

Article

# Influence of religiosity on sustainable consumer behavior in Gulf Cooperation Council (GCC) countries

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**Abstract: Purpose:** Religiosity as an intrinsic principle affects the sustainable behavior of consumers. Studies have been undertaken to discover the impact of religiosity on sustainable consumer behavior in various contexts, cultures, and countries. The current bibliometric study focused on religiosity and sustainable consumer behavior in Gulf Corporation Council (GCC) countries who has similar religions and cultures so that the research trend, contribution, and gap through thematic and content analysis could be investigated and future direction could be suggested. The literature for this study was solicited from 2016 to June 2024. **Methodology:** Bibliometrics and content analysis were used to study the existing literature on religiosity and sustainable consumption behavior in GCC countries. The VOS viewer was used to visualize literature and understand the network landscape of the research topic and their interconnectivity. Additionally, Scopus analytics and Microsoft Excel were used to review and analyze the religiosity of consumers regarding the sustainable consumption of products and services. **Finding:** The descriptive analysis revealed trends, prolific countries, and researchers in this area along with their affiliation. The co-occurrence analysis showed 3 main clusters of co-occurrences with various link strengths. The content analysis looked at the 6 clusters depicted by the coupling function and compared them against co-occurrence analysis to uncover related themes. This analysis produced 4 related themes for content analysis. **Contribution:** This research contributed to understanding the current themes, challenges, and the need for marketing strategies and action so that sustainable consumption could be encouraged. As such this research will fill the void in the current literature left in this research area. This research has practical and policy implications for businesses, organizations, and policymakers as they try to capture consumers for sustainable products and services in GCC countries.

**Keywords:** religiosity, sustainable consumer behavior, gulf council countries, bibliometric analysis

## 1. Introduction

Religiosity can be explained as an individual's belief in God that affects the intention and behavior of individuals including consumption behavior. When religiosity is internalized by repeated promotion, education, and social interaction, it can create self-identification, and self-recognition (Mostafa, 2016; Mostafa, 2020). The religiosity level of consumers could be different according to various cultures. The effect of religiosity has been studied in multiple contexts in many countries. For instance, religion plays a role in workplace well-being. Workplace-related research drew the importance of religiosity in shaping the ethical attitude of managers (Samad et al., 2022). In this context, Koburtay et al. (2023) reviewed the literature for 21 years on religiosity, spirituality, and psychology to help build a framework for including spirituality and religiosity in the workplace to enhance well-being and productivity.

This study reinvigorated the need to adopt religiosity as part of workplace well-being. In the same line of research on happiness and well-being, Lambert (2019) used positive psychology intervention (PPI) to assess well-being, beliefs of fear, and fragility of happiness among student populations. Sustainable human resources can be utilized to achieve desired responses and behaviors in a relationship between performance appraisal and quality economic performance (Badghish and Soomro, 2024). It is suggested that religiosity could be incorporated as part of HR strength and boundary conditions (Babar et al., 2022). Such use could control incivility and contribute to employee well-being. It is also shown that religiosity amplifies work engagement, and enhances supervisor support and commitment (Abualigah et al., 2024). Alghazali (2020) confirmed that green HRM practices, creativity, and individual value could lead to green behavioral intention among employees.

Religion was also studied about sustainable consumption. Literature looked at religiosity in cloth, food consumption, sustainable tourism, and sustainable consumption. The studies showed the moderating effect of religiosity on materialism, about fashion clothing purchase involvement (Rahman et al., 2017) and Khan et al. (2023). On food consumption and food waste, religiosity drives sustainable consumption behavior and mediates fear, perceived knowledge, and sustainable consumption (Batoool et al., 2023). Those with positive attitudes and knowledge on sustainability chose to store, reuse, distribute to the poor, or use as fertilizers in controlling food waste (Malibari et al., 2023). Besides religiosity, sustainable product consumption depends on moral obligation, moral accountability, cost, knowledge, and perception of risks (Alyahya et al., 2023a). Kennedy et al. (2024) showed that knowledge, awareness, and attitude changes could decrease food waste. Moral and religious beliefs help control food waste and guide the consumers to direct the surplus to charity (Aleshaiwi, 2023). Religiosity also could have a significant impact on buying halal products (Al-Malkawi et al., 2023). It is also the same in the case of sustainable tourist behavior (Aman et al., 2019; Boon et al., 2020).

In assessing sustainable consumption behavior and halal product consumption, understanding the influencing factors of such consumption behavior is pertinent. Media and peers were found to influence sustainable consumption (Alghamdi and Agag, 2024; Shamsi et al., 2022). Additionally, ethical, religious, environmental, and moral concerns impact sustainable consumer behavior or behavioral change (Elgammal and Al-Modaf, 2023; Kassem et al., 2021; Li et al., 2023; Rafiq et al., 2022). Eco-labeling, advertising, marketing mix, and consumer perception can influence eco-friendly attitudes too (Al-Malkawi et al., 2023; Dash et al., 2024; Mohamed Sadom et al., 2022). Wilkins et al. (2019) assessed the factors that influence the willingness to consume halal food among non-Muslim consumers in three different countries. The finding suggested that while cosmopolitanism and non-Muslim religious identity can positively influence halal food consumption judgment, ethnocentrism, and national identification can negatively affect consumption. Accordingly, religiosity can be considered in segmenting Muslim consumers when halal products are promoted. The purchase intention due to moral obligation and religious orientation could lead to satisfaction and create loyalty (Alsaad et al., 2021; Abu-Alhajja et al., 2019). To ensure loyalty, value co-creation is being undertaken by the companies. In this process, the companies try to provide quality products and

services and understand the value of customer contingent including religiosity along with antecedents of customer co-creation (Abror et al., 2023; Al-Issa and Dens, 2024).

Sustainable behaviors and consumption reflect the quality of life, life satisfaction, and happiness (Sameer, et al., 2021). Social media can be used to engage customers in pro-environmental activities. Social media could be used to establish a social relationship between consumers and retailers in various cultural environments as understanding social-cultural value differs from culture to culture (Agag et al., 2022). Alam et al. (2023) asserted that the pro-environment experience created by social media campaigns could pay the way for pro-environment consumption. Media exposure, SDG reporting, and sustainable product performance should be used to promote sustainable consumption and practices. Sustainable reporting helps to understand weaknesses in SDG reporting and see the opportunity for better reporting. Sustainable product performance can help to build appropriate standards for production (Jan et al., 2023; Mabkhot, 2023). The performance of the companies in environmental, social, and governance aspects can enhance the image of the company which could eventually lead to consumer and investors' trust (Khalil and Khalil, 2022). Trust could be considered an important parameter to attract investors that have a potential for business expansion (Jasuja et al., 2021). Like corporations, governments also need to understand consumers' and employee's environmental behavior. A study conducted by Alhajj (2022) in Saudi Arabia revealed a high adoption of environmental behavior among government employees irrespective of their gender and marital status. However, there are differences in adoption within different groups who received appropriate environmental training or education. Creating awareness, training opportunities, and incorporating appropriate HR reward systems for sustainable practices in government offices could motivate more environmentally friendly behavior.

The current research on the factoring of religiosity into consumer consumption in Gulf Corporation Council (GCC) countries has been carried out in different contexts: HR, food consumption, food waste, consumption of fashion clothes, and hotel and luxury product consumption. However, no research has been carried out to see the breadth and depth of prominent themes and contents in the literature so that the research direction, contribution, gap, and future direction could be detected. Hence, this research contributed to understanding the current themes, challenges, and the need for marketing strategies and action so that sustainable consumption could be encouraged. This study also could suggest the possible future direction in research and understanding sustainable consumer behavior. As such this research will fill the void in the current literature left in this research area.

The remainder of the article is divided as follows: methodology of the research is elaborated in section 2; the result and findings of bibliometric and content analysis are included in section 3 and section 4 includes the research discussion and the implications of the research. Section 5 concludes the study with the limitations of the research.

## **2. Methodology**

Bibliometrics and content analysis were used to study the existing literature on

religiosity and sustainable consumption behavior in GCC countries using numerical and graphical data (Zheng et al., 2020). To review and analyze the impact of consumers' religiosity on sustainable consumption of products and services, and formulate future research on this area, the researcher followed a few research steps as explained in **Figure 1**. Firstly, the Scopus database was chosen to collect relevant articles as the database has a comprehensive list of journals in many areas. Following that religiosity, consumer behavior, religion, and sustainability keywords were used to collect articles and this search produced 691 articles. Secondly, the search was further refined to include literature from 5 Cooperation Council (GCC) Countries (Bahrain, Saudi Arabia, Qatar, United Arab Emirates, and Oman) with the 3 keywords (religiosity, sustainability, and consumer behavior) that have produced 70 articles published in English. Though the research on consumer behavior and sustainability has been conducted broadly, the issue of religiosity in sustainable consumer behavior has not been thoroughly researched in the GCC countries. Thirdly, the collected articles were visually analyzed followed by a detailed content analysis using a VOS viewer. The article covered was from 2016 to June 2024 as it helped to capture the trend and propose future research trajectories. It does not analyze articles originating from countries other than GCC countries. The articles were collected from 2016 as there were not many articles published on the issue before 2016 and the issues discussed in the previous literature have been captured in research published after 2016. As such the researcher sees that the prior 2016 research will not significantly contribute to the research outcome. The researcher collected articles that were current and have been published up to April 2024 before commencing the analysis for this research. Based on the literature collected, bibliometric analysis was conducted. The VOS viewer was used to visualize literature and understand the network landscape of the research topic and their interconnectivity. Additionally, Scopus analytics and Microsoft Excel were used. This enabled the researcher to understand the research interrelationship, hotspots, and trends (Bajwa et al., 2022; Khan et al., 2020, Magabaleh et al., 2024). The study addressed the following research questions:

RQ1. What is the publication trend and who are the researchers in the publication on Religiosity and Sustainable Consumer Consumption?

RQ2. Which are the leading countries in GCC that contribute to this research topic?

RQ3. What are the major research clusters on religiosity and sustainable consumption?

RQ4. What is the future trajectory in research on religiosity and sustainable consumption?

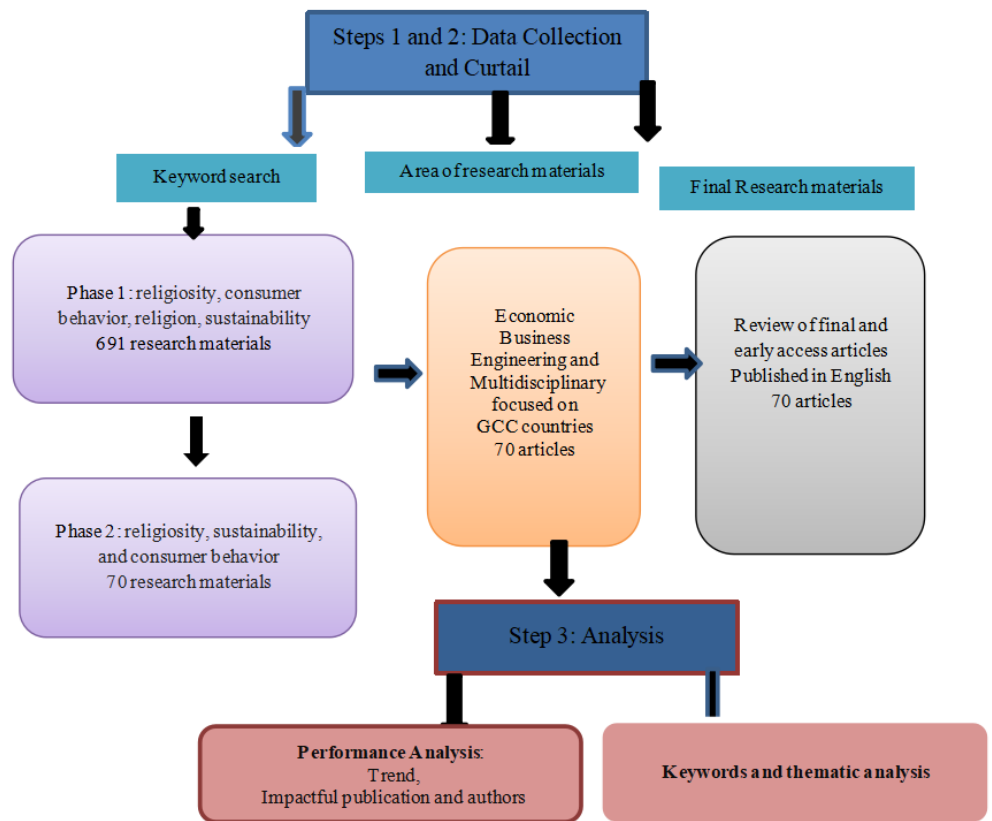


Figure 1. Research plan (Created by the Author).

### 3. Results and analysis

#### 3.1. Descriptive analysis

The bibliometric analyses using the collected data were conducted on the research domain, research affiliation, funding organization, influential researcher, and research citation. The research domains show the main area of research published on religiosity and sustainable consumer behavior in GCC countries. The research affiliations are directly linked to the researchers who published their research in GCC countries: Saudi Arabia, United Arab Emirates, Qatar, Kuwait, Oman, and Bahrain. The descriptive analysis also included prominent authors and funding organizations in this area. Scopus analytics and Microsoft Excel were used to visualize the results and explore further.

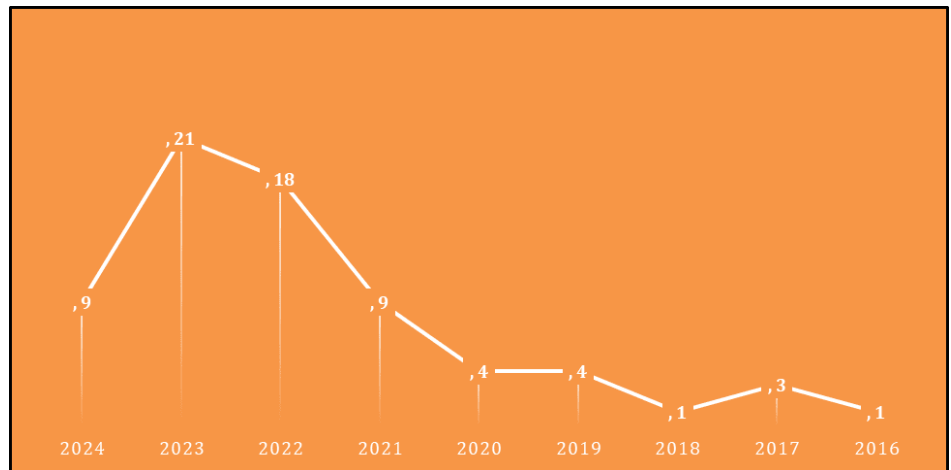
##### 3.1.1. Main information analysis

Analysis of the main information revealed that 70 relevant articles were collected from 34 academic sources showing the data's depth and breadth. They also depicted the comprehensiveness of the keywords chosen. The data was collected from 2016 to 2024 to collect adequate literature for accurate analysis and to find the research trajectory. The articles collected showed 1427 citations implying the importance and contribution of their research findings in their respective field. The data comprised 160 authors, 10 of the articles were authored by a single author while the rest of the 60 articles were co-authored. The collaboration average of all co-authors was 4.4. This displays good collaborative research activities among multiple researchers of various

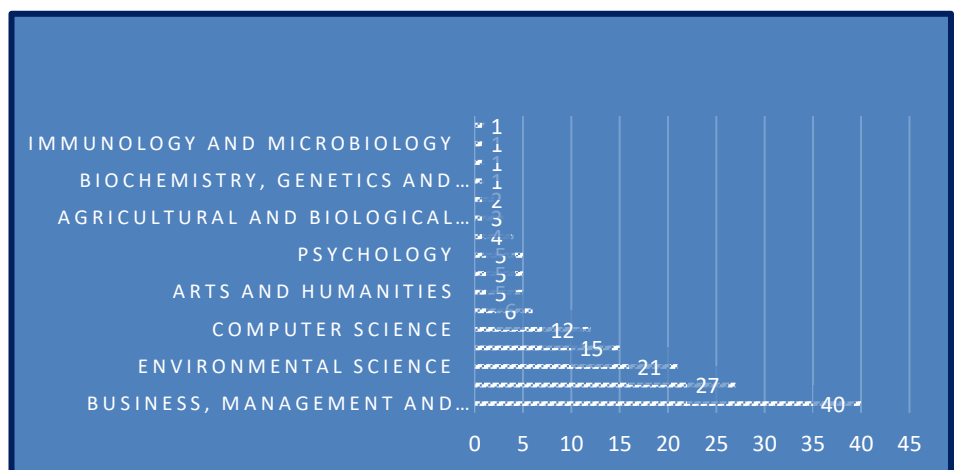
disciplines, broad literature, collaboration, insight, and trends in the literature on the research topic.

### 3.1.2. Publication trend

**Figure 2** portrays the publication trend for the 9 years selected for this research. From 2021 the research in this area increased considerably implying the importance of the topic to comprehend the consumer values so that companies and government could develop and deliver their products and services to meet the customer value. In 2023, the publications reached their peak with 21 articles, and in 6 months of 2024, 9 articles published, the publication can increase further. This trend highlights the need to understand the value system, ethics, morals, and motivating factors recognition of achieving sustainability in creating consumer consumption. Importantly, the articles pointed out the centrality of planned behavior in making changes to sustainable consumption behavior. Additionally, they showed the research need, gap, opportunities as well as challenges, in promoting sustainable consumer practices.



**Figure 2.** Publication trend.



**Figure 3.** Areas of research.

The research spanned broader areas covering 16 subject matters. Many publications are in business, management, accounting, social sciences, environmental sciences, energy computer science, and other fields as shown in **Figure 3**. 40 articles

were published in business, management, and accounting, 27 articles were published in social sciences, 21 articles were published in environmental science. 15 articles and 12 articles are published in energy and computer science respectively. The detailed area of research is displayed in **Figure 3**.

### **3.1.3. Most cited documents**

As depicted in **Figure 3**, religiosity and sustainable consumer behavior publications cut across various fields that produced by the authors residing in GCC countries. Lambert et al. (2019) published “Positive Psychology Intervention Program in a Culturally Diverse University: Boosting Happiness and Reducing Fear” in the *Journal of Happiness Studies* with 73 citations. This article can be considered a leading publication in the research area. The article focused on well-being, and beliefs regarding the fear and fragility of happiness among university students in the United Arab Emirates. It was found that there were higher levels of well-being, and fear of happiness, and the belief that happiness is fragile is at lower levels. This study revealed the need for positive interventions as such sustainable consumption warrants positive interferences from various parties. Another leading title was “Antecedents and pro-environmental Consumer Behavior (PECB): The Moderating Role of Religiosity”, which was published in the *Journal of Consumer Marketing*. The article was cited 68 times. This explored factors like attitude, knowledge, concern, value, and religiosity that led to pro-environmental consumer behavior. The finding showed the importance of providing the right education for enhancing knowledge, and creating positive attitudes, and values, toward religiosity to promote consumer behavior: Another impactful article was “The acceptance of halal food in non-Muslim countries: Effects of religious identity, national identification, consumer ethnocentrism and consumer cosmopolitanism”. The article had 61 citations and was published in the *Journal of Islamic Marketing*. This article investigated the willingness to consume halal food in the product judgment aspect. The article suggested the need for halal marketing to capture various consumer segments.

**Table 1** captured leading publications with articles over 34 citations. The publications in general looked at well-being, pro-consumer behavior, halal products, environmental product consumption, and public awareness. Additionally, the literature also investigated the relationship between various factors and green behavior regarding product and service consumption. Collectively, the publications have analyzed various research domains with a concentration on religiosity, value, and ethics. They also explored religiosity in politics, global warming concerns, building customer trust marketing, reducing waste, sustainable food consumption culture, and planned consumer behavior.

**Table 1.** Most cited documents.

<b>Authors</b>	<b>Document</b>	<b>Publication Year</b>	<b>Source</b>	<b>Total Citations</b>
Lambert L, Passmore H-A, Joshanloo MA	“Positive Psychology Intervention Program in a Culturally Diverse University: Boosting Happiness and Reducing Fear”	2019	Journal of Happiness Studies	73
Bhutan N, Sharma K, Butt I, Ahmed U	“Antecedents and pro-environmental consumer behavior (PECB): The moderating role of religiosity”	2018	J. Consumer. Marketing	68
Wilkins S, Butt MM, Shams F, Pérez A	“The acceptance of halal food in non-Muslim countries: Effects of religious identity, national identification, consumer ethnocentrism, and consumer cosmopolitanism”	2019	Journal of Islamic Marketing	61
Sreen N, Dhir A, Talwar S, Tan TM, Alharbi F	“Behavioral reasoning perspectives to brand love toward natural products: The moderating role of environmental concern and household size”	2021	Journal of Retailing and Consumer Services	61
Al-Ghazali BM, Afsar B	“Green human resource management and employees’ green creativity: The roles of green behavioral intention and individual green values”	2022	Corporate Social Responsibility and Environmental Management	57
Almulhim AI	“Understanding public awareness and attitudes toward renewable energy resources in Saudi Arabia”	2022	Renewable Energy	40
Motafa MM	“Post-materialism, Religiosity, Political Orientation, Locus of Control and Concern for Global Warming: A Multilevel Analysis Across 40 Nations”	2016	Social Indicators Research	37
lboqami H	“Trust me, I’m an influencer! - Causal recipes for customer trust in artificial intelligence influencers in the retail industry”	2023	Journal of Retailing and Consumer Services	37
lboqami H	“Trust me, I’m an influencer! - Causal recipes for customer trust in artificial intelligence influencers in the retail industry”	2023	International Journal of Environmental Science and Technology	37
Gustavo JU, Jr, Trento LR, de Souza M, Pereira GM, Lopes de Sousa Jabbour AB, Ndubisi NO, Chiappetta Jabbour CJ, Borchardt M, Zvirtes L	“Green marketing in supermarkets: Conventional and digitized marketing alternatives to reduce waste”	2021	Journal of Cleaner Production	35
Alyahya M, Agag G, Aliedan M, Abdelmoety ZH, Daher MM	“A sustainable step forward: Understanding factors affecting customers’ behavior to purchase remanufactured products”.	2023	Journal of Retailing and Consumer Services	34
Elshaer I, Sobaih AEE, Alyahya M, Abu Elnasr A	“The impact of religiosity and food consumption culture on food waste intention in Saudi Arabia”	2021	Sustainability (Switzerland),	34



In GCC countries, many articles were published by researchers in Saudi Arabia totaling 36 publications, followed by the United Arab Emirates. The researchers have published 18 articles related to religiosity, well-being, and sustainable consumption. The researchers based in Oman and Kuwait published 9 and 7 publications respectively. The details of the country of the research are presented in **Figure 4**. Besides the researchers in GCC countries, Egyptian, Indian, Pakistani, UK, and Malaysia researchers have published considerably in this area as shown in **Table 2**. The research publication showed that understanding value including the religious value of consumers is important before planning marketing and other future initiatives to attract the consumers to sustainable consumer behavior so the companies and country’s objective on suitability goal could be materialized.



**Figure 4.** GCC country’s research concentration.

**Table 2.** Country of publications.

Country of Publications	Number of Publications
Egypt	15
India	11
Pakistan	11
United Kingdom	11
Malaysia	9

### 3.1.4. Most relevant source (publication and publisher)

**Table 3** includes the source data of literature and their dynamic. The top sources were “Sustainability (Switzerland)”, “Journal of Retailing and Consumer Services”, and Journal of Islamic Marketing. The top source was Sustainability (Switzerland) which published 13 articles and Journal of Retailing and Consumer Services published 11 articles on the subject matter and the Journal of Islamic Marketing have published 9 articles. Elsevier has many journals that publish on topics related to innovation and sustainability. MDPI and Emerald have two leading that have published most of the

research on religiosity and related topics followed by Elsevier. These publishers are highly reputed and known for their rigorous peer-review processes in accepting research for publications. A careful analysis of publications showed that the topic is current, and several researchers and publishers are interested in publishing such topics of current interest.

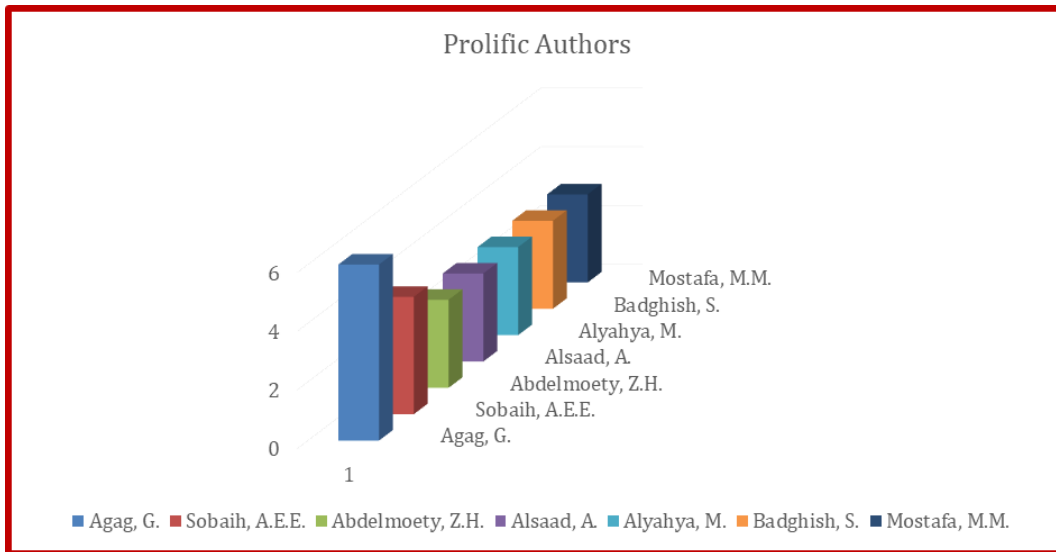
**Table 3.** Most relevant sources.

Relevant Sources	Number of publications	ISI	Scopus	Publisher
Sustainability Switzerland	13	Q2	Q1	MDPI
Journal Of Retailing and Consumer Services	11	Q1	Q1	Elsevier Ltd
Journal Of Islamic Marketing	9	Q2	No Ranking	Emerald
Social Indicators Research	3	Q1	Q1	Springer
British Food Journal	2	Q2	Q3	Emerald
International Journal of Environmental Research and Public Health	2	Q2	Not Ranked	MDPI
International Journal of Green Economics	2	Q2	Not Ranked	Inderscience Enterprises Ltd

### 3.1.5. Most prolific authors and documents

The important nature of the research topic accelerated the research in this area. The research covered topics related to Religious and cultural values in consumer behavior on sustainable consumption Religiosity, waste and sustainable waste management, planned behavioral change, understanding consumer values, and behaviors, creating awareness of sustainable consumption ethics, morals, and norms, and motivation of sustainable consumer behavior. The trend of this research seems to be research on sustainable behavior and the factors that could influence sustainable behavior. The significance of uncovering norms and values that could motivate sustainable behavior.

To assess the significance and impact of the journals, the ISI and Scopus rankings of the journal were looked at as shown in **Table 3**. The assessment revealed that most of the journals are highly ranked and have published 2 or more articles on issues related to religiosity. Further analysis was conducted on the most prolific authors as shown in **Figure 5** and it showed that Agag (2022, 2023, 2024) and Sobaih (2021, 2022, 2023) became renowned in this area of research. Agag (2022, 2023, 2024) published 6 articles while Sobaih (2021, 2022, 2023) published 4 articles. Agag (2022, 2023, 2024) specialty reposed on consumer behavior, the factors affecting consumer behavior, the impact of national culture on consumer behavior and green behavior, mortality, religiosity, customer feedback metrics, firm performance, and sustainability. Sobaih (2021, 2022, 2023) has published on food consumption, food security, food waste, consumption culture, religiosity, and political orientation. Besides the above 2 researchers, Abdelmoety (2023), Alsaad (2021, 2022, 2023), Alyahya (2023a, 2023b), Badghish (2023, 2024), and Mostafa (2016, 2019, 2020) published 3 articles each. They have researched on ethical culture, loyalty, sustainable travel, eco-marketing, moral intensity, green investment, planned behavior, green apparel, retailing, and psychology. Their research charted the way for future research so that firms and organizations could consider various issues before they rightfully market their product and services to culturally diverse customers.



**Figure 5.** Prolific authors.

### 3.1.6. Most relevant affiliation

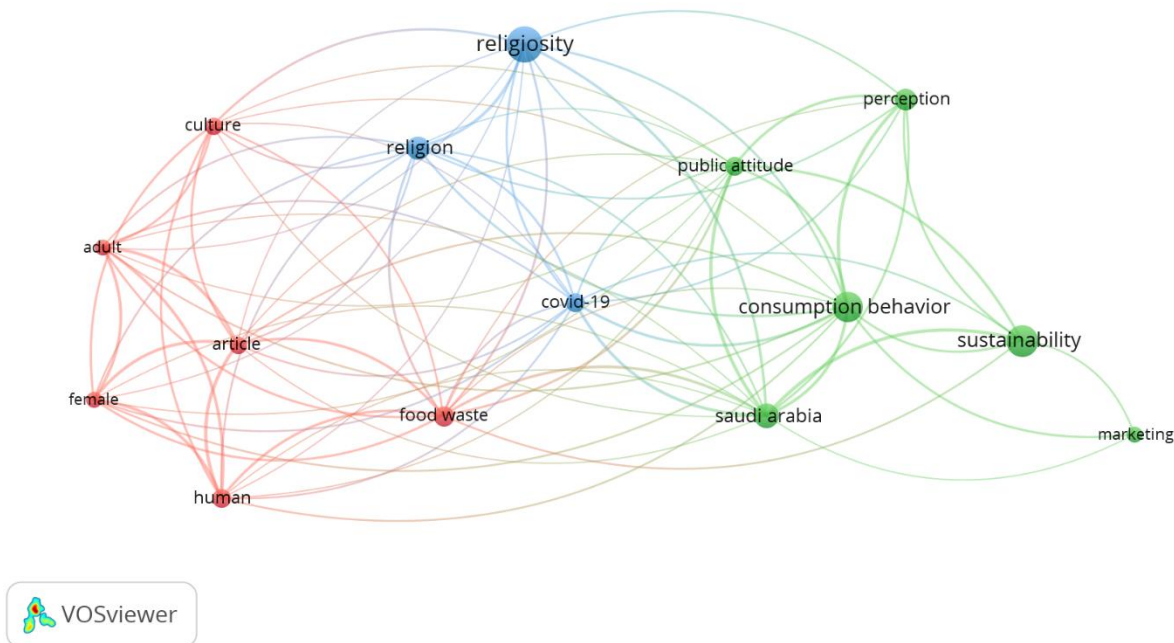
The affiliation of researchers is shown in **Table 4**. There were 12 universities affiliated with research output produced by researchers on religiosity and sustainable consumer behavior. The King Faisal University of Saudi Arabia is the most affiliated institution followed by King Abdulaziz University of Saudi Arabia and Qatar University. Much research in this area originated in Saudi Arabia, reflecting the cultural and religious influence of consumer consumption towards sustainable products and services. Kuwait, Omani, and United Arab Emirates Researchers too have published well on sustainable consumer behavior, religiosity, culture, and ethics, however, there is a need for greater collaboration internationally to promote research and development so that countries of different cultural values could study the impact of religiosity on the consumer decision to adopt sustainable products and services. Perhaps setting up an appropriate research hub could provide better opportunities for collaborative research.

**Table 4.** The top affiliation.

Affiliations	Number of Publications
King Faisal University	9
King Abdulaziz University	7
Qatar University	5
Gulf University for Science and Technology Kuwait	4
Sultan Qaboos University	4
University of Hafr Al-Batin, Saudi Arabia	4
University of Sharjah	3
Zayed University	3
Abu Dhabi University	3
Princess Nourah Bint Abdulrahman University	3
Jazan University	3
Saudi Electronic University	3

### 3.2. Keywords co-occurrence analysis

VOS viewer was utilized to conduct a co-occurrence analysis as shown in **Figure 6**. The co-occurrences of all the keywords showed the relationship with various keywords and created clusters of themes based on the keyword analysis. The co-occurrence indicated the co-existence of keywords in various literature that could be grouped. It is a powerful way to understand and elaborate interactions between related research themes. The clusters created by the keywords co-occurrence were derived as distinct but related themes. The node sizes and the centrality of keywords are proportionate and the different colors in the nodes indicate a distinct cluster of themes. The thickness of the lines between nodes is proportional to the frequency of co-occurrence between keywords. The co-occurrence in this research produced 3 main clusters of co-occurrences. The first cluster is identified as Red and focused on articles related to females and food waste. The cluster has 11 links with 32 scores on the total link strength of the occurrence was 8. The second cluster marked in Green centered around consumer behavior, has 13 links, the total link strength was 41, and the occurrence was 19. The third cluster marked in Blue focused on religiosity, had 12 links with a total link strength of 29, and the occurrence was 27. The co-occurrence highlighted the research connectivity, and trends and gave directions for future research.



**Figure 6.** Co-occurrence.

A careful analysis of the literature showed that there is a dynamic change in related research themes over the 9 years. The research in 2016 is narrow in scope and linked religiosity to materialism and politics. The research in 2017 and 2018 looked beyond materialism and tried to understand the pro-environmental intention and behavior of religiosity. Research in 2019 focused on religiosity to create loyalty, understand global warming, sustainable food consumption, and positive psychology. As COVID-19 started, the research focuses also shifted toward sustainable consumer

behavior, wellbeing, food storage, and food waste. The research in 2020 included many business areas of sustainability about religiosity. The literature in 2021 explored more religiosity, food consumption, sustainable behavior, and green marketing. From this year onwards, the literature showed the need for specialized marketing activities to create loyalty via-a-vis providing tailored products and services for the consumers. The theme of the literature in 2022 showed broader coverage. It covered sustainable awareness, social media influence, food wastage, COVID-19, planned marketing, planned behavior, and strategies to create consumer loyalty. The 2023 research theme revealed further expansion on religiosity and sustainable consumer behavior. The research went in-depth on factors influencing sustainable behavior, consumer feedback matrices, product performance, and the effect on the firm performance. They also covered many subject areas like Islamic banking, food supply, green apparel, green investment, luxury products, and refurbished products. The research theme in 2024 further developed into cover culture, the use of social media, artificial intelligence, business performance, and vegan retailing. The detailed dynamic changes in research themes from year to year are shown in **Table 5**. The main reasons for these shifts seem to be the awareness of the consumers on sustainable consumption, the government’s involvement in promoting sustainable development, and the willingness of the companies to uplift their image as sustainable companies so that they could be able to secure and maintain consumer loyalty. Additionally, the shift could also be attributed to COVID-19 and the impact of the pandemic on consumer intention and behavior. The shift in research dynamic seems to create awareness among consumers resulting in more interest in the research among the academia. This in turn attracts more participation from companies to align their products and services according to the changes value systems of consumers.

**Table 5.** Yearly research themes.

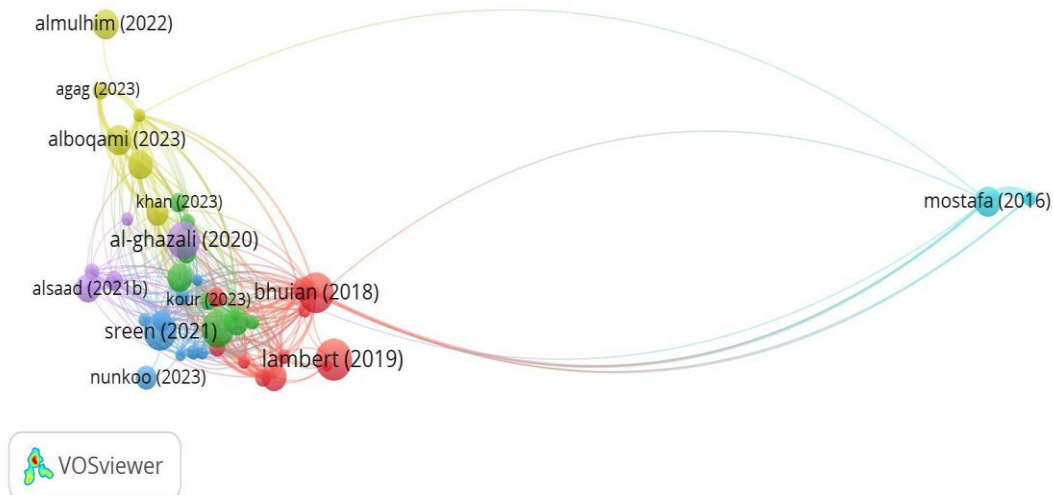
<b>Publication Year</b>	<b>Research Themes</b>
2016	Materialism, religiosity, and politics
2017	Materialism, religiosity, ethics, pro-environmental behavior and behavioral intention
2018	pro-environmental behavior
2019	Religiosity, loyalty, global warming, food consumption and positive psychology
2020	Religiosity, employees, tourism and loyalty
2021	Religiosity, food consumption, ethical consumption, consumer behavior, sustainable behavior and green marketing
2022	Sustainable behavior, sustainable awareness, social media influence, food wastage COVID-19, religious products, employees, Tourism, luxury products, planned marketing, planned behavior, strategies, ethical consumption, and green marketing
2023	Halal product performance, factors influencing sustainable behavior, consumer feedback matrices, firm performance, Islamic banking, food waste, social media influencers, green apparel, consumer engagement, food waste, green investment, consumer attitude, green advertising, sustainable reporting, luxury product, refurbished products, religiosity and well being
2024	Religiosity, food waste, culture, social media, factors affecting sustainable consumer behavior, Artificial intelligence, business performance, employees and vegan retailing

### **3.3. Content analysis**

The content analysis for this research was derived using the VOS viewer coupling function. The grouped keywords indicated the richness of the keywords, and the

frequency of keywords showed the concentration of the theme. The literature was grouped based on 6 or more citations for cluster purposes. The first cluster consisted of 9 articles grouped in Red. The second cluster with 10 literature was marked in Green and the third cluster with 9 articles was marked in Blue. The fourth cluster with the yellow focus consisted of 6 articles while the fifth cluster with the purple-colored focus consisted of 5 articles. The final cluster with light Blue has linked to 2 articles. **Figure 7** shows the coupling output highlighting connected but distinct clusters. The author went through articles captured by coupling functions and compared them against co-occurrence analysis to uncover related themes. Based on the detailed analysis of the content and focus of the article, the following themes were identified, and they are explained in this section.

- 1) Religious and cultural values influence sustainable consumption.
- 2) Religiosity has influenced sustainable waste management and tourism.
- 3) Planned behavioral change is needed towards sustainable consumption.
- 4) Value creation through awareness of sustainable and ethical consumption.



**Figure 7.** Bibliographic coupling network.

### 3.3.1. Religious and cultural values influence sustainable consumption

This theme is comprised of 9 articles that discuss religion, culture, and sustainable consumption. Al-Issa et al. (2023) studied perceived value and luxury purchase intentions in individualist and collectivist cultures in the UK and Kuwait. The researchers found that the perceived personal or religious values influence purchase intentions of luxury products of different religions (Muslim and Christian) (Al-Issa et al., 2023). Rehman et al. (2022), investigated the relationship between religiosity and luxury purchase intention in Saudi Arabia and India. Accordingly, religiosity does not affect luxury purchase intention, however, functional and social values have a positive mediating effect. Thus, the marketer should devise a strategy for sustainable products and services focusing more on the function and quality of products that can be acceptable to religious customers.

Bhuian and Sharma (2017) also investigated pro-environmental consumer behavior (PECB) and the important predictors of CPEBI. They found that attitude, concern, knowledge, religiosity, and value are important predictors. Bhutan et al.

(2018) used religiosity as moderating factor in investigating PECB. It revealed that religiosity played an important role in creating positive knowledge, attitudes, concerns, and values related to PECB in Muslim dominant county like Oman. Accordingly, education should play an important role in providing ecological religious values as part of appropriate intra-personal factors that influence sustainable consumer behavior. Rahman et al. (2017) explored the importance of religiosity as part of the cultural dimension by looking at materialism, fashion clothing involvement (FCI), and purchase involvement (FCPI). The research asserted that there is a significant influence of religiosity on FCI and FCPI. This implies that the proper position of the product is essential in attracting general customers.

Religiosity plays an important role in the decisions of consumers and businesses need to understand the underlying composition of religiosity of a particular culture (Ul-Haq, 2020). However, Zakaria et al. (2021) studied the influence of cultural, material, and religious values on conspicuous consumption. The research revealed that consumption. Collectivism and materialism have significant impacts on conspicuous consumption, conversely, religious values were not significant. As such consumption of luxury goods products are outcome of cultural, social, and personal factors but not necessarily religious factors. Similarly, Zeqiri et al. (2022) analyzed the effect of religion and religiosity on consumer behavior and intention to purchase religious products in North Macedonia. They found that religiosity does not impact the intention of consumers to purchase religious products. The findings enhance our understanding of consumer buying behavior and the extent to which religion and religiosity impact the intention to purchase religious products and the actual purchase behavior. Religiosity and culture were also studied about consumer consumption and well-being. Literature suggests a positive relationship between happiness, consumption, sustainability, and responsible behavior. Higher consumption may lead to happiness; however, it does not negatively affect sustainable and responsible behavior; hence happiness and sustainability can be achieved simultaneously (Sameer et al., 2021).

This theme looked at the influence of religiosity on consumer behavior. Some of the literature proved that religiosity has a positive link to sustainable consumer behavior (Rehman et al., 2022) and Bhutan et al. (2018) while 2 articles (Zakaria et al., 2021) and Zeqiri et al. (2022) have proven that religiosity has an insignificant impact on consumer behavior. However, most of the literature conducted tended to show the influence of religiosity on consumer intention to purchase to purchase decisions. Besides, literature on this theme also discussed various components of religiosity in addition to the effect of religiosity on well-being and happiness.

### **3.3.2. Religiosity has influences on sustainable waste management and tourism**

Control of food wastage is part of food security in the UN sustainable development goals. To ensure food security, it is necessary to understand food consumption, food wastage, excessive buying, and food wastage intention. In this regard, Azazz et al. (2022) studied the customer's behavior regarding excessive buying and food waste intention and found that excessive buying and food waste intention in Saudi Arabia could be linked to social media influence. However, the food waste intention could be partially mediated by religiosity. Elshaer et al. (2021) also researched on religiosity and food waste intention in Saudi Arabia. They found that

attitude, norms, and perceived behavioral control can mediate religiosity and food waste intention. Panic consumption also could lead to food waste, Sobaih (2023) researched panic food purchasing and the factors leading to such purchase behavior. Anxiety and perceived severity of a situation like a pandemic could result in panic purchasing intention as such understanding consumer panic behavior and planning for controlling such behavior to avoid waste and manage food supply is required.

Apart from religiosity, social and sustainable awareness could also contribute to sustainable consumption that could help reduce food waste. Khalil and Khalil (2022) investigated the social and environmental sustainability awareness practices and their impact on impulse buying. According to them, social and environmental sustainability awareness causes green trust that can promote environmental and social well-being. Once the trust is established, the customers can impulsively purchase sustainable products at premium prices. Accordingly, creating environmental and social awareness can bring enormous benefits to the organization. Kour et al. (2023) studied agri-food wastes (AFWs) in the food chain including consumers. The AFWs are caused due to packaging, storage, processing, and handling errors and inadequate transportation that also vary depending on various social, cultural, personal, and behavioral factors. To control AFWs there is a need to introduce energy-saving carriers, by-product and cost management, disposal and environmental laws, and related technology applications. For better management of food waste social, economic, and environmental dynamics need to be assessed.

Like sustainable food consumption, green tourism was researched as well. Rafiq et al. (2022) analyzed the customer's traits of environmentally friendly tourist behavior and revealed that environmental awareness and concern for environmentally friendly tourism can affect positively tourism behavior. Environmental values, cognitive, peripheral condition, and low-carbon knowledge are considered determinants of customers of green hotels image that could influence their consumption behavior. Salem et al. (2022), deduced that the environmental values with carbon knowledge can influence cognitive images that could create a positive image of green hotels.

To sum up this theme, the researchers have studied the interaction between religiosity and food waste, they found that food waste could occur due to various reasons. However, to control the food waste green marketing can play an important. Marketers can group the products in the right place for the right price. This could help not only leverage sales but also could help control waste. Once the product, price, and place are sorted out, the marketers could use conventional and digital marketing to promote their products (Gustavo et al., 2021). On green tourism and religiosity, the literature so far has shown that one of the factors that could influence choosing green hotels and tourism is reliability. Thus, understanding the factors that could influence the decision of consumers to go green is necessary.

### **3.3.3. Planned behavioral change needed towards sustainable consumption**

Green intention and behavior are influenced by positive attitude, behavioral control, knowledge, and commitment towards green investment. In this aspect religiosity could play an important role in shaping attitude, behavioral control subsequently consumption commitment (Aliedan et al., 2023). Few researchers in



investigating green intention and behavior used the Theory of Planned Behavior Model (PBM) to predict behavior intentions, attitudes, norms, and perceived control. D'souze et al. (2022) applied the TPB factor and found that the factors positively influence on the buying intention of vegan food. Similarly, Kashif and Khattak (2017) used TPB factors and past behavior to understand behavioral intention and found that attitude and subjective norms have stronger predictors of ethical behavior.

Besides, TPB, the Theory of Planned Behavior, and Technology Acceptance Model, and behavioral reasoning theory (BRT) are also used to study the intentions and behavior of consumers. Shamsi et al. (2022) used the Theory of Planned Behavior and the Technology Acceptance Model to study consumer adoption behavior of technology and showed that mental concern and personal consciousness could push for sustainable consumption. The behavioral reasoning theory (BRT) was applied to explore personal, social, contextual, ethical, and moral reasons and how they exerted influence on consumer behavior (Habib et al., 2024). On this issue, literature is suggested to look at cultural value in understanding the consumer intention and consumption of sustainable products and services. Nunkoo et al. (2023) have discovered that power relations and socio-cultural values can positively shape the discussion and help to come up appropriate network and implementation of sustainable goals. Samad (2022) revealed that religiosity can affect attitude and subsequently affect behavior. To attract consumers towards sustainable or natural products, taking steps to create consumer trust is imperative. To create consumers' trust, steps should be taken to develop the brand. Trust could subsequently lead to loyalty for natural products. Sreen (2021) analyzed Consumers' trust in nature-based products in companies and brand loyalty has revealed that there is a link between attitude concerning the environment and actual consumption.

The literature on this theme applied the Planned Behavior Model (PBM) Theory of Planned Behavior and Technology Acceptance Model and behavioral reasoning theory (BRT) in studying various determinants of consumer behavior. The studies found that attitude, behavioral control, and consumption commitment could subsequently cause the consumption of sustainable products and services (Aliedan et al., 2023; D'souze et al., 2022). Literature looked at the cultural and religious dimensions too in assessing intention and purchase behavior (Al-Issa et al., 2023; Zakaria et al., 2021; Zeqiri et al., 2022). The literature suggests that to change the intention and behavioral pattern of consumer behavior, there is a need for planned behavioral change (Shamsi et al., 2022). To achieve this, they need to understand the factors that influence consumer consumption, create appropriate market segments, and direct customized marketing to each segment. These could create awareness of sustainable consumption and eventually attract more consumers towards sustainable products.

#### **3.3.4. Value creation through awareness of sustainable and ethical consumption**

Understanding consumer value can provide a better perspective of customer wants and deliver it to their satisfaction. As sustainable consumption has become a central point for many consumers, it may be necessary to understand the drivers of sustainable consumption and how it can create value. The literature discussed religiosity, morality, and ethics are some of the drivers. Agag et al. (2022) studied

travelers' post-pandemic hotel booking behavior using mortality threats and religiosity as moderating factors. It was found that if travelers are less religious, mortality deeply influenced travelers' post-pandemic hotel booking behaviors and the travelers are more religious, religiosity has more influence than mortality. They argued that public information can shape behavior as such creating awareness through public information can make the consumers choose sustainable and ethical products and services. Almulhim (2022) investigated environmental awareness and attitudes toward renewable energy. 79% of the respondents in his research stated that they are concerned about environmental degradation, however, alternative energy sources are costly. The outcome of the research showed that creating awareness is important.

If the consumers are convinced of value, they could build trust and loyalty. Alboqami (2023) found that once relationships were developed then trust could follow. Attractiveness and credibility like expertise and authenticity could create trust. According to Alyahya et al. (2023b) moral obligations, moral outrage, perceived venerability, value, and attitude could stimulate refurbished products. Customer value typology considered ethics is consumer values (Craig Smith, 1996, Holbrook 1994). Some regard ethical and sustainable products and services as providing greater value and satisfaction. Alsaad (2021) explored ethical judgments, the subjective moral sense of judgment, and the actual purchasing behaviors of customers. He found that ethical judgment affects consumers' intentions. Alsaad (2022) looked at also a possible interaction between religiosity and morality to understand moral and ethical consumption. He asserted that found that religiosity played a stronger conviction in determining ethical consumption than moral certainty. Thus, to create value, ethics, and morality plays an important role. Alyahya et al. (2023b) in studying the factors that drive consumption of refurbished, found that the ethical constructs and coping appraisal variables like perceived severity, perceived venerability, attitude, and value stimulate positive consumer behavior.

To conclude this theme, it could be said that ethics, morality, religiosity, and sustainability could be used as values. However, the value system of consumers could differ. Marketers, organizations and government should under the values system and create awareness to draw attention to ethical and sustainable behavior. However, along with awareness providing affordable sustainable products and services that could create value for the consumers is also imperative.

#### **4. Discussion and implication of the research**

In understanding consumer behavior, religiosity was considered by many researchers. 70 studies conducted on consumer behavior in GCC countries incorporated religiosity as part of the value that influences sustainable consumption. Religiosity is the belief in God that shapes and motivates individuals to behave in certain ways. The bibliometric co-occurrence revealed 3 clusters focusing on food waste, consumer behavior, and religiosity and highlighted the research strength, trends, and connectivity. The content analysis depicts four major themes: religious and cultural values influence sustainable consumption; religiosity influences sustainable waste management and tourism, planned behavioral change needed towards sustainable consumption and value creation through awareness of sustainable and

ethical consumption.

The literature on religious and cultural values influences on sustainable consumption looked at how perceived personal value, social value, religious value, and concern, knowledge, and attitude affect sustainable behavior intention and consumption (Bhuiyan and Sharma, 2017; Bhuiyan et al., 2018; Rehman et al., 2022). Religiosity was found to be a particularly important driver in influencing Muslim consumers in the GCC countries (Bhuiyan et al., 2018; Rahman et al., 2017). Besides religiosity, cultural and social norms also contributed to sustainable consumer behavior. It was shown that collectivism and materialism have a greater influence on encouraging sustainable behavior (Ul-Haq, 2020; Zakaria et al., 2021). The researchers generally suggested that understanding consumer needs, educating them, and influencing them could move them towards ecological-based products and services (Rahman et al., 2017).

The literature on religiosity in sustainable waste management and tourism explored issues related to excessive buying, food wastage, sustainable behavior of tourism, and the influence of religion on controlling food waste and promoting sustainable tourism. The research on this theme in analyzing behavioral intention and actual behavior looked at attitude, norms, and perceived behavioral control as factors that lead to food wastage and influence sustainable tourism. Social media, Anxiety, and the perceived severity of a situation like a pandemic could cause excessive that may lead to food waste (Sobaih, 2023). The research used religiosity as a mediating factor and found that religiosity partially or significantly affects controlling food waste or encouraging sustainable food management and tourism (Azazz et al., 2022; Elshaer et al., 2021). In addition to religiosity, social and sustainable awareness are also found to be factors in controlling food waste. The researchers suggest preparing a systematic awareness campaign that incorporates religious, social, and cultural norms to control impulsive buying and encourage trust in sustainable products and services (Kour et al., 2023; Khalil and Khalil, 2022).

In understanding consumer behavior and preparing for planned behavioral change toward sustainable consumption researchers used the Planned Behavior Model (PBM), Theory of Planned Behavior, Technology Acceptance Model, and behavioral reasoning theory (BRT). The researchers who applied the Planned Behavior Model (PBM) looked at attitudes, norms, and perceived control. The research revealed that attitudes and norms can predict the ethical behavior of consumers, (D'souze et al., 2022; Kashif and Khattak, 2017). The theory of Planned Behavior and Technology Acceptance Model application in understanding consumer behavior revealed that mental concern and personal consciousness can influence consumption. Researchers who applied the behavioral reasoning theory (BRT) found that not only personal factors, but also social, contextual, ethical, and moral factors can affect consumer behavior (Habib et al., 2024). In this regard, Nunkoo et al. (2023) found that power relations and sociocultural value can drive attitude and behavioral change. Along with the discussion of value systems, religious values can also influence attitudes (Samad, 2022). The product and service providers need to understand the drivers of consumers to influence consumer behavior. A planned behavioral change from consumer consumption before planning marketing initiatives influences change in consumer consumption. To create such a change, it is important to create consumers' trust then

loyalty towards the businesses. Trust will influence attitude and behavior (Sreen, 2021).

Consumer value leads to consumer behavior and any change in planned behavior. The theme on value creation through awareness discussed religiosity, morality, and ethics are part of values that consumers consider as determinants of value. Many researchers proved that religiosity created values that have a positive influence on consumer behavior. It has a greater impact than mortality (Agag et al., 2022). If the consumers are convinced of the value, they will tend to change their behavior. Moral obligations as a value also affect attitudes that could stimulate sustainable product products (Alyahya et al., 2023a). To understand customers and their value, customer feedback metrics (CFMs) that comprise Customer Effort Score, Customer Satisfaction, and Net Promoter Score could be used. This will help to assess past, and current customer satisfaction and predict the future satisfaction of the customers. Agag (2023) found that the different components of CFM could be used for different industries. For example, CES could be used for restaurants while the customer satisfaction component could be used to assess satisfaction in electronic and related industries.

This research has practical and policy implications for businesses, organizations, and policymakers who are trying to capture consumers for sustainable products and services in GCC countries. Businesses and organizations can promote the social value of religion to educate to change behavior toward sustainable consumption and reduce food waste. To educate consumers on religious values of sustainable consumption and preservation of natural resources, the Ministry of Religious Affairs and Ministry of Environment, Water and Agriculture have taken initiatives in GCC countries. Countries like Saudi Arabia and the United Arab Emirates drafted Vision 2021, Vision 2023, Water Security Strategy 2036, and National Renewable Energy Program to ensure that they achieve sustainable development. Since sustainability is given importance in GCC countries' visions and strategic plans.

The government can set up public-private partnerships involving the private sector, non-profit organizations, and academia. Through this partnership, all parties will be able to take part in promoting sustainable consumption and controlling food waste. They could set up labs like the Saudi Arabia Accelerator Lab to understand food waste and find innovative solutions involving various stakeholders. The governments could also enact laws and regulations on sustainable consumption, organic waste administration, and sustainable financing. The legal structure should be looked into to assess if it could support the achievement of sustainable consumption. Along with the laws and regulations, the policymakers should modify or update the existing policies to meet sustainable consumption and help in promoting food security as part of religiosity.

As the governments focus on sustainable development, all the companies operating in GCC countries should align their strategies toward sustainable products and services and participate in educating the communities on the importance of sustainability and food security in the local religious and cultural value systems. For example, businesses could be able to align their business activities, production methods, and supply chains to be sustainable. As GCC residents demand sustainable products and services due to environmental concerns, ethical religious awareness, and

healthier lifestyles, all businesses must promote and educate their sustainable products and services through various channels. Both the government and businesses should actively participate in promoting and educating the community and involve the communities in sustainable consumption projects. The information and activities can be shared as flyers, booklets, and barcodes to digital information. The activities should understand the expectations of various segments and cater to the needs of those distinct segments so that consumer satisfaction can be earned. The continuous satisfaction will lead to loyalty and trust. Since religiosity has an impact on loyalty and a mediating effect on satisfaction among Muslim consumers, incorporating appropriate intervention and infrastructure of supply and demand. In the policy arena, there should be initiatives to align food product, supply, and health policies with environmental, manufacturing, and scientific policies.

## **5. Conclusion**

Religiosity as part of the value is being considered influential in understanding sustainable consumer behavior in Muslim-dominant GCC countries. The research in this area showed that 70 relevant articles were collected from 34 academic sources. The data from 2016 to 2024 over 1400 citations implying the importance and current research trend. The research had many collaborations with multiple researchers of various disciplines and was mainly published by researchers in Saudi Arabia and the United Arab Emirates. The Vos viewer analysis of co-occurrence revealed that religiosity, consumer behavior, and food waste as important and co-related. The content analysis on religiosity and social norms showed a link to sustainable consumer behavior. Cultural values, collectivism, and materialism encourage sustainable behavior (Ul-Haq, 2020; Zakaria, 2021). Educating and creating awareness of ecological-based products and services seems to be effective (Rahman et al., 2017). Religiosity, social and cultural value partially or significantly mediated in encouraging sustainable food consumption tourism management and avoiding impulsive consumption (Azazz et al., 2022; Elshaer et al., 2021; Kour et al., 2023; Khalil and Khalil, 2022). On value creation, many researchers proved that religiosity creates values that have a positive influence on consumer behavior, and that also affect mortality (Agag et al., 2022). If the consumers are convinced of the value, that influences attitude that could stimulate sustainable product products (Alyahya et al., 2023a).

The research has its limitations. Firstly, it mainly looked at religiosity among GCC countries among Muslim dominant publications. The influence of religiosity on sustainable consumer behavior may differ from religion to religion as such the finding of this research may not be generalized in countries that have different religious values than GCC countries. Additionally, data were collected from the Scopus database for 9 years. Future research could collect data from other databases for a span of 9 or more years as this could help to understand the consumer pattern, changes, and the rationale for such changes. This could help to cover various countries of different cultural and religious beliefs. This could also help to compare the findings of this research to the research findings of future research.

Future research could also address the following research questions:

- 1) Is there a difference between religiosity and sustainable consumer behavior among various age groups, cultures, races, and sects?
- 2) How could the marketer prepare their marketing strategies and communicate with various segments to attract towards sustainable products and services?
- 3) How far does religiosity affect sustainable behavior in countries where their religious value is different from GCC countries?

To achieve the above research questions, the researchers could use survey methods or interviews in addition to bibliometric analysis. For the survey method, the researchers can use various age groups, races, cultures, and sects to understand their sustainable consumption behavior and the influence of religiosity. Interviews can be conducted among the marketers to comprehend their strategies and the effectiveness of those strategies in creating or understanding sustainable consumer behavior and the influence of religiosity.

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