ISSN: 1985-482X eISSN: 2672-7390
LJMS LABUAN E-JOURNAL OF MUAMALAT AND SOCIETY

FOOD SECURITY AND ISLAMIC PERSPECTIVE: A SYSTEMATIC LITERATURE REVIEW

JARITA DUASA* & ZERA ZURYANA IDRIS

Kulliyyah of Economics and Management Sciences, International Islamic University Malaysia, Malaysia

Received 9 April 2025: Revised 12 August 2025: Accepted 20 August 2025

ABSTRACT

There is a growing need to review the literature to provide future scholars with a comprehensive understanding of the current discussion on food security in Islam and to identify the gaps that could be addressed by future research. The current study attempts to review the available literature using a Systematic Literature Review (SLR), which is a scientific method that can be used to limit systematic bias by identifying, screening and synthesising research questions using a systematic methodology. The study seeks to identify the studies that discuss the elements of 'availability', 'stability', 'accessibility' and 'utilisation' of food security from an Islamic perspective and discuss the arguments among scholars on the four elements of food security from an Islamic perspective. In methodology, two main databases, Scopus and Dimensions, were used for the collection of literature and analysis was assisted by the QDA Miner Lite software. The collection of literature spans from 2000 to 2023. Findings show that the four pillars of food security were discussed quite extensively in some selected literature particularly on the *halal* and *thoyyib* food production and consumption, the Islamic view of GM crops and GM food production, *halal* tourism, *riba*-free financing of agriculture and food production and the role of state and regulations in monitoring most activities from food production to the delivery process. It is recommended that in the future, more studies could explore the Islamic perspectives of 'utilisation' and 'stability' pillars of food security.

KEYWORDS: FOOD SECURITY, ISLAMIC PERSPECTIVE, AGRICULTURE, LITERATURE

ABSTRAK

Terdapat keperluan yang semakin mendesak untuk mengkaji semula literatur bagi memberikan para sarjana masa hadapan pemahaman yang menyeluruh mengenai perbincangan semasa berkaitan keselamatan makanan dalam Islam serta mendedahkan jurang yang boleh diisi oleh kajian akan datang. Kajian ini cuba untuk mengkaji literatur yang tersedia dengan menggunakan Kaedah Kajian Literatur Sistematik (Systematic Literature Review - SLR), iaitu satu kaedah saintifik yang boleh digunakan untuk mengehadkan miring sistematik melalui proses mengenal pasti, menyaring dan mensintesis soalan kajian menggunakan metodologi tertentu dan sistematik dalam menilai literatur. Kajian ini bertujuan untuk mengenal pasti kajian-kajian yang membincangkan elemen ‘ketersediaan’, ‘kestabilan’, ‘kebolehcapaian’ dan ‘penggunaan’ dalam keselamatan makanan dari

* CORRESPONDING AUTHOR: Jarita Duasa, International Islamic University Malaysia, Malaysia. E-mail: jarita@iium.edu.my

perspektif Islam serta membincangkan hujah-hujah dalam kalangan para sarjana mengenai keempat-empat elemen tersebut dari sudut pandang Islam. Dari segi metodologi, dua pangkalan data utama iaitu Scopus dan Dimensions telah digunakan untuk pengumpulan literatur dan analisis dibantu oleh perisian QDA Miner Lite. Pengumpulan literatur meliputi tempoh dari tahun 2000 hingga 2023. Penemuan menunjukkan bahawa keempat-empat tonggak keselamatan makanan telah dibincangkan dengan agak meluas dalam beberapa literatur terpilih, khususnya berkaitan pengeluaran dan penggunaan makanan halal dan thoyyib, pandangan Islam terhadap tanaman dan makanan terubah suai secara genetik (GMO), pelancongan halal, pembiayaan pertanian dan pengeluaran makanan yang bebas riba serta peranan negara dan peraturan dalam memantau kebanyakan aktiviti daripada pengeluaran makanan sehingga proses penghantaran. Adalah disarankan agar pada masa hadapan, lebih banyak kajian dapat meneroka perspektif Islam berkaitan tonggak 'penggunaan' dan 'kestabilan' dalam keselamatan makanan.

KATA KUNCI: KETERJAMINAN MAKANAN, PERSPEKTIF ISLAM, PERTANIAN, LITERATUR

1. INTRODUCTION

Continuing population and consumption growth suggest that global food demand will increase for at least another 40 years. Growing competition for land, water, and energy, in addition to the overexploitation of fisheries, will affect our ability to produce food and to reduce the impact of the food system on the environment. The effects of climate change are a further threat (Robinson *et al*., 2010). The term "food security" was first introduced during the 1974 World Food Conference during discussions on enhancing supply (FAO, 2003). Representatives from 185 countries committed to "achieving food security for all" and to an "ongoing effort to eradicate hunger in all countries" at the 1996 World Food Summit (WFS) (FAO, 1996). FAO et al. (2018) defined food and nutrition security as all people, at all times, having economic, social, and physical access to sufficient, safe and nutritious food that meets their dietary needs and food preferences to enable them to lead active and healthy lives. The four pillars of food security are (i) availability, (ii) stability, (iii) access (including affordability) and (iv)food nutrition, quality, and safety. On the other hand, food insecurity is defined as "a situation of limited or uncertain availability of nutritionally adequate and safe food or a situation of limited or uncertain ability to acquire acceptable food in a socially acceptable way" (Barret, 2002).

Food production (various crops, livestock, and fish) cannot be separated from food security (food availability, access, and use). Agriculture provides most of the world's food and fabrics. It also provides wood for construction, furniture, energy, and paper products. Over the centuries, the growth of agriculture marked and contributed to the rise of civilisations (National Geographic, 2020). The period from the 9th century to the 13th century witnessed a fundamental transformation in agriculture that can be characterised as the Islamic green revolution in pre-modern times. These transformations, along with an increased mechanization of agriculture, led to major changes in the economy, population distribution, vegetation cover, agricultural production and income, population levels, urban growth, the distribution of labour force, linked industries, cooking, diet, and clothing in the Islamic world (Zaimeche Salah, 2001; Bolens, 2016).

No doubt that existing studies and increasing research on food security have contributed a lot to the existing literature. However, very little was found in the literature on the systematic approach or theoretical framework of the Islamic perspectives on food security and/or sustainability. Islamic food security refers to the assurance of access to, and availability of, food that is not only sufficient, safe, and nutritious but also fully compliant with the principles and injunctions of Shariah. This includes adherence to the concepts of *halal* (permissible) and *tayyib* (pure, wholesome, and beneficial), while ensuring the means of production, distribution, and consumption align with Islamic ethical, economic, and social principles. Unlike conventional approaches that focus solely on four primary dimensions namely availability, access, utilisation, and stability. Islamic food security embeds these within a moral and spiritual framework, drawing from the *Quran*, *Sunnah*, and Islamic jurisprudence (*fiqh al-ṭaʿām*).

While research on food security has expanded, studies explicitly addressing it from an Islamic perspective are scarce and often narrowly focused on *halal/haram* classification, food habits, and *Quranic* encouragement of agriculture and charity. Critical gaps remain in areas such as:

- Systematic theoretical frameworks – There is limited integration of Islamic legal and ethical norms into measurable indicators for food availability, sustainability, and best production practices. Conventional models do not incorporate *Shariah* compliance, meaning a food system could be considered "secure" under FAO criteria, yet violate Islamic principles;
- Implementation and policy structures – Existing global frameworks do not address zakat (obligatory almsgiving), *waqf* (endowment), prohibition of *riba* (usury), and other Islamic economic tools that could be mobilised for food security. These instruments are unique to Islamic governance and cannot be substituted by secular welfare policies without losing their spiritual and legal basis;
- Ethics and accountability – Islamic food security imposes accountability not only to society but also to God (Allah), making it a matter of both worldly governance and spiritual responsibility. This dual accountability shapes decision-making differently than in conventional systems, influencing priorities such as equitable distribution, environmental stewardship, and prevention of waste (*israf*); and
- Holistic sustainability – While conventional approaches consider sustainability largely in environmental and economic terms, Islamic food security views sustainability through the lens of *amanah* (trusteeship of the earth) and intergenerational justice, as mandated in Islamic teachings.

Given these distinctive dimensions, Islamic food security must be addressed separately to ensure that solutions are not merely adapted from conventional frameworks but are instead rooted in a comprehensive Islamic paradigm—one that integrates faith, ethics, law, and science into a cohesive system. This approach ensures that the pursuit of food security aligns with both the physical well-being of the population and the fulfilment of Islamic spiritual and moral obligations.

In this sense, Islamic food security is not simply about the type of food consumed, but about ensuring the entire food system—from agricultural production and processing to distribution, trade, and consumption—operates in accordance with *Shariah* principles, promotes social justice, prevents harm (*darar*), and fulfils the *maqasid al-Shariah* (higher objectives of Islamic law), particularly the protection of life (*hifz al-nafs*), intellect (*hifz al-ʿaql*), and wealth (*hifz al-mal*).

Thus, there is a mounting need to review this literature to provide future scholars with a comprehensive understanding of the current discussion of food security in Islam and reveal the gaps that could be fulfilled by future research. Systematic Literature Review (SLR) is a scientific method that could be used to limit systematic bias by identifying, screening and synthesising research questions using a particular and systematic methodology (Petticrew & Roberts, 2008) in reviewing the literature. Nevertheless, it ensures quality assessment on all relevant articles to avoid bias (Kraus *et al*., 2020).

This study intended to systematically examine and organise all published studies from formal academic or industrial institutions on issues of food security from Islamic perspective based on the four pillars of food security namely (i) availability, (ii) stability, (iii) accessibility (including affordability) and (iv) utilization (food nutrition, quality, and safety). In specific, the objectives of the study are to: (1) Identify the studies that discuss the elements of 'availability', 'stability', 'accessibility' and 'utilisation' of food security from an Islamic perspective, and (2) Discuss the arguments among scholars on the four elements of food security from an Islamic perspective.

2. LITERATURE REVIEW

In the context of food security, sufficiency is not only a matter of having enough food available for consumption; rather, it also pertains to other aspects that are necessary for a country to achieve the goal of food security and its people to be considered as food secure. The different aspects or components can be identified based on the definition of food security – to only exist when all people, at all times, have physical and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. From this definition, there are four components of food security identified, which can be illustrated as follows:

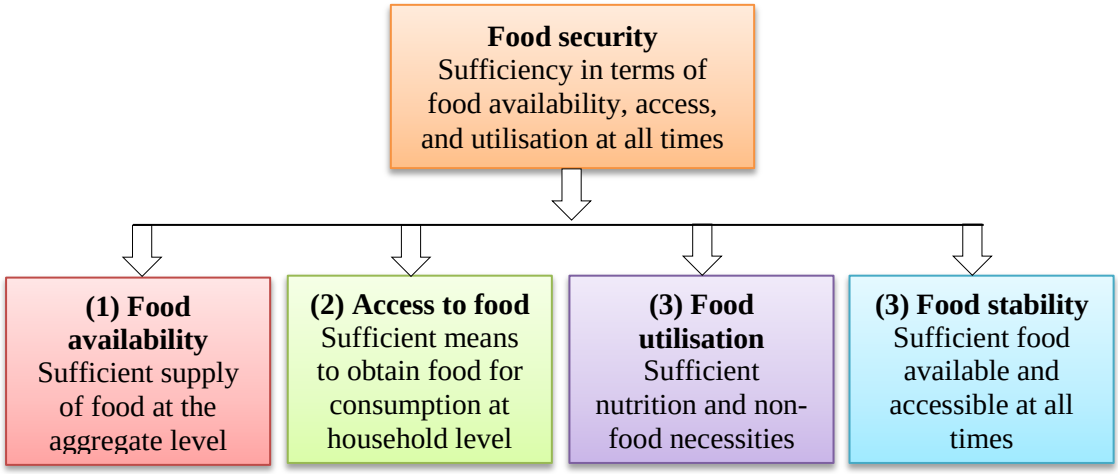

FIGURE 1: FOOD SECURITY AND ITS COMPONENTS
Source: Figure by Authors

Figure 1 shows four components of food security, which consist of food availability, access to food, food utilisation, and food stability. The first component is food availability, which has been defined by the FAO (2006) as the availability of sufficient food of appropriate quality, supplied through domestic production or imports. This considers sufficiency in terms of food supply at the national or aggregate level, which can be accomplished by either locally producing the food or resorting to imports. The second dimension, i.e., access to food, is defined as the access by households or individuals to adequate resources for acquiring nutritious food (FAO, 2006). This could also be described in terms of having sufficient means to obtain food, or in other words, being able to afford food for consumption at the household level.

The third dimension, namely food utilisation, is defined as utilisation of food through adequate diet, clean water, sanitation and health care to attain nutritional well-being where all physiological needs are met (FAO, 2006). This can be understood as consuming food, which contains sufficient nutritional content and is prepared in an environment, where other non-food essentials are sufficiently met to ensure welfare. The fourth dimension, which is food stability, has been described as, to be food secure, a population, household or individual should always have access to adequate food (FAO, 2006). This means food sufficiency must be ensured even during periods of crisis or sudden shocks to the economy and thus, covers both the two former components – food availability and access to food.

Referring to the 'food availability' component of food security, there are two sources of food supply that a country can opt for to ensure there is a sufficient amount of food available at the aggregate level. Since a country can either source food locally through domestic production or resort to imported food from exporting countries, the improvement in either the former or the latter will contribute to the increase in the aggregate supply of food and hence, food availability. The ability of a country to command food for its population clearly depends on this specific capacity or ability to self-produce, as well as the ability to import (Clapp, 2017; Clapp, 2015). Importantly, there is a need

to secure enough food, particularly in terms of staples for country's own domestic population (Goldman, 1975; Hamilton-Hart, 2019; Yup, 1982). Since irrigation, labour, capital, technology – research and development (R&D), and rural infrastructure all positively affect rice production, policies which involve investing in these factors would therefore, have a positive contribution to the production of the country's staple grain as well (Abidin *et al*., 2022a, 2022b, 2022c; Makoi *et al*., 2017; Tesfaye *et al*., 2018). The ability to improve the production of essential agricultural commodities is certainly important, especially for poor countries, just as Collier and Dercon (2014) called for a massive increase in agricultural production so that the underdeveloped nations in the African continent can successfully achieve economic development in the coming 50 years. Besides, trade-related policies are the key driver, which led the country to produce more food domestically and become more self-sufficient, such as in the case of Russia in the seafood category with the implementation of a food embargo (Brankov *et al*., 2021; Wegren & Elvestad, 2018) and protectionist practices, particularly in terms of export subsidies, in most developed economies (Bureau & Swinnen, 2018).

As for 'food accessibility', a household must have sufficient means to obtain food for consumption. There are two ways of acquiring food at the household level: either by self-producing or through purchase from the market. Most households now buy food rather than growing it themselves, especially in more developed economies that are shifting further away from being agriculture-based. Hence, if buying is the means for households to obtain food, then having sufficient means could be understood as being able to adequately afford the readily available food sold in the market. Affordability can be measured in terms of households' demand, in which the price of the commodity and the income of households are two major factors, which influence the consumption behaviour of households. In Uzbekistan, pro-poor policies of the expansion of domestic availability and the price stability of wheat-based products were adopted for poor households residing in both rural and urban areas (Lombardozzi & Djanibekov, 2020). Fofana (2014) showed the benefits of adopting regional policies in the West African region which includes, raising GDP growth rate that leads to 85 billion USD of additional wealth created, 37 million cumulative employments created in both agricultural and non-agricultural sectors, as well as increase in consumption spending on rice by 14 percent and 4 percent for food products; which altogether are expected to contribute positively to regional food security.

As the third component of food security, 'food utilisation' addresses how well households are able to properly utilise food, which basically looks at sufficiency in terms of both nutritional content of the food consumed and non-food essentials – clean water, sanitation and healthcare, to achieve overall welfare. The attempt to boost domestic production to improve self-sufficiency in Saudi Arabia and the United Arab Emirates (UAE) was rather short-lived due to insufficient water to accommodate agricultural production (Woertz, 2020). The issue of water shortages is also faced by agricultural powerhouses like China, and the situation becomes even dire due to severe water pollution and uneven distribution of water (Ghose, 2014).

As for the fourth component of food security, which is 'food stability', this entails food sufficiency at all times, regardless of any unprecedented crisis or sudden shocks to the economy. This component basically covers the first and second components – food availability and access to food, with the extension that both components must be sustained. Bach and Saeed (1992) previously criticised the attempts to raise food production using short-term policies as harmful measures for the sustenance of sufficient food in the longer term. Nonetheless, Baer-Nawrocka and Sadowski (2019) identified that wealthy economies are able to become self-sufficient and enjoy a surplus in the supply of food due to extensive adoption of protectionist practices, which have left other importing countries vulnerable to encountering volatile situations. As revealed by Brankov *et al*. (2021), crisis conditions did not affect the agri-food market of South-East European countries, which displayed satisfactory levels of food self-sufficiency on average.

Ahmad (1997) noted that Islam establishes minimum rights in the form of a four-point charter by defining the basic needs which a state should procure: food, clothing, water and shelter.

Governments have both national and international responsibilities. These responsibilities on the national level are to fulfil the basic needs of each member of society by ensuring that all are fed adequately, clothed, and provided with water and shelter. The international duty is to fully participate in pooling resources to meet the challenges of wide-scale natural disasters or man-made calamities and to help such countries as are incapable of appropriately handling the crisis. As such, the state must set matters aright by transferring back to the beggars and poor people what truly belongs to them. So, the four fundamental requirements of food, clothing, water, and shelter will have preference over all other considerations.'

As a universal religion, Islam recognises the necessity of sustainable food security for all mankind. In this context, Islam proffers approaches and measures towards ensuring that humanity secures food, particularly for the most vulnerable – the needy and the poor (Omotayo, 2020): Assurance of earth's capability of maximum food for humanity; Declaration of the four basic amenities; Prescription of feeding of the poor as a means of expiation; Encouraging scientific research into agriculture; and General exhortations on feeding of the poor.

Adding to these four dimensions of food security, the Islamic perspective adds a distinct and essential element — the requirement for food to be *halal* (permissible) and *tayyib* (wholesome). While conventional food security frameworks focus on sufficiency, accessibility, utilisation, and stability, the Islamic framework emphasises that the food provided must comply with *Shariah* principles, as stipulated in the *Quran* (2:168, 5:3) and *Hadith*. *Halal* in this context not only refers to the lawful nature of the food source but also its safety, cleanliness, and wholesomeness (*tayyib*), ensuring that it benefits human health and well-being (Alzeer *et al*., 2018). From a food security perspective, this requirement influences the entire supply chain — from production, processing, and storage to distribution and consumption — as *halal* integrity must be maintained at each stage (Bonne & Verbeke, 2008).

The growing global *halal* food industry, estimated at over USD 2 trillion annually, underscores its economic and social importance, particularly for Muslim-majority nations (Thomson Reuters, 2021). Moreover, *halal* assurance is intertwined with broader sustainability principles in Islam, promoting ethical treatment of animals, fair trade, and environmental stewardship (Mohamed *et al*., 2020). Therefore, incorporating *halal* and *tayyib* into food security analysis ensures that the Islamic approach addresses not only the sufficiency and safety of food but also its spiritual, moral, and socio-economic dimensions, thereby providing a holistic framework that differs fundamentally from secular or conventional models.

3. METHODOLOGY

In this study, there were several steps involved in the methodology: the review protocol, formulation of research questions, systematic searching strategies, and data extraction and analysis.

The Review Protocol

The current systematic review adopted the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) to achieve the objective and address the research questions. First, the researchers designed suitable research questions and research objectives. Next, researchers performed a systematic search strategy consisting of three main processes: identification, screening and eligibility. The researchers then proceeded with the quality assessment process and finalised the SLR methodology with data extraction and analysis on the selected articles.

Formulation of Research Questions

A formulation of comprehensive research questions is important in SLR. The research question will drive the selection of articles, data extraction and reporting (Xiao & Watson, 2019). As stated at the introduction section, the research questions in this study are, "Did literature discuss the elements of 'availability', 'stability', 'access' and 'food nutrition, quality and safety' of food

security from Islamic perspectives?", and "What were the arguments among scholars on the four elements of food security from Islamic perspectives?"

Systematic Searching Strategies

The systematic searching strategy in this study underwent three main phases: identification, screening and eligibility.

Identification

The identification phase is a process that searches for synonyms, related terms and various terms related to the main keyword in this study, which are *food, agriculture, supply, availability, Islam, and Muslims.* In addition, whenever appropriate, the combination of keywords such as food security and Islamic perspective were performed in the databases (see Table 1).

To avoid retrieval bias, as stressed by Durach *et al.* (2017), the researchers decided to use more than one database. Therefore, two main databases, Scopus and Dimensions, were used to find related articles. The reliance on Scopus as the main database is due to its status as a full indexing database that contains more than 70 million records and covers multidiscipline journals, and it has strength in terms of quality control, full text search, maximum search string length, advanced search string and reproducibility of search results at different locations (Gusenbauer & Haddaway, 2020; Martin-Martin *et al.*, 2018). Dimensions database was used as a supporting database because of its wide coverage and for discovering the right or most relevant article based on indexing. This database has more than 89 million publication records and more than 50,000 journals. Searching for articles based on databases was carried out within 3 months (December 2023, January and February 2024). The full search string for the Scopus and Dimensions databases is shown in Table 2. Out of all the searches based on two databases, this study found 73 relevant documents.

The three phases of the systematic searching strategies (identification, screening and eligibility) are shown in the PRISMA 2020 flow diagram of Figure 2. The PRISMA 2020 flow diagram was used for reporting the systematic literature review to present the scope for the trustworthiness of findings.

TABLE 1: THE KEYWORDS SEARCH

Keywords	Synonyms
Food security	Agriculture Availability, Supply, Sustainability
Islamic perspective	Muslims, Islam

Source: Table by Authors

TABLE 2: THE SEARCH STRING

Database	Keywords used
Scopus	Food OR Agriculture AND Availability OR Supply OR Security OR Sustainability AND Islam OR Muslims
Dimensions	Food security AND Islamic perspective OR Islam

Source: Table by Authors

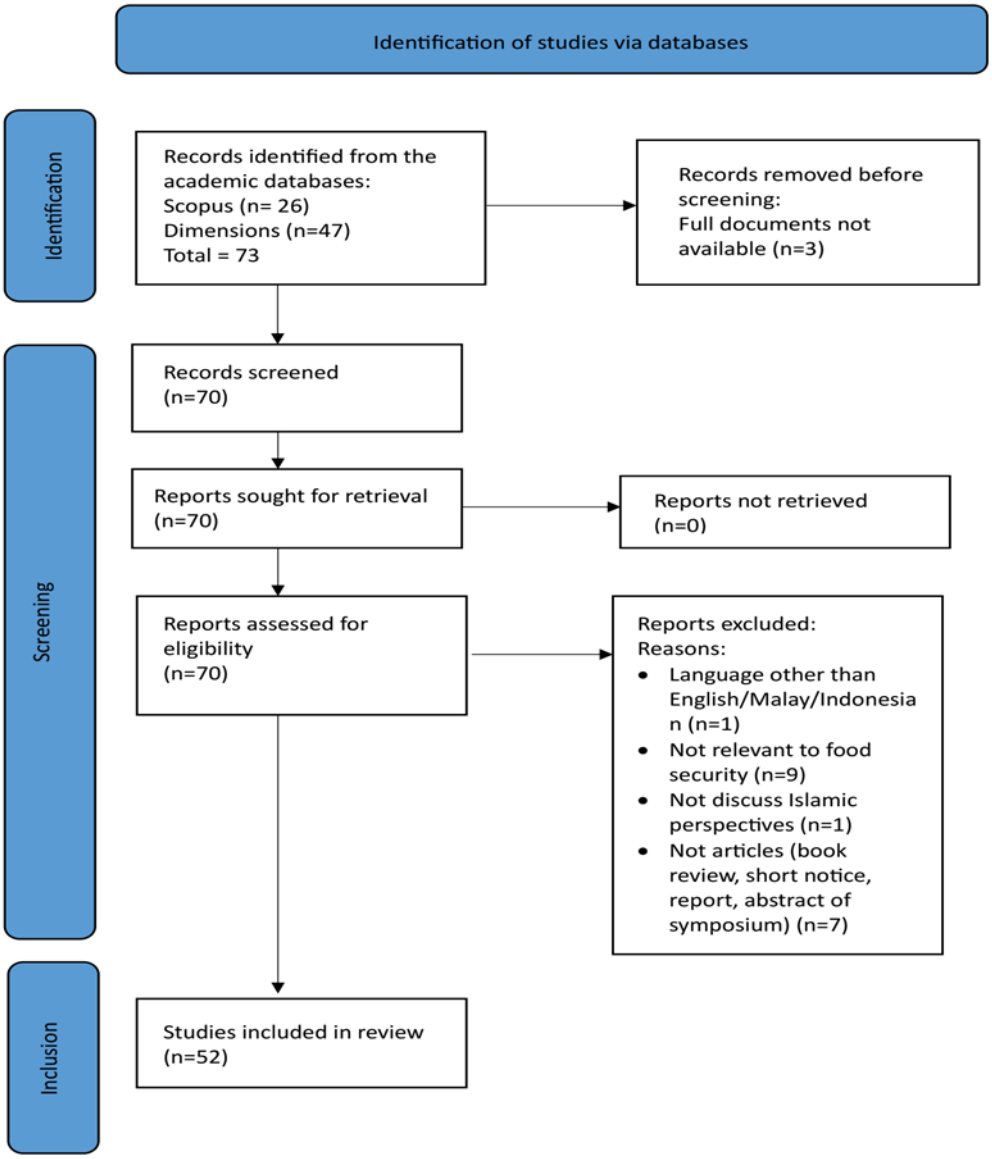

FIGURE 2: PRISMA 2020 FLOW DIAGRAM
Source: Figure by Authors

Screening
All 73 identified records/documents at the identification stage had undergone a manual check on the availability of the full document. Out of 73 documents, only 70 documents were available in full form. The rest were only abstracts. The 70 full documents were then gone through the screening process. The process was done manually, and the criteria for selecting articles were developed based on the research questions formulated earlier (Kitchenham & Charters, 2007). The criterion of selection is important for ensuring that the selected articles are related to the study (Alsolami & Embi, 2018). The process lessens the number of related articles, and Table 3 displays the criterion chosen in this study.

The focus of the study is on the literature, which is in the form of research articles, full papers of conferences and chapters in books. The inclusion of conference papers and a chapter of a book is to expand the searching output since the Islamic perspective studies in the form of research articles are very limited. Other forms of literature were excluded. The timeline of publication is from 2000 to 2023. The duration selection is expected to produce an adequate number of articles for the SLR

analysis in line with the concept of study's maturity by Kraus *et al*. (2020). Eight documents were identified to be excluded based on the outlined criterion using a manual searching method. Overall, 62 articles were identified for the next eligibility phase.

TABLE 3. INCLUSION AND EXCLUSION CRITERION

Criterion	Inclusion	Exclusion
Type of documents/literature	Research article Conference full paper Chapter in a book	Article review, book review, review and short notice, abstracts of symposium or conference, report, letter to the editor, book, monograph.
Language	English Malay Indonesian	Other than English, Malay and Indonesian languages.
Timeline	Between 2000 and 2023	< 2000
Subject area	Social Science Pure Science Environmental Science Agricultural Science	

Source: Table by Authors

Eligibility

The eligibility phase is a process where the researcher examines the article's relevance to the needs of the study by examining the title, abstract, findings and discussions. Ten articles were excluded because they did not fulfil the study's needs. These articles were excluded due to irrelevant discussion related to food security and its four elements, and they do not discuss the Islamic issues or anything relevant to them. Overall, 52 articles were selected for the next process, quality assessment.

Data Extraction and Analysis

The systematic review of the eligible 52 articles was done using the QDA Miner tool, which is qualitative data analysis software for coding and highlighting the topics. The common arguments, important discoveries, and future research directions were methodically extracted and analysed from the chosen papers using this tool. Textual data can be easily coded, retrieved, and analysed with the help of QDA Miner, an adaptable qualitative data analysis program. With the aid of this program, the study was able to carefully code each publication's content, spot recurring themes, and identify trends in the literature. The methodical coding procedure made it possible to extract important ideas and synthesise pertinent data, which improved the SLR's depth and rigour.

Furthermore, by offering a thorough summary of the present state of knowledge and pointing out possible possibilities for future research, QDA Miner's use enabled a thorough analysis of the directions suggested for future study. This strategy contributed to the overall strength of the study's methodology by guaranteeing a comprehensive and methodical analysis.

4. FINDINGS AND DISCUSSION

This study examined 52 selected articles. Based on the research objectives, four elements of food security were used as the theme: Availability, Accessibility, Utilisation and Stability. Each theme is analysed in relation to Islamic perspectives as discussed by the selected literature. Table 4 shows the results of the analysis on 52 documents (cases) based on the codes of each theme or category.

Availability

Availability refers to the physical existence of food. On the national level, food availability is a combination of domestic food production, commercial food imports and exports, food aid and domestic food stocks. At the household level, food could be from own production or bought from the local markets. Regarding food production, water resources are required to produce the crops. Due to population growth and climate change, the pressure on existing natural resources, namely land and water, increases. Impacts of climate change often led to land degradation, lack of irrigation water, reduced soil moisture and therefore losses of economic livelihoods (Wocatpedia, 2024).

Based on this concept of 'availability' as one of the elements of food security, several related keywords or codes are searched from the selected literature such as food production; trade, import, export; agriculture, agricultural sector; local product; efficient production, productivity; Islamic financing, *salam* financing, Islamic agricultural financing; supply of food, *halal*; food system; GM (genetic modification) technology; Islam, Islamic spiritual value, Muslims; religion, religious; and environment, climate change. Some of the keywords are extracted from past studies, and some are developed by authors to suit the component of "availability". Godfray *et al*. (2010), for example, mention the keyword "food production". "Food system" was used by Ingram (2011) and Ericksen (2008). The keywords "agriculture" and/or "agricultural sector" were mentioned by Godfray et al. (2010), Ingram (2011), FAO (2008), Pingali (2015), and Ericksen (2008). Meanwhile, the keywords "environment" and/or "climate change" were used by Ingram (2011) and Ericksen (2008).

As shown on Table 4 and displayed on Figure 3, the highest frequency of keywords mentioned under this category is 'food production' (10.1%) from 15 literature and followed by 'supply of food, *halal'* (8.2%) from 16 literature, 'trade, import, export' (6.2%) from 16 literature, while the other keywords the frequency mentioned were found to be less than 5%.

TABLE 4. RESULTS FROM ANALYSIS USING QDA MINER

Dimension	Sub-Category	Count	% Codes	Cases	% Cases
Availability	food production	99	10.1%	15	29.4%
	trade, import, export	61	6.2%	16	31.4%
	agriculture, agricultural sector	32	3.3%	10	19.6%
	local product	4	0.4%	4	7.8%
	efficient production, productivity	4	0.4%	2	3.9%
	Islamic financing, *salam* financing, Islamic agricultural financing	36	3.7%	3	5.9%
	supply of food, *halal*	80	8.2%	16	31.4%
	food system	7	0.7%	5	9.8%
	GM technology	11	1.1%	4	7.8%
	Islam, Islamic spiritual value, Muslims	44	4.5%	14	27.5%
	religion, religious	18	1.8%	4	7.8%
	environment, climate change	15	1.5%	9	17.6%
Accessibility	consumption of halal food	42	4.3%	9	17.6%
	afford, income	49	5.0%	11	21.6%
	prices	56	5.7%	14	27.5%
	market, Islamic, Muslims	166	17.0%	19	37.3%
	halal tourism	127	13.0%	9	17.6%
Utilisation	nutrition, nutritious	34	3.5%	13	25.5%
	diet *Sunnah*	14	1.4%	1	2.0%

Dimension	Sub-Category	Count	% Codes	Cases	% Cases
	clean water	18	1.8%	2	3.9%
	health care	12	1.2%	5	9.8%
	thoyyib	18	1.8%	3	5.9%
Stability	adequate food	19	1.9%	9	17.6%
	sustainability food	12	1.2%	7	13.7%

Source: Table by Authors

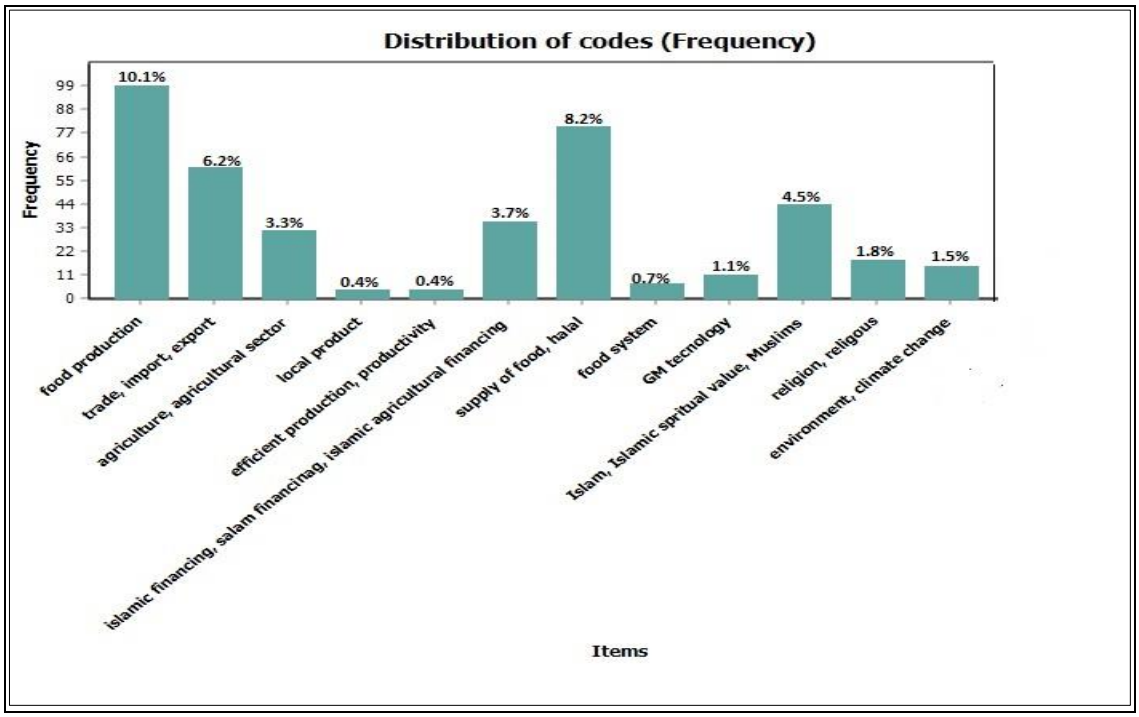

FIGURE 3: FREQUENCY OF KEYWORDS FOR 'AVAILABILITY' AS AN ELEMENT OF FOOD SECURITY

Source: Figure by Authors

Under the element of 'food availability' in the Islamic perspective, most literatures refer to the concept of 'food production' that forbids prohibited materials and those materials harmful to human beings and the environment. Idris *et al.* (2020), for example, stated that the application of Genetically Modified (GM) technology in food production should follow the strict requirements of Islamic law, as the prohibited materials and materials harmful to human beings and the environment in the production of GM food are forbidden. Islamic food certifying body, the Islamic Food and Nutrition Council of America (IFANCA), affirms that there is a place for biotechnology in *ḥalal* food production and it accordingly designates GM food 'permissible' by Islamic standards (Akhmetova, 2016). Kosher food production, on the other hand, often meets *halal* requirements. For devotees of Judaism, Christianity and Islam, food that does not meet standards of 'spiritual quality' in its production or preparation may be unsuitable for consumption. Thus, religious customs have implications for modern methods of food production, particularly when meeting the needs of consumers who depend on a kosher (fit and proper) and *halal* (lawful) meat supply (Farouk *et al*., 2015). As religion strongly affects both food production and demand (Foresight, 2011), a theological approach could provide a pivotal role in changing the basic economics of our food system.

The literature is mostly concerned with *halal* components of food production. The *halal* food standard covers general guidelines on production, supply, handling, distribution and storage to ensure every component of production complies with the relevant *halal* requirements in the food production sector. The food industry is responsible for controlling and ensuring the integrity and safety of food products, starting from the beginning in the production stage until the end product is made. The *halal* food production requirements that should be performed include generating a *halal* manual, halal management organisation, developing *halal* food production standard operating procedures, monitoring every *halal* critical point, providing halal training for all staff, monitoring *halal* food, establishing *halal* internal audit and management review (Rahim *et al*., 2021). From the demand side, taking *halal* food is part of the obligations among Muslims; thus, this scenario boosts the *halal* food industry to become a niche segment of the food industry in which the people involved in the *halal* food supply chain shall ensure that the food is available and accessible to Muslims (Adada, 2019). At this notion, it is the responsibility of every person involved in the *halal* food supply chain to make sure the food is guaranteed *halalan tayyiban* for consumption.

Thus, food production, processing, distribution, storage and other related works should be undertaken by all Muslims. A special unit within or independent of the food reserves department should be set up to oversee food quality standards and monitoring; the work of this unit could include food quality management at production, processing, storage and selling sites. Muslims (either as individuals, groups, countries, or otherwise) should engage in proper planning and development, including those related to resources and food production, to meet their future requirements and needs. As mentioned in *Quran*, Allah created the earth and made it manageable and enabled it in such a way that all creatures can use it to fulfil their life needs, including food production: "It is He who made the earth tame (manageable) for you—so walk among its slopes and eat of His provision—and to Him is the resurrection." (Surah Al-Mulk, 67:15). This verse highlights how Allah has made the earth hospitable and manageable for humanity, allowing people to use its resources, including for food production, to sustain life.

As for the quality of food production, there are many narrations that Umar (r.a) calls the people to improve the quality of the food production process, and in other narrations, Umar got off his horse to teach women in detail to make bread in a better way (Hasun *et al*., 2021).

Nonetheless, food security in Islam from the angle of food availability is also a concern on the whole food production sector, such as the financing, value chains, consumption, production, market and government roles. The food production sector should be financed by interest-free capital and enough flow to support the sector (Hasun *et al*., 2021). The characteristics of the production process in Islam are efficient, safe to the environment, *halal* and *thoyyib* oriented and have adequate capacity (Hasun *et al*., 2021). There are value chains in food production that are built by cooperation between firms, and the contracts in building those value chains must be compliant with Islamic rules, too. The *tawhidic* guidance about food security covers guidance on consumption, production, market fairness, financing, including social and commercial financing, and government roles. In Islam, to achieve food security, besides moderate-*halal-thoyyib* consumption, with encouragement to consume local products, efficient production without harming the environment at an adequate capacity to produce quality products, encouraging the market to operate based on market mechanisms, prohibiting *riba*-based financing and defining the clear role of the government (Hasun *et al*., 2021). The role of government is to ensure halal certifications of food supply are provided to related factories, food premises and food establishments (Adada, 2019).

Nugraha *et al.* (2023) further argue that Islamic paradigmatic solutions regarding value-based food security originating from the *Al-Quran* and *As-Sunnah* emphasise the extensification of agricultural land and the intensification of rice production. Extensification refers to the expansion of agricultural land, which is encouraged to ensure that more land is utilised for cultivation to meet the food needs of the population. For example, the *Al-Quran* encourages productive use of land as a resource bestowed by Allah for the benefit of all (Al-Baqarah, 2:22). In modern terms, this could be seen in policies that support land reclamation projects, opening up arid or unused lands for

agriculture, as demonstrated by efforts in countries like Saudi Arabia and Egypt. These policies aim to increase food availability by expanding the scope of agricultural production.

The intensification of rice production refers to increasing yields through improved farming techniques, technology, and efficient use of resources. The Islamic emphasis on ensuring the welfare of society through self-sufficiency in food production is evident in the encouragement of adopting sustainable agricultural practices. An example of intensification is the use of better irrigation systems, genetically improved seed varieties, and efficient use of fertilisers, as promoted by several Islamic countries, such as Indonesia and Pakistan, to enhance rice production. Islamic teachings also stress the importance of maintaining balance (*mīzān*) in nature, aligning with modern principles of sustainable agriculture that avoid over-exploitation of resources (Al-An'am, 6:141).

The politics of Islamic agriculture can be understood through the lens of state-led policies in the agricultural sector (Mustapa & Saripudin, 2022). From an Islamic perspective, agriculture is not just an economic activity but a duty of the state to ensure the welfare of its people, particularly in terms of food security. In the primary sector (production), policies might include subsidies for farmers, land grants, or *zakat* (almsgiving) systems specifically dedicated to agricultural development. For instance, in the Islamic tradition, *zakat* is an obligatory form of wealth distribution, and agricultural produce is one of the key categories on which *zakat* is levied. These funds could be used by the state to support smallholder farmers, improve access to inputs like seeds and fertilisers, and facilitate agricultural research.

In the secondary sector (industrial), Islamic agricultural policy encourages the establishment of industries that can process agricultural products, thus ensuring that food remains available in diverse forms, reducing wastage, and increasing value-added products. An example is the establishment of *halal* food industries that align with Islamic values, promoting both local consumption and export to global markets. This approach has been particularly successful in many Muslim countries, where halal certification has opened up extensive markets for processed foods that meet Islamic standards.

Finally, in the tertiary sector (trade and services), Islamic policies emphasise fair and equitable trade practices. The concept of fairness (*ʿadl)* in trade is central in Islamic economics, which condemns monopolies, price manipulation, and hoarding of essential commodities. The state is expected to regulate food prices to ensure affordability for all, especially the poor, while promoting international trade to ensure a steady flow of food products. Examples of such policies include the role of Islamic financial instruments, like *murabaha* (cost-plus financing), in facilitating trade in agricultural commodities across Islamic countries, ensuring a stable and fair market. By combining extensification, intensification, and state-driven policies across these sectors, Islamic agricultural policies create a comprehensive framework for ensuring food availability while promoting justice, sustainability, and equity.

Food availability could also be fulfilled through trade. Islam has set guidelines in terms of trade: the prohibition of unfair competition and the recognition of personal interests. It is proposed that good *muamalah* (transactions) or good trade in Islam be used as one of the guidelines or the basis for strengthening the concept of *nasab minannas* (lineage from the people), which is complementary conditions and requiring through the exchange of goods and benefits between one another that bring us into a life of goodness and prosperity. Certain types of transactions and trade practices, such as hoarding, price gouging and short weighing, are forbidden (Farouk *et al.*, 2015). According to Qardawi (Adada, 2019), the Islamic market permits any trade except that which involves injustice, cheating, making exorbitant profit and the promotion of something *haram* (Hasun *et al.*, 2021)

Accessibility

Accessibility is ensured when all households have enough resources to obtain food in sufficient quantity, quality and diversity for a nutritious diet. This depends mainly on the amount of household

resources, income and prices (in the market). In addition, accessibility is also a question of the physical, social and policy environment. Drastic changes in these dimensions may seriously disrupt production strategies and threaten the food access of affected households.

As for 'accessibility' as another pillar of food security, the related keywords or codes searched from the selected literature are consumption of *halal* food; affordability, income, prices; market, Islamic, Muslims, and *halal* tourism. The keyword "market" was widely used in past studies, including Barrett (2010), Timmer (2012), and Devereux (2001). The words “prices” or “food prices” were mentioned by Barrett (2010), Timmer (2012), and Headey and Ecker (2013). Meanwhile, the keyword "income" was used by Barrett (2010) to reflect the accessibility component. As for other keywords such as "consumption *halal* food", "Islamic", "Muslims" and "*halal* tourism", these are mostly words found related to accessibility of food among Muslims in many literatures, in particular in the tourism sector.

As shown on Figure 4, the highest frequency of keywords traced under this category is ‘market, Islamic, Muslims’ (17.0%) from 19 literature and followed by ‘*halal* tourism’ (13.0%) from 9 literature, ‘prices’ (5.7%) from 14 literature, while the other keywords were found to be equal and less than 5%.

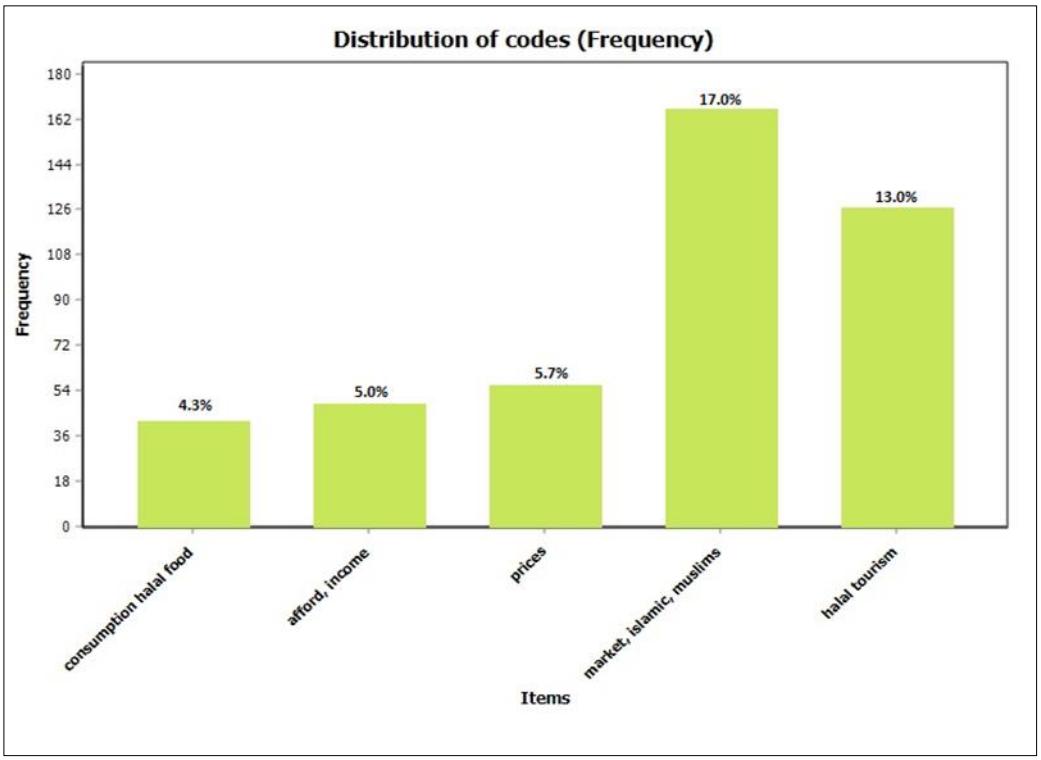

FIGURE 4: FREQUENCY OF KEYWORDS FOR 'ACCESSIBILITY' AS AN ELEMENT OF FOOD SECURITY

Source: Figure by Authors

As for the Islamic perspectives of accessibility as a pillar of food security, most literature, such as Idris *et al.* (2020), Rahim *et al.* (2021), Hasun *et al.* (2021), Obaidullah (2015), Ali *et al.* (2015) and Nusantoro (2018), are discussing the *halal* food market to be accessed by consumers, which provides big business and investment opportunities. This *halal* food market is growing and is driven mainly by the health benefits of food and the trust that has been gained in the *halalan tayyiban* aspects of the food item. Even for the GM food market, the principles of the *Maqasid al Shariah* need to be enforced.

The market is the place where the food is accessible through the price mechanism and the ability of consumers to pay the price of food. The market is a place of exchange for individuals, who, by their nature, are created with severe love for wealth (QS 3:14). Therefore, Islam places moral and regulatory restrictions on the freedom of the market, which is an integral duty of the state. According to Qardawi (Adada, 2019), the Islamic market permits any trade except that which involves injustice, cheating, making exorbitant profit and the promotion of something haram. The Islamic market is organised in a way that promises fair outcomes to participants if allowed to function without manipulations (Adada, 2019). Since Islam places moral and regulatory restrictions on the freedom of the market, *hisbah* is necessary. Ibn Taimiyah has distinguished between a price increase caused by market forces and an increase in price which is caused by people's injustice, such as hoarding, a distinction that provides a ground for price regulation by authorities.

Thus, the role of the state (*al-hisbah*) is very important to regulate its freedom. It should avoid injustice, cheating, manipulation, making exorbitant profit (profiteering) and the promotion of something *haram* (Chapra, 2000). Enough information should be provided to sellers and buyers about price and market conditions. Meanwhile, price control is only permissible in the case of market failure (Ahmad, 2006). Muslims are tied morally to set just and appropriate (and reasonable) prices and profits within limits. It is prohibited to deliberately bid up the prices of staple foodstuffs to inflate the price for a keen buyer when the bidder has no intention of buying (Iqbal & Mirakhor, 2007). Since the *halal* food industry will become a major market force in the near future (Ali *et al*., 2015), practical implications should extend to food marketers and food policy decision-makers who might pursue identity, acculturation, trustworthiness and moral obligation-related strategies in their distribution and communication efforts targeted at the growing *halal* food market segments locally and worldwide.

Since Muslims are also travelling either for leisure or business, the *halal* tourism market is the main issue discussed in several literatures related to accessibility (Rahim *et al.,* 2021; Han *et al.*, 2021; Rusli *et al*., 2018). Various terms have been used, such as *halal*, Muslim-friendly, *Sharia*-compliant or Islamic tourism. In the development of *halal* tourism, the management of the demands of tourists at the planning stage, visits and after visits should be managed based on the Islamic perspective. In the effort to develop *halal* tourism, the highest priority should be on *halal* food and beverage development, followed by availability of places of worship at the same level, availability of recreational facilities for different genders, and an Islamic atmosphere. Nonetheless, *halal* tourism has the potential as an alternative solution to maintain business, environment and cultural sustainability. Deviant behaviour, westernisation or loss of local value in the tourism sector can be reduced through *halal* tourism development activities (Rusli *et al*., 2018). *Halal* tourism activities are the availability of attractiveness, accessibility, and amenity with Islamic reference. Management standards that cover various elements of *halal* tourism are: attraction, accessibility, amenity, marketing, institutional and investment/financial governance, Procedure (Stages or procedures for implementing *halal* tourism, such as: Stage of environmental analysis strategic, product planning and socialisation of the plan, determination, promotion and dissemination of information, evaluation and control stages and development stages) and Criteria (Measures used as the basis for implementing *halal* tourism). *Halal* tourism development should also follow the principles of regulating what is needed, facilitating, in accordance with ability, gradual, priority scale, inclusive principles and protection principles (Rusli *et al*., 2018). The government should support the market by providing legal certainty and *halal* tourism. Human Resource (HR) certification must be realised. HR should understand and care about halal regulations in the halal tourism service industry (Rusli *et al*., 2018).

Accessibility of food could be realised with reasonable prices. Concerns about insufficient food access have resulted in a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives (Rahim *et al*., 2021). Further, Hasun *et al*. (2021) stated in their work that according to Ibn Taimiyah (Islahi, 1985), rise and fall in prices is not always due to the injustice (*zulm*) of some people. Even Abu Yusuf (d. 798) stated that there is no definite limit of cheapness and expensiveness, and those prices are subject to the command and decision of Allah.

In one *Hadith*, the people said: Messenger of Allah, prices have shot up, so fix prices for us. Messenger of Allah said: Allah is the one Who fixes prices, Who withholds, gives lavishly and provides, and I hope that when I meet Allah, none of you will have any claim on me for an injustice regarding blood or property (Sunan Abi Dawood). However, traders must not seek to broaden the gap between the two prices– the basic price or cost per unit and the prevailing price or the price in the market - and take larger profits or income through immoral means such as dishonesty and profiteering (Adada, 2019; Obaidullah, 2015). It is prohibited to deliberately bid up the prices of staple foodstuffs to inflate the price for a keen buyer when the bidder has no intention of buying, regardless of whether the bid-up is done in collusion with the seller or not (Farouk *et al*., 2015).

Food prices, especially *halal* products, however, are found to be more expensive compared to regular products, which are not *halal* (Aljaroudi *et al*., 2019). Thus, Muslims are tied morally to set just and appropriate prices and profits within limits, and any deviation from this is considered a mischief (Haddad, 2012)

Utilisation

Utilisation describes the socio-economic aspects of household food and nutrition security, determined by knowledge and habits. Assuming that nutritious food is available and accessible, the household has to decide what food to purchase and how to prepare it, as well as how to consume and allocate it within the household. Besides, utilisation requires a healthy physical environment and adequate sanitary facilities as well as the understanding and awareness of proper health care, food preparation, and storage processes. In this context, safe drinking water plays an important role, especially for preparing food and creating a healthy environment for the population (Wocatpedia, 2024).

The related keywords or codes searched from the selected literature under the 'Utilisation' pillar are nutrition, nutritious; diet *Sunnah*; clean water; health care; and *thoyyib*. The words “nutrition” or “nutritious” are commonly used by past authors in studies such as Burchi *et al.* (2011), Ruel and Alderman (2013), FAO (2013), Hoddinott and Yohannes (2002), and Pinstrup-Andersen (2007). The term "health" or "health care" as well as "clean water" were mentioned by FAO (2013), Smith and Haddad (2000), WHO (World Health Organisation) (2003), Black *et al*. (2008), FAO (2014), and UNICEF (1990). Additional words of “diet *sunnah*” and “*thoyyib*” are added by authors to reflect the utilisation of food from an Islamic perspective, in which most literature collected on this topic uses the words quite frequently.

As shown in Figure 5, the highest frequency of keywords mentioned under this category is 'nutrition, nutritious' (3.5%) from 13 literature, followed by 'clean water' (1.8%) from 2 literature, as well as '*thoyyib*' (1.8%) from 3 literature. Besides, other keywords such as 'diet *sunnah*' were found in 1 case and 'health care' was found in 5 cases with low frequency of codes.

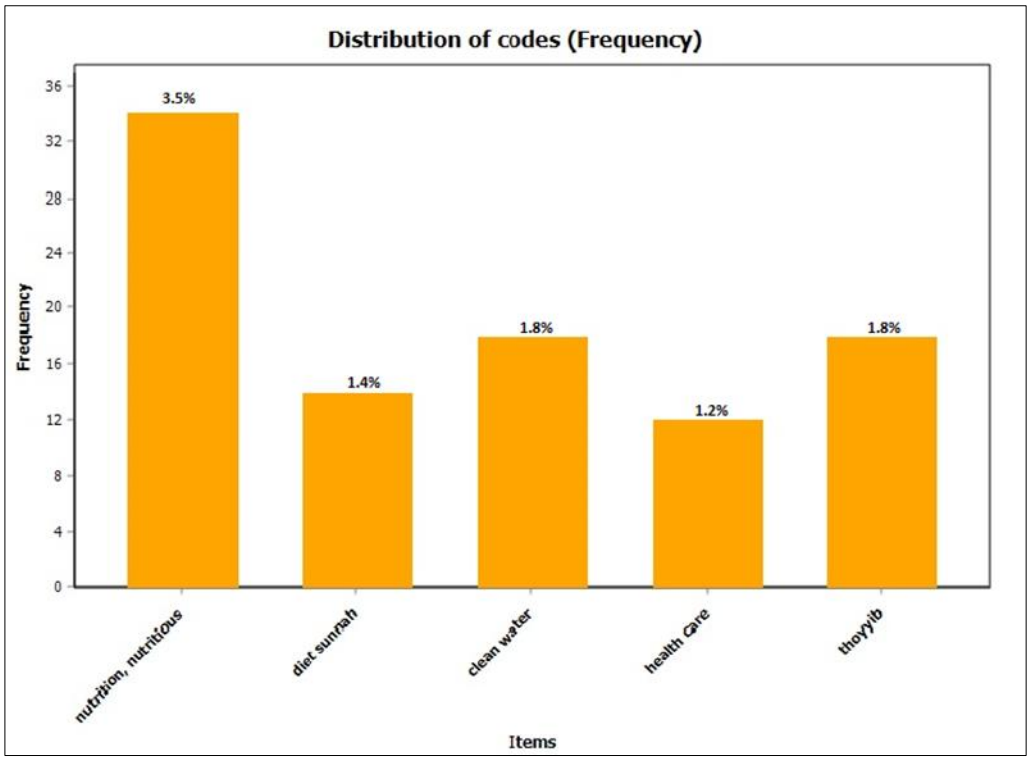

FIGURE 5: FREQUENCY OF KEYWORDS FOR 'UTILISATION' AS AN ELEMENT OF FOOD SECURITY
Source: Figure by Authors

The Islamic perspectives on the concept of utilisation of food security, particularly on the word nutrition, were mentioned many times by several authors. Most literature is in consensus that *halal* and *thoyyib* foods are wholesome and nutritious to be consumed. Besides, it is expected to be derived from trusted and reliable sources that do not involve unjust practices such as usury and monopoly and not hurt the environment or disturb the ecological balance (Idris *et al*., 2020). A Muslim should give and share from his/her sustenance (food nutrition) the part he/she likes most or the best quality of what he/she has (based on the *Quran* verse) (Haddad, 2012). In another *Quranic* verse, it is stated that Muslims are required to eat what is lawful, wholesome, pure, nutritious, and safe (*Quran* 2:168; 5:87) and not what is loathsome or foul (*Quran* 7:157) based on three basic principles: 1) God alone has the right to determine what is allowed or prohibited to be eaten, and everything is permitted for use except that which is prohibited by God or through His Prophet (PBUH); 2) Things are prohibited because they are impure and harmful; and 3) Necessity dictates exception (Farouk et al., 2015). Besides, Surah An-Nahl verse 114 is always coupled with the words *kulu* (eat) and *thoyibbah* (nutritious) (Kurahman *et al*., 2023). Nonetheless, in *the Quran*, it is stated that Muslims are required to eat what is lawful, wholesome, pure, nutritious, and safe. Honey is the most eatable nutritious food mentioned in *al-Quran*. Besides, the expected behaviour of consumption in Islam is *halal* and *thoyyib*, moderate or not excessive, minimum waste, and local product consumption priority.

With the combination of *toyyibban* and *halal*, which is similar to clean, hygienically handled, nutritious, good quality and safe, *halal* products are suitable to be consumed by everybody regardless of their religious belief (Rahim *et al*., 2021; Jalil & Musa, 2012). Since *halal* products have gained the confidence of consumers who are becoming more concerned about health, nutrition, safe and good quality, these characteristics should be maintained starting from farming, processing, packaging and labelling, warehousing, transportation, delivery and consumption (Jalil & Musa, 2012). These characteristics should also be applied to GM crops and GM food.

Moreover, healthy nutrition is a crucial dimension of *halal* food performance. Boosting the availability of *halal* food and enhancing the healthy and nutritious facets of existing *halal* food are hence imperative for a non-Islamic destination product to appeal to Muslim visitors. Improving the performance of *halal* food by focusing on its cleanness/safety/hygiene, accreditation, availability, and health nutrition can elicit approach behaviours for destinations, eventually increasing business opportunities, creating more jobs, and bringing monetary investment/benefit to the destinations (Han *et al*., 2021)

The word *thoyyib* is always mentioned together with nutrition in the studies collected. The Arabic term *thoyyib*, when used in the context of food in the *Quran*, refers to that which is good, pure, wholesome, and beneficial. It goes beyond mere physical attributes and includes both ethical and spiritual dimensions. Foods that are *thoyyib* are not only lawful (*halal*) but also beneficial to one's health and well-being. The term "nutritious" in the context of modern food science refers to food that provides essential nutrients necessary for the body's growth, repair, and maintenance, such as vitamins, minerals, proteins, and carbohydrates. Nutritious food supports physical health and overall well-being. The *Quran* repeatedly emphasises the consumption of *halalan thoyyiban* (lawful and good) food. For example, in Surah Al-Baqarah (2:168): "O mankind, eat from whatever is on earth [that is] lawful and good (*halalan thoyyiban*) and do not follow the footsteps of Satan. Indeed, he is to you a clear enemy." (Surah Al-Baqarah, 2:168)

In this verse, Allah encourages believers to consume food that is not only lawful but also good, pure, harmless, high-quality and beneficial (Siti Hafsyah Idris *et al*., 2020; Rahim *et al*., 2021). This aligns closely with the modern concept of nutritious food, which must be healthy and sustaining. Thus, the concept of *thoyyib* food encompasses both spiritual and physical dimensions—food that is ethically sourced, environmentally sustainable, and beneficial to health, corresponding to what we would today term nutritious food. In other words, the term *thoyyib* has the meaning of everything that is considered good by the physical and the soul or anything that does not contain reprehensible and repulsive elements (Hasun *et al*., 2021). Foods that are *thoyyib* provide essential nourishment, align with Islamic values, and ensure the well-being of the individual and the broader community. In practical terms, a diet based on *thoyyib* principles would include whole foods like fruits, vegetables, grains, and ethically sourced meat, which are rich in nutrients and support good health, while avoiding harmful or overly processed foods.

Having said this, both households and poor households are consumers of food, and the expected behaviour of consumption is: *halal*, *thoyyib*, moderate or not excessive, minimum waste and local product consumption. To achieve food security, besides moderate-halal *thoyyib* consumption, Islam encourages the consumption of local products, efficient production without harming the environment at an adequate capacity to produce quality products, encouraging the market to operate based on market mechanisms, prohibiting *riba*-based financing and defining the clear role of the government (Hasun *et al*., 2021).

The use of clean water for food utilisation is a significant concern in Islam. Water used for purification must be pure and free from any changes in its smell, colour, or taste. This reflects the wisdom in Islamic jurisprudence (*fiqh*) regarding why water for purification must remain unchanged in these qualities. If impure substances (*najasah*) are mixed with clean water, the water is considered pure again once the impurities disappear. Sheikh Abd al-Rahman Abd Al-Khalik explained that the essential nature (molecule) of water remains forever pure. The Saudi Arabian Fatwa Council has ruled that large amounts of water affected by impurities can be considered pure if the impurities are removed naturally, such as by adding clean water or due to environmental factors like exposure to sunlight or wind (Rahim *et al*., 2021).

Stability

Stability describes the temporal dimension of food and nutrition security, respectively, the time frame over which food and nutrition security are being considered. Stability is given when the

supply on the household level remains constant during the year and in the long term (sustainability). That includes food, income and economic resources.

The related keywords or codes searched under 'Stability' of food security are adequate food and sustainable food. Studies on the stability component of food security often discuss the concepts of "adequate food" and "sustainable food systems," emphasising the importance of long-term availability and access to food that meets nutritional needs while also considering environmental sustainability. Among those studies are Godfray *et al.* (2010), Ingram (2011), FAO (2010), and Pretty, Toulmin and Williams (2011)

As shown in Figure 6, the highest frequency of keywords under this category is 'adequate food' (1.9%) from 9 literature and followed by 'sustainable food' (1.2%) from 7 literature.

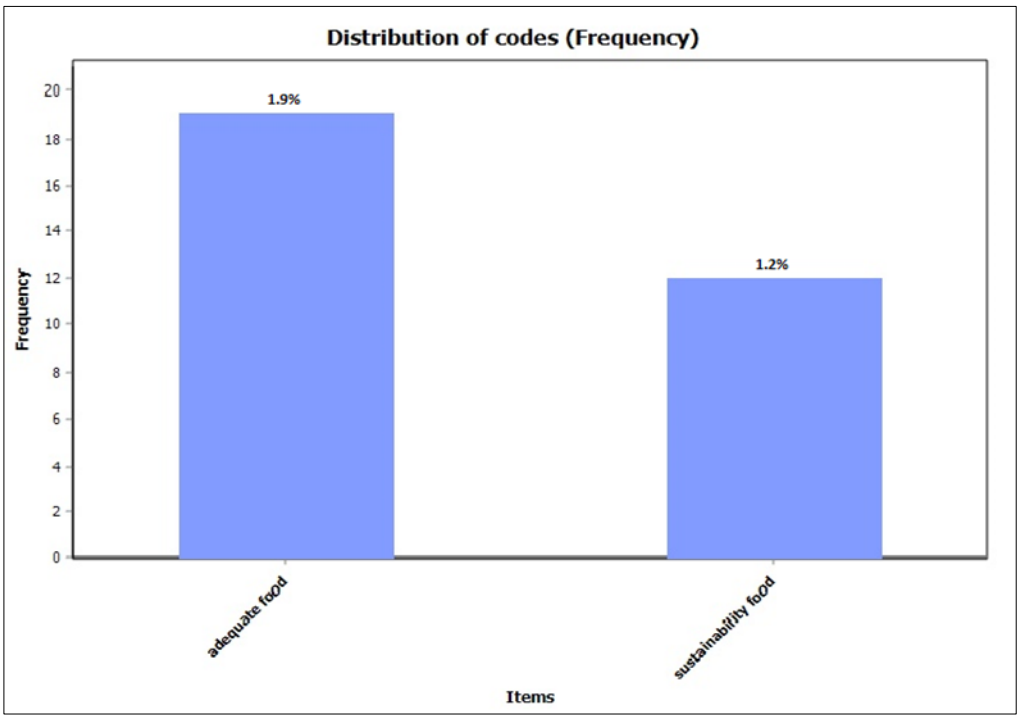

FIGURE 6: FREQUENCY OF KEYWORDS FOR 'STABILITY' AS AN ELEMENT OF FOOD SECURITY
Source: Figure by Authors

It is discussed in the literature that the characteristics of the production process from the view of Islam are efficient, safe to the environment, halal and *thoyyib* oriented and have adequate capacity. *Halal* food safety, security and sustainability are a right for all human beings and should not be withheld from anyone in this world (Rahim *et al*., 2021). This approach not only meets ethical and religious requirements but also aligns with modern values of sustainability, food safety, and adequate production capacity. Islam views *halal* food safety, security, and sustainability as fundamental rights for all human beings. No one should be deprived of access to safe, nutritious, and ethically sourced food. This principle extends beyond just Muslims; it emphasises universal access to clean, *halal*, and wholesome food for all people, underscoring the importance of social justice and equity in food systems.

For a stability element in food security, particularly in crop production, the sustainability of irrigation systems, through the development, operation, and maintenance of irrigation networks, should be realised (Nugraha *et al*., 2023). The stability element in food security, particularly in crop production, is directly tied to the sustainability of irrigation systems. The development, operation, and maintenance of irrigation networks must be carefully planned to ensure a consistent water

supply for agricultural production. Efficient water management systems are critical in regions prone to drought or water shortages. This aligns with Islamic environmental ethics, where water is considered a precious resource that must be conserved and used wisely.

From the *tawhidi* perspective, which emphasises the oneness of Allah and the unity of creation, sustainability should be achieved in a manner that is consistent with divine laws (Hasun *et al*., 2021). This means that sustainable practices should not conflict with Islamic principles, such as causing harm to the environment or exploiting natural resources irresponsibly. True sustainability is achieved when human activities align with the natural order as established by Allah. For example, avoiding the overuse of land or water resources and ensuring ethical treatment of animals and workers in food production aligns with the *tawhidi* approach. This perspective emphasises harmony between human activities and the broader ecosystem, ensuring that food production is not only environmentally sustainable but also spiritually grounded.

If unsustainable food practices are contributing to climate change, it is essential for the Muslim world to actively participate in global efforts to promote sustainability. Climate change affects all, and its impact on food production—through droughts, floods, and changing weather patterns—poses significant threats to food security. From an Islamic perspective, taking action to mitigate climate change is a moral duty, as it involves preserving the balance (*mīzān)* of creation and fulfilling the trust (*amānah*) given by Allah to humanity to protect the Earth. Muslim countries can lead by integrating Islamic environmental ethics into modern sustainability practices, such as reducing greenhouse gas emissions, promoting renewable energy, and adopting sustainable agricultural techniques that align with Islamic principles. This not only helps maintain global sustainability but also ensures that food systems are resilient to the challenges posed by a changing climate. In summary, Islamic teachings provide a comprehensive framework for sustainable food production that incorporates ethical, environmental, and spiritual dimensions, promoting a balanced approach that addresses both human needs and environmental stewardship.

When examining the four components of food security—availability, access, utilisation, and stability—from an Islamic perspective, several limitations must be acknowledged. First, Islamic teachings on food security primarily focus on ethical and moral guidance rather than detailed policy frameworks, which can limit the practical application of these principles in modern contexts. This limitation is highlighted by Al-Qaradawi (2002), who notes that while Islamic principles offer guidance on equitable distribution and charity, they do not always translate into concrete policies for modern food systems. Existing studies often lack comprehensive analyses of how Islamic teachings can be applied to modern food security challenges, such as market volatility and global food supply chains. Siddiqui (2011) emphasises that Islamic economics provides valuable ethical guidance but is less detailed in addressing practical aspects of food security like distribution efficiency and long-term stability.

Second, access to food in Islam is guided by the principles of justice and equity (*Hadith* of the Prophet Muhammad), but these teachings may not directly translate into effective policy measures for addressing systemic inequalities in diverse socio-economic contexts.

Third, utilisation is highlighted through dietary guidelines and prohibitions (*Quran* 5:3), yet the focus is more on health and spiritual well-being rather than on comprehensive nutrition security. The focus on dietary laws and ethical consumption in Islamic texts, as discussed by Ramadan (2010), tends to overshadow other critical dimensions of food security, such as access and stability, which are essential for a holistic approach. This limitation results in an incomplete understanding of how Islamic teachings address all aspects of food security.

Fourth, the component of stability is less explicitly addressed in Islamic texts, which may leave gaps in understanding how to ensure long-term food security in the face of environmental and economic challenges. These limitations highlight the need for integrating Islamic principles with contemporary food security strategies to effectively address modern challenges.

Lastly, there is a gap in empirical research that specifically examines the integration of Islamic principles with modern food security frameworks. Khan (2017) argues that while Islamic economics offers a strong ethical foundation, there is a need for more empirical studies to bridge the gap between religious teachings and practical food security solutions.

5. CONCLUSION

The current study attempts to review the available literature sourced from Scopus and Dimensions databases on the Islamic perspectives of food security. Using Systematic Literature Review (SLR) which is a scientific method that could be used to limit systematic bias by identifying, screening and synthesising research questions using a particular and systematic methodology in reviewing the literature, the study seeks to identify the studies that discuss the elements of ‘ávailability', 'stability', 'accessibility' and 'utilisation' of food security from Islamic perspectives and discuss the arguments among scholars on the four elements of food security from Islamic perspectives. Out of 73 literature obtained, 52 pieces of literature are finally analysed after they have gone through identifying and screening processes.

Overall, the findings show that the four pillars of food security were discussed quite extensively by some selected literature particularly on the *halal* and *thoyyib* food production and consumption, the Islamic view of GM crops and GM food production, *halal* tourism, *riba*-free financing of agriculture and food production and role of state and regulations in monitoring most activities from production to delivery process.

This study offers several suggestions that future studies should take into account. The studies on 'utilisation' of food through clean water, sanitisation and health care from Islamic perspectives are very scanty. Most studies mainly focus on the nutritious concept of food with relation to the concept of *thoyyib* and *halal*. The report by UNICEF & WHO (2019) provides a comprehensive overview of global disparities in access to clean water and sanitation, with particular emphasis on the challenges faced by countries in the developing world, including many Muslim-majority nations. As most third-world Muslim countries are facing difficulties in accessing clean water and sanitation, studies on the Islamic perspective of this important accessibility should be undertaken seriously. The financing model for these facilities, such as through Islamic financing or Islamic social financing, should be explored in these countries.

Meanwhile, there are also limited studies on the issue of food ‘stability’ from Islamic perspectives (Hassan & Basit, 2021). While there is growing interest in integrating Islamic principles into discussions of food security, particularly about justice, equity, and sustainability, the specific focus on "stability" remains underexplored. Hassan and Basit (2021) explore the concept of food security within an Islamic framework, noting the limited focus on food stability as a distinct component in Islamic economic literature. The authors call for more research in this area to fully understand how Islamic teachings can contribute to ensuring food stability in Muslim-majority countries. Households must have access to adequate food at all times based on the stability concept of food security. More discussion or studies are expected to be conducted on how Islam views the issue of maintaining and reforming the agricultural sector, climate change, global warming and adopting new technology in the food industry for sustainability. The discussion on technology should not be limited to GM technology. It could be explored further on precision agriculture, Artificial Intelligence in quality control and food safety assurance, vertical farming and others.

ACKNOWLEDGEMENT

We sincerely appreciate the generous support of the **INTERNATIONAL INSTITUTE OF ISLAMIC THOUGHT (IIIT)** for funding this study under the IIIT Strategic Research Programme (SRP) 2023. We also extend our gratitude to the anonymous reviewers and proofreaders for their valuable contributions.

REFERENCES

Abidin, I. S. Z., Haseeb, M., Islam, R., & Chiat, L.W. (2022a). The Role of rural infrastructure, labour and capital investment on the rice production in Malaysia. *AgBioForum, 24*(1), 50-58

Abidin, I. S. Z., Haseeb, M., Islam, R., & Chiat, L.W. (2022b). Role of technology adoption, labour force and capital formation on the rice production in Malaysia. *AgBioForum, 24*(1), 41-49

Abidin, I. S. Z., Haseeb, M., & Islam, R. (2022c). Impact of agricultural irrigated land and raw material import, labour force and capital formation on rice production: evidence from the Malaysian economy. *Cuadernos de Economia, 45*(127), 106-112

Adada, S. A. (2019). Islamic economics and finance: An overview of key principles and practices. *International Journal of Islamic Economics and Finance Studies*, *5*(2), 73-89.

Ahmad, M. T. (1997). *Islam's Response to Contemporary Issues*. UK: Islam International Publications Ltd.

Ahmad, K. (2006). *Islamic Finance: Principles and Practice.* New York: Palgrave Macmillan.

Akhmetova, E. (2016). Genetically Modified Food and Humanity's Well-Being: An Islamic Perspective. In: Kamali, M., Bakar, O., Batchelor, D.F., Hashim, R. (eds) *Islamic Perspectives on Science and Technology*. Singapore: Springer.

Aljaroudi R., Horton S., & Hanning RM. (2019). Acculturation and dietary acculturation among Arab Muslim immigrants in Canada. *Canada Journal of Dietetic Practice Research, 80*(4), 172-178.

Ali, M. E., Md. Al Amin, Sharifah Bee Abd Hamid, M. A. Motalib Hossain & Shuhaimi Mustafa (2015). Lab-on-a-chip-based PCR-RFLP assay for the confirmed detection of short-length feline DNA in food. *Food Additives & Contaminants: Part A, 32*(9), 1373-1383

Alsolami, B., & Embi, M. R. (2018). Crowding perception: a case study of a developed systematic literature review procedure with multiple software programs as management and synthesis tools. *International Journal of Engineering and Technology*, *7*(2), 121-126.

Alzeer, J., Rieder, U., & Abou Hadeed, K. (2018). Concepts of food safety and quality in Islamic food production. *Trends in Food Science & Technology*, *71*, 112–116.

Bach, N. L., & Saeed, K. (1992). Food self-sufficiency in Vietnam: a search for a viable solution. *System Dynamics Review*, *8*(2), 129-148.

Baer-Nawrocka, A. & Sadowski, A. (2019). Food security and food self-sufficiency around the world: a typology of countries. *PLoS ONE, 14*(3), 1-15.

Barret C. B. (2002). *Food Security and Food Assistance Programs* (B. G. a. G. Rauseer Ed. 2nd ed.), Amsterdam: Elsevier.

Barrett, C. B. (2010). Measuring food insecurity. *Science 327*(5967), 825-828.

Black, R. E., Allen, L. H., Bhutta, Z. A., Caulfield, L. E., de Onis, M., Ezzati, M., Mathers, C., & Rivera, J. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *The Lancet 371*(9608), 243-260.

Brankov, T., Matkovski, B., Jeremi´c, M., & Đuri´c, I. (2021). Food self-sufficiency of the SEE countries: is the region prepared for a future crisis? *Sustainability*, *13*, 8747.

Bolens, L. (2016). Agriculture in the Islamic World. In: Selin H. (eds) *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, Dordrecht: Springer,

Bonne, K., & Verbeke, W. (2008). Muslim consumer trust in *halal* meat status and control in Belgium. *Meat Science*, *79*(1), 113–123.

Bureau, J. C. & Swinnen, J. (2018). EU policies and global food security. *Global Food Security, 16*, 106–115.

Burchi, F., Fanzo, J., & Frison, E. (2011). The role of food and nutrition system approaches in tackling hidden hunger. *International Journal of Environmental Research and Public Health 8*, (2), 358-373.

Chapra, M. U. (2000). *The Future of Economics: An Islamic Perspective*. Leicester, UK: Islamic Foundation.

Clapp, J. (2015). *Food Self-Sufficiency and International Trade: A False Dichotomy? The State of Agricultural Commodity Markets 2015-16 – In Depth*. Rome: FAO.

Clapp, J. (2017). Food self-sufficiency: making sense of it, and when it makes sense. *Food Policy, 66*, 88–96.

Collier, P. & Dercon, S. (2014). African agriculture in 50 Years: smallholders in a rapidly changing world?. *World Development, Elsevier, 63*(C), 92-101.

Devereux, S. (2001). Sen's entitlement approach: critiques and counter-critiques. *Oxford Development Studies 29(*3), 245-263..

Durach, C. F., Kembro, J., & Wieland, A. (2017). A new paradigm for systematic literature reviews in supply chain management. *Journal of Supply Chain Management, 53*(4), 67-85.

Ericksen, P. J. (2008). Conceptualising food systems for global environmental change research. *Global Environmental Change 18*(1), 234-245.

FAO. (1996). *Rome Declaration on World Food Security. World Food Summit*, 13-17 November 1996, Rome, Italy, available at http://www.fao.org/wfs/index_en.htm (accessed 30 June 2023).

FAO. (2003). *The State of Food Insecurity in the World 2003.* FAO. Rome, Italy, available at https://www.fao.org/4/j0083e/j0083e00.pdf. (accessed 30 June 2023)

FAO. (2006). *Food Security. Policy Brief,* 2, 1-4, available at https://www.fao.org/fileadmin/templates/faoitaly/documents/pdf/pdf_Food_Security_Cocept_Note.pdf. (accessed 30 June 2024).

FAO. (2008). *An Introduction to the Basic Concepts of Food Security*. EC - FAO Food Security Programme. Rome: FAO, available at https://www.fao.org/4/al936e/al936e00.pdf. (accessed 30 June 2024).

FAO. (2010). *Sustainable Diets and Biodiversity: Directions and Solutions for Policy, Research and Action.* FAO Report. Rome: FAO, available at https://www.fao.org/3/i3004e/i3004e.pdf (accessed 14 August 2024).

FAO. (2013). *The State of Food and Agriculture: Food Systems for Better Nutrition.* FAO Report. Rome: FAO, available at https://www.fao.org/3/i3300e/i3300e.pdf (accessed 14 August 2024).

FAO. (2014). *The State of Food Insecurity in the World 2014: Strengthening the Enabling Environment for Food Security and Nutrition*. FAO Report. Rome: FAO.

FAO, IFAD, UNICEF, WFP and WHO (2018). *The state of food security and nutrition in the world 2018: building climate resilience for food security and nutrition*. FAO, Rome, Italy, available at https://openknowledge.fao.org/server/api/core/bitstreams/f5019ab4-0f6a-47e8-85b9-15473c012d6a/content (accessed 30 June 2023).

Farouk, M.M., Regenstein, J.M., Pirie, M.R., Najm, R., Bekhit, A.E.D., & Knowles, S.O. (2015). Spiritual aspects of meat and nutritional security: perspectives and responsibilities of the Abrahamic faiths. *Food Research International, 76,* 882–895.

Fofana, I., Goundan, A., & Domgho, L. V. M. (2014). Impact Simulation of ECOWAS Rice Self-Sufficiency Policy (No. 1405). *IFPRI Discussion Paper 01405*. International Food Policy Research Institute (IFPRI).

Foresight. (2011). The Future of Food and Farming: Challenges and Choices for Global Sustainability. *Final Project Report.* London: The Government Office for Science.

Ghose, B. (2014). Food security and food self-sufficiency in China: from past to 2050. *Food and Energy Security. 3*(2), 86-95.

Godfray, H. Charles J., Ian R. Crute, Lawrence Haddad, Duncan Lawrence, James F. Muir, Jules Pretty, Sherman Robinson, Sandy M. Thomas, & Camilla Toulmin. (2010). The Future of the Global Food System. *Philosophical Transactions of the Royal Society B: Biological Sciences, 365*(1554), 2769-2777..

Goldman, R. H. (1975). Staple food self-sufficiency and the distributive impact of Malaysian rice policy. *Food Research Institute Studies, 14*, 251-293.

Gusenbauer, M., & Haddaway, N. R. (2020). Which academic search systems are suitable for systematic reviews or meta-analyses? evaluating retrieval qualities of Google Scholar, PubMed, and 26 other resources. *Research Synthesis Methods, 11*(2), 181-217

Haddad, M. (2012). An Islamic perspective on food security management. *Water Policy, 14*, 121-135

Hamilton-Hart, N. (2019). Indonesia's quest for food self-sufficiency: a new agricultural political economy? *Journal of Contemporary Asia*. Retrieved from https://doi.org/10.1080/00472336.2019.1617890 (accessed November 23 2024).

Han, H. Lho, L.H. Raposo, A. Radic, A. Ngah, A.H. (2021). *Halal* food performance and its influence on the patron retention process at a tourism destination. *International Journal of Environmental Research and Public Health, 18,* 3034.

Hassan, M. K., and Basit, A. (2021). Food security from an Islamic perspective: concepts, dimensions, and implications. *Journal of Islamic Monetary Economics and Finance 7(*1), 145-168.

Hasun, F., Tanjung, H., Wiryono, S. K., & Choudhury, M. A. (2021). The framework of food security and the food security ecosystem: *tawhidi* perspective. *International Journal of Halal Research, 3*(1), 42-59.

Headey, D., & Ecker, O. (2013). Rethinking the measurement of food security: from first principles to best practice. *Food Security, 5*(3), 327-343.

Hoddinott, J, & Yohannes, Y. (2002). Dietary Diversity as a Household Food Security Indicator. *Food and Nutrition Technical Assistance Project*, Retrieved from FANTA Project.

Idris, S.H., Abdul Majeed, A.B., & Wei Chang, L. (2020). Beyond *halal*: *maqasid al-Shari'ah* to assess bioethical issues arising from genetically modified crops. *Science and Engineering 26*(3), 1463–76.

Ingram, J. S. I. (2011). From food production to food security: developing interdisciplinary, regional-level research. *Philosophical Transactions of the Royal Society B: Biological Sciences 365*(1554), 1991-2001.

Islahi, A. A. (1985). *Economic Concepts of Ibn Taimiyah*. UK: Islamic Foundation.

Iqbal, M. & Mirakhor, A. (2007). *An Introduction to Islamic Finance: Theory and Practice*. New York: John Wiley and Sons.

Jalil, F., & Musa, N. (2012). Halal Products – Malaysian Constitution Perspective. *International Halal Conference (INHAC*), pp. 685-705. Law Faculty, National University of Malaysia. PWTC, Kuala Lumpur, 4-5 September.

Khan, M. A. (2017). Islamic finance and the role of empirical research. *Journal of Islamic Economics and Finance 4*(1), 45-60.

Kitchenham, B., & Charters, S. (2007). Guidelines for performing Systematic Literature Reviews in software engineering. *EBSE Technical Report (Version 2.3).* Software Engineering Group.

Kraus, S., Breier, M., & Dasí-Rodríguez, S. (2020). The art of crafting a systematic literature review in entrepreneurship research. *International Entrepreneurship and Management Journal, 16*(3), 1023-1042.

Kurahman, O. T., Priatna, T. & Cahyanto, T. (2023). Reorientation of *halal* literacy education development in the curriculum of Islamic Educational Institutions: an alternative concept. *Edukasi Islami: Jurnal Pendidikan Islam, 12* (1), 557-566.

Lombardozzi, L., & Djanibekov, N. (2020). Can the self-sufficiency policy improve food security? an inter-temporal assessment of the wheat value-chain in Uzbekistan. *Eurasian Geography and Economics.* Retrieved from https://doi.org/10.1080/15387216.2020.1744462 (accessed 23 November 2024).

Makoi, J. H. J. R., van Ittersum, M. K., & Wiebe, K. D. (2017). Can Tanzania feed itself by 2050? Estimating cereal self-sufficiency to 2050. Research Summary. Washington, D.C: International Food Policy Research Institute (IFPRI).

Martin-Martin, A., Orduna-Malea, E., Thelwall, M., & Delgado López-Cózar, E. (2018). Google Scholar, Web of Science, and Scopus: a systematic comparison of citations in 252 subject categories. *Journal of Informetrics, 12(*4), 1160-1177.

Mohamed, Z., Rezai, G., & Shamsudin, M. N. (2020). *Halal* principles and their application in agriculture. In M. Khan & A. Haleem (Eds.), *Understanding Halal Food Supply Chain* (pp. 33–49). USA: Springer.

Mustapa, H., & Saripudin U. (2022). Food socio-politics and sharia finance in Indonesia: agricultural development in Islamic political economic perspectives, *Amwaluna: Jurnal Ekonomi dan Keuangan Syariah, 6.1*, 110–27

National Geographic (2020). *Agriculture*. Resource Library, Encyclopaedic Entry, available at https://www.nationalgeographic.org/encyclopedia/agriculture/ (accessed 23 November 2024).

Nugraha, T., 'Azhima, M., Afrina, U., Amalia, R., Rahim, E.-S., & Tarshany, Y. (2023). Solutions to food security problems in Indonesia: an Islamic perspective. *Islamic Research, 6*(2), 160-168.

Nusantoro, B. P. (2018). Food production: From farm to fork. In Md. Eaqub Ali, Nina Naquiah Ahmad Nizar (Eds.), *Woodhead Publishing Series in Food Science, Technology and Nutrition, Preparation and Processing of Religious and Cultural Foods* (pp. 3–13). Woodhead Publishing.

Obaidullah, M. (2015). Enhancing food security with Islamic microfinance: insights from some recent experiments. *Agricultural Finance Review, 75*(2), 142 - 168

Omotayo (2020). Caring for hungry humanity: how Islam addresses challenges of sustainable food security, how Islam addresses challenges of food security. *Review of Religions*, 16th July 2020, available at https://www.reviewofreligions.org/23631/food-security-islam-world-hunger-poverty/ (accessed 24 November 2024)

Petticrew, M., & Roberts, H. (2008). *Systematic Reviews in the Social Sciences: A Practical Guide*. USA: Blackwell Publishing Ltd.

Pingali, P. (2015). Agricultural policy and nutrition outcomes – getting beyond the preoccupation with staple grains. *Food Security 7*, 583-591.

Pinstrup-Andersen, Per. (2007). Agricultural research and policy to achieve nutrition goals. *Food and Nutrition Bulletin, 28*(2), S243-S250.

Pretty, J., Toulmin, C., & Sarah Williams, S. (2021). Sustainable intensification in African agriculture. *International Journal of Agricultural Sustainability 9(*1), 5-24.

Rahim, S.I.A., Mansor, S.K.M., Ruzulan, Z., & Ismail, N. (2021). Developing Basic Criteria in Halal Food Security: An Overview from Islamic Perspectives. In: Md Shariff, N.N., et al. *Enhancing Halal Sustainability,* Singapore: Springer.

Ramadan, Y. (2010). *Islamic Economic Principles and their Application*. Routledge.

Robinson, S., Sandy M. Thomas and Camilla Toulmin H. Charles J. Godfray, John R. Beddington, Ian R. Crute, Lawrence Haddad, David Lawrence, James F. Muir, Jules Pretty. (2010). Food Security: The Challenge of Feeding 9 Billion People. *Science.* 327 (5967), 812-818.

Ruel, M. T., & Alderman, H. (2013). Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition? *The Lancet 382*(9891), 536-551.

Rusli, M., Firmansyah, R., Mbulu, Y.P. (2018). *Halal* tourism destination development model. *Journal of Environmental Management and Tourism*, *Volume IX, Fall, 6*(30), 1296 - 1302.

Siddiqui, M. A. (2011). *Islamic Economic Principles and Their Practical Implications.* Routledge.

Smith, L. C., & Haddad, L. (2000). Explaining child malnutrition in developing countries: a cross-country analysis. *International Food Policy Research Institute (IFPRI) Research Report 111*. ISBN: 0-89629-114-2. Retrieved from IFPRI.

Tesfaye, K., van Ittersum, M. K., Wiebe, K., Boogaard, H., Radeny, M., & Solomon, D. (2018). Can Ethiopia feed itself by ethics 2050? estimating cereal self-sufficiency to 2050. CCAFS Policy Brief no. 12. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Thomson Reuters. (2021). *State of the Global Islamic Economy Report 2020/21*. Dubai Islamic Economy Development Centre.

Timmer, C. P. (2012). Behavioural Dimensions of Food Security. *Proceedings of the National Academy of Sciences, 109*(31), 2315-12320.

UNICEF. (1990). Strategy for Improved Nutrition of Children and Women in Developing Countries: A UNICEF Policy Review. New York: United Nations Children's Fund.

UNICEF and WHO. (2019). Progress on Household Drinking Water, Sanitation and Hygiene 2000-2017: Special Focus on Inequalities. United Nations Children's Fund (UNICEF) and World Health Organisation (WHO).

Wegren, S. K., & Elvestad, C. (2018). Russia's food self-sufficiency and food security: an assessment. Post-Communist Economies, available at https://doi.org/10.1080/14631377.2018.1470854 (accessed 23 November 2024)

World Health Organisation. (2003). Diet, nutrition, and the prevention of chronic diseases. WHO Technical Report Series 916. Geneva: World Health Organisation.

Woertz, E. (2020). Wither the self-sufficiency illusion? food security in the Arab Gulf States and the impact of COVID-19. *Food Security, 12*, 757–760.

Wocatpedia (2024). Definition and Dimensions of Food Security, available at https://wocatpedia.net/wiki/Definition_and_Dimensions_of_Food_Security#Availability. (accessed 5 July 2024).

Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research, 39*(1), 93- 112.

Yup, C. L. (1982). Implications of rice policies for farmers: Selected Southeast Asian Countries. *Food Policy, 7(*4), 315-322.

Zaimeche Salah (2001). Agriculture in Muslim civilisation: A Green Revolution in Pre-Modern Times. Published by Muslim Heritage on 25th December 2001, available at https://muslimheritage.com/agriculture-in-muslim-civilisation-a-green-revolution-in-pre-modern-times/ (accessed 26 June 2023).