

# Are we closer to international consensus on the term ‘food literacy’?: a systematic scoping review of its use in the academic literature (1998-2019)

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**Abstract:** (1) Background: The term ‘food literacy’ has gained momentum globally, however a lack of clarity around definitions has resulted in inconsistencies in use of the term. Therefore, the objectives were to conduct a systematic scoping review to describe the use, reach, application and definitions of the term ‘food literacy’ over time. (2) Methods: A search was conducted using the PRISMA-ScR guidelines in seven research databases without any date limitations up to 31st December 2019, searching simple for use of the term ‘food literacy’. (3) Results: 549 studies were included. The term ‘food literacy’ was used once in 243 articles (44%) and mentioned by researchers working in 41 countries. Original research was the most common article type (n=429, 78%). Food literacy was published across 72 InCites disciplines, with 456 (83%) articles from the last 5 years. In articles about food literacy (n=82, 15%), review articles were twice as prevalent compared to the total number of articles (n=10, 12% vs n=32, 6%). Fifty-one different definitions of food literacy were cited. (4) Conclusion: ‘Food literacy’ has been used frequently and broadly across differing article types and disciplines in academic literature, internationally. However, agreement on a standardised definition of food literacy endorsed by a peak international agency is needed in order to progress the field.

**Keywords:** food literacy, systematic scoping review, definition, concepts, application

## 1. Introduction

While many aspects of the food system such as availability, accessibility, price and affordability have been explored and evaluated, there is a limited understanding of the relationship between these factors and people’s food acquisition and consumption. The term ‘food literacy’ emerged in contemporary nutrition policies and plans as early as 1990 and in published literature from 2001 as the everyday skills, behaviour and knowledge needed by individuals to navigate the food environment and meet their nutrition and health needs[1-3].

The term ‘food literacy’ has been used by industry, public health nutrition organisations and policy makers to encompass anything from food preparation to cooking skills, food science, household food production, food safety and food marketing[4]. It has gained momentum globally and been used to inform the development of questionnaires, observational studies and interventions by researchers in Australia[5], Italy[6], the Netherlands[7], South Africa[8], Switzerland[9], France[10], the United Kingdom (UK)[11] and the United States of America (USA)[12,13]. In 2017, Truman and colleagues[4] reported 38 novel definitions of food literacy. There are also numerous frameworks and models proposing relationships between food literacy and various food related outcomes such as diet quality, nutrition behaviours, social connectedness and food security[14,15]. Despite

food literacy having relevance across a broad range of countries and contexts, lack of clarity around definition, conceptualisation and operationalisation has resulted in inconsistencies in food literacy research. For example, current questionnaires developed to measure food literacy varying substantially, even among those citing the same definition and conceptualisation[16]. This lack of shared understanding of food literacy inhibits the synthesis of findings and limits the potential for leveraging food literacy to improve dietary intake and food security. Previous researchers have conducted reviews attempting to reach consensus on a definition and attributes of food literacy. However, limitations to Western countries[17], inclusion of a conceptualisation[4] or year of publication restrictions[18] meant the full breadth, reach and scope of the term ‘food literacy’ has yet to be explored.

Therefore, the present research goes beyond existing work by looking broadly at the use of the term ‘food literacy’ throughout the whole peer-reviewed literature, regardless of context, to better understand its reach and application. Additionally, this article aimed to determine if ‘food literacy’ is a widely used and understood term to explore the potential for an internationally endorsed definition of food literacy. The objectives were to conduct a systematic scoping review to 1) describe the frequency of use and reach of the term ‘food literacy’; 2) identify changes in use of the term over time; and 3) describe how the term has been applied and defined within the literature.

## 2. Materials and Methods

This scoping review was planned and conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses: Extension for Scoping Reviews (PRISMA-ScR) guidelines[19]

### 2.1. Search strategy

A systematic literature search was undertaken to identify peer-reviewed journal articles that used the term food literacy in the main text. The search term was simply “food literacy” entered into the all fields or all articles search in the following databases: PubMed, ScienceDirect, Embase, Scopus, EBSCO (CINHAL + Medline), ProQuest and Google Scholar up to the 31st of December 2019. No date limitations were applied and the term could appear anywhere in the text, excluding the reference list or footnotes.

### 2.2. Screening and selection

Articles obtained from the search strategy were imported into EndNote[20] and duplicates were removed. Inclusion and exclusion criteria were applied at two stages of the review. In phase one, the abstract and title of records were screened and excluded if they were; (1) not in the English language, or a (2) book, (3) thesis or (4) not published in a peer reviewed journal. In phase two, the full text of articles were screened and excluded if; (1) they met the exclusion criteria of phase one, (2) full text was not locally available or provided by authors via ResearchGate, (3) if the term ‘food literacy’ was not used and (4) if the term ‘food literacy’ was only found in the reference list or footnote of the article.

### 2.3. Data extraction

To describe the frequency of use and reach of the term, the following data was extracted from each article:

(1) the number of times the term ‘food literacy’ appeared within the main text (i.e. title, abstract, body, tables and figures) was indicative of the authors’ scale of understanding[21-24]. Neuendorf[25] propose using variables to categorise data, whereby Rossi &

Macagno's[26] three-point scale of understanding was used: i) weak understanding (articles which used the term 'food literacy' infrequently, or inconsistently in varying contexts); ii) acceptable understanding (articles which used the term 'food literacy' somewhat frequently, consistently and in relevant contexts) or; iii) strong understanding (articles which used the term 'food literacy' frequently and consistently in a relevant context)[21].

(2) The country of affiliation of the first author of articles, categorised by: i) continent and ii) World Bank income group[27].

(3) The article type, determined by the journal's classification of the type of article and categorised as: i) original research; ii) review articles; iii) perspectives; iv) short reports and communications; v) case studies; and iv) unspecified.

(4) The discipline, defined according to the journals subject categories in InCites, the Clarivate Analytics journal comparison database[28].

To describe the use of the term over time, year of articles was extracted and cross-tabulated against the total number of articles, country of affiliation of the first author of articles and the discipline of articles.

To describe how food literacy has been applied and defined, articles with a primary focus on food literacy, determined by the use of the term in the title were collated and compared across article types[29]. The following information was also extracted:

(1) aims of the article, stated in either the abstract or introduction and categorised into: i) expert opinion articles; ii) definition articles; iii) intervention/program articles; iv) measurement articles; and v) observational articles and

(2) definition of food literacy, determined by either a direct quote or the first citation after the term 'food literacy' was first used, where differing versions of definitions attributed to the same source were combined. To compare the content of the most cited definitions, the thematic analysis of definitions conducted by Truman et al.[4] into the following six categories were reported here: i) skills/behaviours (physical actions/abilities involving food); ii) food/health choices (actions associated with informed choices around food use); iii) culture (societal aspects of food); iv) knowledge (ability to understand and seek information about food); v) emotions (attitudes and motivation); vi) food systems (complexity of food systems including environmental impact, food waste).

#### 2.4 Data analysis

All three authors independently reviewed the same random sample of 50 articles and applied the criteria in phases one and two. Discrepancies were discussed and the methods revised to reduce these. C.T. then extracted data from all articles using the revised methods. Data were charted and analysed using descriptive statistics.

### 3. Results

The search strategy identified 2086 unique records (see Figure 1). Five-hundred and forty-nine articles met the inclusion criteria and were included in subsequent analysis (see Table S1 All articles and analysis).

#### 3.1. Frequency of use and reach of the term

Refer to Table S1, pages 3.1a to 3.1d for the article analysis of this section.

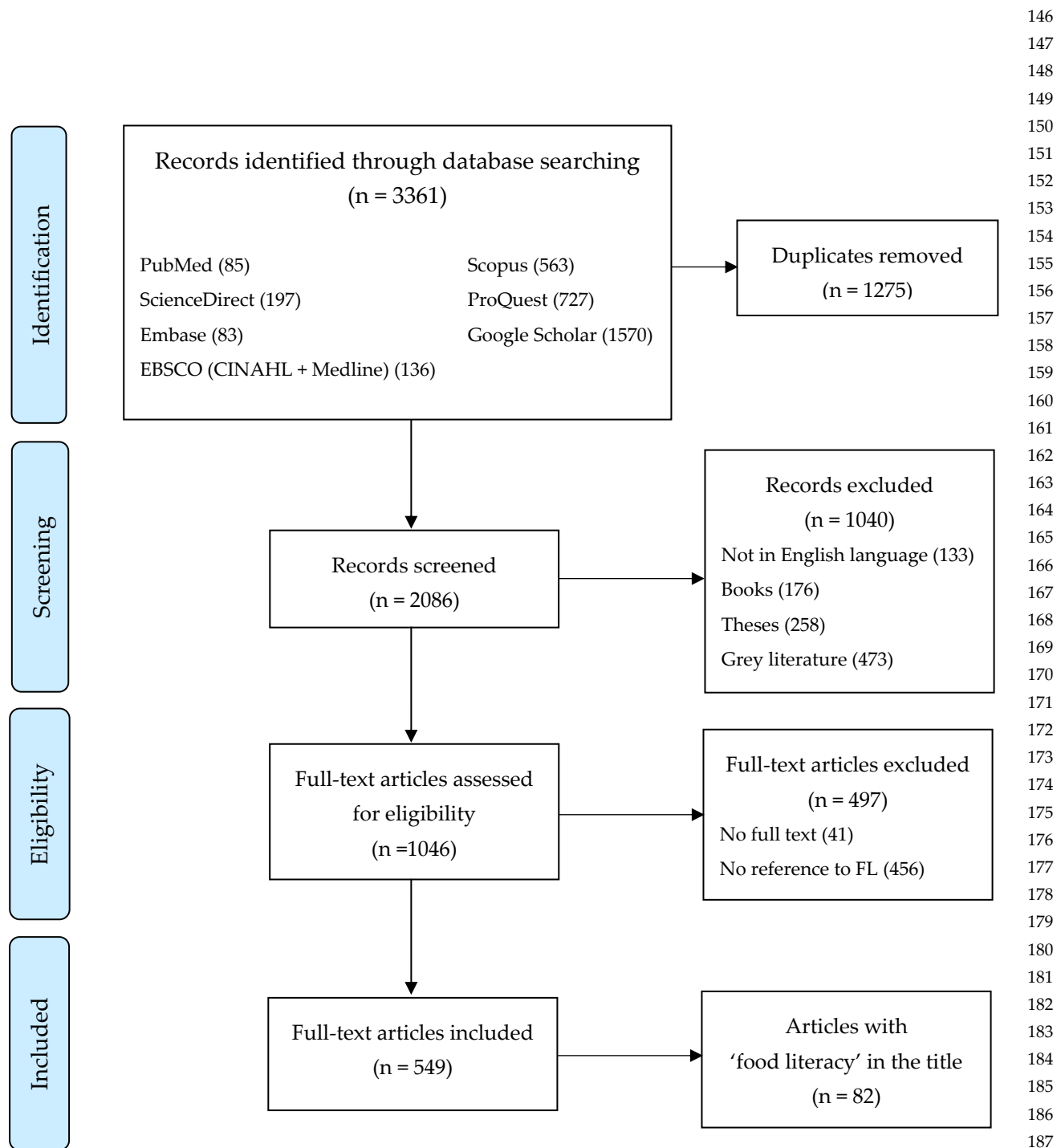
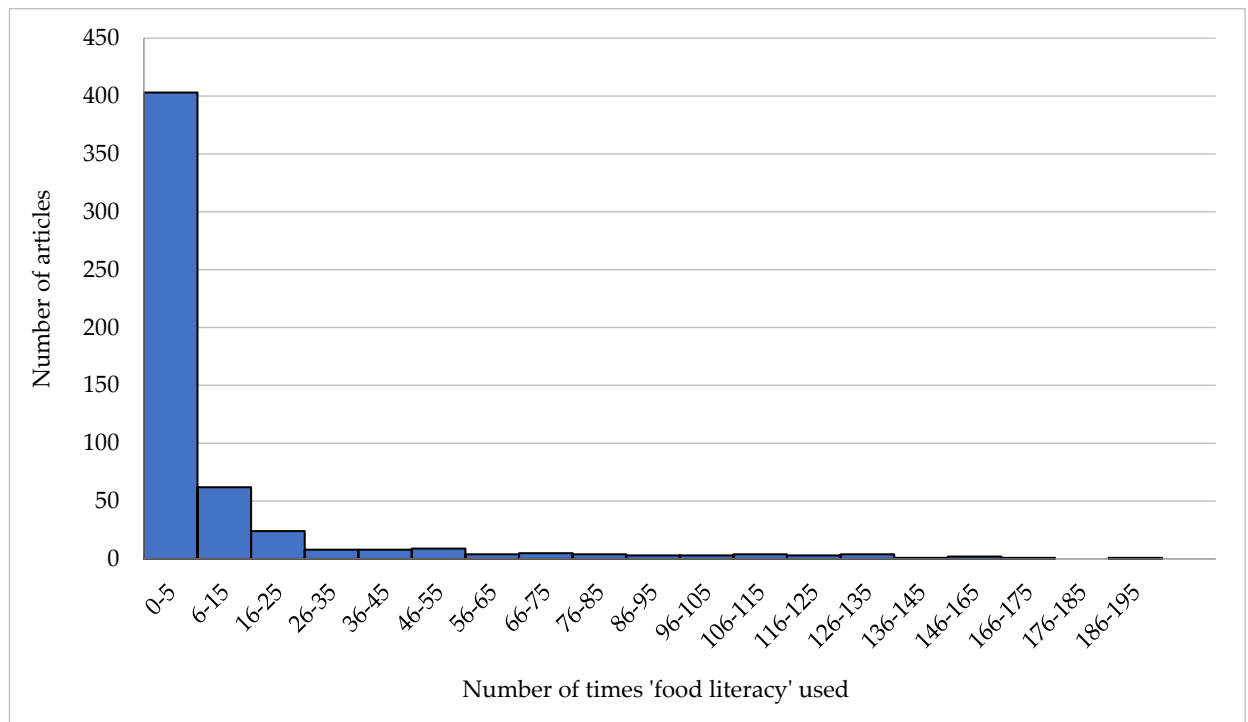


Figure 1. Prisma-ScR Flow Chart[30]

The distribution of the frequency of use of 'food literacy' within articles was skewed (range 1-189, median = 2). The term 'food literacy' was used once in 243 of the 549 articles (44%) and between 2-5 times in 160 of the 549 articles (29%) (see Figure 2). Articles which suppressed the understanding of the construct by using the term infrequently, inconsistently and in varying contexts cited 'food literacy' between 1-5 times (n=403, 73%). Some understanding of the construct and consistency in frequency and relevance was identified in articles which used the term between 6-43 times (n=101, 18%) while articles that were considered to improve the understanding of the construct used the term more than 44 times and in a relevant and appropriate context (n=45, 8%).



**Figure 2.** Frequency of the use of the term 'food literacy' within articles containing the term (n=549).

The term 'food literacy' was mentioned in academic literature by first authors working in 41 countries (see Table A1), and across all continents. The term was used most frequently by teams where the first author was located in Australia (n=127), Canada (n=116), United States of America (n=112), United Kingdom (n=37) and Italy (n=18) (see Figure A1). Additionally, there was a spread of first authors from lower-middle income countries (n=5), upper-middle income countries (n=11) and high-income countries (n=25)[27,31]. No first authors were working in low-income countries.

Original research was the most common article type (n=429) and accounted for 78% of all articles using the term 'food literacy'. There were 32 review articles published using the term 'food literacy' (6%), 27 perspectives, opinions or commentary pieces (5%) and 18 short reports or communications (3%). Case studies were the least common article type (n=10, 2%). Thirty-three (6%) articles were not classified.

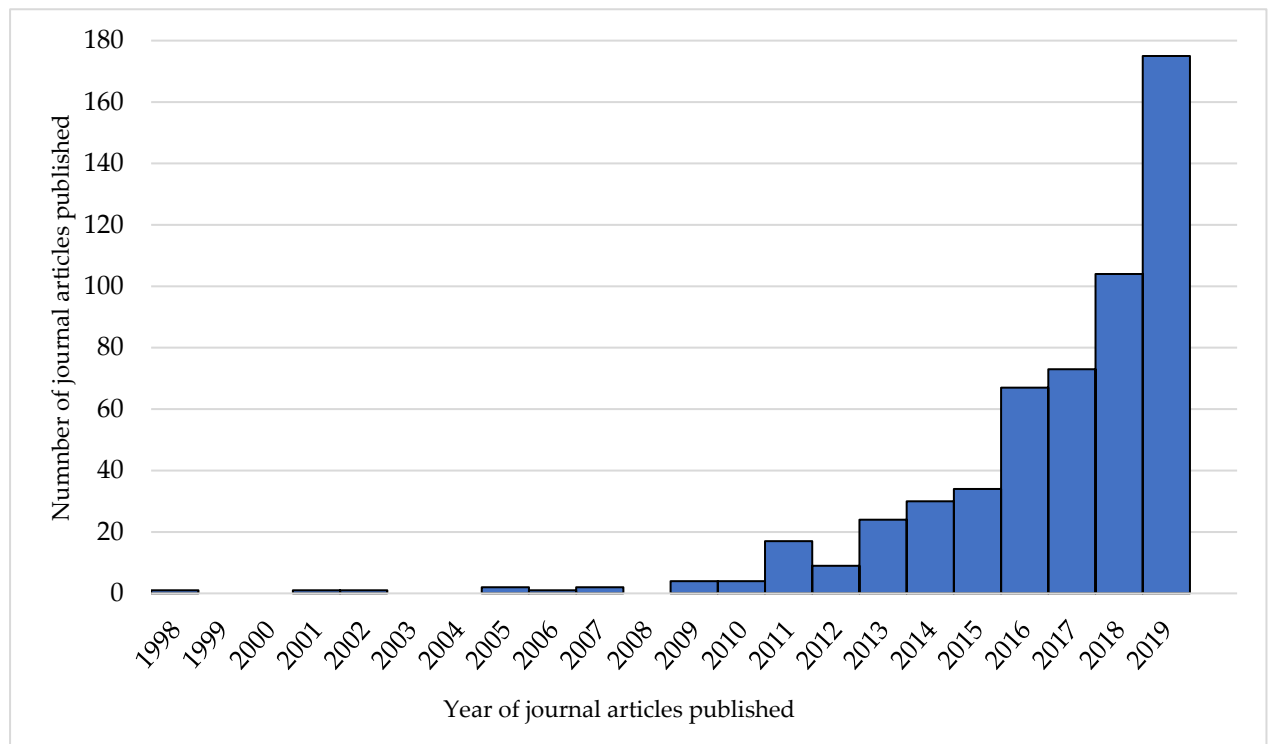
The term 'food literacy' was used in journals representing 72 of the 235 InCites disciplines. These included agriculture, business, medicine, economics, education, environ-

mental science, geography, hospitality, psychology/psychiatry, sociology and sports sciences. Overall, the term was used most frequently used in disciplines such as ‘public, environmental, occupational health’ and ‘nutrition & dietetics’ (see Table A2). The journals most frequently represented in these disciplines were *Nutrients* (n=27), *Public Health Nutrition* (n=16) *Appetite* (n=16), *Canadian Journal of Dietetic Practice and Research* (n=15) and *Journal of Nutrition Education and Behavior* (n=14).

### 3.2. Use of term over time

Refer to Table S1, pages 3.2a to 3.2d for the article analysis of this section.

The number of articles using the term ‘food literacy’ has increased over time (see Figure 3). Overall, 83% of articles using the term ‘food literacy’ occurred in the five years preceding this search (2015-19).



**Figure 3.** Trend in articles published using the term ‘food literacy’ from 1998-2019 (n=549)

Authors based in the USA were the first to publish on food literacy in 1998 (see Figure 4), with authors based in North America the only continent represented between 1998 and 2004. The earliest article from a first author based in a non-English speaking country, Italy, occurred in 2007 and the earliest article with a first author based in a low-middle income country came from Nigeria in 2011. There was no further work from first authors based in low-income countries until 2018.

The proportion of articles in each article type category increased each year, with the highest number of original research (n=138), short reports (n=7), review articles (n=11), perspectives (n=9) and case studies (n=2) reported in 2019 (see Figure 5). Overall, 33 articles were ‘not classified’.

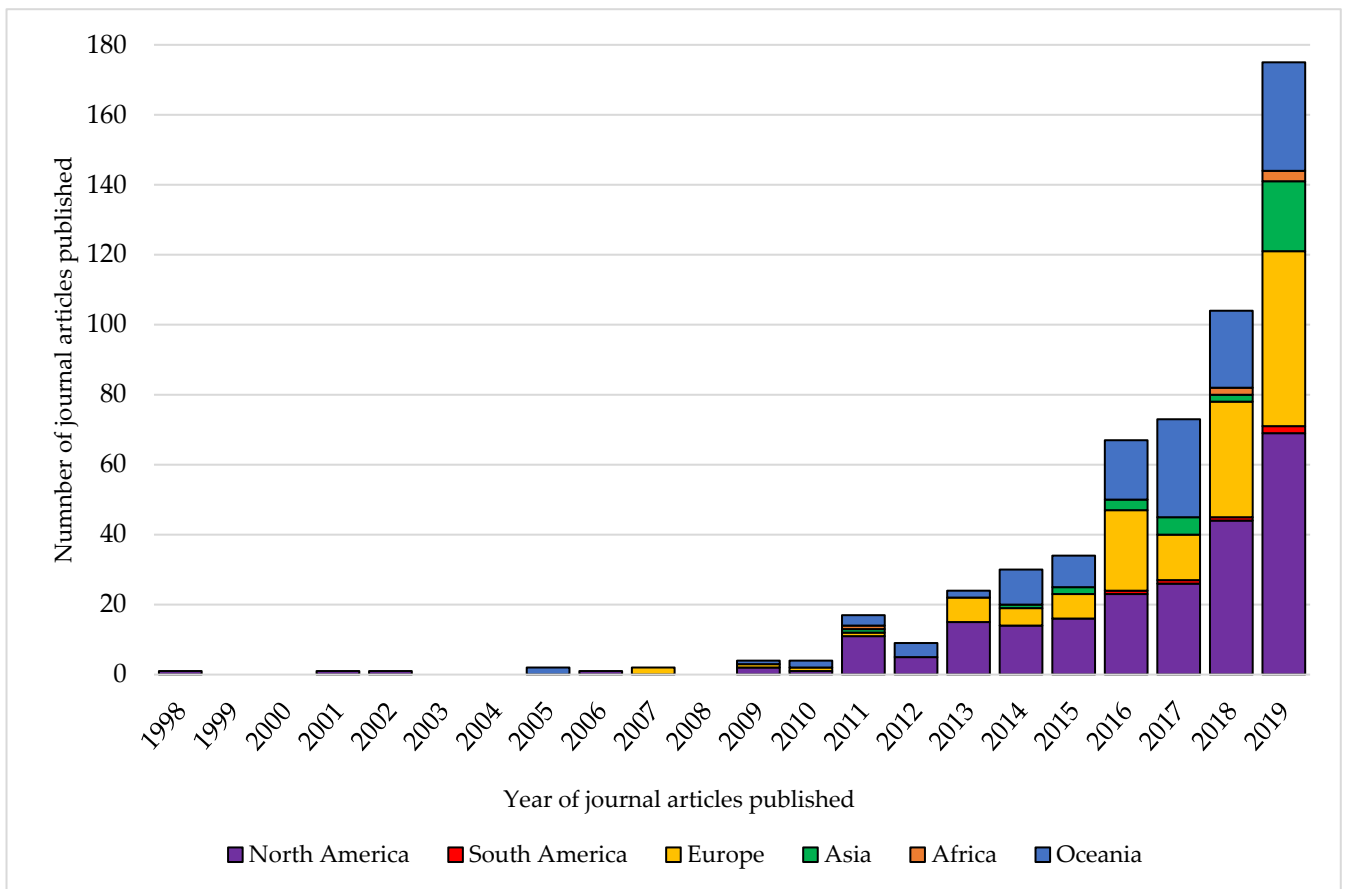


Figure 4. Trend in continent of journal articles published using the term 'food literacy' from 1998-2019 (n=549)

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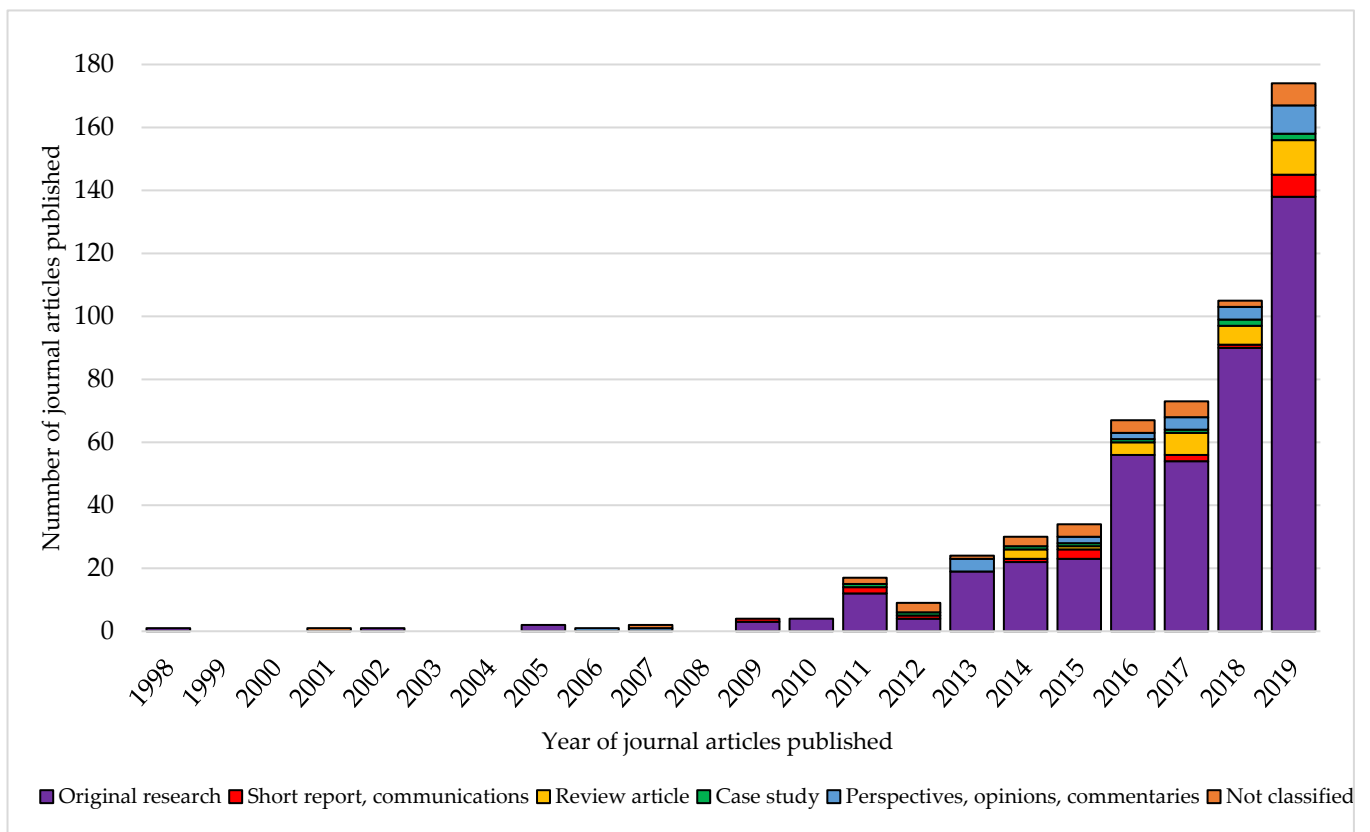
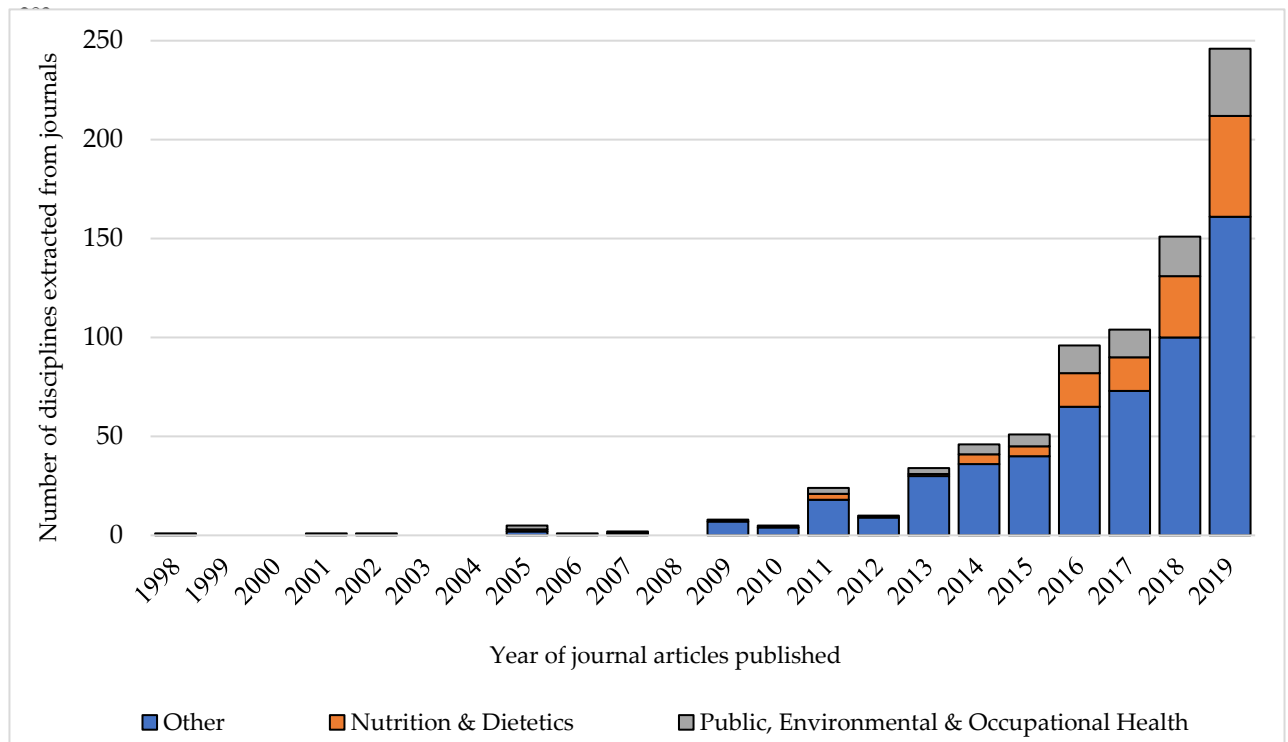


Figure 5. Trend in article type using the term 'food literacy' from 1998-2019 (n=549)

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The number of disciplines represented each year, with the most frequent disciplines highlighted, can be seen in Figure 6. The first article on food literacy from 1998 was in the discipline of 'cardiac and cardiovascular systems'. However, overall, the discipline of 'nutrition and dietetics' was the most highly represented (n=136, 17%).



**Figure 6.** Trend in discipline of articles published using the term 'food literacy' from 1998-2019 (n=549)

### 3.3. Applications and definitions of food literacy

Eighty-two articles (15%) used the term 'food literacy' in the title of the article. The number of times the term was used throughout these articles ranged from 6-189 (refer to Table S1, pages 3.3a to 3.3d for the article analysis of this section).

The distribution of article type between all articles on food literacy (n=549) and those primarily about food literacy (n=82) were similar for most categories, with the exception of original research and review articles (see Table 1). The number of articles classified as original research was 13 percentage points less in articles primarily about food literacy compared to the total number of articles, while review articles were twice as prevalent in articles primarily about food literacy (12% vs 6%).

The aim of articles with a primary focus on food literacy can be seen in Table 2. Over half of articles primarily about food literacy were either opinion pieces or definition articles exclusively using experts as their research subjects (62%, n=51), while 21% (n=17) used participants exclusively from the general public. Observational and measurement articles had a combination of expert and general public involvement.



**Table 1.** Article type for all articles (n=549) in comparison to articles primarily focused on food literacy (n=82)

Article type	Food literacy focused articles n=82 (%)	All articles n=549 (%)
Original research	53 (65)	429 (78)
Review article	10 (12)	32 (6)
Perspectives, opinions, commentaries	6 (7)	27 (5)
Short report, communications	4 (5)	18 (3)
Case study	2 (2)	10 (2)
Not classified	7 (9)	33 (6)

**Table 2.** A comparison of the aims of articles with a primary focus on food literacy

Aim of food literacy articles	Number of articles in each category n=82 (%)
Expert opinion articles <sup>1</sup>	27 (33)
Definition articles <sup>2</sup>	24 (29)
Intervention/program articles <sup>3</sup>	17 (21)
Measurement articles <sup>4</sup>	9 (11)
Observational articles <sup>5</sup>	5 (6)

<sup>1</sup>Conducted a study, usually with experts or consulted literature to inform future directions for food literacy research. <sup>2</sup>Developed a definition of food literacy or conducted a review of existing definitions. <sup>3</sup>Conducted a study and assessed food literacy as part of a program/intervention. <sup>4</sup>Developed a food literacy questionnaire or conducted a review of existing questionnaires. <sup>5</sup>Cross-sectional data collection on food literacy.

The definitions used by articles when referencing food literacy are described in (Table A3). Overall, there were 51 different definitions of food literacy cited by the authors of the 82 articles considered to be ‘about’ food literacy. The most frequently cited definition of food literacy was that of Vidgen & Gallegos (2014)[15] (n=66, 41%). Other commonly cited definitions were Cullen et al. (2015)[18] with 12 citations (7%), Kolasa et al. (2001)[2] with 7 citations (4%) and Verlado (2015)[32] with 5 citations (3%). Thirty-three of the definitions were only cited once. Of the four definitions most frequently cited, none addressed all six categories of skills/behaviours, food/health choices, culture, knowledge, emotions and food systems (Table A3). The most comprehensive definitions met five categories[15,18], while the least only addressed two[2,32].

#### 4. Discussion

The purpose of this study was to better understand the reach and application of the term ‘food literacy’ in order to progress the field. This study found that while the term ‘food literacy’ has been used frequently and broadly throughout academic literature, there are inconsistencies in its application and definition.

##### 4.1 Use of the term

The term ‘food literacy’ is widely used and has been described in a variety of different research disciplines and plethora of contexts. This is not limited to just ‘food’, usually

discussed in the context of nutrition and dietetics or public health, but also covers the 'literacy' aspect of the construct, within disciplines such as education, communication, literature, language and linguistics. Begley & Vidgen[33] indicate this may reflect at-tempts by a range of food-related sectors to describe the totality of food and eating, as opposed to focusing on the singular issue of maximising dietary quality for good health. The term has clearly resonated with researchers with a very wide range of interests indicating some level of consensus that translates to interventional value.

The number of articles using the term 'food literacy' has increased over time. The substantial number of food literacy articles in the latter five years of our data collection period aligns with the emergence of key articles defining (2014-17)[4,15,17,18], conceptualising (2016)[34] or measuring (2017-18)[5-7,9] the construct. In 2016, Begley & Vidgen proposed that the interest in food literacy was driven by the increasing prevalence of diet-related disease and a recognition that contemporary nutrition science needed to look beyond biological determinants[33]. While this is still the case, food literacy is now also discussed more broadly in the context of food environments and food security[7,17,35-37]. Additionally, the type of research on food literacy increased across all categories over time. While the first few articles on food literacy were original research articles, subsequent initial articles were perspectives articles and most reviews were published in the last six years. This progression is typical of fields of research, as review genres evaluate knowledge claims and draw on theories and methods to enhance credibility[38].

The term 'food literacy' has been used in both national and international contexts, in both English and non-English speaking countries of differing income status, highlighting the broad reach of the term. This is promising for international consensus on the construct. However, while the term appeared to be used frequently throughout the literature, just under half of the articles included in this review cited the term 'food literacy' only once in the manuscript. According to Cukier and colleagues[21], the number of times a term appears provides insight into themes that dominate the discourse, and omissions that may suppress understanding. Given the majority of articles used the term so infrequently and, in some cases, just as a keyword suggests that it is often used as an indicator of general topic area, rather than a point of particular depth. This can make navigating food literacy literature particularly difficult and inefficient. Overall, widespread use of the term is not indicative of a shared understanding of the construct.

#### 4.2 Consensus on definitions and conceptualisations

Twenty-four articles 'about' food literacy developed definitions or reviewed existing definitions of the construct, while 51 different definitions of food literacy were cited in the 82 articles 'about' food literacy.

While the Vidgen & Gallegos[15] definition was most commonly cited, new definitions of food literacy are constantly emerging, encompassing broader conceptualisations of the term. These definitions are usually developed as a result of scoping or systematic reviews of existing literature and expert consensus which tend to differ from definitions developed in consultation with the general public. Literature-based definitions tend to be broader in scope, encompassing constructs such as food security and food environments. This requires the general public to meet higher levels of knowledge, skills or behaviours and have a more critical and active understanding of the food system in order to be considered 'food literate'; placing higher onus on the individual[39].

In an international consensus study, Fingland et al.[39] found that while some international researchers believe food literacy should extend beyond what is proposed in the Vidgen & Gallegos[15] model, few disagree with the core domains and components of this conceptualisation (Figure A2). This provides a starting point for the development of international indicators of food literacy previously limited by inconsistent definitions and understandings of the construct across contexts.

We found no articles using the term ‘food literacy’ published by first authors based in low-income countries, which has been attributed to limited research budgets, low salaries, poor infrastructure and facilities and political instability[40]. However, since our search was conducted, articles from Ethiopia[41] and Uganda[42] have been published, highlighting the relevance of the term further.

Additionally, the recent COVID-19 pandemic further highlighted the relevance of food literacy and the role it plays in: i) planning, selecting and preparing healthy meals[43,44]; ii) empowering individuals, households, communities or nations to navigate the complex food environment and protect diet quality through change [45,46] and; iii) manage planning and preparation of food even when financial circumstances change which may alleviate food insecurity[47].

Overall, this review has found the term ‘food literacy’ is widely used and understood and there is agreement on a core conceptualisation. Therefore, international scholars across all income levels engaged in food literacy research, identified by Fingland et al.’s[39] work and the present review, would provide valuable insight into developing indicators of food literacy. The development of a definition and international indicators endorsed by a peak international agency would be integral in significantly advancing and progressing the field of food literacy. With previous constructs, such as food security[48,49] and sustainable healthy diets[50], a United Nations (UN) definition supported by an agreed set of principals has allowed for national and global systems and monitoring. Further to this, food systems monitoring by the Food and Agriculture Organisation of the United Nations (FAO)[51] has identified consumer behaviour as a driver of the food system, however report no measures for assessing food acquisition, preparation, meal practices and storage: all key components of food literacy. Therefore, the development of measures to assess a component of the food system also relies on progressing international consensus and indicators.

#### 4.3 Strengths and limitations

The strengths of this research include the adherence to the PRISMA-ScR guidelines and the broad scope of the review. The limitations include that this review was conducted up to 2019 and therefore does not describe the trajectory of food literacy during or post-COVID-19; however, a section was included to highlight relevant publications that have emerged since. Country of affiliation of the first author was not always the country where the research had taken place; this was a pragmatic decision due to the volume of articles coded but may particularly under-represent countries where research is more often collaborative[40]. The article type was determined based on the journal’s classification of the article, as a result, there may be misclassification of some article types, however this was for pragmatic reasons. InCites categories were used to determine the discipline of papers: not all journals are in this database which limits the analysis in this study, and a more robust discipline or area of study categorisation is needed. Articles that were ‘about’ food literacy were identified by inclusion of the term in the title, and while other methods were piloted, they were not easily replicable. Finally, articles were requested from ResearchGate if they were not locally available, however this, combined with articles restricted to the English language may limit generalisability of our findings.

## 5. Conclusions

This is the first comprehensive scoping review of the use of the term ‘food literacy’ within the English-language peer-reviewed literature. In total, 549 peer-reviewed journal articles, published over 21 years were identified that used the term ‘food literacy’. The term has been used frequently and broadly throughout the literature over time, though there are inconsistencies in its application and definition. Agreement on a standardised

definition of food literacy endorsed by a peak international agency is needed in order to progress the field.

**Supplementary Materials:** The following are available online at [www.mdpi.com/xxx/s1](http://www.mdpi.com/xxx/s1), Table S1: All articles, journals and analysis.

**Author Contributions:** Conceptualisation, H.A.V.; methodology, C.T., J.A., H.A.V.; writing—original draft preparation, C.T.; writing—review and editing, J.A., H.A.V.; supervision, H.A.V., J.A. All authors have read and agreed to the published version of the manuscript.

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**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix

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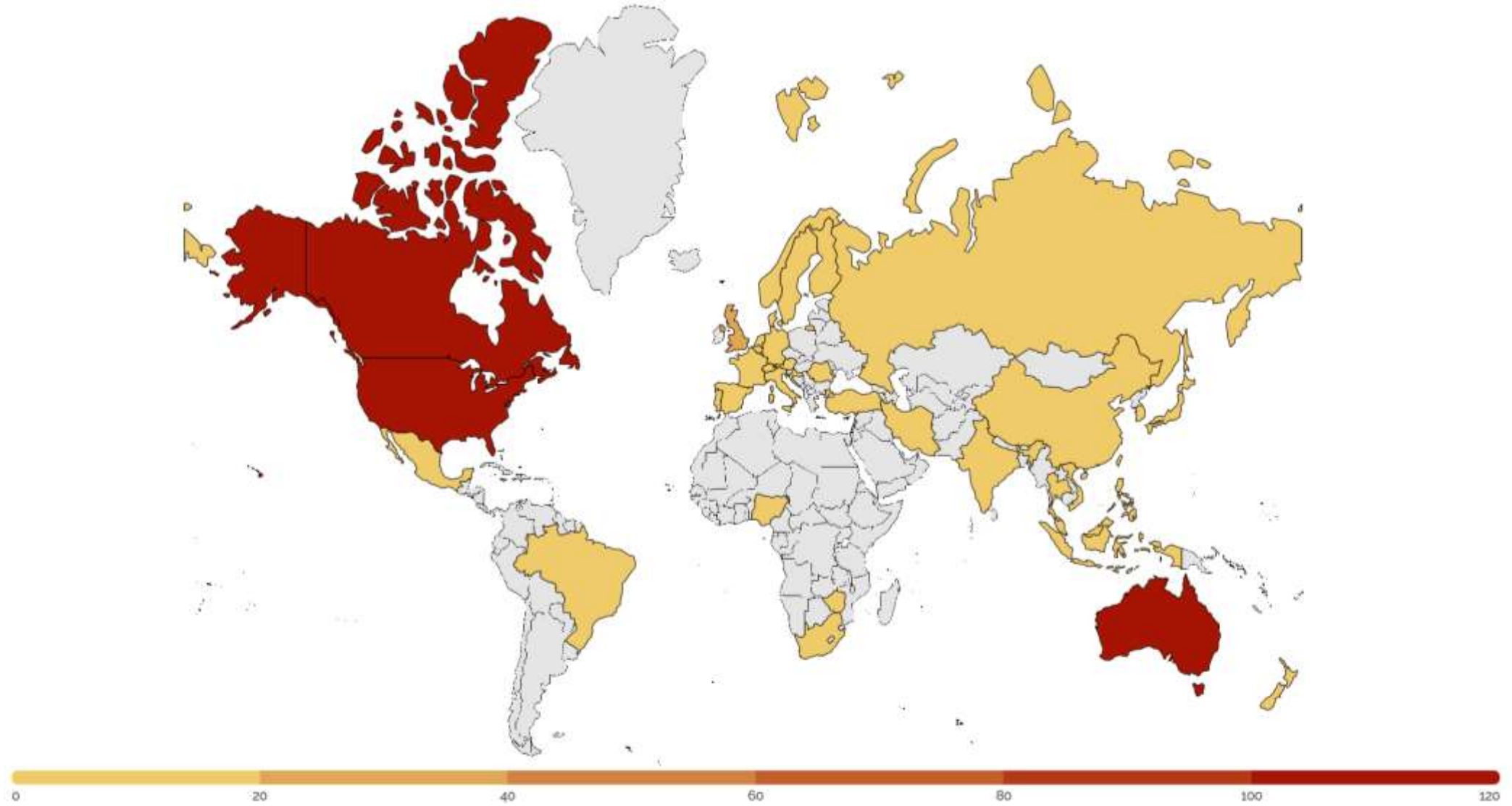
**Table A1.** Number of times term ‘food literacy’ cited in articles, stratified by continent, country and income (n=549)

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Continent	Country	Number of Articles	Income <sup>1</sup>	
North America	Canada	116	HIC	
	United States of America	112	HIC	
	Mexico	1	UMIC	
	Jamaica	1	UMIC	
South America	Brazil	5	UMIC	
Europe	United Kingdom	37	HIC	
	Italy	18	HIC	
	Denmark	10	HIC	
	Germany	10	HIC	
	Netherlands	10	HIC	
	Switzerland	10	HIC	
	Portugal	9	HIC	
	Finland	6	HIC	
	France	6	HIC	
	Turkey	6	UMIC	
	Belgium	5	HIC	
	Sweden	5	HIC	
	Austria	3	HIC	
	Norway	3	HIC	
	Spain	3	HIC	
	Croatia	1	HIC	
	Romania	1	HIC	
	Asia	Iran	7	UMIC
		Japan	4	HIC
India		3	LMIC	
Indonesia		3	UMIC	
Malaysia		3	UMIC	
Republic of Korea		3	HIC	
Thailand		3	UMIC	
Russia		2	UMIC	
China		1	HIC	
Taiwan		1	HIC	
Hong Kong		1	HIC	
Vietnam		1	LMIC	
Lebanon		1	UMIC	
Philippines		1	LMIC	
Africa	South Africa	4	UMIC	
	Zimbabwe	1	LMIC	
	Nigeria	1	LMIC	
Oceania	Australia	127	HIC	
	New Zealand	4	HIC	

<sup>1</sup> HIC = high-income countries, UMIC = upper-middle income countries, LMIC = lower-middle income countries.

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**Figure A1.** Country of affiliation of the first author for articles using the term 'food literacy' (n=549)

 Values unknown

**Table A2.** Discipline of articles and number of articles associated with each category (n=549)

InCites Journal Category <sup>1</sup>	Articles affiliated with journal category
Public, environmental & occupational health	38
Nutrition & dietetics	31
Social sciences, general	26
Education & educational research	20
Business	19
Environmental sciences	11
Food science & technology	11
Environmental studies	8
Geography	8
Endocrinology & metabolism	7
Medicine, general & internal	7
Economics & business	6
Anthropology	5
Clinical medicine	5
Economics	5
Health care sciences & services	5
Management	5
Psychiatry	5
Sociology	5
Agriculture, multidisciplinary	4
Agronomy	4
Development studies	4
Education, scientific disciplines	4
Regional & urban planning	4
Area studies	3
Biology & biochemistry	3
Cardiac & cardiovascular systems	3
Communication	3
Green & sustainable science & technology	3
Hospitality, leisure, sport & tourism	3
Nursing	3
Pediatrics	3
Psychology, multidisciplinary	3
Social sciences, interdisciplinary	3
Social sciences, biomedical	3
Social work	3
Agricultural economics & policy	2
Engineering, environmental	2
Entomology	2
Health policy & services	2
History & philosophy of science	2
Information science & library science	2
Integrative & complementary medicine	2

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Multidisciplinary sciences	2
Political science	2
Psychology, clinical	2
Agricultural sciences	1
Behavioral sciences	1
Biotechnology & applied microbiology	1
Demography	1
Ethnic studies	1
Family studies	1
Forestry	1
Geriatrics & gerontology	1
Humanities, multidisciplinary	1
Language & linguistics	1
Law	1
Literature	1
Medical informatics	1
Medicine, research & experimental	1
Oncology	1
Physiology	1
Plant sciences	1
Primary health care	1
Psychology, applied	1
Public administration	1
Social issues	1
Social science	1
Sport sciences	1
Urban studies	1
Women's studies	1

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<sup>1</sup> InCites[28] categories SCIE, SSCI, ESCI combined.



**Table A3.** The definition cited by articles considered to be ‘about’ food literacy (n=82)

Authors	Year	Times Cited	Definitions	Skills/ Behaviours	Food/ Health Choices	Culture Knowledge	Emotions	Food Systems
Vidgen & Gallegos [15,34,45,52,53]	2011, 2012, 2014, 2016	66	“The scaffolding that empowers individuals, house-holds, communities or nations to protect diet quality through change and strengthen dietary resilience over time. It is composed of a collection of inter-related knowledge, skills and behaviours required to plan, manage, select, prepare and eat food to meet needs and determine intake.” “Food literacy is the ability of an individual to understand food in a way that they develop a positive relationship with it, including food skills and practices across the lifespan in order to navigate, engage, and participate within a complex food system.	X	X	X	X	X
Cullen et al. [18]	2015	12	It’s the ability to make decisions to support the achievement of personal health and a sustainable food system considering environmental, social, economic, cultural, and political components.”	X	X	X	X	X
Kolasa et al. [2]	2001	7	“The capacity of an individual to obtain, interpret and understand basic food and nutrition information and services as well as the competence to use that information and services in ways that are health enhancing.”		X		X	
Velardo [32]	2015	5	“The importance of linking nutrition information with people’s practical use of food to meet day-to-day needs.”		X		X	
Azevedo Perry et al. [17]	2017	4	“Food literacy highlights interconnectivity among food, health and the environment, while fostering a greater understanding of food beyond traditional nutrition recommendations and cookery lessons.”					
Fordyce-Voorham [54]	2011	4	“Food literacy was seen mainly as an individual’s ability to read, understand, and act upon labels on fresh, frozen, canned, frozen (sic), processed, and takeout food”					
Krause et al. [55]	2016	4	“This term encompasses nutritional knowledge, food skills, the ability to communicate about nutritional issues and to critically reflect on one’s eating behavior and the effects of consumption decisions.”					
Desjardins et al. [56]	2013	3	“A set of skills and attributes that help people sustain the daily preparation of healthy, tasty, affordable meals for themselves and their families. Food literacy					

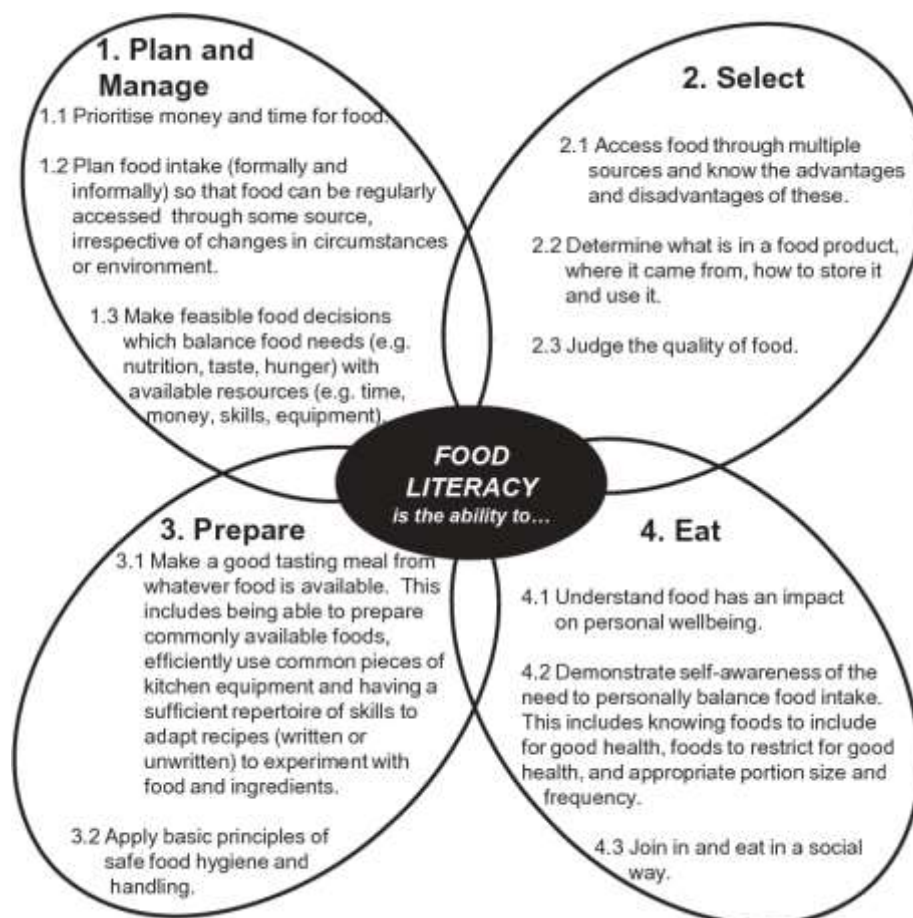
Authors	Year	Times Cited	Definitions	Skills/ Behaviours	Food/ Health Choices	Culture Knowledge	Emotions	Food Systems
Krause et al. [9]	2018	3	builds resilience, because it includes food skills (techniques, knowledge and planning ability), the confidence to improvise and problem-solve, and the ability to access and share information.” “To apply information on food choices and critically reflect on the effect of food choice on personal health and on society.”					
Schnoegl et al. [57]	2006	3	“The ability to organize one’s everyday nutrition in a self-determined, responsible and enjoyable way”					
Sumner [58]	2013	3	“Food literacy is the ability to “read the world” in terms of food, thereby recreating it and remaking ourselves. It involves a full-cycle understanding of food – where it is grown, how it is produced, who benefits and who loses when it is purchased, who can access it (and who can’t), and where it goes when we are finished with it. It includes an appreciation of the cultural significance of food, the capacity to prepare healthy meals and make healthy decisions, and the recognition of the environmental, social, economic, cultural, and political implications of those decisions.”					
Truman, Lane & Elliot [4]	2017	3	“The idea of proficiency in food related skills and knowledge.”					
Bellotti [59]	2010	2	“A concept involving three main domains; food, nutrition and health; agriculture, environment and ecology; and social development and equity.”					
Block et al. [60]	2011	2	“Food literacy entails both understanding nutrition information and acting on that knowledge in ways consistent with promoting nutrition goals and FWB [food well-being].”					
Home Economics Victoria [61]	2015	2	“Having the knowledge, skills and the capacity to source, prepare, cook, and share food in a sustainable manner to promote a healthy and balanced lifestyle. Food literacy is also about individuals understanding the role that food plays in communities and cultures.”					
Howard & Brichta [62]	2013	2	“Food literacy can be defined as individual’s food related knowledge, attitudes, and skills. This broad definition of food literacy incorporates household perception, assessment, and management of the risks associated with their food choices. Food literacy also includes an individual’s understanding of how food is produced, processed, distributed, purchased, and wasted, as well as how to interpret claims made in food marketing and advertising.”					

Authors	Year	Times Cited	Definitions	Skills/ Behaviours	Food/ Health Choices	Culture Knowledge	Emotions	Food Systems
Palumbo et al. [6]	2017	2	“The enhancement of the individual psycho-physical well-being through appropriate food choices.”					
Smith [63]	2009	2	“Functional food literacy- some basic factual information on nutrition and healthy eating and food preparation skills.” “Lifeworld food literacy- the lives experience of students and others in food production and preparation locally and globally” “Interactive/interpretive food literacy the development of personal/interpersonal skills in a supportive environment to explore meanings and significance of food” “Critical food literacy reflects the cognitive skills for evaluating and taking effective individual, social and political action”					
American Association for Health Education [64]	1995	1	“The capacity of an individual to obtain, interpret and understand basic health information and services and the competence to use such information and services in ways which are health enhancing.”					
Canadian Agriculture & Food Museum [65]	2016	1	“(teaching) Children and families about keeping food nutritious and safe from farm to fork.”					
Colatruglio & Slater [14]	2016	1	“Food literacy... extends beyond nutritional recommendations and cookery lessons to foster important and vital connections between food, people, health and the environment on a theoretical as well as practical level.”					
Department of Agriculture Fisheries & Forestry [66]	2013	1	“A food literate community accessing safe, affordable and nutritious food.”					
Department of Health [67]	2010	1	“The skills and confidence they need to budget for, plan and prepare meals and snacks.”					
Department of Health [68]	2011	1	“Having awareness and knowledge of the dietary guidelines for good health, as well as skills in menu planning, budgeting, label reading, food selection and shopping, food storage, food preparation and cooking, food safety, and determining appropriate portion size.”					

Authors	Year	Times Cited	Definitions	Skills/ Behaviours	Food/ Health Choices	Culture Knowledge	Emotions	Food Systems
Engler-Stringer [69]	2010	1	“Examinations of grocery shopping practices, which would permit the gathering of important information on the topic of cooking practices; this would involve observing distances travelled, the time spent on food acquisition, and the thought and planning required for families to purchase the foods that become household meals.”					
European Union Committee [70]	2011	1	“He drew the distinction between high-income countries, where food waste mainly occurred in the home and the food service sector, and low-income countries, where nearly all food waste happens in the farm and the food system. Incentives to modify behaviour, allied with education, or food literacy, were possible responses to the issue in high-income countries; targeting new knowledge, spreading best practice and supporting investment in the agri-food system were appropriate to low-income countries.”					
Food Literacy Center [71]	2013	1	“Impact of your food choices on your health, the environment, and our community.”					
Fordyce-Voorham [72]	2015	1	“Nutritional knowledge and hands-on food preparation and cooking.”					
Glickman et al. [73]	2012	1	“Recommendation 5.3: Ensure food literacy, including skill development, in schools.”					
Government of South Australia [74]	2010	1	“Capacity of an individual to obtain, interpret and understand basic food and nutrition information and services as well as the competence to use that information and available services that are health enhancing.”					
Kim & Lee [75]	2014	1	“The basic ability to manage one's own diet entirely, from food selection to nutrition management, healthcare, and preparation of a sustainable diet in consideration of the environment and others.”					
Mikkelsen et al. [76]	2005	1	“To give students the skills to become discerning consumers in relation to food, its production and the impact on the environment.”					
NHMRC [77]	2013	1	“Low levels of food literacy (as a possible barrier to compliance with recommendations).”					
Ontario Federation of Agriculture [78]	2016	1	“Young people learn to plan and prepare six nutritious, locally sources meals by the time they are sixteen years old.”					

Authors	Year	Times Cited	Definitions	Skills/ Behaviours	Food/ Health Choices	Culture Knowledge	Emotions	Food Systems
Ontario Food and Nutrition Strategy Group [79]	2017	1	“Information, knowledge, skills, relationships, capacity and environments to support healthy eating and make healthy choices where [Ontarians] live, gather, work, learn and play.”					
Palumbo [80]	2016	1	“The ability to collect and process relevant information to properly use food in a perspective of enhanced physical and psychic well-being.”					
Pendergast & Dewhurst [81]	2012	1	“Bringing together interconnecting elements such as food skills, food culture and global food systems, health related behaviours and environmental sustainability.”					
Petrini, Furlan & Hunt [82]	2007	1	“Good, clean and fair.”					
Prime Minister’s Science Engineering and Innovation Council [83]	2010	1	“The same report refers to food literacy contributing to food security through improving the acceptability of foods.”					
Public Health Association of Australia [84]	2009	1	“A need to ensure basic food literacy.”					
Queensland Public Health Forum [85]	2009	1	“Investigate options to develop and implement a state-wide initiative to increase food literacy and cooking skills within the community.”					
Rawl et al. [86]	2007	1	“Focuses on food and nutrition information to help individuals make appropriate eating decisions.”					
Reisch, Lorek & Bietz [87]	2011	1	“There are some ongoing efforts to develop the “food literacy” of young consumers with regards to choosing and preparing healthy (e.g., more fruit and vegetables) and sustainable (i.e., organic, regional, fair trade) food. As one element of a national food strategy, France has recently started to systematically train the sensory and taste competences of school children.”					
Renwick & Powell [88]	2019	1	“Critical engagement to understand food in our social and cultural life, and how the production and marketing of food represents a particular food system that generates inequity and is ecologically unsustainable.”					
Renwick [89]	2017	1	“Using food and nutrition as a focus, it is possible to see how these both inform and construct learning experiences as well as enable and enact health literacy.”					

Authors	Year	Times Cited	Definitions	Skills/ Behaviours	Food/ Health Choices	Culture Knowledge	Emotions	Food Systems
Stanton [90]	2009	1	“Knowing where our food comes from; knowing what happens to it, how to cook it, and how to prepare it.”					
The Food Literacy Project [91]	2010	1	“The ability to make healthy food choices by having the skills and knowledge necessary to buy, grow, and cook food.”					
Vandenbroeck, Goossens & Clemens [92]	2007	1	“degree to which people are able to assess nutritional quality and provenance”					
Winslow [93]	2012	1	“...ability to locate and critically analyse information and arguments about America’s varying relationships to food and food production, the political implications and environmental impact of industrialized farming, and the current re-emergence of the small farm and local food movements as pieces of the effort to restructure and/or transform industrialized food systems into more sustainable systems.”					
Wiser Earth [94]	2007	1	“Food literacy refers to the degree to which people are able to obtain, process, and understand basic information about food in order to make appropriate health decisions. Food literacy encompasses understanding labeling on food and knowledge of nutrition”					
Worsley [95]	2015	1	“Broader forms of food and nutrition education that enable people to put their knowledge into practice through the acquisition of food competencies, which is becoming known as food literacy.”					



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**Figure A2.** Vidgen & Gallegos[15] conceptualisation of food literacy

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