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Exploring deceptive food labelling in India: Buying behaviour, awareness, and perspectives of gen z consumers in context of online food purchases

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Abstract
This research addresses the scarcity of studies on deceptive food labelling practices, and perspectives of Gen Z in context of online purchase of food products in India. Through literature review and survey, it identifies Gen Z's buying behaviour, awareness of prevalent deceptive tactics, perceptions about the impact of such tactics and acceptance of AI based applications and QR Code scans for food labelling. This mixed method study presents a detailed landscape of food labelling in India shaping Gen Z's online food buying behaviour by surveying 120 Gen Z respondents. Findings reveal that while 58% of respondents frequently buy packaged food online, only 18.3% consistently read labels. Brand and expiry dates are prioritized over nutritional information, with 85% consuming high-fat, high-sugar snacks. It reveals that the awareness of deceptive labelling is low, with only 43% recognizing misleading practices, though 93% say awareness affects their choices. 90% are interested in using QR codes or AI apps for product information thereby emphasizing the potential of digital technologies in bridging the information gap between consumers and manufacturers. The study calls for stricter regulations, better industry practices, and consumer education highlighting the role of digital technologies in improving transparency.

Keywords: Food labelling, deceptive label, gen Z buying behaviour, AI applications, QR codes

1. Introduction
India's culinary landscape is undergoing a rapid transformation, fuelled by urbanization, increased disposable income, and busy lifestyles (Lattice, 2024) [24]. This shift has led to a burgeoning market for packaged and processed foods, with estimates projecting a surge from USD 263 billion in 2019-20 to USD 470 billion by 2025 (Aultrin, 2021) [4]. However, this consumption growth coincides with a concerning rise in non-communicable diseases (NCDs), particularly cardiovascular diseases (CVDs), which are major contributors to global morbidity and mortality (WHO, 2023) [34]. Foods high in fat, salt, and sugar (HFSS) are implicated in the prevalence of NCDs worldwide, with India emerging as one of the largest markets for packaged foods (Eatright India, 2024).

A food label is a piece of information or a tag attached to packaged food products that serves as a critical bridge between consumers and manufacturers, providing essential information about the contents of the product. Food labels are designed to inform consumers about what they are consuming, helping them make informed decisions about their food choices based on dietary preferences, health concerns, or dietary restrictions. Food labels serve as a key tool for promoting transparency, consumer awareness, and safety in the food industry (Food Label Solutions, 2022) [17]. However, deceptive food labelling practices have become a significant concern worldwide, including in India (Shireen *et al*., 2022) [27]. These practices not only undermine consumer trust but also pose potential health risks and economic disadvantages. Despite their popularity, many food brands fail to provide accurate nutritional information on their packages, fearing potential declines in sales (Lennon, 2021) [25]. This lack of transparency has contributed to a deviation from holistic lifestyles, especially among younger demographics, popularly known as Generation Z or Gen Z (EIT Food, 2021) [16].

Understanding Gen Z's buying behaviour, perceptions & awareness of deceptive food labels is essential, given their significant influence on consumption patterns at this formative age having long run implications on health and dietary choices of youngsters. Consumers often rely on claims made on food packages, assuming they provide credible information for

purchase decisions (Steinhauser, Janssen, & Hamm, 2019) [29]. For example, a claim stating that the food does not contain added sugar is perceived to be healthy by consumers. However, the correlation between these claims and the actual nutritional composition of foods remains inconsistent.

As Gen Z increasingly buy online while prioritizing health consciousness and ethical considerations, their interpretation of food labels plays a pivotal role in shaping their dietary choices. Hence, investigating their actual buying behaviour and understanding their response to deceptive labelling practices is crucial for fostering a healthier future. Moreover, the presence of claims on food packages serves as a guide for consumers, but the accuracy and reliability of such claims warrant further scrutiny to ensure informed decision-making and promote healthy food choices.

2. Literature Review

FSSAI enforcement data for 2018-19 states that more than 1.06 lakh food samples were collected and analyzed across the country, revealing that 15.8% were substandard, 3.7% were unsafe, and 9% had labelling defects (FSSAI (2019) [29]. These labels often exaggerated nutritional claims or omitted crucial information about ingredients and allergens. Another 2014 report by the National Center for Food Protection and Defense revealed that 10% of the food is mislabelled, diluted, or misrepresented, with frequent issues in spices, oils, and fish, posing health risks and financial losses (CBS 11 News, 2014).

A study by Soni & Kaur (2023) [28] on Indian food labelling practices reveals significant concerns. Analysing 230 food packages, they found "natural" and nutrient content claims to be prevalent, yet poorly defined by FSSAI regulations. This ambiguity makes claim verification challenging. Alarmingly, many unhealthy foods bear claims, sometimes violating FSSAI rules, potentially misleading consumers about their nutritional value. For instance, "trans-fat free" products might still be high in sodium. The study also notes that consumers often trust health claims without checking nutritional information, leading to misconceptions. Importantly, multinational corporations were found to use deceptive claims more frequently than Indian companies.

Shireen *et al*. (2022) [27] found that socio-demographic factors like education, age, gender, income, and urban residence impact food label usage in India. Educated and younger consumers, especially women, are more inclined to read labels. Higher-income individuals generally make healthier choices. However, many consumers struggle with complex labels and deceptive practices, which complicate informed food purchasing decisions.

Wilde *et al*. (2020) [35] investigated consumer understanding of whole grain labels, revealing significant confusion. Their study found that 29-47% of participants failed to identify the healthiest option when comparing whole grain products. For items with less than 50% whole grains but labelled with terms like 'wheat' or 'multigrain', 43-51% of respondents overestimated the whole grain content. This confusion was more pronounced in the bread category. The research also highlighted that less educated consumers were more likely to misinterpret labels, suggesting that misleading labelling may disproportionately affect certain groups.

Asafari *et al*. (2024) [3] found that 61.7% of food products in Iran use deceptive labels such as 'non-GMO', 'Sugar-free' and 'cholesterol-free.' They note that the word 'traditional' on dairy products often implies chemical-free, while snack foods claiming 'natural colours' or 'rich in vitamins' lack proof. These misleading labels can increase consumer appeal and potentially contribute to Non-Communicable Diseases.

A Recent study by Bell, Gama, & Matumba (2024) [6] revealed Malawi's nutrition and health claims regulations are significantly weaker than international standards, meeting only 3 of 11 requirements. This allows widespread consumer deception and undermines food fortification efforts. Similar challenges exist in India, where misleading food labels are common due to inadequate regulations and enforcement. Both countries face the need for stricter measures to protect consumers and ensure accurate nutritional information, highlighting a shared struggle in developing nations to align with global food labelling standards.

Hastak & Mazis (2011) [21] developed a typology to categorize deceptive food labelling practices into five types: Omission of material facts (Such as not disclosing side effects of fat substitutes); Semantic confusion (Ambiguous language or symbols like "Fresh Italian" pasta sauce made with processed tomatoes); Intra-attribute misleadingness (Example "no cholesterol" claim implying competitor products have cholesterol.); Inter-attribute misleadingness (Such as "low cholesterol" suggesting low fat); and Source-based misleadingness (Biased endorsements or testimonials). They demonstrate that even true claims can mislead consumers, such as "no cholesterol" implying exclusivity. Their study highlights misleading practices like biased endorsements and confusing claims, are prevalent and emphasizes the complexity of regulation due to psychological factors like belief perseverance. This underscores the need for rigorous scrutiny and effective correction mechanisms in food labelling.

A research report by EIT (2021) of over 2,000 young adults aged 18-24 across the UK, France, Germany, Poland, and Spain highlights the pervasive issue of deceptive food labels and claims. Young people turn to social media platforms like TikTok and Instagram for advice on healthy eating due to insufficient information from educators and policymakers. The study found that 78% of respondents desire clearer information on food processing, and 75% demand more transparency from food brands about ingredients and processes. Despite their interest in healthy eating, young people face challenges such as the high cost of healthy food and difficulty accessing healthy options while on the go. The pandemic has heightened their awareness of healthy eating, with 58% becoming more conscious of their diet. However, the lack of reliable information has led 67% to regularly seek advice from social media.

While numerous studies highlight deceptive food labelling globally, research specific to India is sparse. Existing Indian studies focus on food label usage and consumer behaviour concepts rather than deceptive practices. These studies have delved into general understanding of food labels, the influence of socio-demographic factors, and consumer outlooks towards nutritional information. However, there is significant lack of research on prevalence of deceptive food labelling techniques and their effects, particularly when it comes to online food purchases. In order to close this gap,

this study looks into how well-informed Gen Z is about misleading food labels and how it perceives the impact of deceptive food labelling on their food choices. In addition, the study also explores the buying behaviour of Gen Z as a prerequisite. As a result, this research is crucial for influencing policy decisions, raising consumer knowledge, and encouraging young consumers to make healthier decisions.

3. Research Methodology

3.1 Research Objectives

1. To present a detailed landscape of food labelling and deceptive labelling practices in India
2. To study Gen Z's buying behaviour, perception of food labels and awareness of prevalent deceptive food labelling tactics
3. To analyse the acceptance of AI based Applications and QR codes for food label scanning among Gen Z

3.2 Research Design

This research is a descriptive study employing a mixed-methods approach, integrating secondary and primary data sources through a detailed literature review and an empirical survey.

3.3 Sampling

The research delved into the perception of deceptive food labels among Gen Z individuals, aged between 18-24 years. The study employed a survey as the primary tool for data collection with a sample size of 120 participants, with a majority being female (81.7%). Urban and semi-urban areas were the primary residence types for the respondents (95.7%). More than half of the participants were undergraduate college students (88%), while household income varied, with a significant portion exceeding Rs. 250000 per month and around 35.8% of respondents with household income between Rs. 50000 and Rs. 150000. The study aimed to gain insights into how Gen Z perceives food labelling, with a particular focus on deceptive food labels.

3.4 Tools and Techniques

The empirical research is conducted through a questionnaire, which incorporates Likert scale closed-ended questions such as “How often do you buy packaged food products online?”, “How often do you read food labels while purchasing packaged food online?”, to collect data efficiently on Gen Z’s buying behaviour, awareness and perceptions on deceptive food labelling. Subsequently, data analysis primarily relies on presenting findings through pie charts, and column graphs to effectively illustrate patterns and trends. Secondary data is collected from various sources such as books, online reports, articles, research papers, review papers, and e-sources including PubMed, ResearchGate, and Google Scholar, using keywords such as "food labels", "deceptive labels", and so on which formed the basis of the secondary data. The amalgamation of survey responses and theoretical research aims to offer a holistic perspective on the issue of deceptive food labelling practices among Gen Z. The results are presented in the next section under two segments based on the secondary and primary data analysis.

4. Result and Discussion

4.1 Food Labelling Landscape in India

4.1.1 Current Position of Food Labelling

In India, the Food Safety and Standards Authority of India (FSSAI) is responsible for setting food labelling requirements and regulating food labelling claims, along with the Advertising Standards Council of India (ASCI). As per Economics Times, the Indian food labelling landscape has witnessed significant reforms aimed at promoting consumer awareness and fostering healthier dietary choices. Some of which are Mandatory display of sugar, salt, and saturated fat content in bold, larger fonts on packaged foods and prohibition of misleading terms like "Health Drink" and "100% fruit juices" on labels (Anand, 2024) [2]. FSSAI introduced the Food Safety and Standards (Advertising and Claims) Regulations, and Labelling and Display regulations in 2018, representing a pivotal shift towards transparent labelling practices. A key feature of these regulations is the implementation of Front-of-Package Labels (FOPL) on packaged foods, which prominently display essential nutritional information such as energy, total fat, trans-fat, total sugar, and salt, along with their percentage contribution to Recommended Dietary Allowance (RDA).

This move is a response to the rising prevalence of non-communicable diseases (NCDs) linked to poor dietary habits, particularly cardiovascular diseases, by implementing clear and impactful front-of-pack labels (FOPL) to help consumers make informed food choices. The regulations require disclosure of nutritional content, allergen information, vegetarian/non-vegetarian status, and expiration dates on labels. They also advocate for red color-coding on HFSS (high in fat, sugar, and salt) foods to warn consumers of unhealthy options. Despite these measures, deceptive practices continue, highlighting the need for strict enforcement. These regulations aim to promote transparency, better dietary habits, and protect consumers from misleading claims, aligning with global standards.

4.1.2 Categorization of Food labelling claims

Food labelling claims can be categorized into several types, each serving a unique purpose for consumer guidance Nutrition claims inform consumers about the nutrient content of a product, aiding in healthier choices with labels like "fat-free" or "low in sodium." Health claims, such as "plant sterols help lower cholesterol," suggest a link between the product and health benefits, requiring scientific support and compliance with FSSAI regulations. Non-addition claims, like "no added sugar" or "free of sodium," highlight the absence of certain substances, provided they are clearly stated. FSSAI (2021) has specified 6 Phrase - based claims or the words and rules used as a claim statement: "Natural, Fresh, Pure, Authentic (genuine or real), Traditional, and Original." Certification-based claims, including "organic" or "vegan," necessitate proper certification. Lastly, Consumer Trend-inspired claims, such as "baked not fried" or "sustainably sourced," cater to the growing demand for healthier and environmentally friendly options, enhancing the brand's image as a climate-conscious entity (Food label solutions, 2023) [18].

4.1.3 Deceptive Food Labelling in India

Deceptive labels refer to the practice of intentionally

providing misleading or false information on product labels or packaging with the aim of misleading consumers. This misleading information can relate to various aspects such as ingredients, nutritional content, health claims, or manufacturing processes. The purpose of deceptive labelling is often to make products appear more attractive, healthier, or of higher quality than they are, thereby influencing consumers' purchasing decisions (Broslavsky & Weinman, 2024) [7].

The food industry in India, like elsewhere globally, has witnessed a proliferation of deceptive labelling practices aimed at misleading consumers. The prevalence of deceptive food labelling not only undermines consumer trust but also poses serious health risks, especially in a country where food safety standards are still evolving. Nutrition and health claims made on labels are governed under the Food Safety and Standards (Packaging and Labelling) Regulations, 2011. But all that the regulations do is briefly define nutrition and health claims. The reasons behind such deceptive food labelling practices might be traced to lack of stringent regulations, lack of consumer awareness, profit motive, or complex supply chains that make it challenging for transparency and traceability in food labels.

Consumers in India face a growing challenge of deceptive labelling practices on packaged food products. Following are the various tactics employed by manufacturers to mislead consumers about the nutritional value and health benefits of their products (Business Standard, 2024; Daphne, 2023; Devries, 2024; Hussain, 2021; Langel, 2023) [8, 10, 11, 22, 23].

4.1.3.1 Ingredient Manipulation

Serving size deception: Manufacturers utilize unrealistically small serving sizes, making the nutritional profile appear healthier than the actual consumption amount.

4.1.3.2 Ambiguous Terminology: Vague terms like "natural lavours" or "added sugars" are used without specifying the source or type of ingredient, hindering informed decision-making.

4.1.3.3 Hidden Ingredient Tactics: Opaque labelling practices include omitting ingredient lists entirely or burying them deep within the fine print, downplaying the presence of concerning ingredients like high sugar content. Additionally, a lack of transparency regarding sourcing and manufacturing practices further hinders informed consumer choices.

4.1.3.4 Misleading Health Claims

4.1.3.5 Exploiting Healthy Buzzwords: Vague claims about boosting immunity or curing diseases with a lack of scientific backing, alongside the liberal use of terms like "natural," "fresh," "organic," "real," or "addictive-free" without clear definitions or qualifications, create a false perception of health benefits.

4.1.3.6 Selective Nutrient Highlighting

Manufacturers might focus on specific "good" nutrients while downplaying the presence of unhealthy ones, providing an incomplete picture of the product's nutritional value.

4.1.3.7 Exploiting visual deception: Packages might use misleading imagery that portrays the product as containing more fruits, vegetables, or whole grains than it does. For example, if a package of tea contains prominent images of vanilla and raspberries even though the list of ingredients itself is accurate and makes clear that neither product is present in the tea, the labelling as a whole could be considered misleading.

4.1.3.8 False Certifications and Green washing

4.1.3.9 Unauthorized Logo Misuse: Logos of certifications (Organic, fair trade) may be displayed without proper authorization, deceiving consumers about product standards.

4.1.3.10 Misleading Label Claims: Fabricated certifications or misleading statements implying a certain standard can be employed to create a false sense of ethical or sustainable practices.

4.1.3.11 Exaggerated Sustainability Claims: Overstated claims about the eco-friendliness of packaging or ingredients are used without evidence to mislead environmentally conscious consumers.

4.1.3.12 Undeclared Allergens and Brand Mimicry

4.1.3.13 Hidden Allergen Risks: Common allergens like milk, soy, or gluten might be omitted from the ingredients list, posing a health risk to consumers with allergies.

4.1.3.14 Ingredient Masking Techniques: Alternative names for allergens are used that consumers might not recognize, making it difficult to identify potential allergic reactions.

4.1.3.15 Color Scheme and Name Replication: Deceptive brands may imitate the color schemes and fonts of established healthy brands or choose names that sound similar to trusted brands to create confusion among consumers.

4.1.4 Common Brands and Their Misleading Claims

Understanding the prevalent deceptive labelling tactics can help Indian consumers in making informed choices and hold manufacturers accountable for accurate and transparent food labelling practices. Table 1 presents some common brands and their misleading claims as mentioned by different reports and researchers (Down To Earth, 2012; Tewari & Khurana, 2017; Trivedi, 2024) [13, 30, 31].

Table 1: Some Common Brands and Their Misleading Claims

Brands	Claims	Hidden facts
Saffola Masala Oats	Smarter way to stay fit; Oats help you to stay in shape	It does not mention high sodium content on its label
Britannia Nutri Choice Oats Cookies	Diabetic friendly; 0% sugar added; Complex carbohydrates; High dietary fibre	High fat content (19%)
Britannia Nutri Choice Digestive	High in Fibre	High Fat content (19.6%)
Bournvita	Pro health vitamins	High sugar content (71%), per serve (20g) has 14.2 gm.
Quaker Oats-Homestyle Masala	Now tastier, with real vegetables	Sodium not declared
Complan	34 vital nutrients; 100% milk protein; More protein faster growth;	High sugar content (29%); per serve (33g) provides 9.57 gm sugar.
McVities Digestive	Whole wheat at its heart; High in fibre; Zero cholesterol; Trans-fat free	High fat content (21.2%)
Uncle Chipps Spicy Treat	Provides the nutritional data for 100 gm	Lack of nutritional information for a serving size
Sunfeast Farmlite Digestive All Good	Contains fibre; No added sugar; No maida	High fat content (22.7%)
Horlicks	2X immune nutrients; Taller Stronger Sharper; Scientifically proven nutrients to support immunity	High sugar content (35%)
Red Bull	Claims to be energy-boosting	Lacks scientific evidence
Maggi Noodles	Tasty and healthy; addition of vitamins	High salt (3gm), negligible fiber, 70% carbohydrate, empty calories
Britannia Milk Bikis	Contain the power of milk and wheat flour	Contains 27 gm sugar per 100 gm, added artificial flavour milk and inverted sugar syrup.
Britannia NutriChoice Digestive	High fibre	High fat content (19.6%)
HUL Kissan Amaze	Claims to be 'Brain Food' for children (Gives 33% of key brain nutrients)	No scientific truth in the claims

***Source*:** Compiled from secondary sources - Down To Earth, 2012 [13]; Tewari & Khurana, 2017 [23]; Trivedi, 2024 [31]

4.1.5 Current Trends in food labelling: Clean Labels, AI based Applications and QR Codes Scan

The clean label trend is gaining momentum in the food industry, particularly in India, as consumers become more health-conscious and sustainability-minded. Clean labels typically feature minimally processed products with fewer, easily understood ingredients, no artificial additives, and clear, easily readable nutritional information. This includes realistic serving sizes and transparent ingredient lists (Agro & Food Processing, 2023). The trend is driving conscious consumption and is especially popular among Gen Z. India's clean-label food market is expected to grow by 7.5% between 2020 and 2025, the highest in the APAC region (Neo, 2022) [26]. Key trends in India include the use of natural and organic ingredients, reduction of additives, transparent labelling practices, growth in plant-based and vegan foods, and clean snacking options. Companies are responding to this demand by offering products with natural sweeteners, organic ingredients, and increased transparency, such as India's first certified clean label brand 'True Elements' (Neo, 2022) [2]. This shift reflects consumers' growing awareness of the importance of choosing products that are beneficial for both personal health and the environment.

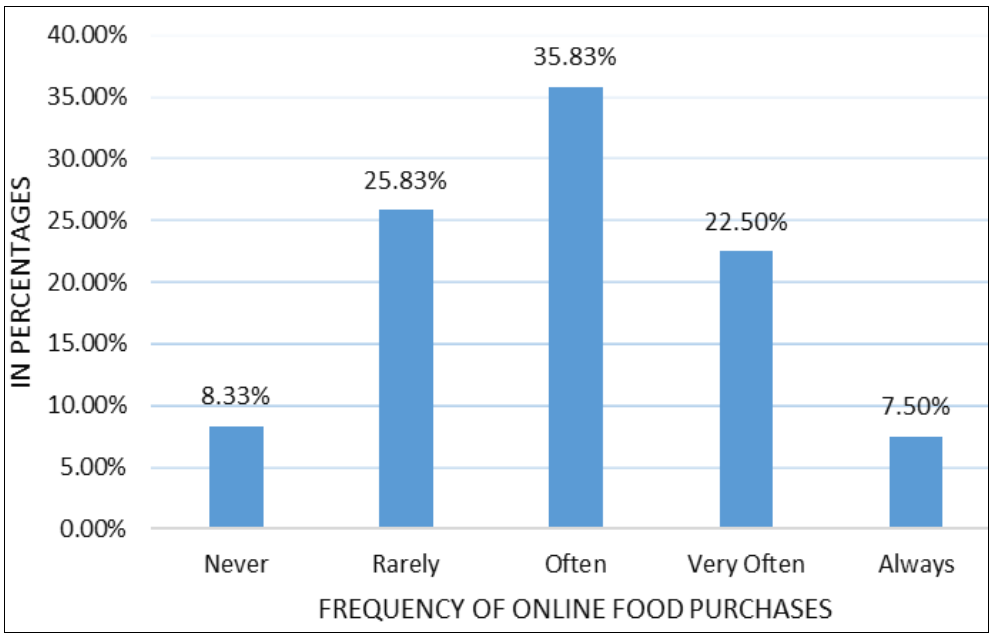
Artificial Intelligence (AI) based applications are transforming the landscape of food labelling by automating information processing, ensuring compliance with regulatory standards, and providing personalized insights (Vapiwala, 2023) [33]. These applications are designed to assist both consumers and manufacturers in understanding and managing food labelling information more effectively due to which the potential for AI to revolutionize food labelling is immense. By prioritizing transparency, accuracy, and consumer empowerment, AI applications can play a crucial role in promoting healthier choices and building trust in the food industry. While challenges remain, these applications will likely become increasingly sophisticated with evolution of AI, further enhancing their impact on food labelling practices (Ding *et al*., 2023) [12].

Quick Response (QR) codes for food labelling are becoming an increasingly popular tool for providing consumers with detailed information about food products. By leveraging QR code technology, brands can effectively communicate their values, quality, and other relevant information, setting a new standard for consumer interaction and trust in the food industry (Bashir, 2022) [5]. This technology enhances transparency, traceability, and consumer engagement by offering instant access to information beyond what is typically available on traditional labels. The Food Safety and Standards Authority of India (FSSAI) has recommended including the QR codes on food products to promote safe food access. This initiative aligns with the FSSAI's 2020 labelling regulations, ensuring comprehensive product information is accessible through scanning the QR codes with smartphones (Drishti IAS, 2023) [14]. With India's rising prevalence of non-communicable diseases linked to pre-packaged foods, this move aims to empower consumers to make informed choices by providing detailed nutritional information and allergen warnings. In the context of AI-based applications, this strategy can curb deceptive food labels by enabling AI-powered verification tools to cross-check the QR code data against regulatory standards, ensuring accuracy and transparency in food labelling practices in India (Vapiwala, 2023) [33].

4.2 Primary Data Results

This segment presents the results of the primary survey of Gen Z's perception of food labels and awareness of prevalent deceptive labelling tactics.

4.2.1 Frequency of online food purchase

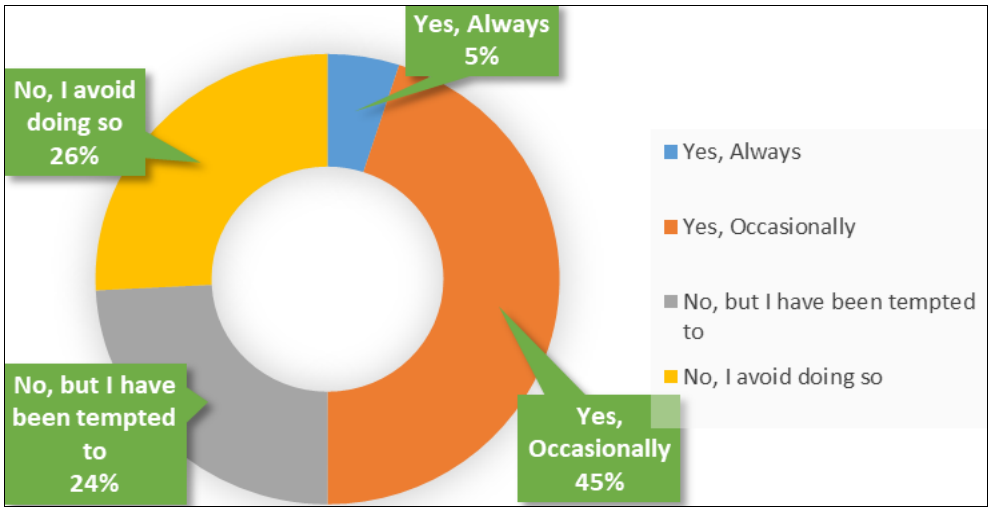


Source: Primary survey data

Fig 1: Frequency of online food purchases (in %)

According to figure 1, around 58.33% of respondents frequently purchase packaged food products online, indicating a high level of engagement with this shopping channel. On the other hand, 25.83% of respondents indicated that they rarely make online food purchases. Furthermore, 7.5% of respondents always buy packaged food products online, highlighting a consistent preference for this method, while 8.33% never opt for online purchases, suggesting alternative shopping habits.

4.2.2 Influence of Social Media on online purchase behaviour

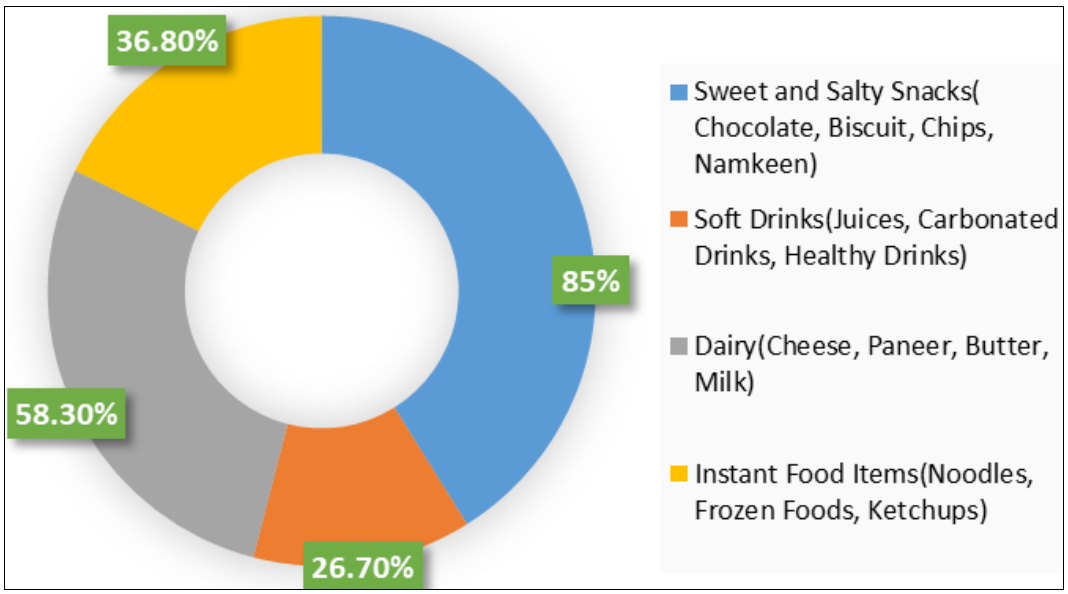


Source: Primary survey data

Fig 2: Influence of social media ads and influencer endorsements on online purchase behaviour

The results of the survey questioning Generation Z's trust in information provided on social media ads and influencer endorsements while purchasing food products online reveal intriguing insights into consumer behaviour and attitudes. While only a minority (5%) express unwavering trust in such information, a significant portion (45%) admit to occasionally relying on it. This indicates a certain level of receptivity towards social media advertising and influencer content among the demographic. However, a considerable proportion (24%) acknowledge being tempted by such endorsements despite harbouring doubts about their reliability. Conversely, a notable 26% firmly avoid trusting information from these sources altogether. These findings suggest a complex relationship between Generation Z consumers and social media-driven marketing tactics in the realm of food products.

4.2.3 Gen Z's food consumption habits

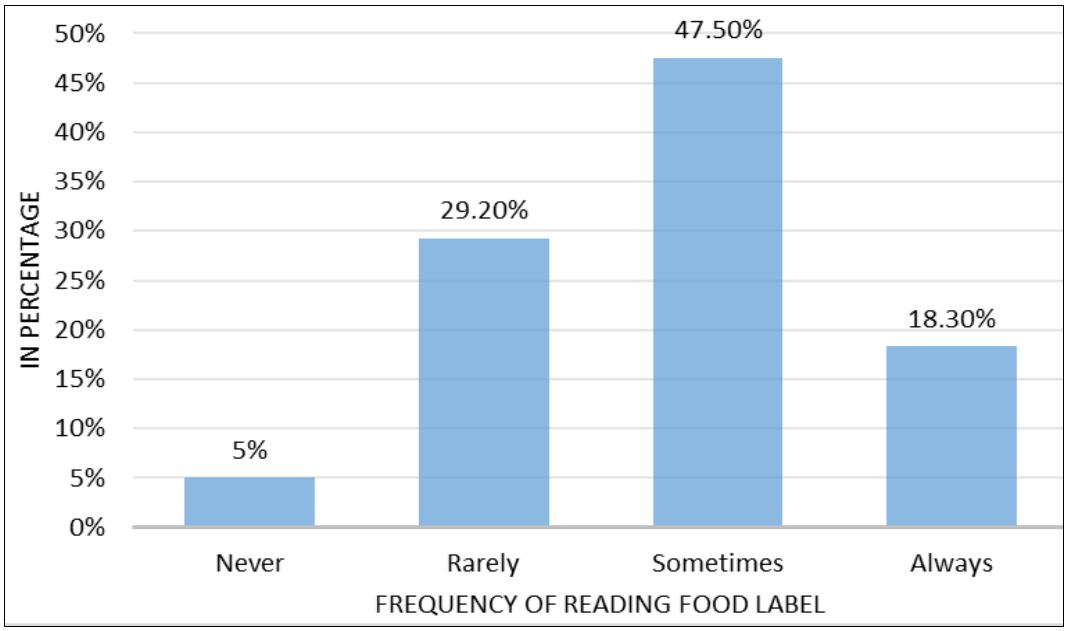


***Source*:** Primary survey data

Fig 3: Gen Z's food Consumption Habits

With consideration of the products' properties (Sweet, salty) and modes of consumption (e.g. major ingredient, snack, or part of a meal or cooking process), we separated individual products into the four food categories as seen in Figure 3, which indicates that the majority of the respondents (85%) are consuming sweet & salty snacks, which are foods high in fats, salt, and sugar (HFSS), leading to diet-related issues such as obesity, CVDs. 58.3% of the respondents consume dairy products such as cheese, milk, etc, followed by 36.8% of the respondents consume instant food items such as noodles, frozen food, etc., and 26.7% consuming soft drinks.

4.2.4 Reading Food labels

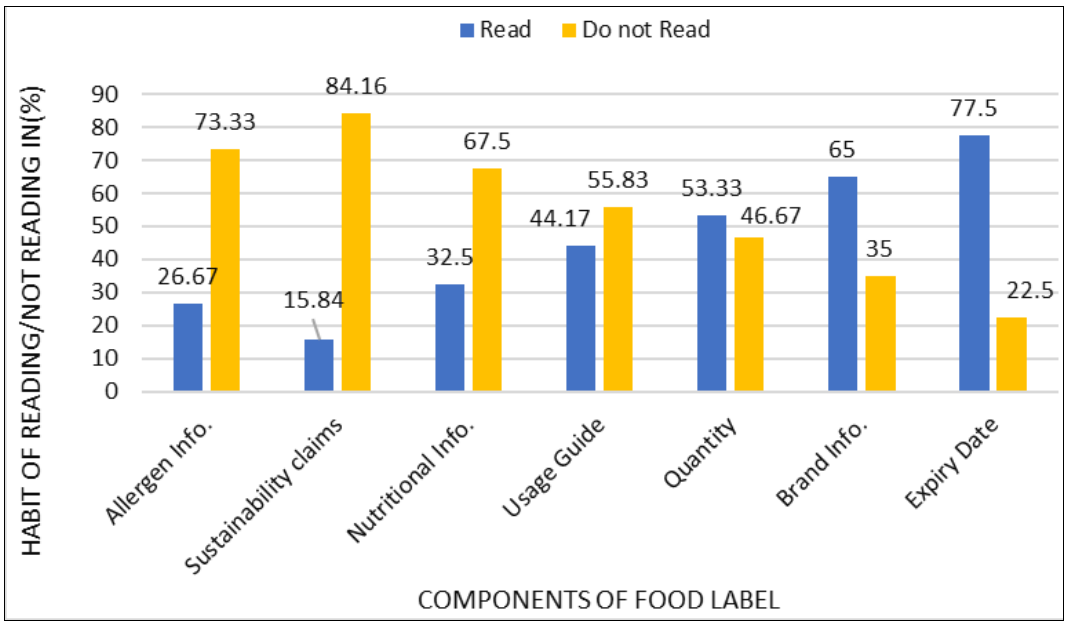


***Source*:** Primary survey data

Fig 4: Frequency of Reading Food Labels in Online Packaged Food Purchase

As illustrated in Figure 1, approximately 58.33% of people in India purchase packaged food products online. However, as shown in Figure 4, among these online shoppers, only 18.3% consistently read food labels, while a substantial 81.7% neglect to examine food labels when buying packaged food online.

4.2.5 Specific Food label information read by Gen Z

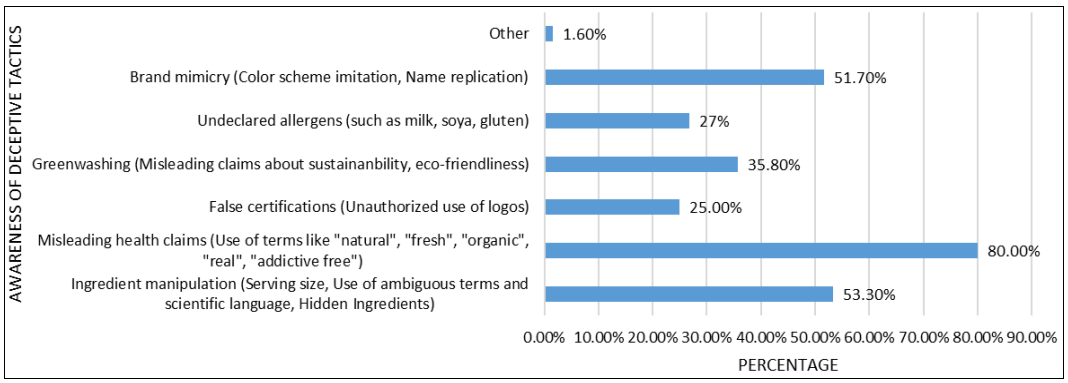


***Source*:** Primary survey data

Fig 5: Specific Food label information read by Gen Z

As per Figure 5**,** most Gen Z consumers prioritize brand information and expiry date over nutritional value and ingredient list while making food purchasing decisions. Out of 120 respondents, only 32.5% looked for nutritional value and ingredient list before purchasing food, while 65% looked at the brand name and 77.5% checked the expiry date. The survey uncovered a concerning trend: 73.33% of respondents overlook allergen information, and there's a general indifference towards sustainability claims (84.16%). This negligence can have severe consequences for those with dietary sensitivities and reflects a gap between consumer values and purchasing habits. It emphasizes the urgent need for heightened awareness of allergen information and a greater emphasis on the significance of reading and comprehending food labels to ensure informed and responsible consumer choices. The information most frequently read by gen Z is expiry date, followed by brand and quantity.

4.2.6 Awareness of deceptive food label tactics

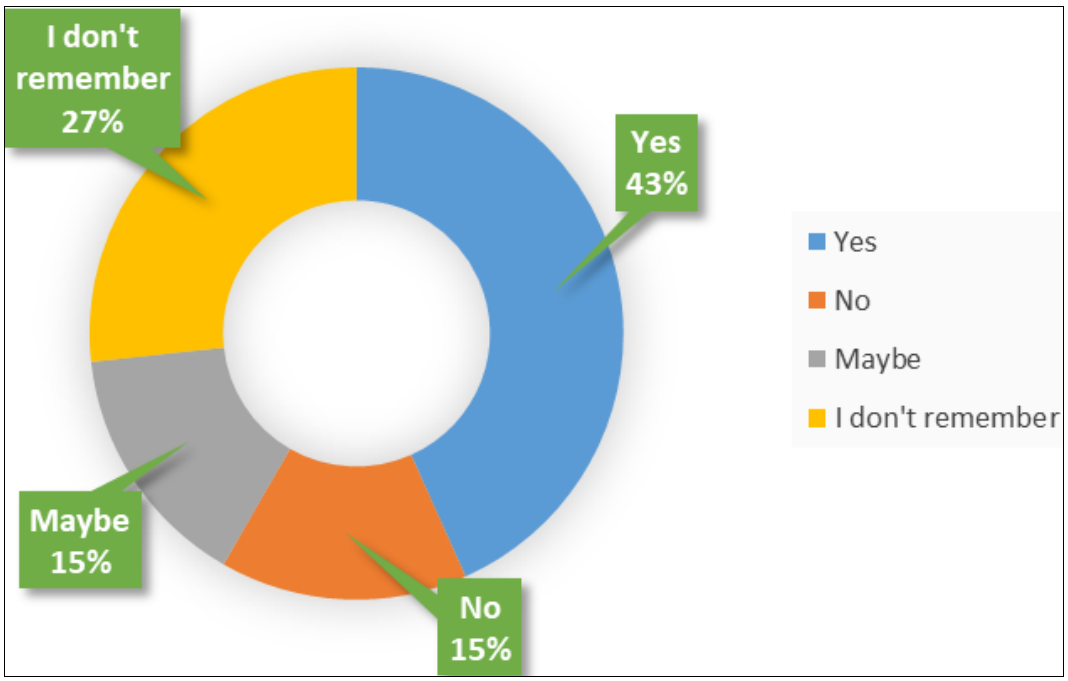


***Source*:** Primary survey data

Fig 6: Awareness of Prevalent Deceptive Food label tactics among Gen Z

The findings from our questionnaire have unveiled a concerning reality, a notable portion of respondents demonstrated ignorance towards several deceptive strategies. For instance, while 53.3% recognized ingredient manipulation, it's alarming that nearly half of the participants remained unaware of this tactic, which obscures the true nutritional content of products. Equally troubling is the fact that only 25% identified false certifications, indicating a worrying lack of skepticism towards unauthorized claims, potentially misleading consumers regarding product quality and safety. Furthermore, the relatively low awareness percentages regarding green washing (35.8%), undeclared allergens (27%), and brand mimicry (51.7%) underscore significant knowledge gaps, exposing Gen Z consumers to manipulation and health risks. Green washing deceives consumers with misleading environmental claims, while undeclared allergens pose serious health threats, especially to those with allergies. Brand mimicry can lead consumers to mistakenly purchase products under the false assumption that they belong to a trusted brand. Adding to the gravity of the situation, a staggering 80% of respondents recognized the prevalence of misleading health claims, indicating a deep-seated skepticism towards exaggerated or unsubstantiated assertions made by food products. This finding highlights the pervasive nature of deceptive practices and their potential detrimental impact on Gen Z's health.

4.2.7 Experience with deceptive food labels

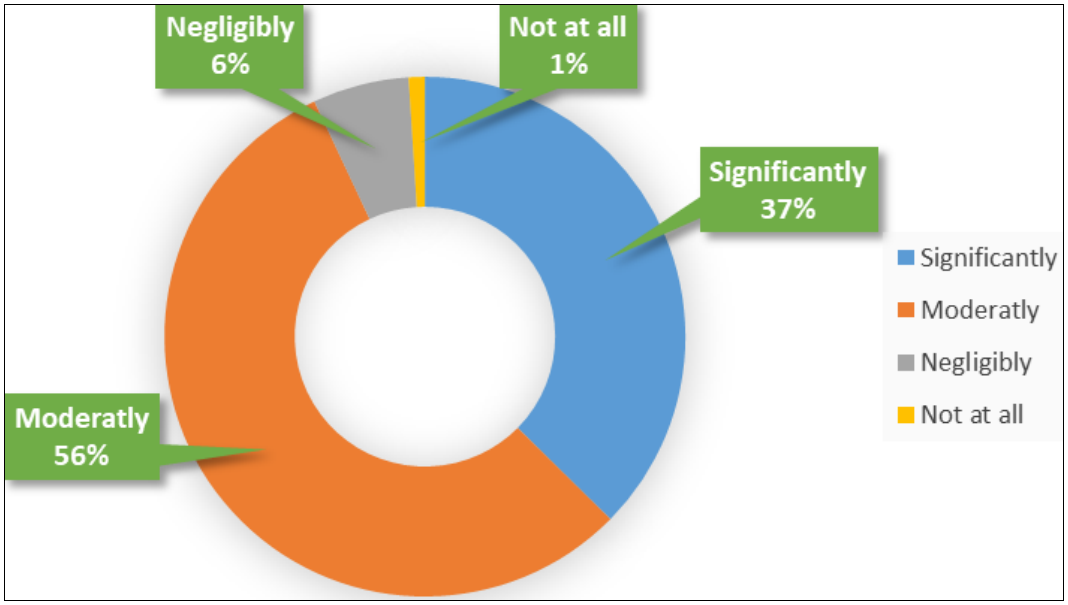


***Source*:** Primary survey data

Fig 7: Respondents experienced misleading food labels while shopping in India

Results shown in Figure 7 reveal that approximately 43% of respondents have encountered misleading food labels while shopping in India, while only 57% have either not encounter such labels or aren't sure about their exposure reflecting consumers' unawareness.

4.2.8 Effect of deceptive food labels on food choices

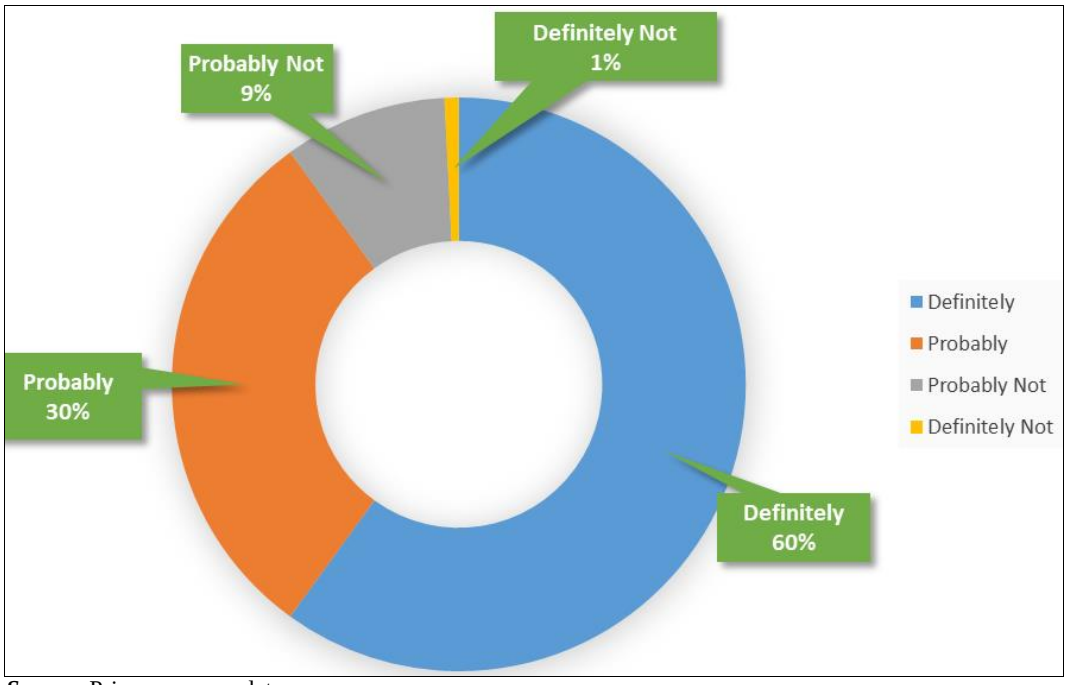


***Source*:** Primary survey data

Fig 8: Effect of deceptive food labels on food choices

The survey results regarding the impact of awareness about deceptive labelling on food choices among Generation Z in India reveal a significantly influence for 37% of respondents and a moderately influence for 56%. These findings emphasize the crucial role of consumer knowledge in shaping dietary decisions. Individuals who are aware of deceptive tactics are more likely to scrutinize food labels and prioritize products with transparent and honest labelling practices. This awareness reflects a nuanced understanding among Gen Z individuals, who navigate a complex interplay of marketing tactics, personal values, and nutritional considerations when making food-related decisions. In the pursuit of holistic wellness, informed and mindful food choices play a vital role in aligning dietary habits with broader health and ethical goals. These findings underscore the importance of ongoing education and advocacy around deceptive labelling practices to empower consumers and promote a healthier, more transparent food environment. Additionally, they highlight the potential for policy interventions and industry regulations aimed at enhancing transparency and accountability in food labelling for the benefit of consumer well-being.

4.2.9 Accepting AI based Applications and QR codes for food label scanning



***Source*:** Primary survey data

Fig 9: Gen Z's Preference for Detailed Product Information via Digital Technology

Figure 9 reveals an overwhelmingly positive response from 90% of the 120 participants in favour of accessing detailed information about ingredients and production methods through QR codes or AI-powered apps underscores a significant shift in consumer preferences towards transparency and accessibility in the food industry. This data suggests a growing demand for greater control over the information available to consumers, reflecting a desire for more informed purchasing decisions. The willingness expressed by 60% to definitely opt for such technology indicates a strong inclination towards embracing innovative solutions that facilitate transparency, while the 30% who probably would underscore a broader acceptance of the concept. However, the minority who expressed hesitation or outright refusal (9% who responded probably not and 1% who responded definitely no) may represent challenges related to technology adoption, privacy concerns, or skepticism towards the efficacy of such platforms. Nevertheless, these findings highlight the potential for QR codes and AI-powered apps to bridge the gap between consumers and manufacturers, fostering trust and empowerment within the food supply chain.

In nutshell, the research reveals some significant trends in Generation Z's online food purchasing behaviour and their engagement with food labels in India. Gen Z frequently purchases packaged food products online and follows social media for their choices. However, the convenience of online shopping negatively correlates with Gen Z consumers' likelihood of reading comprehensive food label information, particularly for frequently purchased items. This is reflected in the concerning lack of attention to food labels, with only 18.3% always reading them during online purchases. The study shows that Gen Z consumers prioritize brand information and expiry dates over nutritional values and ingredient lists and there is a notable lack of awareness regarding deceptive labelling practices, with only 43.3% recognizing various tactics. Despite this, 93% of respondents indicated that awareness of deceptive labelling influences their food choices to some degree. Significantly, 90% of participants expressed interest in using QR codes or AI-powered apps to access detailed product information, suggesting a desire for greater transparency.

These findings have significant implications for the food industry, policymakers, and consumers. For food companies, there is a clear need to improve transparency and adopt digital solutions like QR codes to provide comprehensive product information, addressing the 90% of Gen Z consumers interested in such technologies. Policymakers should consider implementing stricter, detailed regulations on food labelling practices and launching educational campaigns to increase awareness about deceptive tactics, given that 57% of respondents were unaware of various misleading practices. For consumers, particularly Gen Z, there's a crucial need for increased education on the importance of reading food labels and understanding nutritional information. The results indicate Gen Z's ignorance of crucial food label information, such as sustainability claims, allergen information, and nutritional content. However, when information about deceptive labelling practices is shared through social media platforms, Gen Z is significantly more likely to recognize and understand these deceptions. This suggests that social media plays a crucial role in enhancing their awareness and critical evaluation of food labels. Additionally, the food industry and policymakers should collaborate to develop more user-friendly and transparent labelling systems, potentially leveraging AI and digital technologies to bridge the information gap and create consumer awareness. The high consumption of HFSS (high in fat, sugar, and salt) foods (85% consuming sweet and salty snacks) calls for targeted interventions to promote healthier eating habits among Gen Z. Overall, these findings underscore the need for a multi-faceted approach involving industry innovation, policy regulation, and consumer education to foster a more transparent and health-conscious food environment.

Given Gen Z's tech-savviness and their openness to using

AI and QR codes for more detailed product information, there is a promising opportunity to promote informed consumer choices through digital tools. Social media influencers and celebrities can play a crucial role in raising awareness about the importance of reading food labels. For example, social media influencer Revant Himatsingka, known as “Food Pharmer,” has exposed misleading claims in brands like Bournvita, Nest Tea, and Too Yumm, emphasizing the need to scrutinize food labels. His efforts highlight how influencers can drive accountability and promote transparency in the packaged food industry. In parallel, clean label practices that emphasize transparency and ethical standards should be adopted, as seen in developed nations where consumers Favour products with simple, recognizable ingredients. Unlike the European Union and the US, which have strict regulations and approval processes for health and nutrition claims, India's lax regulations allow misleading claims to proliferate. For example, claims like "98 percent fat-free" by Kellogg's Special K, which are not permitted in the EU, are freely used in India. To address deceptive labelling in India, the FSSAI should strengthen regulations, enhance transparency with blockchain technology, and foster public education on critical label reading. Collaborative efforts among government bodies, industry leaders, and consumer organizations are essential to drive ethical practices and improve the overall food labelling landscape.

5. Conclusion

This study explores food labelling in India with the perspective of online purchases by Gen Z to understand their awareness and perception of deceptive food labels. The study is also presenting the food label landscape of India and analysing a few food brands for labelling practices. The findings from our research show that Generation Z prefer to buy online and influences from social media on their online purchase behaviour is real. It consumes a notably large quantity of packaged meals, especially high-fat, low-sugar foods, which raises the risk of diet-related problems. Reading brand and expiry date information comes first for Generation Z, but they ignore other important information like allergens and nutritional values. The results of our survey also show that this cohort has a reasonable awareness of misleading labelling practices, and there is a relationship between their awareness and the healthy food choices they choose. The results provide a deeper understanding of the food labelling perspectives of Gen Z in India.

However, the research has few limitations, including a higher female representation and the exclusion of the rural population, which may affect the results' comprehensiveness. Future research could address these limitations by including the rural population, ensuring gender balance, observing consumer behaviour changes over time, and comparing with other countries.

6. References

1. Agron Food Processing. Riding the Clean Label Wave; c2023. Available from: https://agronfoodprocessing.com/riding-the-clean-label-wave/
2. Anand S. FSSAI introduces bigger font & bold letters for nutrition labels of sugar, salt, & saturated fat. Economics Times; c2024. Available from: https://economictimes.indiatimes.com/industry/cons-products/food/fssai-introduces-bigger-font-bold-letters-for-nutrition-labels-of-sugar-salt-saturated-fat/articleshow/111539731.cms?from=mdr
3. Asafari M, Hozoori M, Samiee H, Fard R, Hosseini H. Food Labelling: The Role of Claims and Statements in Community Health. J Food Qual Hazards Control. 2024;11(2):15649. DOI: https://doi.org/10.18502/jfqhc.11.2.15649
4. Aultrin V. India's processed food market to reach USD 470 billion; c2021. Available from: https://www.printweek.in/news/indias-processed-food-market-to-reach-usd-470-billion-54549
5. Bashir H. Leveraging technology to communicate sustainability-related product information: Evidence from the field. J Clean Prod. 2022;362:132508. DOI: https://doi.org/10.1016/j.jclepro.2022.132508. Available from: https://www.sciencedirect.com/science/article/pii/S0959652622021096
6. Bell R, Gama AP, Matumba L. Malawi’s ‘anything goes’ food market: weak regulations on nutrition and health claims. J Consum Prot Food Saf; c2024. DOI: https://doi.org/10.1007/s00003-024-01509-5
7. Broslavsky, Weinman. Misleading and deceptive Product Labels Attorneys; c2024. Available from: https://www.bwcounsel.com/los-angeles-consumer-class-action-attorney/false-advertising/misleading-and-deceptive-product-labelling/
8. Business Standard. Label claims on packaged food could be misleading, ICMR warns consumers; c2024. Available from: https://www.business-standard.com/industry/news/label-claims-on-packaged-food-could-be-misleading-icmr-warns-consumers-124051200254_1.html
9. CBS 11 News. Research: 10% of all food mislabelled, diluted or misrepresented; c2014. Available from: https://www.cbsnews.com/texas/news/research-10-of-all-food-mislabeled-diluted-or-misrepresented/
10. Daphne T. Greenwashing: Deceptive Advertising and misleading claims (Part 1); c2023. Available from: https://www.circularise.com/blogs/greenwashing-in-businesses-part-1
11. Devries S. 5 Misleading Food Labels. Gaples Institute; c2024. Available from: https://www.gaplesinstitute.org/5-misleading-food-labels/
12. Ding H, Tian J, Yu W, Wilson D, Young B, Cui X, *et al*. The Application of Artificial Intelligence and Big Data in the Food Industry. Foods. 2023;12:4511. DOI: https://doi.org/10.3390/foods12244511
13. Down To Earth. Eat at your own risk; c2012. Available from: https://www.downtoearth.org.in/health/eat-at-your-own-risk-37902
14. Drishti IAS. QR Codes for Food Labels; c2023. Available from: https://www.drishtiias.com/daily-updates/daily-news-analysis/qr-codes-for-food-labels
15. Eat Right India. Reduction of Fat, sugar, and salt; c2024. Available from: https://eatrightindia.gov.in/reduction-fat-sugar-salt.jsp#:~:text=Regular%20and%20excess%20consumption%20of,foods%20in%20our%20daily%20diet
16. EIT Food. Gen Z demand radical change from the food sector to tackle access to healthy and affordable food; c2021. Available from:

https://www.eitfood.eu/news/gen-z-demand-radical-change-from-the-food-sector-to-tackle-access-to-healthy-and-affordable-food
17. Food Label Solutions. What are the mandatory elements of a food label; c2022. Available from: https://www.foodlabelsolutions.com/info-centre/Packaged-Foods/what-are-the-mandatory-elements-of-a-food-label/
18. Food Label Solutions. Decoding Food Labelling Claims in India: What You Need to Know; c2023. Available from: https://www.foodlabelsolutions.com/info-centre/Packaged-Foods/decoding-food-labelling-claims-in-india-what-you-need-to-know/
19. FSSAI. Over 15 percent food samples substandard. FSSAI, Govt. of India; c2019. Available from: https://fssai.gov.in/upload/media/FSSAI_News_Samples_Telengana_09_12_2019.pdf
20. FSSAI. Food Safety and Standards (Advertising and Claims) Regulations, 2018. FSSAI, Govt. of India; c2021. Available from: https://fssai.gov.in/upload/uploadfiles/files/Compendium_Advertising_Claims_Regulations_04_03_2021.pdf
21. Hastak M, Mazis MB. Deception by Implication: A Typology of Truthful but Misleading Advertising and Labelling Claims. J Public Policy Mark. 2011;30(2):157-167. DOI: https://doi.org/10.1509/jppm.30.2.157
22. Hussain G. 13 Misleading Food Label Claims and How Not to Be Tricked; c2021. Available from: https://sentientmedia.org/misleading-food-labels/
23. Langel J. Mislabelling vs. Misbranding: A Practical Guide with Examples; c2023. Available from: https://www.thelangelfirm.com/debt-collection-defense-blog/2023/february/mislabelling-vs-misbranding-a-practical-guide-wit/
24. Lattice. India's Evolving Food and Grocery Landscape; c2024. Available from: https://www.businessoffood.in/indias-evolving-food-and-grocery-landscape/
25. Lennon A. Despite targets, food manufacturers fail to make healthier foods; c2021. Available from: https://www.medicalnewstoday.com/articles/despite-targets-food-manufacturers-fail-to-make-healthier-foods
26. Neo P. 'Stamp of credibility': India's first certified clean label brand highlights importance of traceability to boost consumer trust; c2022. Available from: https://www.foodnavigator-asia.com/Article/2022/01/10/Stamp-of-credibility-India-s-first-certified-clean-label-brand-highlights-importance-of-traceability-to-boost-consumer-trust#:~:text=Between%202020%20to%202025%2C%20the,health-oriented%20%26%20sustainable%20products
27. Shireen S, Muthumareeswari S, Sumaya BK, LakshmiShree R. Food Label and its Influence among Indian Consumers - A Review. J Food Sci. Nutr Res. 2022;543-551. Available from: https://www.fortunejournals.com/articles/food-label-and-its-influence-among-indian-consumers--a-review.pdf
28. Soni P, Kaur K. Examining claims on food packages in India: Are they inadequate and deceptive? Measurement: Food. 2023;11:100100. DOI: https://doi.org/10.1016/j.meafoo.2023.100100. Available from: https://www.sciencedirect.com/science/article/pii/S2772275923000242
29. Steinhauser J, Janssen M, Hamm U. Who Buys Products with Nutrition and Health Claims? A Purchase Simulation with Eye Tracking on the Influence of Consumers' Nutrition Knowledge and Health Motivation. Nutrients. 2019;11(9):2199. DOI: https://doi.org/10.3390/nu11092199. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6769812/
30. Tewari A, Khurana A. Claims we buy; c2017. Available from: https://www.downtoearth.org.in/health/claims-we-buy-56823
31. Trevedi A. Not just Patanjali: India's FMCG industry has a history of misleading ads; c2024. Available from: https://www.republicworld.com/business/industry/indias-fmcg-industry-and-its-history-of-misleading-ads
32. Vapiwal R. How AI is Revolutionising Food Labelling Validation; c2023. Available from: https://nuffoodsspectrum.in/2023/07/10/how-ai-is-revolutionising-food-labelling-validation.html
33. Vapiwala R. Revolutionizing Food Labelling Validation using Artificial Intelligence (AI); c2023. Available from: https://www.foodlabelsolutions.com/info-centre/Artificial-Intelligence/revolutionizing-food-labelling-validation-using-artificial-intelligence-ai/
34. World Health Organization. Noncommunicable diseases; c2023. Available from: https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases
35. Wilde P, Pomeranz JL, Lizewski LJ, Zhang FF. Consumer confusion about whole grain content and healthfulness in product labels: A discrete choice experiment and comprehension assessment. Public Health Nutr. 2020;23(18):3324-3331. DOI: https://doi.org/10.1017/S1368980020001688. Available from: https://www.cambridge.org/core/journals/public-health-nutrition/article/consumer-confusion-about-wholegrain-content-and-healthfulness-in-product-labels-a-discrete-choice-experiment-and-comprehension-assessment/09632F10BA8F314FBCAFA49276315A60