A Systematic Literature Review on Consumers Awareness and Perception towards Clean Labelled Packaged Food Products

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ABSTRACT

This study examines the factors influencing consumer acceptability and liking of clean-label products in India, focusing on the impact of product labelling on consumer preferences. Growing concerns about health, food safety, and transparency have increased consumer interest in product ingredients, production processes, and ethical practices, which clean-label foods aim to address through simplified and transparent information. A systematic literature review was conducted using 60 research papers sourced from databases such as Google Scholar, Scopus, Springer, Emerald, Elsevier, and university e-libraries. The findings reveal that consumer perceptions are shaped by price, availability, and ingredient list complexity. Highly educated consumers show greater attention to ingredient information, particularly unfamiliar components. Healthcare professionals demonstrate higher awareness of ingredients, while professors focus more on nutritional elements such as carbohydrates, fibre, and sodium. The study concludes that clean-label products can enhance consumer trust and loyalty; however, standardized regulations and credible claims are necessary to reduce misconceptions and ensure transparency.

Keywords: Clean-Label Products, Consumer Awareness, Ingredients, Nutritional Content, Sustainability.

Introduction

The demand for transparency across the sectors of health and food safety continually raises for consumers questions regarding product composition, the source of production, production processes, incorporated additives, and the consequences of ethical considerations throughout the production continuum. These inquiries appear to be addressed with clarity in the context of clean-label foods (Siddiqui et al., 2022). The perception of ingredients as represented on product labels is shaped by a plethora of determinants, encompassing educational attainment, labelling modalities, and the notion of clean labels. Empirical evidence suggests that individuals possessing elevated levels of education exhibit a heightened focus on ingredient disclosures, particularly regarding atypical components ("An Eye-tracking Study of People's Perception towards the Ingredient Section on Food Packages," 2023). There exists an escalating trepidation regarding chemical substances among consumers; consequently, a significant portion of the populace continues to misconstrue the risks associated with chemical products, presuming that the onus for risk mitigation and safety lies solely with manufacturers and retailers. Given that the information deemed most credible is disseminated by mass media, it is essential that such media outlets are employed to convey precise information regarding hazardous chemicals present in consumer products and the methodologies for circumventing potential harm (Seunghye et al., 2019).

The emphasis on matters pertaining to environmental conservation, sustainability, and food security is becoming increasingly critical in light of the burgeoning global population. Addressing these challenges will necessitate ongoing advancements in food production techniques. Concurrently, consumers are exhibiting a heightened interest in acquiring knowledge about the origins of their food and whether the methodologies employed in food production may exert detrimental effects on the environment (Wunderlich & Smoller, 2019). Furthermore, labelling frameworks such as traffic-light

systems facilitate comprehension and influence consumer choices, as evidenced by research indicating a preference for these formats in the context of self-service food options (Felipetto et al., 2022).

Clean Label Products

Consumers exhibit a growing preference for foods characterized as "natural," composed of "healthier" and "familiar" ingredients—a phenomenon referred to as the "clean-label" trend. With the progressive aging of the population, it becomes increasingly vital to comprehend the consumer segment comprising older adults. This research endeavor seeks to elucidate the determinants that influence the acceptability and preference for clean-label products among older adults residing in community settings (Fernandes et al., 2024). The notion of clean-label is devoid of regulatory clarity and lacks a universally acknowledged, standardized, or legally defined interpretation, thus rendering it a subjective term for both consumers and food manufacturers (Charis, 2022).

As indicated by market research entities, within consumer discourse, a clean-label product may be articulated as "natural," "organic," and/or "devoid of additives/preservatives" (Ingredion, 2014). From a subjective standpoint, a clean-label product is characterized by a concise and straightforward ingredient list, recognizable to consumers, devoid of artificial or chemically-sounding substances, and comprised of ingredients typically found in a "kitchen cupboard" (Asioli et al., 2017).

Clean label and FSSAI

According to the Food Safety and Standards Authority of India (FSSAI), with the exception of single-ingredient food products, it is mandated that a comprehensive enumeration of ingredients be presented on the label in the subsequent format: -

The enumeration of ingredients must feature an appropriate designation, such as the phrase "Ingredients/List of Ingredients";The nomenclature of ingredients incorporated in the product must be articulated in a descending sequence, based on their respective proportions by weight or volume, as applicable at the juncture of its production;Any food additive that is integrated into a food item in a quantity adequate to fulfill a technological role within that food, as a consequence of utilizing raw materials or other ingredients containing such additives, shall be incorporated within the enumeration of ingredients;A precise designation shall be employed for ingredients within the enumeration of ingredients; provided, however, that for ingredients categorized under specific classes, the class designations may be employed;In instances where an ingredient is itself a composite of two or more ingredients, such a compound ingredient shall be declared by their respective specific designations.

Consumer Concerns About Chemicals

A comprehensive survey encompassing 10,000 Korean consumers demonstrated an increased apprehension regarding the presence of deleterious substances in items such as pesticides and cleaning agents, whereas toiletries were subjected to comparatively diminished scrutiny (Seunghye et al., 2019). A significant number of consumers depend on information disseminated through mass media and environmental organizations to shape their perceptions pertaining to product safety (Seunghye et al., 2019).

Consumer Awareness and Behaviour

- **Socio-Demographic Influence:** Empirical research indicates that variables such as gender, age, and level of educational attainment exert a significant influence on consumer cognizance and behaviours regarding the sustainability of food packaging (Chirilli et al., 2022).

- **Labelling Preferences:** A comprehensive survey conducted in India revealed that 95% of respondents acknowledged the presence of food package labelling, demonstrating a pronounced preference for warning labels, which reflects a demand for transparent and informative packaging (Bhattacharya et al., 2022).

Environmentally Sustainable Food Packaging

An optimal approach to mitigate the ecological footprint may involve the reduction of material usage while preserving mechanical integrity. There are three essential elements that should be evaluated in the quest for environmentally sustainable packaging. (i) the selection of raw materials, with a preference for recycled and renewable resources to diminish CO_2 emissions and alleviate the consumption of fossil energy sources; (ii) enhancing the energy efficiency of production processes; and (iii) emphasizing the principles of reuse, recycling, and biodegradation to facilitate improved waste management (Chiara & Chirilli, 2022).

Consumers are often subjected to conflicting and dynamic information concerning nutritional practices from a multitude of sources, encompassing official dietary recommendations, health professionals, social networks, social media channels, and traditional media outlets. There remains a significant gap in understanding how individuals conceptualize healthy foods and the criteria they employ to assess food healthfulness. It is anticipated that these assessments are conducted with minimal reflection and are influenced by heuristic decision-making strategies (Dieuwerke et al., 2022).

Objective of the Study

To identify the factors influencing consumers' awareness, perception, acceptability, and liking of clean-label packaged food products, and to examine how product labelling affects consumer preferences in India.

Review Methodology

This study adopted the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework (Page et al., 2021) to conduct a systematic review of literature on clean-label products and consumer preferences. A scoping review approach was applied to identify, screen, and synthesize relevant empirical studies.

The literature search covered publications in English from 2015 to 2025 and was conducted across multiple academic databases, including university e-libraries, Google Scholar, ResearchGate, Springer, Emerald, and Elsevier. Titles, abstracts, and keywords were searched using Boolean operators ("AND," "OR") and quotation marks to refine results. Key search terms included "clean-label," "consumer awareness," "sustainability," "food packaging," "ingredients," "nutritional content," "information disclosure," "hazardous substances," and "consumer purchasing behaviour."

Predefined inclusion and exclusion criteria were applied to ensure study quality and relevance. Publication data were extracted and organized using Microsoft Excel to remove duplicates and manage records systematically. Eligibility assessment was conducted through title screening, abstract review, and full-text evaluation, focusing on studies addressing clean-label products, transparency, and nutritional labelling. Editorials, conference abstracts, books, theses, and incomplete studies were excluded. The final review included 65 studies for qualitative analysis.
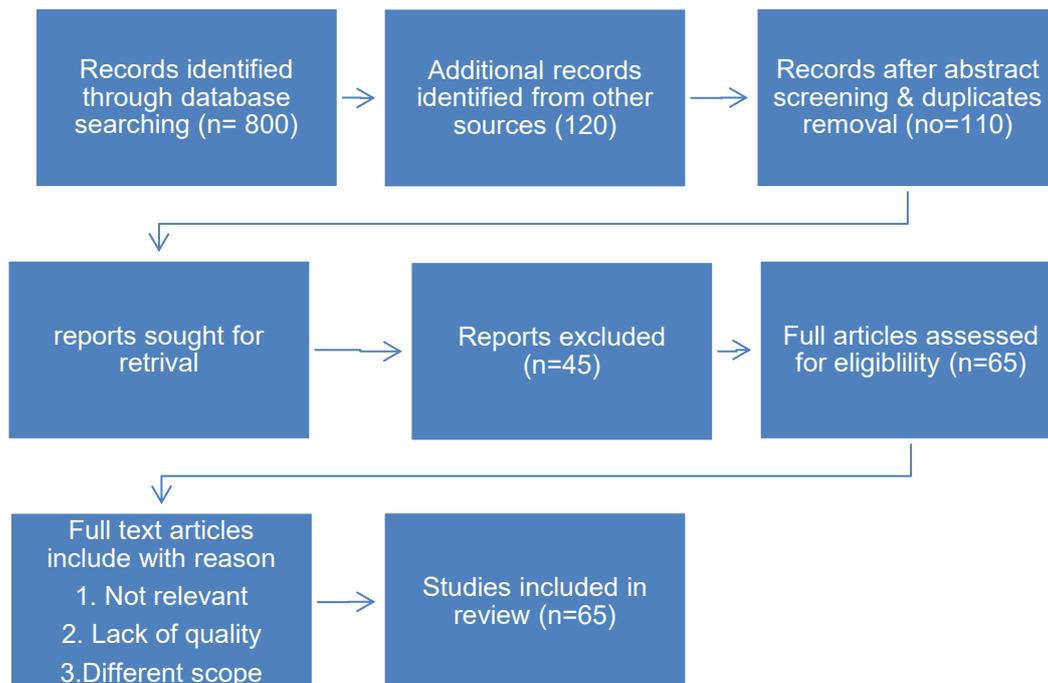
Identification of Studies via Databases

Fig. 1 shows the PRISMA 2020 framework implementation in this review. Concerning clean label aspect on packaged food products.

Literature Review

- **Packaging: Historical Overview**

Diverging from current packaging paradigms, the chief consideration in historical packaging was largely directed toward the features of containment and protection of the product. The commodities were stored in reliable, standard materials generally derived from natural resources such as wood pulp (in the shape of paper and cardboard) or textiles (such as flour sacks), which enabled consumers' enjoyment of the package contents within their domestic spaces. For a significant number of individuals, the most prevalent materials utilized for product protection were paper and glass. The populace comprehended the function of packaging as intended to safeguard their products during the journey home from the marketplace. The advent of manufacturing technology fundamentally transformed the entire paradigm of packaging following the Industrial Revolution in the eighteenth century, during which manufacturers were compelled to innovate more durable protective solutions to enable the transportation of products from factories to retail outlets and subsequently to consumers' residences. Unfortunately, even two centuries ago, corporations were deprived of adequate information and research insights necessary to ascertain methodologies that would extend the shelf life of products (Jewel et al., 2019).

- **Consumer Awareness**

Consumer awareness regarding product ingredients notably influences their purchasing decisions, as heightened levels of cognizance are linked to an increased consumer surplus and motivate firms to improve product quality and reveal potential negative consequences (Sanxi Li et al., 2016). Individuals possessing higher educational qualifications exhibit a greater degree of scrutiny towards ingredient listings, placing considerable emphasis on rare components, whereas protracted sections tend to garner attention primarily in the central region (Jingyuan, 2023). Healthcare professionals revealed a substantially enhanced understanding of ingredient components relative to their business counterparts, while scholars in the academic sphere manifested an acute awareness of carbohydrate, fiber, and sodium metrics as denoted on food labelling (Ayodhya, U et al., 2018). Consumers residing in East-Central Europe articulate apprehensions concerning the health ramifications of chemical constituents in products and express a perceived deficiency in information pertaining to these ingredients (Florin-Alexandru Luca et al., 2018).

A scholarly investigation highlights the crucial importance of ingredient lists in advancing consumer awareness, enabling a deeper understanding of chemical weight ratios and potential exposures related to a variety of consumer products (Kristin Isaacs et al., 2018). Consumer knowledge regarding the undisclosed ingredients in fragranced products is vital for making well-informed choices, considering that many items contain complex blends that could pose health risks (Steinemann, 2009). The adoption of novel packaging and labelling methodologies significantly influences consumer purchasing behaviors, as demonstrated by their association with brand perception and competitive positioning within the food industry (Yepndo Yepndo & Auriol Gabin, 2024). Brand labelling and packaging are essential in attracting consumer attention, improving brand reputation, delivering product information, and impacting purchasing choices through design elements such as color, form, and dimensions (Kritika & Shah, 2023). Moreover, brand labelling and packaging serve to enhance the identification, categorization, and promotion of products, thereby bolstering consumer recognition and engagement while delivering essential information pertaining to the product's composition and safety (Noviarama et al., 2023).

- **Brand Labelling and Packaging**

Brand labelling and packaging serve as essential tools for the establishment of brand identity, influencing consumer perceptions and facilitating rapid product identification at the point of sale (Si et al., 2022). These elements operate as essential communicative instruments that influence consumer perceptions, buying behavior, and brand distinction within competitive markets, consequently affecting overall sales effectiveness and cultivating brand allegiance (Gabriel et al., 2018). The influence of brand labelling and packaging on consumer preference is considerable, as familiarity with the brand and visual components profoundly impact perceptions of quality, especially in economically disadvantaged demographics (Wayne et al., 2011).

The impact of alcohol warning labels on changing drinking behavior appears to be somewhat limited, potentially due to the inadequate cognitive engagement that individuals devote to these labels (Inge et al., 2017). Furthermore, brand labelling and packaging significantly influence consumer purchasing behavior by enhancing brand awareness, conveying essential product information, and

attracting consumer attention through aesthetic considerations, such as design, color, and material (Shaista et al., 2016). The packaging of PDO Parma ham is distinguished by a variety of labels (PDO, Consortium, private brands) that signify quality and furnish consumers with insights concerning the product's characteristics and origin (Filippo et al., 2014).

Bryła (2020) undertook a detailed study into how food label understanding varies across distinct demographic and socioeconomic dimensions, including gender, age, geographic location, educational attainment, occupational status, income, household size, and the number of dependents. This study examined whether variations in label comprehension were correlated with specific purchasing patterns, including the procurement of dietary supplements, organic products, functional foods, and fair-trade commodities. The research further investigated the application of labels concerning designated health and dietary issues and assessed the relationships between food label utilization and the appraisal of the quantity, lucidity, and reliability of particular information presented on food packaging. The improvement of consumer confidence through skillful brand labelling and packaging considerably affects purchasing selections and includes tamper-evident qualities that counteract counterfeit dangers while assuring explicit communication of relevant risks and benefits (John et al., 2011).

- **Product Ingredients in Labelling and Packaging**

The importance of incorporating thorough ingredient disclosures and caloric data on food labelling highlights a substantial need for clarity regarding nutritional makeup (Felipetto et al., 2023). The perception of consumers towards labelled ingredients exerts a substantial influence on their purchasing choices, as it embodies their attitudes and expectations concerning product quality and safety, particularly in relation to local agri-food commodities (Laila et al., 2021). Organic agriculture is believed to exert minimal environmental impact, largely attributable to its exclusion of pesticides and herbicides during cultivation practices. There exists a noticeable trend of escalating consumer engagement in understanding the food they acquire and the possible environmental ramifications of its production techniques (Wunderlich & Smoller, 2019).

It has been observed that nearly 90% of consumers formulate their purchasing choices predominantly based on a visual evaluation of the product's front packaging. Both visual and textual packaging elements may function as essential heuristics in the consumer decision-making process regarding purchases. Therefore, it is manifest that food manufacturers consistently improve the visual presentation of their products by utilizing appealing food imagery on the packaging, such as the depiction of green cucumbers on Lay's cucumber-flavored crisps and the inclusion of hazelnuts on Hershey's hazelnut chocolate packaging (Guowei et al., 2019).

Misunderstandings regarding the presence of harmful substances within products can pose significant risks to both individual health and environmental integrity. The results of the survey imply that elements such as motivation, educational achievement, and chemical literacy do not intrinsically provide an adequate grasp of harmful substances found in consumer items. If consumers who are well-versed experience hurdles in the adept application of risk information elements, as suggested in this analysis, it is reasonable to anticipate that the general population will encounter even more substantial difficulties in this area (Hartmann & Klaschka, 2017).

Conclusion

The concept of clean labelling has emerged as a significant trend within the food industry, driven by consumer demands for transparency, health, and sustainability. Clean labels are perceived as indicators of product superiority, lacking synthetic additives and intricate components that are challenging to decipher. This movement presents both opportunities and challenges for manufacturers as they adapt to the evolving preferences of consumers. Clean label products emphasize clarity and straightforwardness in their ingredient formulation, catering to the consumer's preference for more nutritious and natural options. It can be inferred that these products possess the capacity to foster trust and loyalty among consumers who prioritize health, thereby potentially facilitating market growth. However, brands are required to validate their assertions and guarantee the preservation of product quality and safety, considering the increased scrutiny from consumers. Adopting this trend may cultivate pathways for innovation and unique differentiation within a competitive marketplace.

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