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Front-of-Pack-Labelling Impact on Purchase Intention: A Systematic Literature Review.

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ABSTRACT

Front-of-Pack-Labelling (FoPL) is a tool of informing consumers about the composition of food products. It is getting importance in the recent times because of rising rates of non-communicable diseases and obesity. Despite its importance the research work in this field is fragmented. The object is this paper to thoroughly review the available literature on the impact of FoPL on the purchase intention. For this purpose, the data is extracted from Scopus database. In the database a total of 517 documents was extracted out of which 13 papers were critically reviewed. The paper discussed the various parameters essential for evaluation of the literature and to provide the better understanding of various research constructs. Dependent and independent variable were among the other parameters. The text enhances the role of FoPL in consumer decision making process as well as provide the future directions.

1. Introduction

The prevalence of obesity has significantly risen in recent years due to changes in lifestyle, reduced physical activity, and an increase in consumption of high-fat, high-sugar, and calorie-dense foods. Obesity raises the likelihood of Non-communicable diseases (NCDs) such as Diabetes, Cardiovascular illnesses, Cancer, and respiratory disorders. In 2016, the World Health Organisation (WHO) reported that NCDs were responsible for 74% of all global deaths, resulting in the deaths of 41 million individuals. Over 1.9 billion persons aged 18 years and older were overweight. Out of these, more than 650 million people were obese, while the combined prevalence of obesity and overweight among children and adolescents aged 5-12 years was 340 million ("Obesity and Overweight," 2021). WHO advocates for Front-of-Pack-Labelling (FoPL) as a strategy to address the increasing prevalence of obesity and non-communicable diseases by helping consumers make healthier decisions (WHO, 2019).

Food labelling is a tool that offers details on the ingredients of food on the packaging. Back-of-Pack Labelling (BoPL), often known as nutrition labeling, is a significant method used to influence and inform customers about healthy eating. Nutrition labelling aims to offer consumers information at the time of purchase to encourage selecting a healthier product. Indeed, BoPL is compulsory in certain nations, such as India. Extensive research has shown that BoPL did not achieve its goals. Research conducted in Europe, the United States of America (USA), Australia, and New Zealand indicates that most consumers find back-of-pack nutrition labels confusing, particularly the numerical data and terminology used (Cowburn & Stockley, 2005; Byrd-Bredbenner et al., 2000; Sadler, 1999; Scott & Worsley, 1997).
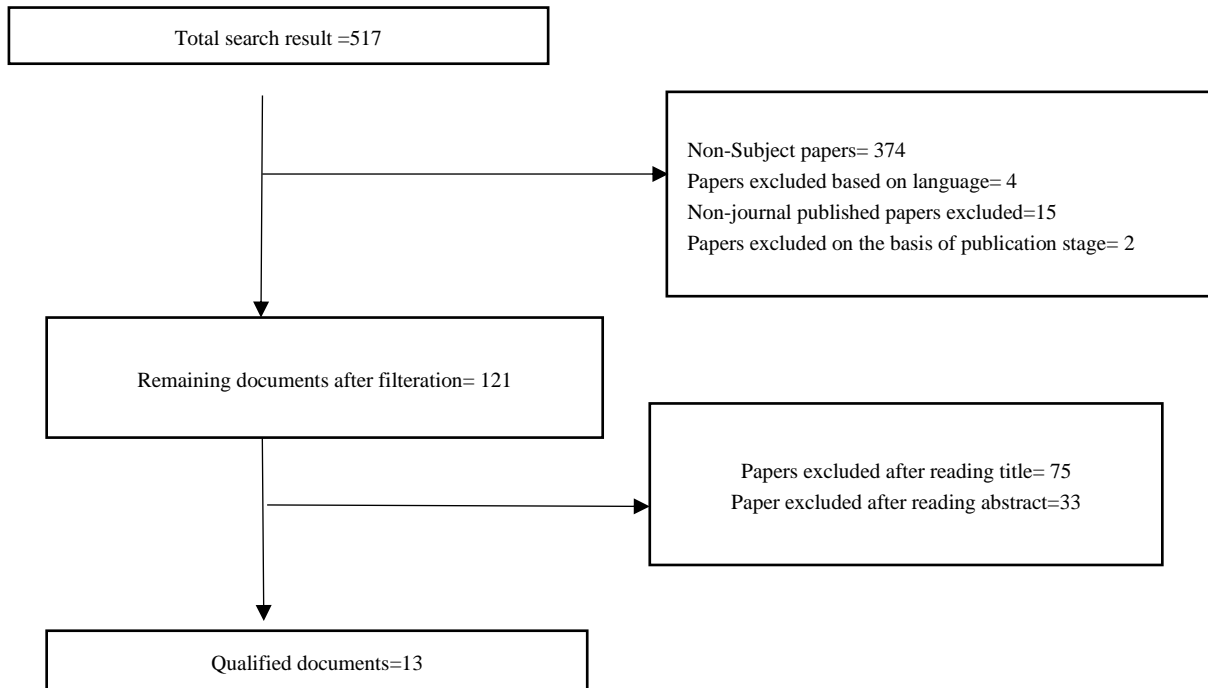
Practitioners and policymakers recommend requiring the application of FoPL to make the information on the BoPL easier to grasp. Front-of-Pack (FoP) labels are viewed as supplementary to the Back-of-Pack (BoP) label and a reduced form of the nutrition table. A simple front-of-package nutrition logo that shows the critical nutritional components of a product can encourage consumers to choose items with a healthier product composition (Feunekes et al., 2008; Cowburn & Stockley, 2005; Van Kleef et al., 2008).

FoPL is a concise method of displaying nutritional details of primary ingredients on pre-packaged food products. It assists consumers in making well-informed decisions when they are about to make a purchase (Kleef & Dagevos, 2014). An effective Front-of-Pack Labelling system helps consumers distinguish between healthier and less healthy items. It is a cost-effective method to motivate customers to select healthier food options (Cecchini & Warin, 2015).

This systematic review enhances the existing literature by quantitatively evaluating the effects of food labelling. The quantitative data extracted from FoPL can be from food choice, purchase intention, and food purchase. This paper aims to conduct a systematic literature review of FoPL and its impact on purchase intention. The paper will explore many factors of extracted documents such as year of publication, research design implemented, type of study, sample size of the study, country studied, dependent variable, and independent variable. This type of information is beneficial to the researchers as it will guide them in selecting the various indicators and factors for further research.

2. Methodology

This evaluation focused on peer-reviewed research specifically designed to assess the influence of food labelling on purchase intention. The search for document extraction was conducted on the Scopus database. Among the many keywords available, the most appropriate keyword used for the search strategy was Front-of-Pack-Labelling.

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2.0 Flowchart depicting the process of literature search.

2. Theoretical Background

FoPL is a simplified version of BoPL. It affects many outcomes. Firstly, FoPL impacts various factors such as perception (De Temmerman et al., 2021); (Egnell, Galan, et al., 2020); understanding of FoP labels also influences the use of the labels. Quantitative and qualitative methods can measure it. It has two branches, one as subjective understanding and another as objective understanding. The subjective understanding was measured by (Kelly et al., 2009). Objective understanding was measured by (Ducrot et al., 2015). FoPL also affects the acceptability of consumers, as studied by (Méjean et al., 2014). It tells about the effectiveness of a label. These are measured via statements. Many other factors have minor effects, such as likeability (Poquet et al., 2019) and attention (Becker et al., 2016).

Secondly, FopL affects food choices because these labels help consumers choose a product based on the nutritional profile of a product. The food choice was studied by conducting various tasks and experiments (Gassler et al., 2023).

Thirdly, FoPL affects the purchase intention. It tells about the effect of FoPL on consumer purchase intentions. Purchase intention is an essential metric in marketing research. Authors such as (Marette, 2021); (De Temmerman et al., 2021)

Fourthly, FoPL affects the perceived healthiness. It involves doing an analysis of the ingredients based on the information provided. Perceived healthiness is studied by (Mazzù et al., 2022); (Franco-Arellano et al., 2020).

Lastly, FoPL affects the food purchase. Food purchase is a quantitative measure of precisely measuring the food purchases made by consumers in the supermarket or retail shop. In this, the real food purchase data is collected to analyze the impact of FoPL on the food purchase. This kind of study is conducted by authors such as (Waterlander et al., 2013); (and Finkelstein et al., 2021).

A conceptual model for the association between FoP and Purchase intention

This model was given by Andrew D. Ogle. In this model, the author shows how FoP labels have an impact on purchase intention. This impact is also mediated by product attitude and various related factors.
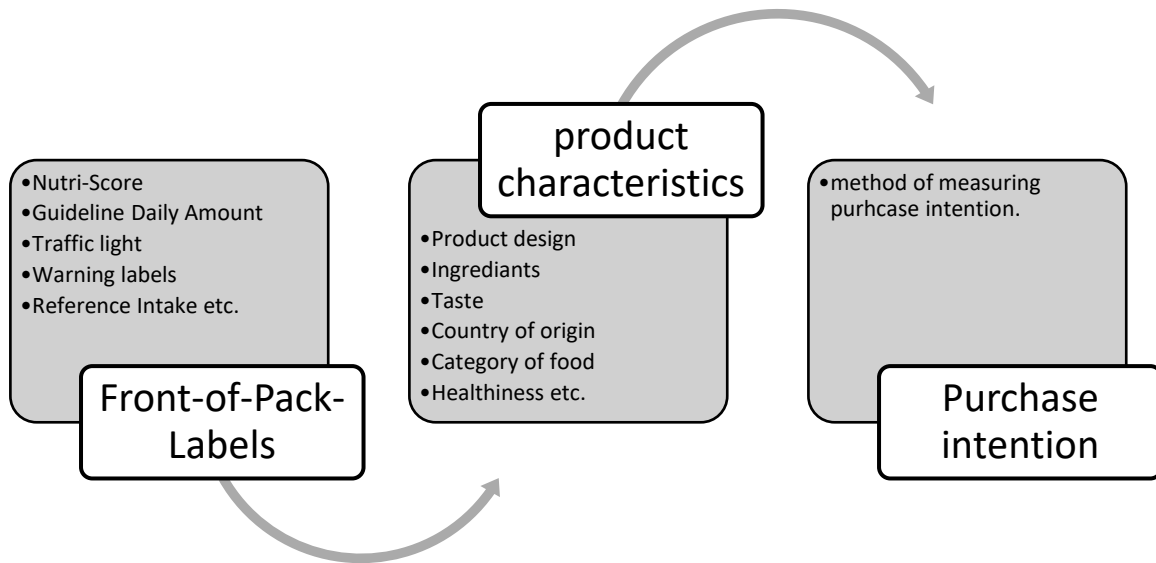
Source- Conceptual model for associations between the FOP labels and purchase intention towards the product, which are direct or mediated through the attitudes toward the products bearing the FOP labels adapted from Andrew D. Ogle.

Grunert and Wills's model
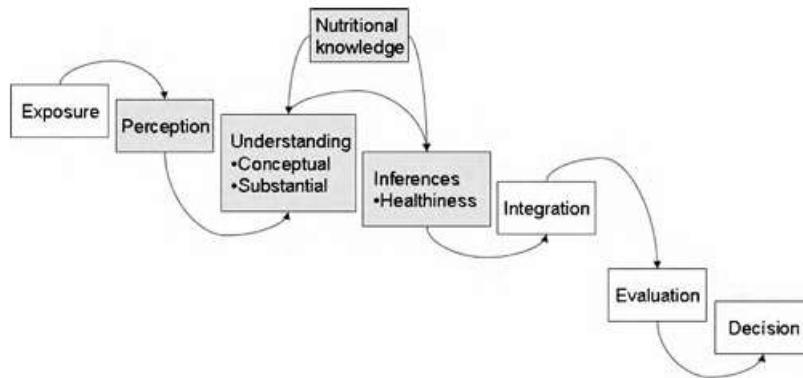
Source conceptual framework by (Grunert et al., 2010)

in this model, the author explained that to have an impact on FoPL, consumers must be exposed to FoPL, and a perception must be formed. Afterward, it will enhance understanding and knowledge. Based on these factors, the evaluation will take place, and ultimately, a decision will be made (Grunert et al., 2010).

3. Results

The results of the final selected papers will be presented in the form of a table. The table will include information related to the documents in the form of year of publication, study design, type of study, sample size, type of FoPL used, country in which the study is conducted, dependent variable, and independent variable. See Table 1.

Table 1 Review of selected papers

Citations	Year	Study design	Type of Study	Sample size	Type of FoPL used	Country	Dependent variable	Independent variable
(Gassler et al., 2023)	2022	Discrete choice experiment	Quantitative	440	Nutri-Score	Germany	FoP label, attitudes toward health and nutrition,	purchase intention and willingness to pay

							product, price, brand	
(Stiletto & Trestini, 2022)	2022	Discrete Choice Experiment	Quantitative	600	Nutri-Score	Italian consumers	Nutri-score, PDO name, price	Consumer choice and Willingness to pay
(Marette, 2021)	2021	Choice experiment and survey	Quantitative	1200	Nutri-Score	France	Price, eco-score, Nutri-score	Purchase intention
(Riesenberg et al., 2022)	2022	Online randomized control trials between intervention and control conditions	Quantitative	2825	Warning Label	Australia	Seven labelling conditions	Purchase intention
(Mazzù et al., 2022)	2022	Online questionnaire	Quantitative	Study1 800 (UK) and 670 (France) Study 2 202 Italy	Multiple traffic light and Nutri-Score	Study1 UK and France Study 2 Italy	Perceived usefulness, Perceived ease of use, Attitude	Behavioural intention
(De Temmerman et al., 2021)	2020	within-subject design, 3*2 between-subject design and 2*2 mixed design	Quantitative	303	Nutri-Score	Belgium	presence of Nutri score, product attractiveness	perceived healthiness and purchase intentions
(Andrews et al., 2021)	2021	Study 1- 3*2 between subject design Study-2 3*2*2 design	Quantitative	Study1- 711 Study 2- 1087	Traffic light and Warning label	United States	Labelling conditions	Perceived healthiness, attitude toward brand, and purchase intentions
(Medina-Molina & Pérez-González, 2020)	2020	Questionnaire-based approach	Quantitative	303	Nutri-Score	Spain	Perceived healthiness	Purchase intention
(Franco-Arellano et al., 2020)	2020	Randomized control trial design	Quantitative	1997	Warning labels, Health Star Rating, and Traffic Light	Canada	Presence/ absence of nutrition claims, nutrient content claims, and FOPL	Product healthfulness and purchase intentions
(Kinard, 2019)	2019	2*2 between-	Quantitative	313	Motivational Messages	United States	Motivational messaging,	Attitudes toward

		subject experimental design			and Guideline Daily Amount		health motivation	unhealthy snack food purchase decisions, behavioural intentions
(Talati et al., 2017)	2019	4*2*3*3*3 design	Quantitative	2069	Health Star Rating, Multiple Traffic Light, Daily Intake Guide	Australia	Fop labels and product healthfulness	Consumer choice and Willingness to pay
(Vyth et al., 2009)	2014	Online question naire and interview	Qualitative and Quantitative	2159 for questionnaire and 41 for focus group	Choice logo	Netherlands	Characteristics of population	Exposure, need, attention, comprehension, credibility, and purchase behaviour
(Bialkova et al., 2016)	2016	2*3 experimental condition design	Quantitative	240	Nutrition label and benefit claims	Germany	Health evaluation, taste evaluation, and both	Purchase intention

4. Discussions

The final papers extracted from the search strategy were 13, which shows the direct and indirect impact of FoPL on the purchase intention. The selected papers take purchase intention as the dependent variable. It is analyzed from the table that purchase intention can be studied along with Consumer choice, food purchase decisions, Product healthfulness, and Perceived healthiness. Therefore, it can be said that purchase intention can be the only outcome or can also be studied along with other dependent variables, as visible in Table 1. Behavioural intention, purchase behaviour, and willingness to pay terms are used to assess the purchase intention for FoPL products.

The most common type of research design followed while evaluating the purchase intention is a discrete choice experiment, questionnaire approach, and between-subject design and within-subject design. These are the research methodology followed to assess the purchase intention towards FoPL. It was also noted that the choice task is often combined between-subject design and between-subject design, and with this method, respondents have to choose one option among the available options. Research designs are built by manipulating various factors such as the presence or absence of the FoPL, the type of FoPL used, product healthfulness, price, brand, etc. Often, the experiment is conducted with the control condition, where no FoPL is placed on the product while choosing a product (Andrews et al., 2021); (Franco-Arellano et al., 2020).

Out of 13 studies, 12 are quantitative studies, and there is only one study that is both qualitative and quantitative. Hence, a clear gap exists in the field. Future research should conduct a study that observes the purchase intention of the consumers towards FoPL via qualitative method. Conducting qualitative research can provide deeper insight into the purchase intention and FoPL phenomenon. Moreover, using both qualitative and quantitative methods like (Vyth et al., 2009) in a study also proves to be beneficial and adds more relevance to the study's methodology. Keeping in mind that last such study was conducted in 2009 and lots of dynamics have been changed in the today's time. Hence, researchers can focus on conducting both qualitative and quantitative studies in a paper.

In the future, more studies can be conducted around this theme because 13 papers itself is not a significant number to draw a conclusion. Marketing research focuses on consumer buying decisions, and before analyzing consumer buying decisions, one needs to know the purchase intention for a product. Therefore, purchase intention became an important parameter. Future research can be conducted on the basis of a different countries, one or multiple labelling conditions, research methodology, and qualitative and quantitative study.

Conflict of Interest: We declare that there is no conflicts of interest attached with this manuscript.

Submission declaration and verification: The paper is not under review elsewhere and has not been published previously.

Data Availability Statement: The data that support the findings of this study are available from the corresponding author, upon reasonable request

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