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Online Food Delivery Platforms and Users' Health: A Bibliometric Review

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Abstract

The surge in online food delivery platforms (OFDPs) calls for research on promoting users' health. Existing research shows diverse health outcomes across different regions. The fragmented studies across different regions highlight the need for a systematic consolidation to identify key research themes and shape future research directions. To fill this gap, a bibliometric review was done, examining 159 publications from the Scopus database spanning 2000 to 2024. Findings reveal that Australia leads in scientific production, primarily focusing on nutritional labelling concerns. Leading collaborating countries, such as the USA and China, have explored regulatory frameworks and the integration of technological innovations into OFDPs. The key themes include food quality for customer satisfaction, socio-demographic factors determining OFDPs usage, and sustainability concerns such as food waste and public health implications. Managers of OFDPs and policymakers can use the framework with these identified key themes to promote users' health through OFDPs. Future research should address underexplored areas, like nutritional labelling, artificial intelligence-driven personalised nutrition, and sustainable packaging to promote good health (both at individual and environmental levels) and nutrition.

Keywords: Food delivery platform, food delivery app, last-mile-delivery, health, nutrition, bibliometric review

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Introduction

The online food delivery market has grown significantly over the past few years. Since 2019, interest in online food delivery platforms (OFDPs) has grown significantly (Badenes-Rocha et al., 2022). The global revenue of the online food delivery sector was estimated at $1.02 trillion in 2023 and is expected to reach $1.86 trillion in 2029 (Statista, 2024), an increase of 82.4% over six years. The significant growth in recent years is attributed to busy lifestyles and convenience-oriented customer behaviours (Shukla & Deshpande, 2025). Lockdowns during the coronavirus disease 2019 (COVID-19), changing consumer expectations, and technological advancements (e.g. user-friendly apps) have played a crucial role in the growth of the online food delivery market (Ahuja et al., 2021). Bannor & Amponsah (2024) noted that Africa's food delivery market has been growing since 2017, driven by consumers' changing lifestyles and demographics, including busy work schedules, dietary patterns, and the need for convenience. The trend has been explicitly observed in South Africa, Ghana, and Tanzania, where customers are motivated to use OFDPs by convenience, time-saving benefits, social status, privacy and security, perceived ease of use, previous online purchase, and cost-saving considerations (Bannor & Amponsah, 2024). However, the sustainability of online food delivery market is a growing concern. This arises from mixed findings in prior studies regarding users' well-being. While OFDPs can help reduce food inequalities, especially in underserved regions (Dillahunt et al., 2019), access to these platforms remains influenced by socioeconomic disparities such as income levels. Socially marginalised groups remain vulnerable when it comes to buying food through online food delivery services (Zhang et al., 2023). While the primary function of OFDPs is to offer accessibility and convenience, their growing role in influencing user's dietary habits cannot be overlooked. Unfortunately, most research shows that the platforms contribute to unhealthy behaviours such as increased body mass index (BMI), poor health literacy, unhealthy diets, reduced physical activity, and smoking (Giacomini et al., 2024).

A higher risk of non-communicable diseases such as diabetes, cancer, hypertension, and others are associated with the lifestyle of an individual (Ng et al., 2020). In addition, digital food retail services often increase the availability and accessibility of highly processed foods, resulting in poor dietary intake choices (Fernandez & Raine, 2021). Even though online food delivery offers more meal choices for customers working late hours, it also poses a substantial public health challenge by encouraging a sedentary lifestyle and expanding the food environment (Li et al., 2020). In the United Kingdom, customers use OFDPs to enjoy convenience rather than purchase healthy food (Keeble et al., 2022). In contrast, some startups focus on delivering healthy foods in Italy (Greco et al., 2022). Thus, last-mile delivery refers to the final stage in which the online retailer releases goods to the final customer (Mogire, 2022; Mogire et al., 2023), is a critical process in OFDPs. Food safety issues may also arise during this last leg of food delivery. For instance, perceived risks of OFDPs include improper food handling, poor packaging, late delivery, and hygiene issues during delivery (Ambad et al., 2022), which may result in food contamination and spoilage. However, regional differences in food safety risk perceptions are notable. For example, in Malaysia, perceived risks were reported not to affect consumer behaviour toward OFDPs (Ambad et al., 2022). In contrast, last-mile delivery personnels' food safety knowledge, food safety attitude, and risk perception were reported to have a significant positive link between food safety practices among the food riders in Malaysia (Nor et al., 2024). In African countries, significant gaps exist in ensuring food safety. For instance, training delivery workers on proper food handling and enforcing food safety policies were critical for

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reducing health issues associated with unsafe food consumption in South Africa, Ghana, and Tanzania (Bannor & Amponsah, 2024). The introduction of OFDPs in China has increased economic costs arising from the rise in road accidents from delivery vehicles (Tan et al., 2021). The entry of OFDPs into an economy can also lead to a reduction in local restaurant jobs, partially offset by a rise in gig employees (i.e., delivery personnel) (Müller & Neumann,2023). However, mandatory overtime in electronic commerce during peak seasons results in fatigue and stress, negatively affecting delivery workers' mental and physical health (Baccichetto et al., 2024).

Existing studies are largely fragmented, often focusing on isolated themes such as customer satisfaction and loyalty (Annaraud & Berezina, 2020; Humbani et al., 2024; Suhartanto et al., 2019), Consumer behaviour (Keeble et al., 2020; Mehrolia et al., 2021), technological innovations (Chang et al., 2022; Tsang et al., 2021), environmental sustainability concerns (Hasan et al., 2024; Li et al., 2020), regulatory frameworks (Alangari, 2023), and business models (Tsang et al., 2021). In addition, the preceding discussion indicates some conflicting findings on the topic. While these contributions provide valuable insights, their thematic isolation makes it difficult to discern emerging trends and opportunities for future research on the topic. A preliminary search for other close studies on (Article title ("*online food*") AND ("*bibliometric*") in the Scopus database yielded two results: *Online food delivery: An overview and bibliometric analysis* (Badenes-Rocha et al., 2022); and *Bibliometric analysis of online food delivery: A study on pre-COVID-19 and current scenario* (Kumar et al., 2022). None of the studies specifically reviewed the OFDPs and users' health. Notably, health issues were reported among the major themes in online food delivery studies (Badenes-Rocha et al., 2022). Similarly, a review of OFDPs focusing on sustainability found that online platforms influence public health outcomes (Li et al., 2020). Thus, the success of OFDPs depends, among other factors, on users' health. A systematic scoping review mapping the digital food environment concluded that the effects of digital food on health and nutrition are not yet fully understood (Granheim et al., 2022). Thus, there is a need to synthesise existing literature and systematically map thematic structure of research at the intersection between OFDPs and users' health. This is meant to guide researchers, policymakers, and industry to address health implications of OFDPs especially in developing regions, such as Africa. The specific research objectives are as follows:

i. To identify the key themes that have been used in online food delivery platforms and users' health research.
ii. To propose future research directions on online food delivery platforms and users' health.

Research methodology

A bibliometric analysis was undertaken to meet the research objectives. A search on the Scopus database was conducted on 12 November 2024 using relevant keywords and Boolean operators: (Article title, Abstract, Keywords ("online food delivery" OR "online meal delivery" OR "food delivery app*" OR "meal delivery app*" OR "food delivery platform*" OR "meal delivery platform*" OR "B2C delivery" OR "e-commerce delivery") AND ("health" OR "nutrition" OR "diet" OR "food quality"). The keywords were directly aligned to one of the topics of this special issues (i.e. the use of technology for promoting healthy nutrition). To ensure comprehensive coverage, alternatives to the keywords "food delivery platform" and "health" were considered. Scopus was chosen for its reputation as one of the largest databases of peer-reviewed scientific publications (Mohammad et al., 2023) and because it indexes 66.07% more unique journals than Web of Science (Singh et al., 2021).

Table 1: Overview of the publications on OFDPs and users' health (2016 – 2024)

Description	Results
Timespan	2016-2024
Sources (Journals, Books, etc)	109
Documents	159
Annual Growth Rate %	57.57
Document Average Age	1.58
Average citations per document	17
References	8156
DOCUMENT CONTENTS	
Keywords Plus (ID)	855
Author's Keywords (DE)	607
AUTHORS	
Authors	588
Authors of single-authored docs	11
AUTHORS COLLABORATION	
Single-authored docs	11
Co-Authors per Doc	4.54
International co-authorships %	29.56
DOCUMENT TYPES	
Article	124
Book chapter	4
Conference paper	21
Review	10

Annual Growth Rate: percentage increase in the number of publications per year
Average citations per document: the total number of all citations divided by the 159 publications
Source: Prepared from the Scopus database

Additionally, Scopus is widely regarded as a trusted source for bibliometric data (Baas et al., 2020). The search was restricted to conference papers, journal articles, book chapters, and review papers published in English from 2000 to 2024, resulting in 167 publications. Although the current dataset is small, a bibliometric analysis was considered suitable to help obtain some results, including key authors, author impact, and collaboration networks, which can only be extracted easily with bibliometric analysis. The topics and abstracts of all 167 publications were manually examined to determine their relevance. Eight irrelevant publications were deleted, resulting in 159 publications that were downloaded as a comma-separated values (CSV) Excel file for further analysis. The deleted publications were not aligned to the focus of the study, covering irrelevant topics such as the hospital food service system, health concerns during COVID-19, and occupational health issues for delivery personnel. Bibliometric analysis was conducted using R-Studio software via the Biblioshiny app (version 4.3.0) using performance analysis and science mapping techniques. Performance analysis, which uses quantitative metrics, was used to identify the most

productive journals, authors, and countries. Science mapping techniques- such as co-authorship, word analysis, and citation analysis - were applied to uncover the key themes and trends in the field. Among the 159 publications, 124 (78%) were journal articles, and 10 (6%) were reviews (Table 1), highlighting the need to synthesise existing studies on this topic. Furthermore, the number of publications has increased significantly since 2016, with a 57.57% annual growth rate, 607 author keywords, and 877 co-authors. The high annual growth rate implies that this is an emerging or trending topic attracting considerable research interest.

Results

This section summarises findings obtained from the bibliometric analysis. It comprises of two components: performance analysis and science mapping.

Performance analysis

This section presents quantitative research output metrics to identify publication growth over time, high-impact journals, the most productive journals, and leading countries. Publications numbers increased from one in 2016 to three in 2019, 24 in 2021, and a peak of 47 in 2023 (Figure 1). From 2016 to 2018, research activity was minimal, with no more than one publication per year. During this period, OFDPs were in their early stages, and health outcomes were underexplored. From 2019 to 2020, there was a threefold increase from three to nine publications (Figure 1). Researchers were interested in understanding customers' motivations for using OFDPs during this period. From 2021 to 2022, publication numbers rose from 24 to 37 (Figure 1), indicating growing research activity on OFDPs and users' health. This includes broader implications of OFDPs for public health, regulation, and sustainability. Research peaked in 2023, reaching 47 publications.

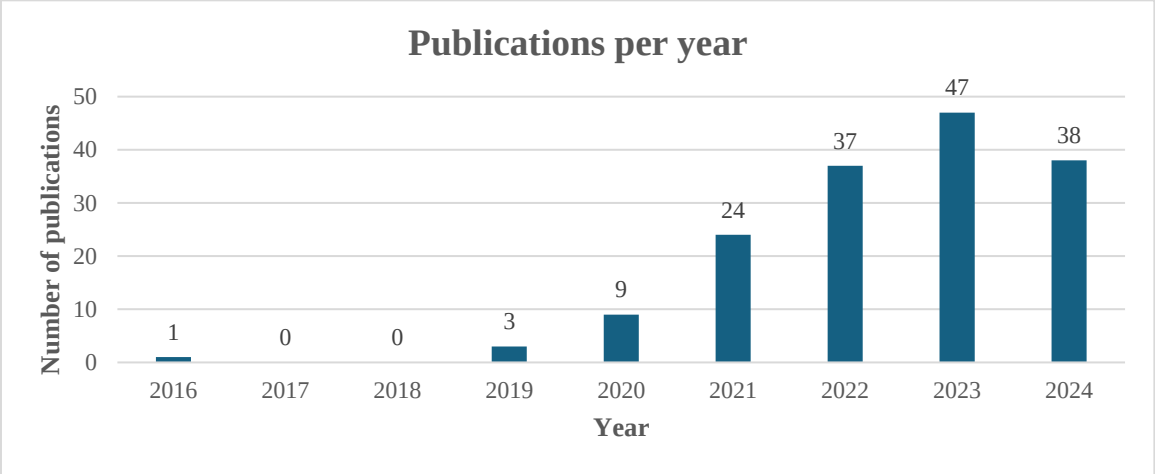

Figure 1: Number of publications from the Scopus database on OFDPs and users' health (2016 – 2024)

Most productive journals

The most productive journals are ranked by the number of articles published, citation influence (i.e., h-index), and citation impact (i.e., g-index) (Mogire et al., 2025). The h-index reflects the number of publications (h) that have each been cited at least h times, while the g-index represents the number of publications (g) that have collectively received at least g^2 citations (Donthu et al., 2021). The m-index adjusts the h-index by considering the years since the first publication. The *Nutrients* (MDPI) was the most productive journal, with 174 citations, an h-index of 6, and a g-index of 8 calculated from 2020 (Table 2), thus making it the most influential journal in terms of impact and volume. The *Journal of Foodservice Business Research* (Taylor & Francis) has the highest total citations (396), thus the most influential journal in terms of citations. The *British Food Journal* (Emerald) and the *International Journal of Behavioural Nutrition and Physical Activity* (Springer Nature) are emerging journals with a high m-index of 1, indicating high-impact, recent publications gaining traction. Additionally, the top-ranked journals reveal diverse themes, emphasising the interdisciplinary nature of the topic. These include health and nutrition, environment and sustainability, business operations, consumer behaviour, and technological innovations. For instance, the *Nutrients* journal (Multidisciplinary Digital Publishing Institute, MDPI), *BioMed Central (BMC) Public Health* (Springer Nature), *Frontiers in Nutrition* (Frontiers Media), *Public Health Nutrition* (Cambridge University Press), and the *International Journal of Behavioural Nutrition and Physical Activity* (Springer Nature) focus on health and nutrition. These include dietary patterns, nutritional quality, health, and policy implications. The *Sustainability* journal (MDPI) and the *International Journal of Environmental Research and Public Health* (MDPI) focus on environmental and sustainability issues such as packaging waste. The *Association for Computing Machinery (ACM) International Conference Proceedings Series* focuses on technological innovations such as artificial intelligence (AI) health-driven recommendations. OFDPs offer technological solutions for how food is produced and consumed. The *Journal of Foodservice Business Research* (Taylor & Francis) and the *British Food Journal* (Emerald) focus on business operations and consumer behaviour. This includes consumer food preferences/habits, and operational strategies used by OFDPs.

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Table 2: Top 10 most productive journals on OFDPs and users' health (2016 – 2024)

Rank	Journal	h-index	g-index	m-index	TC	NP	PY-start
1	Nutrients (MDPI)	6	8	1.2	174	8	2020
2	BMC Public Health (Springer Nature)	4	5	1	82	5	2021
3	Frontiers in Nutrition (Frontiers Media)	4	7	0.8	99	7	2020
4	International Journal of Environmental Research and Public Health (MDPI)	4	8	0.8	126	8	2020
5	Journal of Foodservice Business Research (Taylor & Francis)	4	7	0.667	396	7	2019
6	Public Health Nutrition (Cambridge University Press)	4	5	1	94	5	2021
7	Sustainability (MDPI)	3	3	0.6	335	3	2020
8	ACM International Conference Proceeding Series	2	2	0.4	15	2	2020
9	British Food Journal (Emerald)	2	3	1	10	3	2023
10	International Journal of Behavioral Nutrition and Physical Activity (Springer Nature)	2	2	1	7	2	2023

h-index: Hirsch's index
g-index: Egghe's index
m-index: Hirch's m-index
TC: Total citations
NP: Number of publications
PY-start: Publication year start
Source: Prepared from the Scopus database

Most productive authors

Research on this topic has seen contributions from 588 authors, with 11 (1.9%) publishing as single authors (Table 1). This shows a collaborative research approach to the topic, given the expertise required in logistics (delivery), nutrition, and consumer behaviour. The most productive authors are ranked based on research influence (i.e., h-index) and impact (i.e., g-index) (Mogire et al., 2025). The three leading researchers (i.e., Gibson A., Jia S., and Partridge S.) have the highest productivity and impact on the topic, with eight publications each, 169 citations, an h-index of 5, a g-index of 8, and an m-index of 1, computed from 2020 (Table 3). Their collaboration has resulted in eight publications on crucial topics such as nutritional quality (i.e. junk foods and nutritional labelling), implications for SDGs (disruption to good health, responsible consumption, and production), and consumer behaviour (e.g. sponsorships and bundling by OFDPs). Table 3 shows emerging researchers such as Allman-Farinelli M. and Phongsavan P., who began publishing in 2021 and have co-authored six publications focusing on the impact of OFDPs on public health and sustainable development. This includes diet-related chronic disease risks and menu labelling gaps like bundling.

Table 3: Top 10 most productive authors on OFDPs and users' health (2016 – 2024)

Rank	Element	h_index	g_index	m_index	TC	NP	PY_start
1	Gibson A	5	8	1	169	8	2020
2	Jia S	5	8	1	169	8	2020
3	Partridge S	5	8	1	169	8	2020
4	Redfern J	5	6	1	167	6	2020
5	Adams J	4	8	0.8	160	8	2020
6	Burgoine T	4	8	0.8	160	8	2020
7	Keeble M	4	8	0.8	160	8	2020
8	Raeside R	4	5	0.8	151	5	2020
9	Allman-Farinelli M	3	6	0.75	62	6	2021
10	Phongsavan P	3	6	0.75	62	6	2021

h-index: Hirsch's index
g-index: Egghe's index
m-index: Hirch's m-index
TC: Total citations
NP: Number of publications
PY-start: Publication year start
Source: Prepared from the Scopus database

Most productive countries

The most productive countries are determined by the number of authors affiliated with each country. The five countries with the highest scientific production frequency, are Australia (121), India (72), China (62), the UK (58), and the United States of America (USA (56). Studies in Australia focus on nutritional labelling concerns and call for regulatory improvements. China and the USA have developed online food delivery markets where technological innovations and regulatory developments influence health and nutrition promotion. The list of most productive countries shows that developing online food delivery markets, such as those in Africa, are underrepresented. Research in India and Thailand addresses region-specific issues, such as health risks associated with online foods and the shift from traditional diets to processed foods.

Table 4: Top 10 countries' scientific production on OFDPs and users' health (2016 – 2024)

Rank	Country	Country affiliation count
1	Australia	121
2	India	72
3	China	62
4	UK	58
5	USA	56
6	Indonesia	37
7	New Zealand	32
8	Saudi Arabia	25
9	Thailand	23
10	Canada	20

Source: Prepared from the Scopus database

Science mapping

Science mapping techniques, such as co-authorship analysis, word analysis (i.e., word cloud and word frequency analysis), and citation analysis, were used to identify key themes and emerging trends in the study of this topic.

Co-authorship analysis

Co-authored publications analysis can be visually represented through collaboration intensity (colours/ shades) and collaboration direction (lines) countries in a specific field (Mogire et al., 2025). The thickness of the lines reflects the frequency or strength of collaborations between different countries. For instance, China has strong collaborative ties with the USA and Hong Kong, while Australia frequently collaborates with New Zealand, Canada, and Hong Kong (Figure 2). In Africa, South Africa collaborates with India and Norway. High-intensity collaborations are shown in dark blue, while low-intensity collaborations are depicted in grey. For example, the USA, China, the UK, India, and Australia exhibit the highest collaboration levels (dark blue colour). The USA and China have an established online food delivery market, and research focuses on regulatory frameworks and integrating technological innovations into the OFDPs. Emerging countries like Brazil and South Africa participate moderately in collaborations (light blue colour). Regional collaborations are seen in Europe and Asia. The European cluster, including Germany, the UK, and Italy, focuses on public health implications (e.g. diet-related diseases like obesity). The Asian cluster, including China, India, and South Korea, addresses unique region-specific issues such as health risks from online food and changes from traditional diets to processed foods. African cluster is underrepresented in collaboration intensity (grey colour).

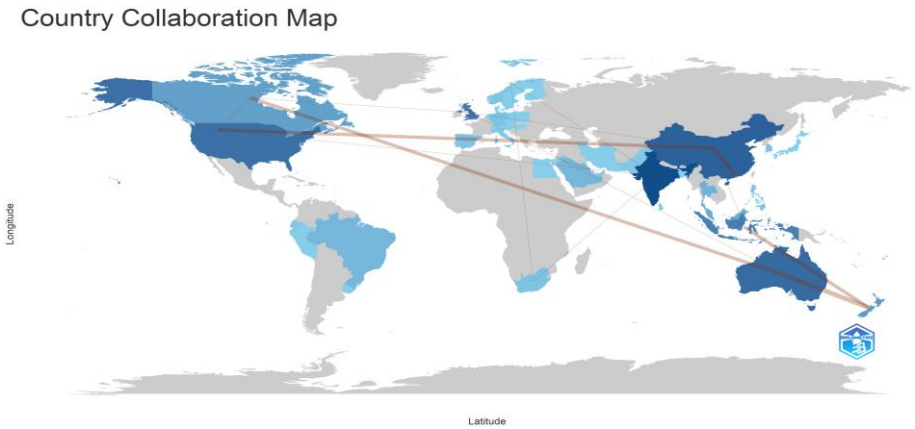

Figure 2: Country collaborations map on OFDPs and users' health (2016 – 2024)
Source: Prepared from the Scopus database

Word analysis

Word analysis was conducted to identify frequently discussed concepts and keywords on the topic, as well as their relationships, using word frequency analysis and word cloud. The analysis identified 607 author keywords related to OFDPs and users' health publications (Table 1). The large number of keywords depicts the broad scope of research on this topic. Table 5 presents the top 50 most common keywords. Four main themes emerge: healthy nutrition, public health, consumer behaviour and demographics, and industry practices. The healthy nutrition theme includes keywords such as food safety, nutrition, nutritional value, nutrition policy, and caloric intake. This shows the need to consider the nutritional content of food ordered via OFDPs. The public health theme includes keywords like public health, epidemiology, coronavirus disease 2019, COVID-19, pandemics, feeding behaviour, and obesity. This indicates that COVID-19 significantly influenced food delivery, public health, and dietary habits. The consumer behaviour and demographics theme include keywords such as human(s), adult, male, female, adolescent, young adult, food consumption, food preference, middle-aged, consumer, feeding behaviour, customer satisfaction, demography, income, and child. Accordingly, online food choices are influenced by consumer behaviour, marketing, and demographics. The theme of industry practices includes keywords like sales, marketing, food packaging, and food labelling. Thus, online food through OFDPs depends on established industry practices.

Table 5: Top 50 most frequent words on OFDPs and users' health (2016 – 2024)

Rank	Word(s)	Frequency	Rank	Word(s)	Frequency
1	human	54	26	middle-aged	10
2	humans	44	27	nutritional value	10
3	adult	38	28	caloric intake	9
4	food	37	29	food quality	9
5	female	31	30	nutrition	9
6	male	30	31	consumer	8
7	COVID-19	25	32	customer satisfaction	8
8	catering service	23	33	food labeling	8
9	fast food	21	34	human experiment	8
10	public health	18	35	pandemics	8
11	pandemic	17	36	consumer behavior	7
12	diet	16	37	demography	7
13	feeding behavior	15	38	energy intake	7
14	food supply	15	39	food availability	7
15	adolescent	14	40	income	7
16	food safety	14	41	nutritional status	7
17	fast foods	12	42	nutritive value	7
18	food intake	12	43	obesity	7
19	sales	12	44	perception	7
20	young adult	12	45	prevalence	7
21	food packaging	11	46	beverage	6
22	sodium	11	47	child	6
23	coronavirus disease 2019	10	48	food consumption	6
24	epidemiology	10	49	food preference	6
25	marketing	10	50	nutrition policy	6

Source: Prepared from the Scopus database

A word cloud was also generated by analysing the author keywords used on the topic. Mogire (2026) states that a word cloud visually represents keywords in a text, using different colours based on their their frequency. The generated word cloud highlights that demographics are central in research around OFDPs and users' health. Keywords like humans, adult, female, and male appear prominently in the word cloud (Figure 3). This suggests that demographics influence online food preferences. Keywords such as adolescent, child, young adult, and middle-aged appear at the edges of the word cloud (Figure 3), implying that younger age groups are an emerging population using OFDPs. Keywords like public health, pandemic, epidemiology, COVID-19, and coronavirus disease 2019 indicate that public health implications have accelerated the use of OFDPs. Keywords like nutrition policy, nutritive value, nutritional value, nutritional status, obesity, caloric intake, food safety, and food quality at the edges of the word cloud, suggest emerging nutritional quality concerns and online food.

Figure 3: Word cloud on OFDPs and users' health (2016 – 2024)
Source: Prepared from the Scopus database

Citation analysis

Citation analysis helps to establish influential publications on OFDPs and users' health. Table 6 lists the ten most cited publications on OFDPs and healthy nutrition.

Table 6: Top 10 highest-cited publications on OFDPs and users' health (2016 – 2024)

Rank	Authors	Total citations	Title	Journal	Summary
1.	Li et al. (2020)	278	Review of online food delivery platforms and their impacts on sustainability	*Sustainability*	The article reviewed the impacts of OFDPs on sustainability. From a social perspective, the use of OFDPs is associated with public health challenges such as obesity from high-fat and sugar foods.
2.	Suhartanto et al. (2019)	*249*	Loyalty toward online food delivery service: the role of e-service quality and food quality	*Journal of foodservice business research*	The survey investigated the role of food quality on loyalty towards OFDPs in Indonesia. Food quality (taste, freshness, variety, and temperature) significantly influenced customer loyalty.
3.	Mehrolia et al. (2021)	*208*	Customers response to online food delivery services during COVID-19 outbreak using binary logistic regression	*International journal of consumer studies*	The survey investigated the characteristics of OFDP customers in India during COVID-19. Customers with a high perceived threat, less product involvement, and less perceived benefit on online food delivery services are less likely to order food.
4.	Kaur et al. (2021)	207	The value proposition of food delivery apps from the perspective of theory of consumption value	*International Journal of Contemporary Hospitality Management*	The study investigated the values that drive the use of OFDPs in India. Food safety concerns and health consciousness did not have a statistically significant association with intention toward OFDPs.
5.	Sharma et al. (2021)	110	Over-ordering and food waste: The use of food delivery apps during a pandemic	*International Journal of Hospitality Management*	The study investigated the role of OFDPs in food waste generation in India. Trust affected the tendency to over-order food from OFDPs.
6.	Partridge et al. (2020)	88	Junk food on demand: a cross-sectional analysis of the nutritional quality of popular online food delivery outlets in Australia and New Zealand	*Nutrients*	The study examined the characteristics and nutritional quality of popular OFDPs in New Zealand and Australia among young people. Most OFDPs were unhealthy, and popular menus were discretionary (i.e., energy-dense, nutrient-poor foods high in saturated fat, added sugars, and sodium).
7.	Tsang et al. (2021)	83	Integrating Internet of Things and multi-temperature delivery planning for perishable food E-commerce logistics: a model and application	*International Journal of Production Research*	The article proposed an IoT multi-temperature delivery planning system for perishable food e-commerce logistics. The system emphasises the importance of food quality to enhance customer satisfaction.
8.	Keeble et al. (2020)	80	Use of online food delivery services to order food prepared away-from-home and associated socio-demographic characteristics: a cross-sectional, multi-country analysis	*International journal of environmental research and public health*	The study examined the prevalence of online food delivery service use and socio-demographic characteristics of customers in Canada, Australia, Mexico, the USA, and the UK. Mexico had the highest prevalence, and overall weight status did not influence the likelihood of using these services.
9.	Annaraud & Berezina (2020)	79	Predicting satisfaction and intentions to use online food delivery: what really makes a difference?	*Journal of Foodservice Business Research*	The study investigated intentions to use online food delivery services in the USA. Food quality (i.e., variety of menu items, access to fresh food, access to tasty food, and visually attractive food) affected customer satisfaction with online food delivery services.
10.	Granheim et al. (2022)	74	Mapping the digital food environment: a systematic scoping review.	*Obesity Reviews*	The article reviewed research on the digital food environment (use of technologies to improve food production and distribution). The findings highlight a lack of clarity about how digital technology affects health and nutrition.

Source: Prepared from the Scopus database

The most cited publication, authored by Li et al. (2020), has 278 citations, and examines OFDPs and their impacts on sustainability. The high citation count suggests that this is a groundbreaking study on the topic, addressing the impact of OFDPs on public health and dietary choices. Food safety and quality control emerged as the dominant theme in the top 10 most cited publications (Annaraud & Berezina, 2020; Suhartanto et al., 2019; Tsang et al., 2021). These publications are highly cited because they offer empirical evidence on food safety, service quality, and customer satisfaction in online food delivery. For instance, Suhartanto et al. (2019) found that food quality factors such as taste, freshness, variety, and temperature significantly influenced customer loyalty for OFDPs in Indonesia. Annaraud & Berezina (2020) found that elements such as variety of menu

items, access to fresh food, access to tasty food, and visually attractive food affected customer satisfaction with online food delivery services in the USA. Tsang et al. (2021) emphasised the importance of food quality to enhance customer satisfaction for perishable food e-commerce logistics (Tsang et al., 2021). They recommended an IoT-based delivery system to optimise multi-temperature delivery planning and ensure the quality of perishable foods in e-commerce logistics.

Kaur et al. (2021) study mentioned food safety concerns but noted that they did not have a statistically significant association with intention toward OFDPs. Other studies focused on the nutritional quality theme (Li et al., 2020; Partridge et al., 2020). Li et al. (2020) noted that OFDPs usage promotes unhealthy eating patterns, such as high-fat and sugar foods that cause obesity. Partridge et al. (2020) found that most OFDPs in New Zealand and Australia were unhealthy, and popular menus were discretionary (i.e., nutrient-poor foods high in saturated fat, energy-dense, added sugars, and sodium). These publications also highlight the environmental and sustainability theme (Li et al., 2020; Sharma et al., 2021). Li et al. (2020) explored the sustainability impacts of OFDPs, finding that they contribute to job creation, public health challenges, and plastic waste. In India, Sharma et al. (2021) found that trust in an OFDP resulted in over-ordering, which caused food waste. The top 10 most cited publications also revealed a socio-demographic theme (Keeble et al., 2020; Mehrolia et al., 2021). In India, Mehrolia et al. (2021) investigated the characteristics of OFDP customers during C-19. Similarly, Keeble et al. (2020) examined the extent of online food delivery service use and analysed the socio-demographic profiles of customers in Australia, Canada, Mexico, the UK, and the USA. Thus, the key themes include food and nutritional quality, socio-demographic factors influencing online food delivery service usage, and sustainability concerns such as food waste and public health implications. Moreover, the topics ranged from broad themes (e.g., digital food environment and the impact of OFDPs on sustainability) to more specific areas (e.g., nutritional quality and food quality). However, further research is needed on how technological innovations can promote healthier OFDP options. The topics also reveal geographic diversity, e.g., Australia, Canada, India, Indonesia, Mexico, New Zealand, the UK, and the USA. However, African countries are underrepresented.

Discussion

The rapid expansion of OFDPs necessitates urgent research into users' health. Performance analysis reveals that leading authors Gibson A., Jia S., and Partridge S. have examined critical issues related to nutritional quality concerns such as the effectiveness of nutritional labelling and the prevalence of junk foods. The authors also found that unethical marketing practices like sponsorships and bundling may promote unhealthy food choices from OFDPs. These unethical marketing practices expose vulnerable populations such as children and low-income households to unhealthy food options. In contrast, emerging authors like Allman-Farinelli M. and Phongsavan P. examined the long-term impacts of OFDPs on healthy nutrition, including diet-related chronic disease risks and menu labelling gaps like bundling. The bundled menu options may obscure the nutritional quality of foods ordered via OFDPs. Analysis of the top-ranked journals showed a mix of both broad-spectrum and specialized journals. Broad-spectrum journals address overarching issues such as sustainability (e.g., the *Sustainability* journal). In contrast, specialised journals focus on narrow topics such as technological innovations (e.g. the *ACM International Conference Proceedings Series*) and healthy nutrition (e.g. *BMC Public Health*, *Frontiers in Nutrition*). The most productive countries showed that Australia leads in research on nutrition labeling. China, the USA, India, and Thailand study technological innovations, regulations, and health in online food delivery, while developing markets are underrepresented. Bannor and Amponsah (2024) agree that while research on food delivery in African countries is limited, it is in its early stages. This may be attributed to weak digital infrastructure (e.g. limited internet penetration), poor urban logistics support (e.g. last-mile delivery), and lack of government policies on electronic commerce in the region. This highlights the importance of context-specific OFDP solutions to promote users' health.

Critical themes used to study OFDPs, and users' health were identified. Analysis of most-cited publications revealed that food safety and quality control is the dominant theme. Food quality encompasses taste, freshness, variety, and temperature (Annaraud & Berezina, 2020; Suhartanto et al., 2019). Food quality is crucial to customer loyalty and satisfaction with OFDPs in Indonesia and the USA (Annaraud & Berezina, 2020; Suhartanto et al., 2019). Furthermore, food quality is critical for customer satisfaction in perishable food e-commerce logistics (Tsang et al., 2021). Tsang et al. (2021) proposed an IoT-based delivery system for multi-temperature delivery planning, emphasising the need to ensure perishable food quality in e-commerce logistics. Likewise, Kaur et al. (2021) highlighted food safety concerns but observed that these issues did not statistically impact the intention to use OFDPs. However, food safety and quality were identified as emerging topics, as they appeared at the edges of the word cloud. An analysis of top-cited publications also revealed the theme of nutritional quality. Research indicates that OFDPs encourage unhealthy eating patterns, such as high-fat and sugar foods, that cause obesity (Li et al., 2020). In Australia and New Zealand, most online food delivery platforms primarily offered unhealthy options, with popular menus featuring discretionary foods that are nutrient-poor and high in saturated fat, energy density, added sugars, and sodium (Partridge et al., 2020). The country collaboration map further confirmed this, revealing regional collaborations in Europe focusing on public health implications (e.g. diet-related diseases like obesity). Similarly, in Asia, regional collaborations address public health concerns (e.g. diet-related diseases like obesity). Analysis of the most cited publications highlighted environmental and sustainability concerns associated with OFDPs, including the creation of job opportunities, public health issues, and food waste (Li et al., 2020; Sharma et al., 2021). The word cloud indicates that public health implications have accelerated OFDP usage, with nutritional quality emerging as a key concern. The analysis of the top-cited publications also reveals that socio-demographic themes are pivotal in studies examining OFDPs and users' health. Mehrolia et al. (2021) focused on the characteristics of OFDP customers in India during the COVID-19 period. Keeble et al. (2020) examined OFDP usage patterns and socio-demographic factors of customers in Australia, Canada, Mexico, the UK, and the USA. The word cloud reinforces

that demographics are central to researching OFDPs and users' health. The younger age groups appeared to be an emerging population using OFDPs.

Future research directions, contributions, and study limitations

This bibliometric review was conducted to identify trends and propose future research agendas on OFDPs and users' health. The review noted a significant increase in publications in recent years, and this trend is expected to continue as online food delivery markets continue to grow. Most reviewed studies highlighted five key themes: food safety and quality control, nutritional quality, environmental and sustainability concerns, technological innovations, and demographics. Future research should address several gaps identified within the main themes. Current research on food safety and quality control found this is an important but emerging theme in OFDPs and users' health research. It was noted that studies have focused on narrow food quality dimensions such as freshness, taste, variety, and temperature. Critical food safety issues such as contamination, poor handling, packaging integrity, and sanitation during last-mile delivery are limited. Addressing last-mile delivery infrastructural challenges such as inadequate refrigeration and poor sanitation in low-income regions is crucial in ensuring food safety. Furthermore, most studies focus on specific geographical regions such as Indonesia, Malaysia, and the USA. As food safety and quality control may vary across different regulatory environments, future research agenda will focus on food safety and quality control strategies during last-mile delivery adopted by developing online food delivery markets such as African countries. In addition, governments can establish food safety standards to mitigate the risks associated with unhealthy food choices on OFDPs. Current research on nutritional quality found the existence of bundle menu options used in labelling online foods. This practice may promote unhealthy food choices from OFDPs as it obscures the nutritional quality of foods (e.g. mixing of high and low-nutrient foods in one bundle). Future research agenda will focus on mandatory nutritional labelling in all menus to promote users' health. This requires regulatory frameworks, especially in developing online food delivery markets like Africa. In addition, governments can establish marketing regulations to mitigate the risks associated with unhealthy food choices on OFDPs. Future research should also examine the long-term effects of OFDP usage on dietary patterns and chronic disease risk, providing deeper insights into how these platforms influence public health over time. Current research has found that developed online food markets like the USA and China focus on integrating technological innovations into the OFDPs. However, studies are limited, and little was found in other geographical contexts. Future research agendas explore the intersection of personalised nutrition technology, e.g., AI-driven applications based on consumer health behaviour, especially in developing online food delivery markets such as Africa. In addition, emerging technologies such as blockchain technology and artificial intelligence have the potential to enhance traceability, transparency, and accountability in the online food delivery market. These technologies can improve food safety monitoring, authenticate nutritional information, and reduce fraudulent practices in OFDPs, ensuring better consumer protection. Current research has found that environmental and sustainability concerns are common in OFDPs resulting from food packaging (plastic packaging). This practice promotes increased in packaging waste from OFDPs and may compromise food quality if the ordered food is temperature sensitive. Implementing circular economy strategies such as reusable packaging incentives can help mitigate plastic packaging waste concerns and promote sustainable packaging solutions. Future research agenda will focus on comparing customer responses to alternative packaging, such as the use of traditional packaging. In addition, future research agenda will focus on customer responses to food quality and nutritional perceptions when food is packaged sustainably, especially in developing online food delivery markets such as Africa.

This review contributes to the existing literature by identifying critical thematic areas and offering actionable insights for future research and practice. It offers a comprehensive framework for exploring how OFDPs affect users' health by highlighting five key themes: food safety and quality control, nutritional quality, environmental and sustainability concerns, technological innovations, and demographics. This framework offers a foundation for analysing OFDPs and users' health across different regions. The review also emphasises the urgent need to address gaps in current research, notably on food safety and quality control during last-mile delivery. Researchers, policymakers, and industry stakeholders must collaborate to integrate health-promoting strategies into the design and operation of OFDPs, ensuring these platforms support a safer, more nutritious, and sustainable food delivery market. There is also a need for regulatory frameworks to promote public health and reduce unhealthy consumption patterns, especially in online food delivery markets like Africa.

The current review has several limitations. First, due to the topic's novelty, the number of publications utilised for the review may not be large enough. Future researchers may consider using other types of reviews to check for differences while also establishing an overview of OFDPs and users' health research. Secondly, this review used a combination of keywords mentioned in the methods section (Section 3). Although the keywords are relevant, future researchers may consider emerging keywords for a more thorough assessment. This review may have overlooked some publications on the topic because it extracted publications from the Scopus database. While the Scopus database indexes unique journals and is recognised as a trusted source of bibliometric data, it may not include some niche publications relevant to the topic. Future researchers may consider other relevant databases like Science Direct, PubMed, and Web of Science to incorporate any overlooked publications.

Conclusion

This bibliometric review highlights key trends in online food delivery platforms (OFDPs) and users' health, focusing on food safety, nutritional quality, sustainability, technological innovations, and demographics. While research has advanced, gaps remain in areas such as food safety during last-mile delivery, the impact of nutritional labelling, and the role of emerging technologies like AI and blockchain. Future research should address these gaps, particularly in developing markets, and explore

the effects of sustainable packaging on food quality and consumer perceptions. This review provides a foundation for future studies and practical insights for managers and policymakers to enhance the health-promoting potential of OFDPs. Addressing these gaps will help shape safer, more nutritious, and sustainable food delivery services. However, this review has limitations, including a potentially small sample size due to the novelty of the topic and the focus on the Scopus database. Future studies should expand their scope to include a wider range of databases and emerging keywords to provide a more comprehensive perspective on the relationship between OFDPs and users' health.

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