to 0.75. When it comes to OTTS, the correlations between indicators OTTS1 to OTTS5 range from 0.716 to 0.799, which indicates that organized time management has a constant influence on the behaviors of individuals.

Table 2. Multicollinearity

Items	VIF
FP1	1.525
FP2	1.847
FP3	1.67
FP4	2.03
FP5	1.616
H1	3.405
H2	3.472
H3	2.081
H4	2.28
H5	1.804
OTTS1	1.356

OTTS2	1.945
OTTS3	1.706
OTTS4	1.731
OTTS5	1.985

Source: Author's Calculation In Smart PLS

Values of Variance Inflation Factor (VIF) give insight into the indicators of multicollinearity. The VIF scores of items on Food preferences (FP) range between 1.525 and 2.03, which represent rather small amounts of multicollinearity. FP4 has the highest VIF value. Health (H) indicators have values of VIF that are slightly greater (1.804 to 3.472), indicating moderate multicollinearity. Of these, H2 has the highest VIF. Figure 2 indicates that the range of VIF scores of the products of the Organized Time to Spend (OTTS) is between 1.356 and 1.985.

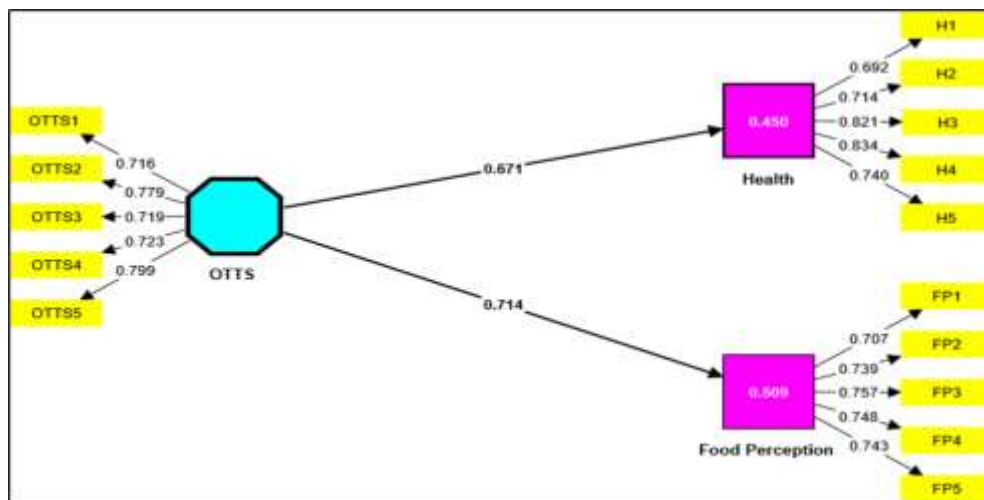


Figure 2. Equation Model

Table 3. Reliability Test

Construct	Alpha	Composite reliability	Average variance extracted
Food preferences	0.793	0.857	0.546
Health	0.821	0.873	0.581
OTTS	0.803	0.864	0.56

Source: Author's Calculation In Smart PLS

Variance Inflation Factor (VIF) values provide an insight into the multicollinearity of the indicators. Items on Food preferences (FP) have a VIF range, ranging between 1.525 to 2.03, which means relatively small extents of multicollinearity. FP4 has the highest VIF value. Values of VIF of health (H) indicators have slightly greater values, homes, as there are varying values of 1.804 to 3.472, indicating moderate multicollinearity. Of these, H2 has the highest VIF. The Organized Time to Spend (OTTS) products VIF scores: the products show that the VIF scores of 1.356, 1.985 indicate low and moderate multicollinearity respectively. In general, all the indicators concern acceptable levels implying that the variables can be included in the study without serious questions regarding multicollinearity, although some indicators show higher VIF values, which means the possibility of there being multicollinearity problems.

The discriminant validity test reveals that there is a high difference in the constructs. The relationship between Food preferences, Health, and Organized Time to Spend (OTSS) is a correlation coefficient ranging between 0.807-0.896 which indicates little overlaps in the research framework.

Table 4. Discriminant Validity

Construct	Food preferences	Health OTTS
Food Perception Health	0.896	
OTTS	0.871	0.807

Source: Author's Calculation In Smart PLS

Table 5. Cross Loading

Items	Food preferences	Health	OTTS
FP1	0.707	0.418	0.541
FP2	0.739	0.688	0.445
FP3	0.757	0.649	0.535
FP4	0.748	0.611	0.485
FP5	0.743	0.469	0.603
H1	0.475	0.692	0.442
H2	0.462	0.714	0.393
H3	0.408	0.821	0.567
H4	0.522	0.834	0.634
H5	0.661	0.742	0.468
OTTS1	0.699	0.482	0.716
OTTS2	0.525	0.496	0.779
OTTS3	0.453	0.479	0.719
OTTS4	0.461	0.501	0.723
OTTS5	0.491	0.549	0.799

Source: Author's Calculation in Smart PLS

In cross-loading, a single item shows significant correlation to two or more constructs. In this analysis, some items have cross-loading of measures in the constructs of Food preferences, Health, and Organized Time to Spend (OTTS). It is also worth noting that there are high correlations between FP1, FP2, FP3, and FP4, and Food preferences as well as OTTS which may bring about ambiguity in the measurement of these constructs. The same way, H1, H2, H3, H4 and H5 have a cross-loading with Health and OTTS which denotes that they overlap in their measurement. Besides, OTTS2 and OTTS3 also cross-load with Food preferences and OTTS suggesting that they might not be easily measured. These results show the essence of making the words of items clearer or changing the construct definition in future measurement to guarantee accuracy.

Table 5. Hypothesis testing

Path Coefficient	Beta	S.D	T-Value	P-Value
OTTS->Food preferences	0.714	0.022	31.791	0.000
OTTS-> Health	0.671	0.026	26.039	0.000

Source: Author's Calculation in Smart PLS

According to the findings of the investigation into the hypothesis, there is a statistically significant and favorable connection between Organized Time to Spend (OTTS) and both Food preferences and Health. According to these findings, which have path coefficients of 0.714 and 0.671 respectively, it appears that as OTTS grows, persons' preferences s of the quality of the food they consume and their general health also increase proportionally. Further evidence to the importance and reliability of these connections is given by the extremely low p-values (0.000) and the large t-values (31.791 and 26.039, respectively). Based on these findings, it can be deduced that those who devote a greater amount of time to more organized activities have a tendency to have more positive attitudes toward food and to place a greater emphasis on their health. In order to emphasize the significance of time management in relation to dietary choices and health outcomes, this knowledge can be useful for interventions that are targeted at promoting healthy habits and boosting the well-being of individuals.

6. Discussion

The present purpose of this study was to analyse the complex inter relationships between Over the Top digital platforms, dietary food preference of the children and their overall health by the method of structural equation modelling approach. Direct and indirect impacts could be analysed complete feature adversing powerful insights in these critical connections by this methodology. The structural model analysis which is the main aspect of our investigation provided the chance of the stringent testing of hypothesized relationships that disclosed important paths and interdependencies among constructs (Hatamlah, 2024) (Bapayeva et al., 2024). This approach is consistent with past research where structural equation model has been used to examine complex relationships between digital engagement and health outcomes which adds to the understanding of these relationships (Cui et al., 2024) (Bapayeva et al., 2024). The statistical

significance of the path coefficients also adds to the empirical strength of the understanding on how digital platform engagement affects the dietary choices and health of children. (Olsen & Tuu, 2017) (Stea et al., 2023).

Specifically, results of the finding highlight the fact that more time spent on OTT platforms and children are associated with discernible changes in their food preference which further influences their own health trajectories (Du et al., 2024). The results presented in the current study support the ubiquitous effects of OTT platforms in apparent connection to a dietary preference and health status in the novel study population of children. This connection is particular evident in light of the fact that too much screen time, typically supported by the OTT platforms, has been linked with healthier dietary choices among children as well as less physical activity (Lopez-Gil et al., 2024). This is consistent with the pre-existing literature that shows that with greater exposure to digital media, especially in younger populations, sedentary lifestyles and a higher intake of calorie rich and nutrient poor foods is shown (Rosen et al., 2014). Such sedentary nature of digital media use and omnipresent food advertisements are often contributing factors for such adverse diet choices (Prybutok et al., 2024). Moreover, constant bombardment of food advertisements on OTT meat-allies that are often personalized and push through the system can influence the preferences of children in favor of less nutritious food which is the affirmative reinforcement of unhealthy dietary patterns (Saura et al., 2024).

This omnipresent marketing exposure is often subtle and as part of the entertainment content and can have a powerful impact on children's attitudes, emotions and attachments to specific food brands, and their consumption patterns (Kelly et al., 2023). These results indicate the dire need for further exploration in terms of specific content and advertising strategies implemented by OTT platforms that have the biggest impact on children's dietary decisions (Khan et al. 2025). The persuasive power of digital marketing that may include AI-based personalization through social media such as, may provide fuel to these negative effects as they advertise highly target-specific advertisements of unhealthy dietary habits, even overcoming traditional parenting controls and promote preference of processed food containing high sugar content (Saura et al., 2024). Along with, the real-time observation and understanding of user behavior by these platforms also give rise to the privacy doubts i.e. personalized ads for unhealthy foods may be based on a child's viewing habit without any thought of the ethics (Saura et al., 2024). This cutting-edge targeting can make the impact of advertising for unhealthy foods more intense which can contribute to problematic eating behaviour among children (Olstad & Boyland, 2023; Buja et al., 2024).

Such targeted marketing strategies, in many cases using emotional appeals and social influence, are skilled in dictating the desire in adolescents for particular brands and is encouraging engagement with branded content (Maksi et al., 2024; Harris and Taillie, 2023). The ethics surrounding the AI-based marketing practices are substantial, and need to be scrutinized for the need of protecting user privacy, and limiting the potential for manipulative advertising to susceptible user classes, such as children (Saura, et al, 2024). This is of special concern considering that adolescents report that they use digital media almost night and day and also often are exposed to food marketing on these digital platforms, which often are not held to the same regulations as traditional media (Maksi et al., 2024). This heightened exposure to ubiquitous and often manipulative marketing of food products online that is often integrated into entertainment and social media content make it difficult for children to identify and yield to this influence, especially seen that they are at a stage of development where they're often more vulnerable than usual (Harris & Taillie, 2023).

7. Theoretical implications

The results of this study make an important contribution to already existing theories on the media and consumer behavior, by finding empirical evidence for the underlying mechanisms of the influence that novel digital platforms exert on impressionable populations (Ruiz, 2024). Specifically, this research combines information from two theoretical frameworks, social cognitive theory and cultivation theory, to explain how children's perceptions of food norms and preferences can be altered through continued exposure to certain content and advertising on OTT platforms. The combination of these theoretical approaches helps to explain how repeated exposure to marketing of food products as entertainment normalizes and even intensified the consumption of foods high in energy and lacking in nutrition, helping to develop unhealthy food preferences in the long run. Also, the study highlights a modern view of the amplification of these effects in the digital platform landscape, where the more advanced targeting capability and far-reaching reach these platforms have allow more effects than previously seen in the traditional media landscape. This research adds further to the hierarchy of effects model by showing how exposure to digital marketing leads to real behavioural outcomes such as food purchase and consumption in children. It also shows the need for new theoretical models to consider the ethical dilemmas raised by Artificial Intelligence- (AI) driven marketing and real-time behavioral analytics in shaping consumer behaviour . This requires a reinstatement of existing regulatory systems and a creation of better ethical guidelines to safeguard the well-being of children from potentially harmful online marketing practices.

8. Practical implications

The insights gained from this research provide concrete guidance to focus on for parents, educators and public health official authors to develop strategies to counteract the perverse influence of OTT platforms over the choice of children's eating habits. For instance, the findings advocate for media literacy education to learn not only for children but also for parents as well, give them strength for issues on evaluating the marketing messages set inside the content that is expressed in digital form and make a decision on their food intake (Tabanli, 2025). In particular, the parents can use this knowledge to actively mediate the digital media consumption of their children and promote healthier food preferences by discussing the methods of advertising and the nutrition information. This research also suggests that public health campaigns could be strategically designed so as to overcome the influence of unhealthy food promotion in the digital platform by promoting healthy dietary choice and creating awareness of the manipulative nature of some of the digital marketing techniques.

Along with, the policymakers can use these results to push for tighter controls of digital food marketing, especially towards its exposure to minors, which complies with the demands for better protective measures to vulnerable consumer groups. Such regulations might suggest to target some restrictive objectives in advertising space which seek to continually communicate with users, switch on more platform engagement, and religiously advertise for unhealthy food options on digital platforms. This could include analyzing digital marketing strategies to determine if it includes advertising objectives aimed to pursue users, growth objectives aimed to increase interaction and engagement or engagement objectives aimed to maximize contact with users all of which bring up ethical issues about data privacy and about manipulative practices. The ethical implications of AI-based digital marketing, particularly in relation to these aims, require a careful analysis whether or not to protect the consumer and ensure that they won't be hurt. Moreover, ongoing monitoring and evaluation protocols should be put in place by digital businesses to ensure that ethical considerations are always paramount in their use of AI to facilitate the processing of consumer data.

9. Limitations

Primarily, self-reported of dietary preferences and health outcomes may suffer from recall bias or social desirability bias that can affect the accuracy of the measurements. Future research could minimize these biases by incorporating some objective measures, such as dietary study from food diaries, or biochemical markers that are related to health outcomes. As well as, the nature and cross-sectoral design of the study inhibits response that can be said to be caused from the use of OTT platforms on the kids dietary preference or health outcomes albeit a need for longitudinal studies to delve into the dynamic study interaction of time. The recruitment methodology in which a market research company survey panel was used may also limit the generalizability of the findings to a wider population, indicating a need for a more diverse sampling method in future investigations (Kelly et al., 2021).

Along with, although this study contributed valuable insights gained from children from lower-income households, an often-under-represented population in the literature of food advertising research, further investigations are required to seek to understand how children from different income groups perceive and respond to food marketing.

10. Conclusion

This research establishes a basic knowledge about the complex relationship, OTT digital platforms, children's dietary preference and health outcomes. It makes it clear what is necessary and what is at stake - comprehensive strategies to address a pervasive influence of digital media in health of the children - this must involve a multi-faceted approach with inclusion of parents, educators, and policy makers. Ultimately digital literacy and creating strong ethics of marketing using AI for these marketing platforms are important steps to keep the future generation safe. Future research should also investigate aspects of the digital food advertising contents and design features that have the greatest influence on the child's food choice, such as the role of popular influencers and gamification features. These investigations could help to inform the development of tools and systems to assess and monitor food marketing for children via digital media that have been enabled by AI in order to facilitate compliance to regulatory policies. Such systems could take advantage of powerful machine learning in checking for persuasive tactics and unhealthy food promotions to obtain a more granular understanding of the effects of digital marketing on the eating behaviors of kids. This would allow for more active and evidence-base approach to policy-making and that such regulations are tailored specifically to the changing landscape of digital food marketing as well as its ethical considerations. This means that there is need for comprehensive policies that go beyond the direct targeting, to reduce children's exposure to all kinds of marketing of unhealthy foods. In addition, the opportunity of AI for personalized advertisement is a new wave of ethical problems that needs delicate balance with commercial need and protection of children's development in terms of vulnerability. This means looking at ethical implications of using AI to predict and shape the way children eat, specifically with

the algorithms that have been added in them, perhaps unintentionally also targeting weak demographics or nudging people in unhealthy ways to eat.

11. Suggestions

There is a need of continuous ethical audits of AI algorithms used in digital food marketing are essential to ensure fairness, transparency and accountability in their operation, especially related to their impact on children's dietary choices. This needs a collaborative effort of researchers, industry stakeholders, and policymakers in the framework required to address the complex dynamics of the intersection of AI, digital platforms, and public health. Further empirical research is also warranted in order to better understand the impact of digital food marketing on kids in order to guide appropriate policy action, specifically relating to the ethical responsibilities of influencers and the need for regulations not only on paid advertising but to cover all forms of promotional content.

As well as, considering the borderless of digital media, international cooperation was key in the development and enforcement of regulations that effectively reduce the pervasive influence of unhealthy food marketing of children across different OTT platforms. This global perspective is especially important because children are becoming more exposed to a range of marketing strategies that cut across national boundaries and, therefore, local efforts to regulate marketing could prove inadequate. For example, companies often adopt creative ways of evading strict policies on marketing rules, suggesting the need to ensure that regulatory rules are comprehensive and flexible to cover all forms of marketing of unhealthy foods to children up to 12 years of age. This involves investigation of the societal effects of different human-like properties of AI, and the role of situational factors and cultural factors in interaction with AI entities in different markets. Along with, research should conclude the development of explainable AI systems to promote transparency and trustworthiness in AI-driven marketing decisions especially in regards to children and their exposure to food advertising.

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