



مجلة العلوم الإنسانية
بجامعة حائل



جامعة حائل
University of Hail

مجلة العلوم الإنسانية

دورية علمية محكمة تصدر عن جامعة حائل



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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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للتواصل:

مركز النشر العلمي والترجمة

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نبذة عن المجلة

تعريف بالمجلة

مجلة العلوم الإنسانية، مجلة دورية علمية محكمة، تصدر عن وكالة الجامعة للدراسات العليا والبحث العلمي بجامعة حائل كل ثلاثة أشهر بصفة دورية، حيث تصدر أربعة أعداد في كل سنة، وبحسب اكتمال البحوث المحازرة للنشر. وقد نُجحت مجلة العلوم الإنسانية في تحقيق معايير اعتماد معامل التأثير والاستشهادات المرجعية للمجلات العلمية العربية معامل "آر سيف Arcif" المتوافقة مع المعايير العالمية، والتي يبلغ عددها (32) معياراً، وقد أُطلق ذلك خلال التقرير السنوي الثامن للمجلات للعام 2023.

رؤية المجلة

التميز في النشر العلمي في العلوم الإنسانية وفقاً لمعايير مهنية عالمية.

رسالة المجلة

نشر البحوث العلمية في التخصصات الإنسانية؛ لخدمة البحث العلمي والمجتمع المحلي والدولي.

أهداف المجلة

تهدف المجلة إلى إيجاد منافذ رصينة؛ لنشر المعرفة العلمية المتخصصة في المجال الإنساني، وتمكن الباحثين -من مختلف بلدان العالم- من نشر أبحاثهم ودراساتهم وإنتاجهم الفكري لمعالجة واقع المشكلات الحياتية، وتأسيس الأطر النظرية والتطبيقية للمعارف الإنسانية في المجالات المتنوعة، ووفق ضوابط وشروط ومواصفات علمية دقيقة، تحقيقاً للجودة والريادة في نر البحث العلمي.

قواعد النشر

لغة النشر

- 1- تقبل المجلة البحوث المكتوبة باللغتين العربية والإنجليزية.
- 2- يُكتب عنوان البحث وملخصه باللغة العربية للبحوث المكتوبة باللغة الإنجليزية.
- 3- يُكتب عنوان البحث وملخصه ومراجعته باللغة الإنجليزية للبحوث المكتوبة باللغة العربية، على أن تكون ترجمة الملخص إلى اللغة الإنجليزية صحيحة ومتخصصة.

مجالات النشر في المجلة

تتم مجلة العلوم الإنسانية بجامعة حائل بنشر إسهامات الباحثين في مختلف القضايا الإنسانية الاجتماعية والأدبية، إضافة إلى نشر الدراسات والمقالات التي تتوفر فيها الأصول والمعايير العلمية المتعارف عليها دولياً، وتقبل الأبحاث المكتوبة باللغة العربية والإنجليزية في مجال اختصاصها، حيث تعنى المجلة بالتخصصات الآتية:

- علم النفس وعلم الاجتماع والخدمة الاجتماعية والفلسفة الفكرية العلمية الدقيقة.
- المناهج وطرق التدريس والعلوم التربوية المختلفة.
- الدراسات الإسلامية والشريعة والقانون.
- الآداب: التاريخ والجغرافيا والفنون واللغة العربية، واللغة الإنجليزية، والسياحة والآثار.
- الإدارة والإعلام والاتصال وعلوم الرياضة والحركة.

أوعية نشر المجلة

تصدر المجلة ورقياً حسب القواعد والأنظمة المعمول بها في المحلات العلمية المحكمة، كما تُنشر البحوث المقبولة بعد تحكيمها إلكترونياً لتعم المعرفة العلمية بشكل أوسع في جميع المؤسسات العلمية داخل المملكة العربية السعودية وخارجها.

ضوابط النشر في مجلة العلوم الإنسانية وإجراءاته

أولاً: شروط النشر

أولاً: شروط النشر

1. أن يتسم بالأصالة والجدّة والابتكار والإضافة المعرفية في التخصص.
2. لم يسبق للباحث نشر بحثه.
3. ألا يكون مستلماً من رسالة علمية (ماجستير / دكتوراة) أو بحوث سبق نشرها للباحث.
4. أن يلتزم الباحث بالأمانة العلمية.
5. أن تراعى فيه منهجية البحث العلمي وقواعده.
6. عدم مخالفة البحث للضوابط والأحكام والآداب العامة في المملكة العربية السعودية.
7. مراعاة الأمانة العلمية وضوابط التوثيق في النقل والاقتباس.
8. السلامة اللغوية ووضوح الصور والرسومات والجداول إن وجدت، وللمجلة حقها في مراجعة التحرير والتدقيق النحوي.

ثانياً: قواعد النشر

1. أن يشتمل البحث على: صفحة عنوان البحث، ومستخلص باللغتين العربية والإنجليزية، ومقدمة، وصلب البحث، وخاتمة تتضمن النتائج والتوصيات، وثبت المصادر والمراجع باللغتين العربية والإنجليزية، والملاحق اللازمة (إن وجدت).
2. في حال (نشر البحث) يزود الباحث بنسخة إلكترونية من عدد المجلة الذي تم نشر بحثه فيه، ومستلماً لبحثه .
3. في حال اعتماد نشر البحث تؤول حقوق نشره كافة للمجلة، ولها أن تعيد نشره ورقياً أو إلكترونياً، ويحق لها إدراجه في قواعد البيانات المحليّة والعالمية - بمقابل أو بدون مقابل - وذلك دون حاجة لإذن الباحث.
4. لا يحق للباحث إعادة نشر بحثه المقبول للنشر في المجلة إلا بعد إذن كتابي من رئيس هيئة تحرير المجلة.
5. الآراء الواردة في البحوث المنشورة تعبر عن وجهة نظر الباحثين، ولا تعبر عن رأي مجلة العلوم الإنسانية.
6. النشر في المجلة يتطلب رسوما مالية قدرها (1000 ريال) يتم إيداعها في حساب المجلة، وذلك بعد إشعار الباحث بالقبول الأولي وهي غير مستردة سواء أجزيت البحث للنشر أم تم رفضه من قبل المحكمين.

ثالثاً: توثيق البحث

أسلوب التوثيق المعتمد في المجلة هو نظام جمعية علم النفس الأمريكية (APA7)

رابعاً: خطوات وإجراءات التقديم

1. يقدم الباحث الرئيس طلباً للنشر (من خلال منصة الباحثين بعد التسجيل فيها) يتعهد فيه بأن بحثه يتفق مع شروط المجلة، وذلك على النحو الآتي:
 - أ. البحث الذي تقدمت به لم يسبق نشره (ورقياً أو إلكترونياً)، وأنه غير مقدم للنشر، ولن يقدم للنشر في وجهة أخرى حتى تنتهي إجراءات تحكيمه، ونشره في المجلة، أو الاعتذار للباحث لعدم قبول البحث.
 - ب. البحث الذي تقدمت به ليس مستلماً من بحوث أو كتب سبق نشرها أو قدمت للنشر، وليس مستلماً من الرسائل العلمية للماستير أو الدكتوراة.
 - ج. الالتزام بالأمانة العلمية وأخلاقيات البحث العلمي.
 - د. مراعاة منهج البحث العلمي وقواعده.
 - هـ. الالتزام بالضوابط الفنية ومعايير كتابة البحث في مجلة العلوم الإنسانية بجامعة حائل كما هو في دليل المؤلفين
- كتابة البحوث المقدمة للنشر في مجلة العلوم الإنسانية بجامعة حائل وفق نظام APA7
2. إرفاق سيرة ذاتية مختصرة في صفحة واحدة حسب النموذج المعتمد للمجلة (نموذج السيرة الذاتية).
 3. إرفاق نموذج المراجعة والتدقيق الأولي بعد تعينته من قبل الباحث.
 4. يرسل الباحث أربع نسخ من بحثه إلى المجلة إلكترونياً بصيغة (word) نسختين و (PDF) نسختين تكون إحداها بالصيغتين خالية مما يدل على شخصية الباحث.
 5. يتم التقديم إلكترونياً من خلال منصة تقديم الطلب الموجودة على موقع المجلة (منصة الباحثين) بعد التسجيل فيها مع إرفاق كافة المرفقات الواردة في خطوات وإجراءات التقديم أعلاه.
 6. تقوم هيئة تحرير المجلة بالفحص الأولي للبحث، وتقرير أهليته للتحكيم، أو الاعتذار عن قبوله أولاً أو بناء على تقارير المحكمين دون إبداء الأسباب وإخطار الباحث بذلك
 7. تملك المجلة حق رفض البحث الأولي ما دام غير مكتمل أو غير ملتزم بالضوابط الفنية ومعايير كتابة البحث في مجلة حائل للعلوم الإنسانية.
 8. في حال تقرر أهلية البحث للتحكيم يخطر الباحث بذلك، وعليه دفع الرسوم المالية المقررة للمجلة (1000 ريال غير مستردة من خلال الإيداع على حساب المجلة ورفع الإيصال من خلال منصة التقديم المتاحة على موقع المجلة، وذلك خلال مدة خمس أيام عمل منذ إخطار الباحث بقبول بحثه أولاً وفي حالة عدم السداد خلال المدة المذكورة يعتبر القبول الأولي ملغياً.
 9. بعد دفع الرسوم المطلوبة من قبل الباحث خلال المدة المقررة للدفع ورفع سند الإيصال من خلال منصة التقديم، يرسل البحث لمحكمين اثنين؛ على الأقل.
 10. في حال اكتمال تقارير المحكمين عن البحث؛ يتم إرسال خطاب للباحث يتضمن إحدى الحالات التالية:
 - أ. قبول البحث للنشر مباشرة.
 - ب. قبول البحث للنشر؛ بعد التعديل.
 - ج. تعديل البحث، ثم إعادة تحكيمه.
 - د. الاعتذار عن قبول البحث ونشره.
 11. إذا تطلب الأمر من الباحث القيام ببعض التعديلات على بحثه، فإنه يجب أن يتم ذلك في غضون (أسبوعين من تاريخ الخطاب) من الطلب. فإذا تأخر الباحث عن إجراء التعديلات خلال المدة المحددة، يعتبر ذلك عدولاً منه عن النشر، ما لم يقدم عذراً تقبله هيئة تحرير المجلة.
 12. في حالة رفض أحد المحكمين للبحث، وقبول المحكم الآخر له وكانت درجته أقل من 70%؛ فإنه يحق للمجلة الاعتذار عن قبول البحث ونشره دون الحاجة إلى تحويله إلى محكم مرجح، وتكون الرسوم غير مستردة.

13. يقدم الباحث الرئيس (حسب نموذج الرد على المحكمين) تقرير عن تعديل البحث وفقاً للملاحظات الواردة في تقارير المحكمين الإجمالية أو التفصيلية في متن البحث
14. للمجلة الحق في الحذف أو التعديل في الصياغة اللغوية للدراسة بما يتفق مع قواعد النشر، كما يحق للمحررين إجراء بعض التعديلات من أجل التصحيح اللغوي والفني. وإلغاء التكرار، وإيضاح ما يلزم. وكذلك لها الحق في رفض البحث دون إبداء الأسباب.
15. في حالة رفض البحث من قبل المحكمين فإن الرسوم غير مستردة.
16. إذا رفض البحث، ورغب المؤلف في الحصول على ملاحظات المحكمين، فإنه يمكن تزويده بهم، مع الحفاظ على سرية المحكمين. ولا يحق للباحث التقدم من جديد بالبحث نفسه إلى المجلة ولو أجريت عليه جميع التعديلات المطلوبة.
17. لا تردّ البحوث المقدمة إلى أصحابها سواء نشرت أم لم تنشر، ويخطر المؤلف في حالة عدم الموافقة على النشر
18. يحق للمجلة أن ترسل للباحث المقبول بحثه نسخة معتمدة للطباعة للمراجعة والتدقيق، وعليه إنجاز هذه العملية خلال 36 ساعة.
19. لهيئة تحرير المجلة الحق في تحديد أولويات نشر البحوث، وترتيبها فنياً.

المشرف العام

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Investigating the Impact of Market Perceptions and Cultural Norms on Sustainable Food Consumption: Food Waste Avoidance as a Mediator in Saudi Arabia

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Abstract

The purpose of this study is to explore the connection between market stereotyping and cultural norms, with food waste avoidance acting as a mediator in sustainable food consumption. The objective of the current research is to recognize how culture and perceptions affect food habits in Saudi Arabia to avoid food waste sustainably. Data were gathered through questionnaire surveys and included 559 participants. Individuals' relationships according to various structures were viewed regarding mediation effects using the SEM. The analysis found that cultural values are determinants of food waste avoidance behaviors and have direct and positive correlations with green food consumption. In addition, quality marking contributes significantly to food waste avoidance and sustainable consumption growth. The findings of this study indicate that food waste avoidance and sustainability in food intake must be viewed in the context of food culture interventions. According to the current research findings, responsible behavior by individuals is better driven by clear and high-quality product markings. The current study contributes to the literature by combining culture, market perceptions, and food waste avoidance in one sustainable food intake structure in Saudi Arabia.

Keywords: Cultural Values, Food Waste Avoidance, Sustainable Consumption, Quality Labelling.

المستخلص

هدفت هذه الدراسة إلى استكشاف كيفية إرتباط الصور النمطية السوقية بالأعراف الثقافية، وكيف يمثل تجنب هدر الطعام وسيطاً في استهلاك الغذاء المستدام. ويسعى هذا البحث إلى تحديد كيفية تأثير الثقافة والتوجهات الفكرية على العادات الغذائية في المملكة العربية السعودية لتجنب هدر الطعام بشكل مستدام. تم جمع البيانات من خلال استبيانات شملت 559 مشاركاً. وتم فحص العلاقات بين المتغيرات المختلفة مع مراعاة تأثير الوساطة باستخدام نمذجة المعادلات الهيكلية (SEM). وكشفت النتائج أن القيم الثقافية تُعد محددات رئيسية لسلوكيات تجنب هدر الطعام وترتبط ارتباطاً مباشراً وإيجابياً بالعادات الاستهلاكية الخضراء. بالإضافة إلى ذلك، يسهم وضع علامات الجودة بشكل كبير في تجنب هدر الطعام والنمو المستدام في الاستهلاك. وكذلك تشير نتائج هذه الدراسة إلى ضرورة النظر إلى تجنب هدر الطعام والاستدامة في الاستهلاك الغذائي في إطار السياق الثقافي عند تصميم التدخلات الغذائية. ووفقاً لنتائج البحث الحالي، فإن السلوك المسؤول للأفراد يُحفّز بشكل أفضل من خلال وجود علامات منتج واضحة وذات جودة. ويتمثل إسهام هذه الدراسة في الأدبيات الحالية من خلال دمج الثقافة، والتوجهات السوقية، وتجنب هدر الطعام ضمن إطار واحد للاستهلاك الغذائي المستدام في المملكة العربية السعودية.

الكلمات المفتاحية: القيم الثقافية، تجنب هدر الطعام، الاستهلاك المستدام، جودة الملصق.

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البيان الأخلاقي: حصلت الدراسة على موافقة لجنة الأخلاقيات، وشارك جميع المشاركين طوعاً بعد إعطاء موافقتهم المستنيرة، مع الحفاظ الكامل على السرية وعدم الكشف عن الهوية، والالتزام التام بالإرشادات الأخلاقية المؤسسية.

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Introduction:

The general trends in food consumption across the world are evolving rapidly, with more emphasis on sustainability and sustainability impact. In Saudi Arabia, cultural and societal practices have led to food wastage; hence, food sustainability is a challenge (Moraes et al., 2021). The amount of food waste is very high in Saudi Arabia, and food is routinely thrown away during national religious and cultural celebrations (Redlingshöfer et al., 2020). The intertude of culture, market, and food waste is the avenue and dare to come up with sustainable food consumption patterns.

Another vital factor in consumer preference is quality marking. According to research evidence, food quality certificates and food marking are among the priority areas in food purchasing decisions in Saudi Arabia (Slorach et al., 2020). Marking can be used to authenticate food safety, nutrition, and sustainability; however, it affects food intake habits (Berjan et al., 2022). Nonetheless, the quality marking effect on waste reduction regarding food waste and consumption of pro-environment food is lacking.

Consumer perceptions regarding marketing are known as awareness, attitudes, and beliefs, which are influenced by marketing campaigns such as advertising, labelling, branding, and promoting sustainable food products. These images affect consumer opinions and buying habits. In Saudi Arabia, cultural and religious principles dictate the consumption of food, as hospitality principles promote excess food production, which tends to lead to wastage (Williams et al., 2020). The effects of marketing interventions on cultural norms should be understood to develop effective interventions. Concerns about traditional values contribute to resourcefulness and caution, yet food waste is on the rise (Moshtaghian et al., 2021). It is important to highlight that the interaction between marketing beliefs and the environment of cultural practices is complicated in the formation of consumer behavior. The reduction of food waste generated within the environment is crucial for the development of green consumption behavior.

Direct action in terms of warehousing food waste reduction has been identified as directly benefiting green consumption (Garske et al., 2020). Most operational changes that can ensure sustainability goals include food intake frequency, purchase patterns, and meal proportions (Tanveer et al., 2021). Nonetheless, these tendencies are mainly fed by the market and society.

The GCC sustainability goal in Saudi Arabia is geared towards sustainable construction of food

security and waste. Government regulations have started to focus on education, green branding, and incentives to generate sustainable purchasing behavior (Scalvedi and Rossi, 2021). Nevertheless, there is some evidence that leaves one with the opinion that there remains a considerable portion of the population that is unaware of the impact of food waste and its purchasing habits on the environment at large. It is vital to overcome such knowledge gaps to ensure sustainability in the future.

Other regions have successfully utilized market-oriented strategies, including sustainability certification and eco-labelling, to influence food choices towards sustainability. Whether such strategies will hold in Saudi Arabia is unknown, but in view of market culture and economic perceptions (Stancu & Lähteenmäki, 2022). These determinants may assist policymakers and businesses in establishing successful attitude-change strategies to bring about change.

As awareness of food sustainability rises in most countries worldwide, food waste remains an issue in the Kingdom of Saudi Arabia, influenced by cultural practices and market consumption. The misuse of resources in the country is extremely high, which is contrary to its religious and social beliefs (Read and Muth, 2021). Although the concept of quality labelling is meant to help consumers make purchase decisions, it is less clear whether it helps them minimize food waste and reduces a lapse in sustainable consumption. Moreover, the culture of being kind and hospitable that compels individuals to pay more than is required to put food on the table also contributes to wasteful acts. With regard to the Saudi market, minimal studies have been conducted on the relevance of food waste avoidance towards the re reckoning of environmentally friendly consumer behavior. This study aims to address this gap by exploring the impact of quality labeling and culture on food consumption and the opportunities to aid in waste prevention.

This study dwells upon the complexity of the relationship between market and cultural factors and sustainable commercial food use in Saudi Arabia through the prism of food waste dodging. The aim of the study was to determine the extent of quality labelling in food consumption based on environmental sustainability and whether the credibility and visibility of the labelling will influence licensed food products on the consumption choices made by the consumer (Jribi et al., 2020). In this study, the contribution of cultural values to the realization of food waste avoidance behavior in Saudi Arabia is examined due to the prevalent and strongly established hospitality conceptions, which may facilitate

overpurchase and food waste. This study aimed to determine whether food waste avoidance is an intermediate point of cultural values, quality labelling, and sustainable food consumption. This study also aimed to determine consumer perception of food product labelling and its role in responsible buying. Above all, this study aims to recommend measures that would enhance sustainability by embracing food waste mitigation in unity with Saudi Arabia's Vision 2030 of an ecologically friendly society.

Problem Statement:

In Saudi Arabia, the problem of food waste is a key issue of sustainability, even though evidence of environmentally friendly consumption is growing globally. According to recent statistics, the level of food waste on a per-capita basis in Saudi Arabia is among the highest in the world, and it is estimated to be approximately 427 kg per individual per year (Saudi Grains Organization, 2022). This topic is further aggravated by the robust cultural hospitality customs, liberal food preparation, and social gathering expectations and norms, which usually promote showcasing abundance as a demonstration of respect and generosity. Meanwhile, food marketing strategies (and, more specifically, the marketing strategies involving persuasive emotional appeals and other promotional indicators) may unintentionally increase over-purchasing behavior and create an even stronger disconnect between the awareness of sustainability and the true behavior of a consumer. Therefore, there is an urgent need to understand the effects of cultural norms, advertising effects, and consumers' mental models on food waste patterns in Saudi Arabia.

Despite the extensive scholarly studies on sustainable consumption and mitigation of food waste management globally, the research gap in sustainable consumption has been largely overlooked in Saudi Arabia, and there is a lack of literature on the interplay between cultural values and marketing forces. Research which has been conducted on this issue has concentrated mostly on general opinions about sustainability, and little is said about the impact of the cultural habits of generosity, social status, and hospitality on food purchase and food discard choices. Additionally, the existing literature does not possess an accurate conceptualization of how marketing instruments, such as eco-labelling, quality certification, or promotional framing, can interact with ingrained cultural anticipations. According to Benyam et al. (2021), the existing literature does not reflect the cultural dynamics of the region that support sustainable food behaviors. This oversight hinders scholars' knowledge and prevents the creation of effective and culturally specific sustainability intervention measures.

Given these gaps, it is crucial to explore how the association between cultural values, quality labelling, and sustainable food consumption in Saudi Arabia can be mediated by food waste avoidance behaviors. This complex may be evidence-based to inform food producers and marketers who want to market sustainable decisions in the most culturally sensitive way possible. An example is determining the eco-label characteristics that can effectively motivate waste-averse consumers to purchase products so that more effective labelling and certification systems can be created to assist the Saudi market (Williams et al., 2020). Moreover, the results will be applicable to the national policy direction associated with Saudi Vision 2030, which focuses on decreasing food waste and enhancing the effective use of resources (Zamri et al., 2020). In general, this study not only provides an important scholarly gap but also offers an input to the issue of global sustainability, since the research has provided approaches that help decrease the resources, reduce greenhouse gas emissions, and aid in protecting the environment in the long term..

Research Gap:

The research problem is now clearly stated; however, it needs to be made stronger by adding empirical statistics to prove how big and urgent the problem of unsustainable food consumption and waste is on the national and international levels in Saudi Arabia. Providing quantitative data, such as estimations of the amount of food wasted at the national level or measures of consumer behavior, will put the issue in perspective and support its practical importance. In addition, a separate section describing the gap in previous studies is necessary to define the scholarly contribution of the study. This gap highlights the limited focus on culturally motivated factors of sustainable food consumption in Middle Eastern contexts, the under-researched mediating role of food waste avoidance, and the poor application of established theories of behavior in past studies. Such inclusion would make the study more rigorous, clear, and academically positioned.

Significance:

This study is valuable as it assists in identifying the association between marketing and culture with sustainability, the three main factors that empower consumer choices in Saudi Arabia. This type of study provides a good model that marketers, policymakers, or people who have an interest in the sustainability of the world can utilize to build or create fruitful campaigns because it assists in realizing that the avoidance of food waste can be viewed as a mediator. This study will also help bridge the gap in the local literature on sustainability consumption in Gulf countries,

where tradition shapes food preferences. In addition, the findings will aid the industry in re-engineering the marketing process and integrating the concept of sustainability without frightening customers to do so. When modified marketing messages are perceived as moderation and gratitude endorsed by that culture, the success of public campaigns and greater business choices will be promoted through such messages. This study will facilitate the increase of Saudi Arabia in the 2030 vision by dispersing sustainable mindsets linked to the Saudi spirit and clever customer selections.

Research Questions:

The research questions are as follows:

- To explore the impact of quality labelling on environmentally friendly food consumption.
- To explore the impact of cultural values on environmentally friendly food consumption.
- To determine the mediating role of food waste avoidance in the relationship between quality labelling and environmentally friendly food consumption.
- To determine the mediating role of food waste avoidance in the relationship between cultural values and environmentally friendly food consumption.

Literature Review:

Conceptual Grounding:

The current study is supported by the Theory of Planned Behavior (TPB), which postulates that attitudes, subjective norms, and perceived behavioral control influence the intentions and real behaviors of individuals. Quality labelling should be recognized as an attitudinal antecedent in the context of environmentally friendly food consumption because it offers plausible information on environmental benefits, production standards, and safety assurance (Benyam et al., 2021). The perception that consumers have about eco-labels and quality certifications leads them to develop a better positive belief in products that are sustainable, improving their intentions to buy them (Zamri et al., 2020). Therefore, the TPB provides the conceptual rationale that labeling cues reinforce pro-environmental attitudes, which agrees with the first research question.

To enhance the cultural aspect, the structure incorporates the Cultural Values Theory and Value-Belief-Norm (VBN) Theory. Culturally specific values, that is, social responsibility, modesty, stewardship, and respect towards resources, are directly applied in collectivist settings such as Saudi Arabia, which, according to the values, shape subjective norms and

personal moral imperatives for sustainability (Annosi et al., 2021). The VBN postulates that people with good internal environmental or moral values are predisposed to believe in pro-environmental beliefs and adhere to their own norms, which they use to make sustainable food selections (Nicastro and Carillo, 2021). Hence, cultural values not only influence societal demands but also mobilize moral standards that promote environment-friendly consumption and offer a theoretical conceptualization of the second research question.

The mediating factor of food waste avoidance is supported by TPB and VBN. The TPB considers food waste avoidance as a behavioral intention that moderates the impact of attitudes and norms on actual sustainable behavior (Messner et al., 2021). As quality labelling contributes to the improved value and significance of food to the environment, consumers will have less reason to discard food, which contributes to the implementation of sustainability in the broad sense of the word (Aldaco et al., 2020). Equally, VBN emphasizes that cultural and moral beliefs against waste trigger responsible behavior, so waste avoidance is paramount because cultural values affect the contribution of sustainable food preferences. Thus, to some extent, avoiding food waste becomes a viable behavior channel that bridges both quality labelling and cultural values to green food consumption, as per the last two research questions.

Theoretical Support for the Variables and Their Determinants:

Quality labelling is a significant attitudinal antecedent that presents plausible information about environmental safety, production integrity, and sustainability advantages (Benyam et al., 2021). Previous findings have shown that eco-labels play a huge role in consumers' perception of trust, product value, ethical standards, and environmental responsibility (Deliana, 2022; Grunert et al., 2014). Where labels are a clear indication of sustainability attributes, they reinforce positive beliefs, perceived behavioral control, and, thus, intentions to buy green food (Zamri et al., 2020; Testa et al., 2020).

Sustainability practices are largely influenced by cultural values, particularly in collectivist cultures such as Saudi Arabia. There is a large body of social norms and practices connected with modesty, collective responsibility, hospitality, and stewardship that shape consumption patterns in households, preferences formed, and waste behaviors (Annosi et al., 2021). Scholarly studies within similar cultural contexts indicate that conformity to societal demands, ethical responsibility, and sustainable consumption are motivated by cultural values (Nicastro and Caril-

lo, 2021; Al-Jubair and Nguyen, 2022). According to the VBN framework, internalized values are activated, and pro-environmental beliefs trigger responsible consumption decisions.

Both TPB and VBN understand the avoidance of food waste as a behavioral process that depends on attitudes, cultural norms, and moral beliefs. Within the framework of TPB, waste avoidance is involved in terms of the change in the nature of intention and behavior: once people value sustainability and trust information on eco-labels, they are less prone to discard food and more predisposed to responsible consumption (Messner et al., 2021; Stancu et al., 2016). Similarly, VBN proposes that cultural and ethical values that oppose waste give rise to personal regulations that uphold responsible food management, portion control, and effective intake (Aldaco et al., 2020; Hansmann et al., 2020). Thus, the behavioral pathway between cultural values, quality labelling, and green food consumption is waste avoidance.

Quality Labelling:

Food industry labelling is a pertinent device that helps consumers make choices. Quality labelling can emphasize the aspects of food safety, nutrition, and sustainability, and hence, helps make informed decisions (Zamri et al., 2020). The essence of part of the labelling, such as organic, fair trade, or eco-friendly, will lead the business towards what consumers believe is an improvement in the quality of the services and goods offered and responsible behavior in relation to the environment. Quality labelling could be an emerging issue that shapes food consumption in Saudi Arabia, as people are becoming more concerned with environmental and other health-related issues (Benyam et al., 2021). However, there is growing ignorance among consumers regarding whether the labels are valid; hence, consumers do not feel confident about the way they establish policies.

The relationship between quality labeling and consumer purchasing behavior is necessary. Consumers turn to the use of quality labels to have evidence of the genuineness and worth of a product, especially when there is a lack of uniformity in imposing regulations, which can be disorienting to a significant proportion of the population (Annosi et al., 2021). For example, the Vision 2030 intervention in Saudi Arabia has attempted to enhance the quality of food labeling to meet international standards (Attiq et al., 2021). Nevertheless, the literature proves that consumer trust is not imminent because the knowledge that there are still some labels that are a mere marketing trick with no underlying signal, substance, or sustainability does not positively reflect (Vermeir et al., 2020).

In this case, compliance and transformation of consumer education must be followed to formulate a quality claim. Consumer education and awareness are incapable of quality labelling. The labels help to simplify and make purchasing an easier process, but the research has proven that a staggering number of Saudi Arabian consumers find it hard to obtain the required information with the help of the packages (Nicastro and Carillo, 2021). Most of these environmental certifications, such as carbon footprint labelling and eco-labels, are not fully understood, leading to low or no sustainable food intake. This implies that some consumers are not influenced by these labels, leading them to modify their purchasing patterns.

Another aspect of quality labelling is the readiness of consumers to spend money on eco-labelled products. Saudi Arabian customers are willing to pay more to eat organically and have items with sustainable labeling because of their confidence in the legitimacy of the labels (Brennan and Browne, 2021). However, price sensitivity remains a challenge, particularly when engaging middle- and low-income consumers who prefer to use cheap goods instead of staying sustainable (van Geffen et al., 2020). This shows that consumer intention is not related to consumer action; therefore, there is a need to create financial incentives or subsidies to help make better decisions regarding environmentally friendly food choices.

In addition, quality labelling is enhanced by marketing and branding, which will always remain a component of any business. Producers and sellers value food labels as an influential marketing strategy that allows them to attract the attention of pro-sustainability consumers (Pocol et al., 2020). In Saudi Arabia, there has been an increase in the number of local food makers pursuing halal labels and organic certificates to maximize the opportunity to sell their independent products in the market. Research has also shown that deceptive or vague labels that are improperly designed may result in losing customer trust; therefore, the necessity of restrictive rules that imply credibility in the system of labelling should be achieved and preserved (Amicarelli et al., 2021).

Digital background food labelling has generated new opportunities for reaching consumers. QR codes in combination with blockchain technology are applied to food packages to achieve sophisticated traceability of the food origin source, business striving to become sustainable, or ethically source food products (Aldaco et al., 2020). This is because such technological innovations can inform consumers to make better choices in Saudi Arabia, which is becoming increasingly digitally literate (Filimonau et

al. 2021). The issue of accessibility and digital divide, in its turn, must be solved to offer possible fixes that will allow all consumers to access these inventions.

Cultural Values:

Cultural values significantly impact food consumption, and Saudi Arabia is one of the countries in which cultural practices, socio-religious elements, and additional norms define eating patterns (Huang et al., 2020). There is a two-sided sword in the mingling of cultural preservation and sustainability to deal with environmentally friendly food consumption (Lins et al., 2021). The high levels of food waste in Saudi Arabia can be enhanced by conspicuous cultural values such as an emphasis on hospitality and kindness combined with the prodigality of meal portions and preparation of overeats; the cultural norms of such social values contribute to social integration and unification (Messner et al., 2021). All these factors make it difficult to ensure that successful sustainability policies for reducing food waste will be effective in this part of the world.

Moderation, resourcefulness, and food ethics are the central precepts of Islamic teachings. Islam encourages followers to refrain from wastefulness and consume food responsibly (Amicarelli et al., 2022). However, the reality is different, as there is a gap between religious beliefs and actual practices, and food waste is commonplace among Saudi families (van Geffen et al., 2020). Thus, it becomes evident that religious teachings are often undermined by societal norms and culture. Therefore, purposeful policy frameworks intended to merge sustainability and religion for better behavioral change are necessary.

Food consumption is also influenced by familial and social relationships. Within Saudi families, dietary selections are often made by family patriarchs or matriarchs, who tend to observe the cultural practices of large portions and feasting (Amicarelli et al., 2022). These and other practices make it difficult for older people to shift towards more sustainable dietary practices. In contrast, younger Saudis have started to embrace more sustainable ways of consumption due to the effects of globalization and social media, which suggests an attitude change towards sustainability and food waste among the new generation (Vittuari et al., 2023).

Additionally, affluence changes cultural attitudes toward food consumption. Food overconsumption contributes to wasteful behavior because Saudi Arabia is a high-income country with a food surplus due to the resources it possesses (Conrad & Blackstone, 2021). More affluent individuals tend to

waste food more elaborately than lower-income families, who display less wasteful consumption patterns (Ciccullo et al., 2021). This emphasizes the necessity of educating people on the need to reduce food waste as a humanitarian and environmental issue, regardless of their social status.

Public Awareness campaigns portray sustainability as a collective responsibility rather than an individual effort. Attitude shifts have occurred as a result of this thinking; thus, programs that include religious leaders, community influencers, and educational institutions to discuss sustainability work towards helping people build a stronger community that supports the four pillars of sustainability (Rasool et al., 2021).

The blending of global food culture into the Saudi culture further affects consumption patterns. The availability of Western food, fast food, and processed foods, and the increased consumption of these foods, have led to higher changes in eating patterns, which are sometimes detrimental to sustainable food practices (Reisch et al., 2021). The most difficult challenge is addressing the need for cultural preservation while achieving sustainable development goals. Restoring the use of minimally processed local and seasonal foods is important for safeguarding health and environmental concerns.

Food Waste Avoidance:

Food waste avoidance will be critical in attaining the required sustainability in food consumption in a country like Saudi Arabia, where food waste levels are worrying. As the population and the level of economic development opened new possibilities, the changes in the food consumption pattern over the years have been noted to have as a result of that, drastically augmented the extent of food waste being generated at both the business and home segments (De Laurentiis et al., 2020). The findings show that food disposals are caused by structural norms and economic factors, in addition to a lack of information on the impact of food disposals on the environment (Chen et al., 2020). The social and religious traditions of Saudi Arabia attribute surplus unused food as an excellent characteristic and element of social courtesy that leads to immoderate consumption. Further, according to Islam, which promotes the use of food in large amounts, it should be pointed out that Islam condemns extravagance and excess spending above the level of necessity or suggestions strongly and demands moderation when accessible resources are used (Rasool et al., 2021). Thus, there appears to be an ongoing fight in the country when it comes to determining the ratio between the expectations of the culture and the reli-

gious angle, and therefore, the phenomenon of food waste mitigation becomes a complicated issue.

There are some positive proactive governmental inputs and programs in Saudi Arabia, as it has been observed that the policies of Saudi Arabia are guided by search initiatives into food waste management policies. Sustainable consumption and waste reduction have been enforced by law, and campaigns have been carried out by the Saudi government as part of Vision 2030 (De Laurentiis et al., 2020). A highly required new direction is the food waste program to teach consumers about sustainable actions, meal scheduling, portion control, food preservation, and cleaning (Al-Obadi et al., 2022). Moreover, a structural strategy involving the submission of a few policies, including food labels, to identify the expiry date and differentiate between best before and use by dates helped to avoid food waste (Kim et al., 2020). These are proactive efforts that lead towards the aim of the government to change the acquired perception of consumption by the people.

Education and awareness are critical for addressing food wastage. Similarly, Rasool et al. (2021) confirmed that a considerable number of Saudi households lack adequate knowledge about food storage methods, a factor that contributes to the considerable issue of food wastage in the household. Behavioral changes will occur more in people regarding food waste through educational campaigns that outline the economic and environmental consequences of food waste (Luu, 2020). In addition, social media and other online activism about food sustainability have increased, contributing to the reduction of food waste (Filimonau et al., 2023). Digital outreach can be used by the Saudi government and sustainability organizations to highlight and communicate the right food management practices to a larger population.

Culture is critical in dictating how human beings consume and use food, in some cases opposing efforts to reduce industrial wastage. In Saudi Arabia, social, religious, and family events tend to be accompanied by collective meals and large portions of food (Bigdeloo et al., 2021). Social relations are solidified with these practices, which lead to massive over-eating. The literature has mentioned that cultural norms and practices do not provide an adequate sustainability approach to food, including how the declining of food offerings or the setting of the amount of food to be served can be perceived as rude (Martin-Rios et al., 2020). To address this issue, other sustainability advocates have proposed how food surplus, particularly overcapacity, can be used by people after events by people who can benefit and enjoy it rather than disposing of it, which

is another sustainability strategy (de Los Mozos et al., 2020).

Food waste can be prevented using technological and digital innovations. In Saudi Arabia, mobile applications that can assist with food-related donations and redistribution, such as restaurant-to-food banks, are popular (Coderoni & Perito, 2020). Furthermore, technological advancements in food packaging, including intelligent labels with QR codes, allow the retrieval of real-time data on the freshness of fruits and vegetables, minimizing food waste (Kattiyapornpongpong et al., 2023). Even supermarkets and grocery chains have embarked on new pricing methods, whereby goods nearing expiration are given lower prices to use them before expiring (Mak et al., 2020). These measures align with the goals of the digital transformation of Saudi Arabia and are considered effective methods for combating food waste at the consumer, retail, and commercial levels.

Some factors that contribute to avoiding food waste include economic factors. As has been determined, better-off individuals in Saudi Arabia consume more food than poorer families begin to consume less food because of their resources and, thereby, are often not inclined towards mindful consumption (Messner et al. 2020). They have more income, which allows families with higher status to buy more food than they need because of advertising and convenience shopping (Elshaer et al., 2021). Likewise, consumers with limited budgets have opted to budget and plan their meals, buy in large quantities, and store their food in ways that would improve the shelf life of their foods (Giordano et al., 2020). Reducing food waste in the households of high-income earners is an issue of behavior change intervention, whereby the consumer can receive a reward upon minimizing waste or taxing food waste.

The current literature on sustainable food consumption and food waste prevention contains useful information; however, a significant number of studies predominantly concern Western or developed country settings. As Saudi Arabia and the GCC region have a unique cultural, economic, and regulatory environment, it is vital to place these findings in perspective to comprehend the nature of how and why they may or may not be applicable to the local situation. The next table presents the main studies related to sustainable food behaviors that can be discussed in terms of their significance and their outcomes. The synthesis explains why it is vital to conduct region-based studies on cultural peculiarities and consumer behaviors within this region.

Table 1
Comparison of Key Studies on Sustainable Food Consumption and Food Waste in Saudi Arabia and the GCC Region

Study (Author, Year)	Country/Region	Focus Area	Methodology	Key Findings	Relevance to Saudi/GCC Context
(Kattiyapompong et al., 2023)	USA	Food waste reduction, consumer behavior	Survey	Quality labeling influences consumer choices	Limited direct relevance; cultural factors differ significantly
(Al-Obadi et al., 2022)	Saudi Arabia	Cultural norms and food consumption	Qualitative interviews	Cultural values strongly affect food waste attitudes	Directly applicable; highlights Saudi-specific behaviors
(Elshaer et al., 2021)	UK	Sustainable consumption, food labeling	Experimental study	Labels increase eco-friendly purchases	Insights useful but require adaptation for GCC cultural context

Hypotheses Development:

Quality labelling is a critical element that impacts consumer behavior and raises concerns regarding product safety, sustainability, and environmental impact. Consumers tend to purchase more green-labelled food products if they consider quality labels to be true and trustworthy (Bajželj et al., 2020). Labels such as organic, “Organic,” “eco-friendly,” “carbon-neutral,” and “fair trade” are important in driving consumers towards more sustainable purchasing decisions (Teoh et al., 2022). In Saudi Arabia, there has been a paradigm shift in food labelling regulations in the recent past to be on par with global sustainability regulations, indicative of the rising consciousness of economically responsible consumption (Lehtokunnas et al., 2022).

Consumers’ purchasing decisions largely rely on trust in quality certification. Studies have shown that consumers who trust sustainability certificates to a greater degree have a greater preference for green-labelled food than for conventional food (Teigiserova et al., 2020). However, there is always some deficiency in trust in authenticity claims and in emerging markets, where enforcement by regulators is still in development. In Saudi Arabia, the Saudi Food and Drug Authority (SFDA) has been facilitating food labelling, claiming that eco-friendliness is subject to strict regulations meant to enhance consumer trust (Aydin & Yildirim, 2021). Strict disclosure and verifiability systems may theoretically maximize the effect of quality labelling on green consumption.

Consumer education is crucial for ensuring sufficient quality product marking. Research has shown that consumers who have acquired food label-reading and interpretation skills buy food considering the environment (Huang et al., 2021). However, the lack of sustainability marking and labelling convention understanding constrains such marking to have an impact on purchasing behavior (Skaf et al., 2021). Public education and events in Saudi Arabia, through

food sustainability, have the potential to fill such gaps and are quality markers among effective tools for green purchasing.

Price sensitivity is an important barrier to the consumption of eco-label products. Studies have shown that while some consumers value sustainability, they are averse to paying extra for a product unless it seems to provide them with value (de Sadeleer et al., 2020). In Saudi Arabia, the same logic applies, and cost incentives, such as subsidies for organic or sustainably produced foods, can drive the consumption of eco-labelled products (Aguirre Sánchez et al., 2021). Given these considerations, this study posits that quality labelling has a positive and significant relationship with eco-friendly food consumption.

H1: Quality labelling positively impacts environmentally friendly food consumption.

The intersection of culture and food intake is particularly dominant in societies where traditions, social norms, and religion predetermine the ways people live. For example, in Saudi Arabia, situated in the center of the Arabian Peninsula, the cultural aspect of hospitality plays a huge role in food consumption (Boschini et al., 2020). These cultural values enhance social cohesion; however, they also lead to excess consumption, especially in food preparation and waste disposal. However, sustainability efforts could use local practices as a base (Luu, 2020).

In all its aspects, Islam greatly values moderation and not wastefulness (Israf). During the religious teachings of Islam, the Quran, and the Hadith, the concepts of consumption, resource utilization, and wastage are given importance (Rasool et al., 2021). Regardless of these teachings, studies have described a disconnection between beliefs and actual consumer behavior, as large portions of food have been wasted by Saudi households (Bajželj et al., 2020). The use of campaigns that can make faith-based institutions more sustainable will facilitate more environmentally friendly arrangements that will enable consumers to recharge the inadequacies of such loopholes.

Altering systems of cultural values also influence food consumption behavior. Saudi Arabians of older generations appear to have traditional food habits, which involve high consumption, but young consumers are adopting sustainability habits (Al-Obadi et al., 2022). The introduction of social media and digital platforms has radically altered the dietary preferences of the younger generation and enhanced the consciousness towards sustenance, plant-based foods, locally produced food items, and less food waste (Zamri et al., 2020). This shift in generation foreshadows the fact that cultural values are undergoing adjustment and, therefore, afford the introduction of sustainability initiatives to be assimilated into shifting customer demands.

Food consumption habits in Saudi Arabia are influenced by economic prosperity and social jurisdiction. Research has revealed that a substantial proportion of families with high incomes are fond of food waste due to over-buying and shopping (Atiq et al., 2021). In general, lower income levels are more prone to being more sustainable through the application of resourceful sustainable food management strategies (Pocol et al., 2020). These findings can give policymakers and the businesses opportunities to customize interventions to be used with the wealthier consumers in order to be able to accomplish the goal of attaining green consumption. On these grounds, this study assumes that the environmentally friendly consumption of food is greatly and positively affected by cultural values.

H2: Cultural values have a significant positive impact on environmentally friendly food consumption.

The endeavor to avoid food waste emerges as an important mediator of the interaction between quality labelling and sustainable food consumption practices. More informed consumers are likely to exhibit behaviors such as mindful purchasing, portioning, and food storage activities that contribute to reducing food waste (Read & Muth, 2021). Research has shown that eco-labels increase the likelihood of sustainability marketing messages being issued, which has the potential to modify consumers' attitudes towards waste reduction (Aydin & Yildirim, 2021). Unfortunately, in Saudi Arabia, food waste is a persistent challenge that can be alleviated through enhanced food labelling standards that help educate consumers in choosing products that minimize waste (Scalvedi & Rossi, 2021).

Consumer awareness and trust in quality labels are determinants of food waste avoidance. Eco-labelled products guided by a sense of credibility should increase effortful waste-directed actions, in-

cluding meal planning and prioritization of products that boast sustainable packaging (Stancu & Lähteenmäki, 2022). The main problem is that vague or misleading information is always the order of the day in the identified labels. Consumers are highly unlikely to practice waste reduction if they do not understand the sustainability information provided. Improving the effectiveness of sustainability claims could improve the marketing and legislative environment of quality labelling, particularly in reducing food waste (I. Y. Huang et al., 2021).

The use of QR codes and smart labels on food products facilitates waste elimination and improves food traceability (Jribi et al., 2020). These innovations allow consumers to determine the freshness of their food products and how they should be stored, thus minimizing the chances of disposing of them too early and reducing food waste. In Saudi Arabia, the incorporation of these digital tools into food packaging modernizes the food labelling system and can enhance the relationship between quality labels and food waste reduction to promote more sustainable consumption. Thus, this study proposes the hypothesis that the avoidance of food waste acts as a significant mediator in the relationship between quality food labelling and the consumption of food products in a pro-environmentally friendly manner.

H3: Food waste avoidance significantly mediates the relationship between quality labelling and environmentally friendly food consumption.

The prevention of food waste serves as a mediator between cultural values and sustainable food consumption because it transforms deep-seated traditions and religious values into actions. In prior conversations, Islamic social norms have laid down strict measures against wastefulness, but the rituals of hospitality and the culture of plenty have led to profligate food waste instead (Aldaco et al., 2020). By reframing waste prevention as a measure with cultural and religious merits, advocates of sustainability can reconcile deep-seated cultural values with environmentally friendly food practices (Van Geffen et al., 2020).

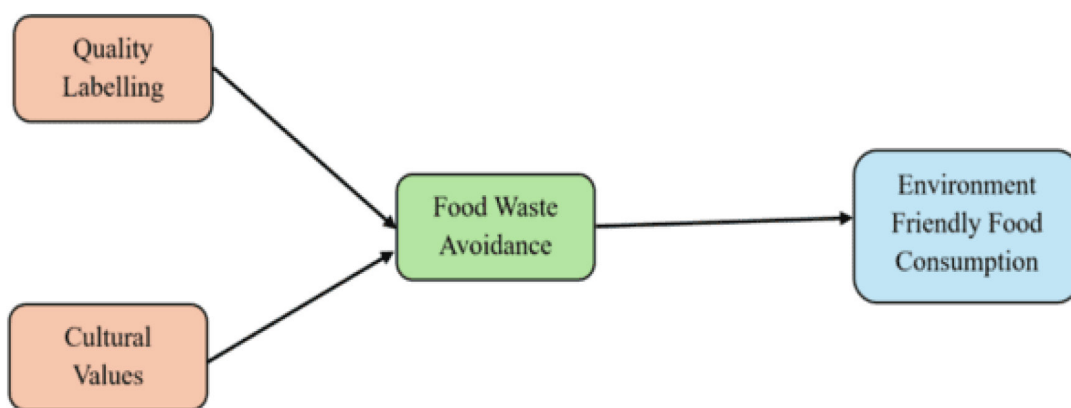
Studies have shown that community-based strategies, such as food donation and other publicity activities, serve as good motivators for reducing food waste (Garske et al., 2020). In Saudi Arabia, it has been culturally accepted that the activity of feeding excess food to the needy is a good initiative; therefore, it was easy to market this issue, demonstrating that sustainability can be incorporated into existing practices within the boundaries of the cultural framework (Tanveer et al., 2021).

Generational shifts also affect these relationships. Younger consumers are continuously exposed to sustainability movements; as a result, they are inclined to adopt food waste reduction strategies (Huang et al., 2021). As digital interaction is increasingly integrated into consumer practices, creating and utilizing technology-based interventions for food redistribution, particularly mobile applications, increases food waste avoidance efforts in sociocultural

values and sustainable consumption (Rasool et al., 2021). Based on this information, this study proves that food waste avoidance is a significant mediator of the relationship between cultural values and environmentally sustainable consumption.

H4: Food waste avoidance significantly mediates the relationship between cultural values and environmentally friendly food consumption.

Figure 1
Conceptual Framework



Methodology:

This is an explanatory study because the aim of the study was to establish the connection between quality labelling, cultural factors, the prevention of food waste, and the consumption of environmentally friendly foods. The direct and indirect links of the variables made the measurement difficult; therefore, an explanatory research design was chosen (Pearlson et al., 2019). This study developed associations according to the literature available and tested them with the help of empirical evidence. The gathered data were from 559 Saudi citizens. Convenience sampling was selected because of the ease of access to the sampled respondents and a sample of various consumer views (Etikan, 2016). This technique was particularly useful in Saudi Arabia, where respondents were not inclined to participate in market and academic questionnaires via the Internet.

To ensure consistency, objectivity, and accuracy of the data, a standardized questionnaire was developed for use in the surveys. Self-administered surveys play a critical role in consumer behavior, attitude measurement, product perception, and purchase activities (Hair et al., 2020). The questionnaire began with personal questions to provide information on the background of the respondent. Base questions were used to measure each variable using validated

measurement instruments for Saudi Arabia.

The perception of quality labeling was studied using four questions that were created based on past research on food labeling perceptions among consumers (Żakowska et al., 2019). The cultural values questionnaire included three questions borrowed from the food culture and food consumption literature (Al-Qahtani and Hussein, 2023). The given mediating variable, food waste avoidance, was assessed with the help of three questions borrowed or adapted to prior research on food waste attitudes (Żakowska et al., 2019). Three states of environment-friendly food consumption characterized the dependent variable.

To evaluate the data, partial least squares structural equation Modelling (PLS-SEM) was selected, as it is helpful in the analysis of complex relationships between variables, and when large data requirements are small to mid-sized (Hair et al., 2019). PLS-SEM efficiently processes cross-sectional data compared to covariance-based SEM, which can be more easily used with longitudinal data; thus, it can sufficiently serve epistemological exploratory research where consumer behavior is a matter of concern (Sarstedt et al., 2020). Moreover, PLS-SEM allows for testing both the direct and indirect effects in the presence of mediating effects and without analyzing the correla-

tions between quality labelling, cultural values, food waste avoidance, and green consumption (Hair et al., 2020). Because the research was anticipated to make predictions and explain consumer behavior variations in Saudi Arabia, PLS-SEM delivers solid and rational conclusions that can be feasible in testing hypotheses.

In Saudi Arabia, the study involved specific data on 559 respondents sampled over the following period of January to February 2025. A balanced number of genders is evident, as the sample constituted 58%

men and 42% women. Regarding the age of respondents, 45% were aged between 18 and 30 years, 35% between 31 and 40 years, and 20% between 41 and 50 years. The respondents' level of education was as follows: 50% had completed undergraduate degrees, 35% had acquired master's degrees, and 15% had PhDs. The given population structure is informative of the overall representation of the study population, which can justify the transferability of the data to the Saudi consumer context.

Analysis:

Table 2:
Factor Loadings

Constructs	Factor Loading
CV1 <- Cultural Values	0.502
CV2 <- Cultural Values	0.747
CV3 <- Cultural Values	0.821
EF1 <- Environment Friendly Food Consumption	0.870
EF2 <- Environment Friendly Food Consumption	0.821
EF3 <- Environment Friendly Food Consumption	0.850
EF4 <- Environment Friendly Food Consumption	0.703
EF5 <- Environment Friendly Food Consumption	0.713
FWA1 <- Food Waste Avoidance	0.762
FWA2 <- Food Waste Avoidance	0.782
FWA3 <- Food Waste Avoidance	0.759
QL1 <- Quality Labeling	0.772
QL2 <- Quality Labeling	0.791
QL3 <- Quality Labeling	0.867
QL4 <- Quality Labeling	0.801

Table 1 lists the factor loadings that describe the association between the indicators and observed variables and their latent constructs. The range of factor loadings for the Cultural Values construct was from 0.502 to 0.821, demonstrating a moderate to strong association with the indicators. The most representative relative to the other variables of the Cultural Value construct was CV3, which had the highest factor loading of 0.821. The range of factor loadings for the Environment-Friendly Food Consumption construct was also high, from 0.703 to 0.870, where the highest loading was given

to EF1 (0.870), highlighting its importance in defining the construct itself. The factor loadings for Food Waste Avoidance ranged between 0.759 and 0.782, with FWA2 having the highest loading of 0.782. The lowest point in the range is 0.772 for Quality Labelling, while the highest is 0.867, noted in QL3, which holds this honor for having the highest factor loading. In conclusion, the factor loadings were sufficient to confirm a good fit for the items with their respective constructs, enhancing the measurement model's trustworthiness and accuracy.

Table 3:
Average Variance Extracted

	Original sample (O)	P-Values
Cultural Values	0.495	0.000
Environment-Friendly Food Consumption	0.631	0.000
Food Waste Avoidance	0.589	0.000
Quality Labeling	0.654	0.000

Table 2 presents the average variance extracted (AVE) values for each construct, which are pivotal in evaluating the convergent validity of the measurement model. The AVE is (0.495), environment-friendly food consumption is (0.631), Food Waste Avoidance is (0.589), and Quality Labelling is (0.654). The checks that can be established with the greatest threshold for AVE state that any figure above 0.50 confirms the existence of sufficient convergent validity. In this

case, as Environment-Friendly Food Consumption and Quality Labelling possessed AVE scores above 0.50, they are considered to demonstrate adequate convergent validity. However, the Cultural Values was found to be below 0.495; hence, it will require some level of refinement to improvise the set construct dead head. The p-values for these averages were also significant ($p=0.000$), providing statistical validity and steady strength to the model measurement.

Table 4
Reliability

	(rho_c)	(rho_a)	Cronbach's alpha
Cultural Values	0.739	0.771	0.735
Environment-Friendly Food Consumption	0.895	0.900	0.895
Food Waste Avoidance	0.811	0.812	0.811
Quality Labeling	0.883	0.885	0.882

The data estimated reliability for various constructs is detailed in this table: rho_c, rho_a, and Cronbach's alpha, with each value permitting the evaluation of the measurement model. Regarding Cultural Values, the reliability values were as follows: rho_c (0.739), rho_a (0.771), and Cronbach's alpha (0.735). These metrics indicate moderate internal consistency. Regarding environment-friendly food consumption, the measurements were remarkably high at rho_c (0.895), rho_a (0.900), and Cronbach's alpha (0.895). These measurements indicate overwhelming

support for the reliability. Similarly, Food Waste Avoidance was measured with good reliability of rho_c (0.811), rho_a (0.812), and Cronbach's alpha (0.811) values. Finally, Quality Labelling also showed strong reliability at rho_c (0.883), rho_a (0.885), and Cronbach's alpha (0.882). The data indicate that the measurement model's reliability offers a broad range of generalizations, with environment-friendly food consumption and quality Labelling having the strongest internal coherence, which additionally supports the validity of the constructs.

Table 5
Heterotrait-monotrait ratio (HTMT)

Constructs	HTMT
Environment-Friendly Food Consumption <-> Cultural Values	0.955
Food Waste Avoidance <-> Cultural Values	1.024
Food Waste Avoidance <-> Environment-Friendly Food Consumption	0.987
Quality Labeling <-> Cultural Values	0.981
Quality Labeling <-> Environment-Friendly Food Consumption	0.906
Quality Labeling <-> Food Waste Avoidance	0.908

Table 4 shows the Heterotrait-Monotrait Ratio (HTMT), which is appropriate for discriminant validity criteria, meaning that it checks whether the constructs are sufficiently separated from each other. The HTMT values for the pairwise comparisons of constructs are as follows: Environment-Friendly Food Consumption <-> Cultural Values (0.955), Food Waste Avoidance <-> Cultural Values (1.024), Food Waste Avoidance <-> Environment-Friendly Food Consumption (0.987), Quality Labelling <-> Cultural Values (0.981), Quality Labelling <-> Environment Friendly Food Consumption (0.906), and Quality Labelling <-> Food Waste Avoidance (0.908). Usually, an

HTMT value that exceeds 0.90 is considered the threshold for checking discriminant validity, implying that the constructs may be too closely related to each other, which can be problematic. In this situation, the pairwise comparison of Food Waste Avoidance and Cultural Values exceeded the 1.00 mark (HTMT = 1.024). This implies that the two constructs are not far apart and must be examined in depth. Nevertheless, there is a more reasonable range for the rest of the construct pairs, with environment-friendly food consumption and cultural values having a close overlap (HTMT = 0.955) but with sufficient coverage below the worrying mark of 1.00. Therefore, it can be said that all constructs

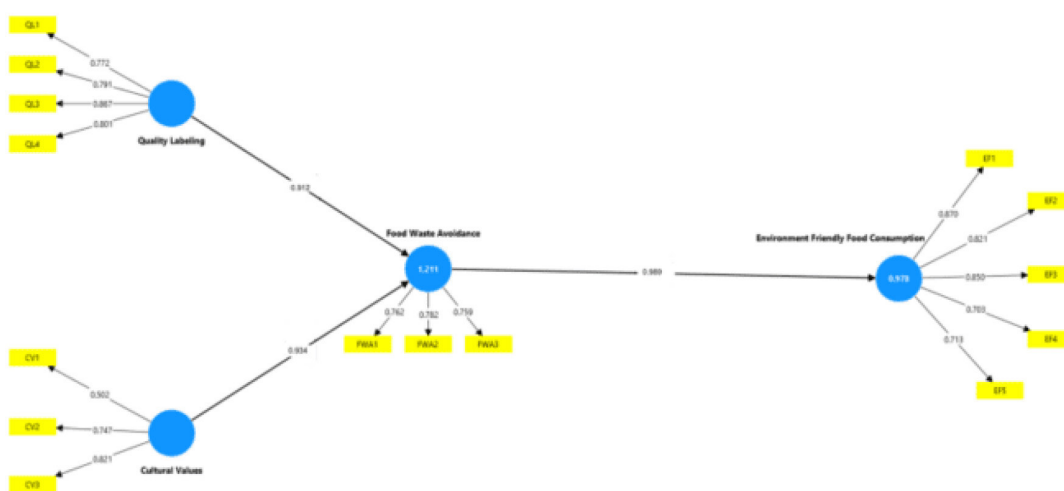
rely on each other for proper validity. However, there seems to be an outlier in the Food Waste

Avoidance and Cultural Values pair that needs to be assessed in greater detail.

Table 6:
Path Coefficients

	Beta Value	T-Value	p-values
Cultural Values -> Food Waste Avoidance	0.912	25.36	0.000
Food Waste Avoidance -> Environment Friendly Food Consumption	0.989	30.12	0.000
Quality Labeling -> Food Waste Avoidance	0.934	27.45	0.000

Figure 2
Path Coefficient Model



The path coefficients for the structural model of one of the relationships between the constructs defined in Table 5 were defined. The path coefficient from cultural values to food waste avoidance was 0.912, with a p-value of 0.000. This indicates that cultural values have a strong and statistically significant positive relationship with food waste avoidance. Moreover, the relationship between food waste avoidance and environment-friendly food consumption had an even higher path coefficient of 0.989 and a p-value of 0.000. This suggests that the relationship between food waste avoidance and environment-friendly food consumption is also very strong, positive, and statistically significant. Finally, for quality labelling, the path coefficient for food waste avoidance was 0.934, and the p-value was 0.000. This provides evidence of the positive effect of quality labelling on food waste avoidance, which is significant. The p-value for all of them remained below the accepted 5% threshold, indicating that the connections hypothesized above were indeed based on sound data.

Discussion:

The statistical findings show strong correlations

among the main variables. In addition to the number of significance, the trends provide applicable information in the context of sustainability behavior in Saudi Arabia. The evaluation indicates that cultural values play a significant role in food waste avoidance with a positive impact. In practice, this means that the norms conceptually deep-rooted (respect towards food, hospitality, and religious doctrines) do not merely regulate social action, but they are converted into behavior intentions and make them less wasteful when triggered (Tanveer et al., 2021).

The results also indicate that environmentally friendly consumption is highly predicted by the avoidance of food waste. In practice, people who are used to planning their meals, keeping food in good condition, or being spacious about buying are more inclined to use sustainable production and express interest in sustainable consumption (Rasool et al., 2021). This is because there is no linear relationship between awareness and food waste reduction; rather, it serves as a behavioral entry point that guides consumers to greener decisions. The package promoting portion control, writing a meal plan, or giving away excess food might thus be a viable solution for building sustainability adoption.

There is also a positive and significant relationship between quality labeling and waste avoidance. Label clarity and trustworthiness seem to enhance the value of a product to the consumer, thus encouraging them to consume their meal rather than discarding it. This implies that as long as consumers perceive that the food is certified, organic, or sustainably sourced, they consider it more valuable and are more careful about handling it (Attiq et al., 2021). For retailers, this means that better labeling systems, clear certification, and training on how to interpret labels might help overcome the beneficial effects of waste reduction and sustainable buying.

The statistical findings taken as a whole demonstrate that culture is a primary factor that causes behavior, waste avoidance is a primary factor that results in sustainable practice, and quality labeling is a primary factor that promotes responsible decision-making. The model thus indicates a linear process according to which cultural values influence attitudes toward waste, labeling enhances the feeling of confidence and responsibility, and both processes mutually stimulate the sustainability of consumption. In practice, the national food strategies of sustainability might be more successful when the cultural narratives become a part of the label communication and when waste prevention programs are offered not only as environmental strategies but also as culturally significant practices that can fit Saudi values and Vision 2030 sustainability objectives.

Conclusion

The results of the current study support the key position of cultural values in determining environmentally friendly food consumption in Saudi Arabia and highlight a number of trends that expand the global literature. In line with international data, quality labeling plays a major role in food selection. However, within the context of Saudi Arabia, this study shows that the label would only be meaningful in relation to the cultural demands of trust, purity, and moral accountability. This brings out a dynamic situation that is context-specific and is not well embodied in Western literature, where the term effectiveness has been largely associated with environmental knowledge and less with the cultural meaning. Furthermore, the findings verify the conclusions of previous research that individuals with rigid cultural or moral standards are more inclined towards sustainable behavior. This study builds on the prior body of literature by demonstrating that cultural values are predictive of not only waste avoidance but also sustainable food

buying; therefore, they confer two roles to culture as a predictor of behavior.

Based on the Theory of Planned Behavior, we found that using cultural values, subjective norms, and personal beliefs are reinforced and hence enhance sustainable consumption intentions - a less effective effect in research carried out in individualistic cultures. The findings also support the Value-Belief-Norm Theory in that they reveal that waste avoidance is a moral action that is precipitated by cultural norms; however, unlike previous literature, the mediating impact of food waste avoidance is stronger in collectivist situations. These observations suggest that cultural values do not necessarily complement environmental determinants but can be a major source of sustainable consumption in high-context societies. In general, this research contributes to the theoretical knowledge about sustainability behavior by making culture a background factor, an antecedent, and a behavioral mechanism.

Recommendations

The results of the presented research provide direct implications on the formulation of practical proposals which correspond to the evidence made in the literature, especially the pivotal nature of cultural values and quality labelling in the development of environmentally friendly food consumption. Moral responsibility and sustainable food behavior are highly shaped by cultural norms in collectivist societies, which was shown in the previous studies (Annosi et al., 2021; Nicastro and Carillo, 2021). These conclusions are supported by the current findings, which indicate that culture values of Saudi Arabia are important predictors of food waste avoidance and sustainable purchasing. This supports the previous fact that moral and cultural beliefs are more valuable in leading pro-environmental behavior in high-context cultures (Stancu et al., 2016; Messner et al., 2021). Thus, among the policy implications, it should be noted that one of the recommendations is that policymakers and sustainability practitioners need to incorporate the cultural story of stewardship, respect to resources, and social responsibility in the national food waste campaign, which is in line with the cultural values paradigm that is highlighted throughout the literature.

On the same note, the results of the study with regard to the potent effect that quality labelling has on sustainable consumption give a basis on policy recommendations related to labelling. In line with the findings of Benyam et al. (2021), Grunert et al. (2014), and Zamri et al. (2020), the findings indicated that credible labels are associated with better consumer trust, less uncertainty, and waste-avoid-

ance behavior because they increase the perceived value of food. This is in line with the fact that eco-labels are educational instruments that act as strong sources of information when making responsible buying choices, as stated by Testa et al. (2020). On the basis of these convergent results, this paper suggests additional standardization of sustainability labels, tightening of the certification policy and special educational courses to raise awareness among the consumers to the meaning of labels. The practice helps achieve efforts by the country identified in Saudi Vision 2030, which has made food waste reduction a strategic goal (Saudi Grains Organization, 2022), as well as the elements of global sustainability outlined in Aldaco et al. (2020) and Hansmann et al. (2020). Taken together, these recommendations are well based on the empirical outcome of the present study and the existing theoretical and empirical sources.

Implications

The findings have significant policy, industry, and theoretical implications. Sustainable food initiatives in Saudi Arabia should be established at the policy level in the cultural context of community, stewardship, and respect for resources. Waste-reduction programs developed at the international level usually aim at environmental consciousness, whereas this research proposes that culturally inculcated messages, including religious stewardship, shared responsibility, and respect for blessings, could be more successful on a local scale. The regulator should emphasize quality labeling systems that are clear, simple to understand, and culturally oriented towards credibility and genuineness, as a vacuum exists in international labeling systems that are largely technically oriented rather than culturally driven.

The findings indicate that marketing concepts should consider cultural practices and ethics relating to waste minimization and sustainable consumption. In contrast to Western markets, where green branding may be concerned with climate impact most of the time, Saudi consumers react more to messages related to cultural identity, ethics, and respect for resources. Hence, food producers and retailers are advised to consider implementing culturally based narratives in their communication strategies, being clear, honest, and ethically transparent in their labelling practices. Likewise, community groups and social leaders can utilize existing cultural practices, including hospitality standards, food sharing, and conservative resource usage, to influence sustainable practices. Culturally based interventions can produce

more behavioral changes than traditional awareness campaigns. Finally, this study highlights the necessity of multidimensional labeling policies and community-driven approaches to engagement that can embody not only global sustainability guidelines but also local culture and provide a culturally specific way to decrease food waste and encourage sustainable consumption in Saudi Arabia.

Limitations and Future Directions:

While this study contributes to the literature, it also has some limitations. The sample utilized in this research may not capture all the cultural values of various geographical locations, which might affect the applicability of the results. Additionally, self-reporting, which is subject to bias, such as social and recall bias, was used in this study's data collection. Future research should address these limitations by using broader and more representative samples, along with experimental or observational approaches, to further examine the relationship between cultural values, food waste avoidance, and sustainable consumption practices.

Subsequent studies should seek to better understand the possible interactions between cultural values and food-related behaviors. For instance, examining how other cultures view environmental concerns and sustainability may provide valuable perspectives on consumer behavior in different settings. In addition, research that relies on monitoring consumer attitudes and behavior changes over an extended period can enhance the understanding of the impacts of sustainability interventions, particularly those focusing on food waste and eco-friendly consumption practices in the long term.

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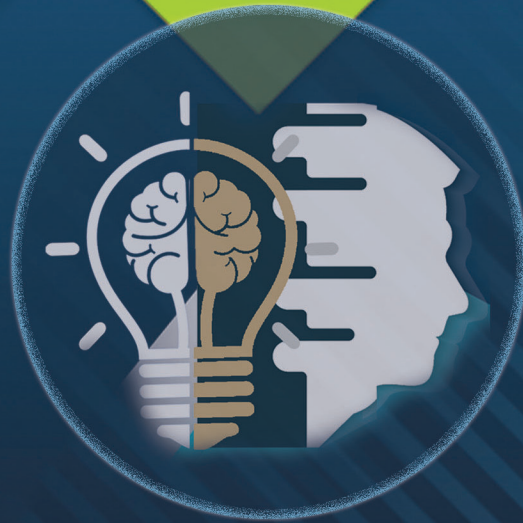
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