

Uncertain Supply Chain Management

homepage: www.GrowingScience.com/uscm

Green purchasing, environmental concern, and subjective knowledge in Saudi Arabia: The moderating effect of green skepticism

Shadi Saraireh^{a*}

^a*Banking and Financial Sciences Department, Amman College Of Banking and Financial Sciences, Al-Balqa Applied University, Jordan*

ABSTRACT

Article history:

Received August 27, 2022
Received in revised format
October 28, 2022
Accepted November 23 2022
Available online
November 23 2022

Keywords:

Green purchase intentions
Subjective environmental knowledge
Environmental concern
Green skepticism
Saudi Arabia

The main objective of this research is to examine the effect of environmental concern, subjective environmental knowledge towards green purchasing intentions. Also, this study has examined the moderation role of green skepticism towards these relationships. The population of this research is consumers of green purchasing in Saudi Arabia's manufacturing industry. The quantitative approach using convenience sampling has been used for data collection. The PLS-SEM using SmartPLS 3.2.8 was used. Environmental concern has a significantly positive effect on green purchasing intention while significantly negative effect on subjective environmental knowledge and lastly, subjective environmental knowledge has significantly positive effect on green purchasing intention. Furthermore, green skepticism does not moderate the effect of subjective environmental knowledge on green purchasing intention and the effect of environmental concern on subjective environmental knowledge; however, green skepticism significantly decreases the effect of environmental concern on green purchase intention. The managers are recommended to provide environmental programs towards consumers that can increase their environmental concerns and lead to gaining proper knowledge and awareness.

© 2023 Growing Science Ltd. All rights reserved.

1. Introduction

The aspect of green marketing has been recently studied in various studies. Nowadays, it is known as a major concept in organizations and various organizations are accepting and implementing green marketing and its relevant programs (Papadas, Avlonitis, & Carrigan, 2017; Alhalalmeh et al., 2022; Rosenbaum & Wong, 2015). The presence of green programs and initiatives has significantly helped in creating green products in different organizations that include automobiles, food, tourism, construction, and energy (Ali, 2020; Tariq et al., 2022; Al-Abbadi et al., 2022; Mohammad et al., 2022; Naidoo & Gasparatos, 2018; Pan et al., 2018). However, according to a report given by the EU that calculated the value of green products around the world, it was \$6 trillion (European Union, 2009). Also, the green products market has been calculated to be growing at 13 percent in a year (KEN, 2015). Similarly, almost 50% of people were willing to invest in green marketing by purchasing environment-friendly products (Al- Quran et al., 2020; Sustainable Brands, 2019). Additionally, academicians and practitioners have given high thought regarding green marketing and how it could affect the environment, society, and consumer welfare (Dangelico & Vocalelli, 2017). Although, regardless of an increase in green products, the concern has been ever-growing in consumers that organizations are providing false information regarding the environment so that their reputation and sales can increase significantly (Aityassine et al., 2021; Aityassine et al., 2022; Al-Awamleh et al., 2022; Szabo & Webster, 2020). So, this concept regarding the disbelief of consumers towards environmental concerns of an organization is known as green skepticism (Mohammad, 2019; Alshawabkeh et al., 2022; Leonidou & Skarmeas, 2017). Also, an increased amount of green washing incidents and environmental incidents from organizations has been termed as a major factor that increases doubts and uncertainty regarding environmental performance and green product's benefits (Al-

* Corresponding author
E-mail address shadisaraireh@bau.edu.jo (S. Saraireh)

khawaldah et al., 2022; Nguyen, Yang, Nguyen, Johnson, & Cao, 2019; Zhang & Fares, 2017). Moreover, there has been significant attention regarding green skepticism provided towards consumers, companies, and society as well (Silva, de Sousa-Filho, Yamim, & Diógenes, 2019; Yu, 2020). However, there is not enough literature regarding consumer skepticism on green products. Also, previous studies have revealed that green products and marketing initiatives are susceptible towards skepticism (Leonidou & Skarmas, 2017; Zarei & Maleki, 2018) and therefore there has been demanded further research to properly understand the concept of green skepticism towards purchase behavior of consumer (Matthes & Wonneberger, 2014). Also, the investigation of positive factors of green purchase is not enough and such factors that reduce its performance are also important to study (Joshi, Sheorey, & Gandhi, 2019). The proper understanding of these barriers could lead organizations to mitigate their effects and create incentives for addressing consumer behavior. Although, there is not enough research regarding the barriers of green purchasing (Atkinson & Kim, 2015; Tan, Johnstone, & Yang, 2016; Witek, 2017). So, this research gap has been addressed in this study by examining the moderation effect of green skepticism.

Furthermore, prior studies highlighted that the process through which green purchasing gets affected by skepticism is different in research. Environmental concerns have been termed as a major factor that influences green purchasing (Esmailpour & Bahmiary, 2017; Newton, Tsarenko, Ferraro, & Sands, 2015); the effect of consumer skepticism towards environmental concerns is not clear. Also, previous literature has shown that environmental knowledge can enhance the beliefs and attitudes of consumers regarding green products (Abbasi et al., 2019; Ali & Ahmad (2016); consumers with skepticism do not value the green information (Zhang & Fares, 2017). Therefore, a proper concept regarding green skepticism could help in understanding the aspects of green knowledge and concerns towards green purchasing. Also, a high number of studies have been conducted regarding green marketing and consumer skepticism in developed economies (Guldal, 2019; Tucker, Rifon, Lee, & Reece, 2012). This study has aimed to examine the role of green skepticism in a developing country like Saudi Arabia. This country has been chosen because Saudi Arabia has shown different challenges in various environmental aspects (Ahmad et al., 2016; Bayani, 2016).

The manufacturing sector of Saudi Arabia has been developing at 7.5% average in a year and is highly contributing towards their gross domestic product (GDP) comprising 10% (Forecasts, 2020 - 2025). The manufacturing sector has gained significant success as it was standing at 32 billion SAR in 1974 and 319.5 billion SAR in 2018. The industrial exports of Saudi Arabia have been growing significantly at 9.3% (Ali, 2020). The automobile industry of Saudi Arabia has been developing and in the future, it will employ one hundred thousand. The Saudi automobile industry has exports consisting of 6 billion Riyals in 2012 (Randheer, Trabulsi, Al Ajmi, & Al Jasser, 2017). The current study has effectively contributed to literature in different ways. At first, the research gap was investigated regarding green marketing and green skepticism towards purchasing. Also, it has provided in-depth information and knowledge towards understanding the concept of green purchasing, and more especially the moderation role of green skepticism has been significantly examined. Green skepticism has been studied properly in this developing country like Saudi Arabia and its findings can be used significantly by both practitioners in the textile industry and academicians as well. Also, to the best of researcher's knowledge, this study is first of its kind in the manufacturing sector of Saudi Arabia that included the mixture of these variables. So, these findings will surely help practitioners to increase the environmental knowledge and green purchasing of consumers.

The main objective of this study is to examine the role of environmental concern, subjective environmental knowledge towards green purchase intentions in the automobile industry of Saudi Arabia with the moderation role of green skepticism. The remaining paper has been organized into four parts. The second section review includes the theoretical aspect of study and hypothesis development. The third chapter consists of a methodology that highlights methods for data collection. The fourth chapter consists of data analysis that gives results of hypothesis testing. The fifth chapter is the conclusion that includes conclusion, discussion, and recommendations.

2. Literature Reviews and building of hypotheses

The aspect of environmental knowledge refers to having certain information regarding the environment that helps in a significant way (Zareie & Navimipour, 2016). Also, consumers that are environmentally concerned are highly related to having subjective environmental knowledge (SEK). For instance, Rizkalla (2017) found that an increase in the concerns or issues regarding the environment increases environmental knowledge. Also, according to (Pagiaslis & Krontalis, 2014) environmental concern significantly affects SEK and helps consumers in having a certain amount of information towards preserving the environment. Hence, according to the above discussion, this study has hypothesized that:

H₁: *There is an effect of Environmental concern on subjective environmental knowledge.*

The aspect of green purchase refers to the concept that consumers intend to buy those products that do not have any damaging effects on the environment (Safari, Salehzadeh, Panahi, & Abolghasemian, 2018). The previous studies have significantly identified that having subjective environmental knowledge (SEK) helps in engaging in green purchasing. For example, Smith and Paladino (2010) stated that having environmental knowledge helps consumers in developing their attitudes and emotions towards green purchasing. Similarly, Ali and Ahmad (2016) found that the presence of EK helps the consumer in understanding the message of the product and significantly differentiates such features of the product that could help in

preserving the environment positively and thus increasing their green purchasing. However, Jaiswal and Kant (2018) found that there has been no relation between EK and green purchasing because there might be no conclusive awareness or information given to the consumers that could help in developing their green purchasing. Hence, based on this discussion, current study has hypothesized that:

H₂: *There is an effect of Subjective environmental knowledge on green purchasing intention.*

The existing researchers have identified that the environmental concern of a consumer is essential towards understanding their purchase intentions (Jaiswal & Kant, 2018; Suki, 2016). Studies have defined environmental concern as the consumer's strength of perspective at which consumer is willing to be involved in issues related to the environment. Also, previous research have stated that concern for the environment might help to identify the purchase behavior of consumers. Like, Dagher, Itani, and Kassab (2015) identified that consumers that are highly engaged in environmental concerns are willing to even pay higher prices for the products than compared to low environmental concern consumers. According to Skarmeas et al. (2014), environmental concern increases the perspective of consumers towards their usage of products and it enhances their intentions towards green purchasing. Similarly, Trivedi, Patel, and Acharya (2018) identified that environmental concern significantly increased the purchasing behavior of consumers towards green products. However, Hwang (2016) indicated that environmental concern does not affect purchasing of green products. Therefore, this study hypothesized that:

H₃: *There is an effect of Environmental concern on green purchasing intentions.*

The concept of skepticism refers to having mistrust in disbelief towards other people. However, the role of skepticism has been examined in business researches regarding organic products, CSR, and environmental aspects (Berck, Levy, & Chowdhury, 2012; Skarmeas et al., 2014). The aspect of skepticism has been labeled as a consumer-related aspect that is affected by the situational factors (De Pechpeyrou & Odou, 2012; Patel, Gadhavi, & Shukla, 2017). However, skeptical consumers might be having distrust and disbelief towards others, but their perspective can be changed in the presence of enough evidence to disregard their doubts (Foreh & Grier, 2003).

Green skepticism refers to having doubts about the environmental information or performance provided by the firm regarding a green product. Also, their skepticism regarding green products might be varying based on context and situation (Do Paço & Reis, 2012; Pomeroy & Johnson, 2009). This type of skepticism is just only the distrust towards the green claims and not on the green products itself (Ulusoy & Barretta, 2016). Also, when a consumer engages in environmental concern than consumer tends to increase their environmental knowledge but with the moderation of green skepticism this process can be hindered (Leonidou & Skarmeas, 2017) and a consumer can get a whole lot of insignificant or wrong amount of information that decreases their purchase intention (Goh & Balaji, 2016). So, the current study has hypothesized that:

H₄: *Green skepticism as a moderator decreases the effect of environmental concern towards subjective environmental knowledge.*

Also, green skepticism has been identified as a significant moderator between SEK and green purchase intention (Malik & Qazi, 2017). Studies have indicated that the presence of green skepticism has mitigated the process of green purchasing. Also, according to Zarei and Maleki (2018), the presence of green skepticism does not have any moderation effect on the relationship between SEK and green purchase intention. Therefore, this study has hypothesized that:

H₅: *Green skepticism as a moderator decreases the effect of subjective environmental knowledge towards green purchasing intentions.*

However, it does not moderate the relationship between environmental concern and green purchase intentions (Malik & Qazi, 2017). Also, Albayrak, Aksoy, and Caber (2013) identified that those consumers that are highly engaged in environmental concerns and show less skepticism can generate a positive attitude towards green purchase intentions. Similarly, consumers with high concerns towards the environment were showing a positive attitude in green purchasing intentions but the presence of wrong claims or green skepticism hindered this process in a negative manner (Ulusoy & Barretta, 2016). Hence, this study has hypothesized that:

H₆: *Green skepticism as a moderator decreases the effect of environmental concern towards green purchasing intentions.*

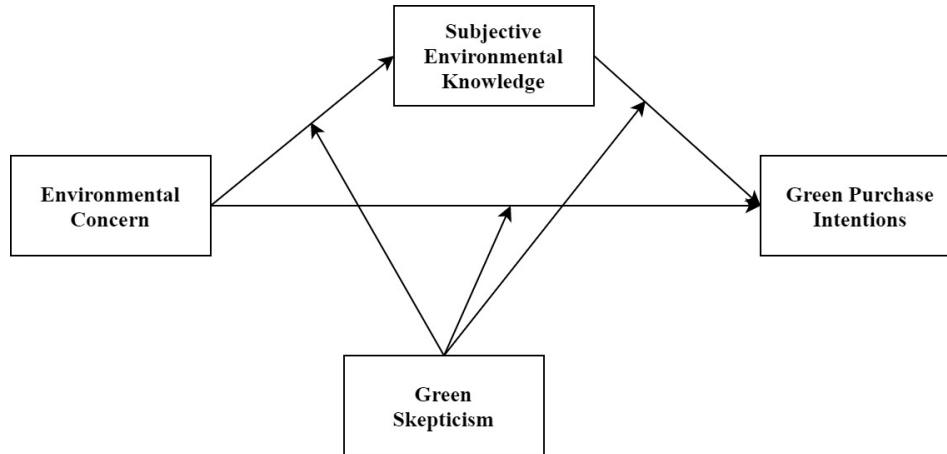


Fig. 1. Research Framework

3. Methodology

The quantitative approach has been known as an efficient research approach that collects a large amount of data within a short period. This approach is based on numeric data and it produces results in the form of numbers as well (Dörnyei, 2007). This approach allows us to conduct theory testing and then builds a hypothesis based on the theory. The quantitative approach is very easy to manage and does not require any specific rules for data collection (Kumar & Phrommathed, 2005). Hence, this study has used a quantitative approach because the results can be generalized. The explanatory purpose in research consists of theory testing and it provides an extensive amount of information regarding the objective. The basic purpose of this research type is to provide an in-depth understanding of the research variables and problems by investigating and giving enhanced information (Saunders, Lewis, & Thornhill, 2009). This research purpose significantly examines those topics that have not been studied previously and requires some extra attention (Creswell, 2002). Therefore, this study has used an explanatory purpose so that it can provide beneficial knowledge and understanding.

The correlational design has been known as a non-experimental design because it is conducted in a natural-based environment and any presence of manipulation is not granted (Welman, Kruger, & Mitchell, 2005). This design examines the correlation between two variables and their direction and strength of the relationship as well. This type of research design is beneficial in providing logical results that can also be used in future research for further investigation (Kothari, 2004). Hence, the correlational design has been implemented in this study because it helps in identifying the correlations among variables. The target population of this study is the consumers of the automobile industry of Saudi Arabia.

The convenience sampling has been known as a non-probability sampling that refers to collecting data from conveniently available people. This sampling does not include any equal chance towards the people regarding their selection into the sample (Vehovar, Toepoel, & Steinmetz, 2016). The data collection process is relatively easier in this sampling and does not require a high amount of time and money as well (Sekaran & Bougie, 2016). Therefore, convenience sampling has been applied in this study because it can collect a large amount of data effectively and efficiently. Table 1 provides the demographic profile of the respondents.

Table 1

Personal characteristics of the participants (n = 199)

		Frequency	Percent
Gender	Male	88	44.2
	Female	111	55.8
Age	Less than 20 years	35	17.6
	20-24 years	75	37.7
	25-39 years	75	37.7
	Above 30 years	14	7
Level of Education	Undergraduate	32	16.1
	Graduate	117	58.8
	Post-graduate	50	25.1
Preferred Store	Tamimi Markets	67	33.7
	Saudi Arabia Supermarket	34	17.1
	Carrefour Market	37	18.6
	Others	61	30.7

Data analysis is a major aspect of research and PLS-SEM is one of the major applied analysis techniques in business studies (Hair, Sarstedt, Ringle, & Mena, 2012). This technique can give high reliability of the data using the measurement model.

The hypothesis testing is also very effective via using a structural model (Hair, Ringle, & Sarstedt, 2011). Therefore, PLS-SEM using SmartPLS 3.2.8 has been applied because it provides high variance results.

4. Data analysis

Table 2 shows the results of the measurement model.

Table 2
The summary of the measurement model

Constructs	Items	Loadings	CR	AVE
Environmental Concern	EC3	0.850	0.786	0.648
	EC1	0.758		
Green Purchasing Intention	GPI1	0.772	0.841	0.638
	GPI2	0.809		
	GPI3	0.814		
Subjective Environmental Knowledge	SEK1	0.807	0.836	0.719
	SEK4	0.887		
Green Skepticism	SK1	0.925	0.766	0.533
	SK2	0.567		
	SK3	0.649		

The recommended threshold of Table 2 is that factor loadings should be higher than 0.70 for acceptance and loadings less than 0.40 will be deleted (Hair et al., 2014). The factor loadings that are present in the range of 0.40 and 0.70 can be accepted by the recommendation of Hair et al. (2016). Also, the recommended threshold of CR is 0.70 and AVE is 0.50. Hence, all values are higher than their recommendations and measurement model has been accepted. Table 3 presents the results of the Fornell-Larcker Criterion (Fornell & Larcker, 1981).

Table 3
Fornell-Larcker Criterion

	EC	GPI	SK	SEK
Environmental Concern	0.805			
Green Purchasing Intention	0.457	0.799		
Green Skepticism	0.056	0.216	0.730	
Subjective Environmental Knowledge	-0.228	0.276	0.451	0.848

Table 3 has a recommendation that bold and diagonal values should be higher in their constructs as compared to other constructs both horizontally and vertically (Fornell & Larcker, 1981). Hence, discriminant validity has been achieved (Fornell & Larcker, 1981). Table 4 shows the results of cross-loadings.

Table 4
The results of the cross loadings

	EC	GPI	SK	SEK
EC3	0.850	0.472	0.212	-0.065
EC1	0.758	0.243	-0.161	-0.331
GPI1	0.448	0.772	0.204	0.078
GPI2	0.386	0.809	0.055	0.302
GPI3	0.239	0.814	0.297	0.272
SEK1	-0.186	0.223	0.311	0.807
SEK4	-0.200	0.245	0.441	0.887
SK1	0.002	0.103	0.925	0.534
SK2	0.234	0.238	0.567	0.082
SK3	0.001	0.253	0.649	0.178

Table 4 recommends that bold values should be higher in their constructs as compared to the values of other constructs (Hair et al., 2011). Therefore, the results show that discriminant validity has been achieved using cross loadings. Table 5 shows the results of the HTMT ratio.

Table 5
Heterotrait-Monotrait Ratio (HTMT)

	EC	GPI	SK	SEK
Environmental Concern				
Green Purchasing Intention	0.753			
Green Skepticism	0.478	0.453		
Subjective Environmental Knowledge	0.467	0.408	0.723	

The recommendation for the above table is that all values should be less than 0.90 as recommended by Henseler, Hubona, and Ray (2016). Hence, discriminant validity has been achieved using the HTMT ratio.

Table 6 shows the result of path analysis for hypothesis-testing using PLS-SEM.

Table 6

The summary of the path analysis

	Estimate	Prob.
Environmental Concern → Green Purchasing Intention	0.429	0.000
Environmental Concern → Subjective Environmental Knowledge	-0.218	0.003
Subjective Environmental Knowledge → Green Purchasing Intention	0.416	0.000

Table 6 shows that environmental concern has a significantly positive effect on green purchasing intention (0.429, $p < 0.05$) while it has a significantly negative effect on subjective environmental knowledge (-0.218, $p < 0.05$) and lastly, subjective environmental knowledge (0.416, $p < 0.05$) has a significantly positive effect on green purchasing intention. Table 7 provides the result of the moderation analysis using PLS-SEM technique.

Table 7

The results of the moderation analysis

Moderating Effect: Green Skepticism	Estimate	Prob.
Subjective Environmental Knowledge → Green Purchase Intention	0.006	0.931
Environmental Concern → Subjective Environmental Knowledge	0.072	0.459
Environmental Concern → Green Purchase Intention	-0.249	0.046

It has been shown in the above table that green skepticism does not moderate the effect of subjective environmental knowledge on green purchase intention (0.006, $p > 0.05$) and the effect of environmental concern on subjective environmental knowledge (0.072, $p > 0.05$); however, green skepticism (-0.249, $p < 0.05$) significantly decreases the effect of environmental concern on green purchase intention.

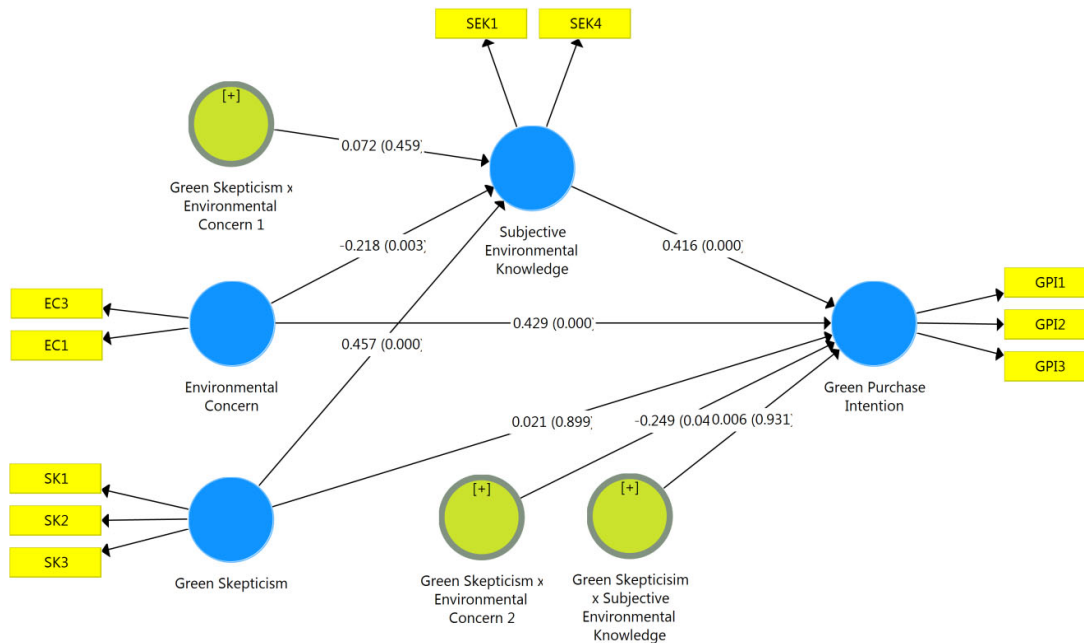


Fig. 2. PLS Bootstrapping using SmartPLS version 3.2.8

5. Conclusion

This study investigated the aspect of green purchasing intentions and green skepticism in quite a depth. The results will help academicians and practitioners to properly understand these concepts. Similarly, as the aspect of green skepticism has been developing around the world (Arbogust, 2015; Yu, 2020), the results will beneficially help practitioners understand the perspective of a consumer regarding green skepticism and how it could affect their purchasing intentions in a developing country like Saudi Arabia. Moreover, this study has found that environmental concern has a positive effect on subjective environmental knowledge. This result is consistent with findings of Rizkalla (2017), Zarei and Maleki (2018) who identified when a consumer was interested in the issues related to the environment then it significantly increased their desire to gain environmental knowledge as well. Furthermore, subjective environmental knowledge has been also found positively related to green purchasing intentions. This result has been in line with Ali and Ahmad (2016), Joshi (2017), Li et al. (2019) that identified the increase in information and knowledge regarding environment helps the consumer significantly identify environmentally friendly products and then eventually enhanced their green purchase intentions as well.

Also, environmental concern has been found to have a positive effect on green purchasing intentions. This result is in line the results found by Joshi (2017), Li et al. (2019) and Mostafa (2007) who highlighted the importance of the concerns regarding the environment and indicated that when a consumer is having concerns and problems regarding the usage of their products then it increases their green purchasing intentions.

The moderation effect of green skepticism has been found as decreasing the effects of all three relationships since it increases the doubts or mistrust in the consumer's perspective and hence their environmental knowledge and green purchase intentions as well. These results are consistent with the other results (Albayrak et al., 2013; Do Paço & Reis, 2012; Pomeroy & Johnson, 2009; Ulusoy & Barretta, 2016; Zarei & Maleki, 2018).

The results of this study are beneficial towards better and enhanced understanding. The managers are recommended to provide environmental programs towards consumers that can increase their environmental concerns and lead to gaining proper knowledge and awareness. Also, it is recommended to provide such beneficial knowledge that can help consumers differentiate between the products and lead towards green purchasing intentions. Also, the concept of green skepticism has been examined properly and managers are recommended to mitigate its effects. For instance, develop such positive strategies that could decrease the consumer skepticism towards green claims of organizations. Also, managers are recommended to be positive towards green products and their claims to be environmentally friendly so that consumers can increase their knowledge and purchase intentions as well.

References

- Abbasi, A., Yadollahi, S., & Beygi, J. (2019). Investigating consumers' intention to purchase green products: Using the theory of planned behavior with environmental concern and knowledge.
- Ahmad, I., Rehan, M., Balkhyour, M., Abbas, M., Basahi, J., Almeelbi, T., & Ismail, I. (2016). Review of environmental pollution and health risks at motor vehicle repair workshops challenges and perspectives for Saudi Arabia. *Int J Agric Environ Res*, 2, 1-23.
- Aityassine, F., Aldiabat, B., Al-rjoub, S., Aldaihani, F., Al-Shorman, H., & Al-Hawary, S. (2021). The mediating effect of just in time on the relationship between green supply chain management practices and performance in the manufacturing companies. *Uncertain Supply Chain Management*, 9(4), 1081-1090.
- Aityassine, F., Soumadi, M., Aldiabat, B., Al-Shorman, H., Akour, I., Alshurideh, M., & Al-Hawary, S. (2022). The effect of supply chain resilience on supply chain performance of chemical industrial companies. *Uncertain Supply Chain Management*, 10(4), 1271-1278
- Al-Quran, A. Z., Alhalalmeh, M. I., Eldahamsheh, M. M., Mohammad, A. A., Hijjawi, G. S., Almomani, H. M., & Al-Hawary, S. I. (2020). Determinants of the Green Purchase Intention in Jordan: The Moderating Effect of Environmental Concern. *International Journal of Supply Chain Management*, 9(5), 366-371.
- Al-Abbadi, L., Bader, D., Mohammad, A., Al-Quran, A., Aldaihani, F., Al-Hawary, S., & Alathamneh, F. (2022). The effect of online consumer reviews on purchasing intention through product mental image. *International Journal of Data and Network Science*, 6(4), 1519-1530.
- Al-Awamleh, H., Alhalalmeh, M., Alatyat, Z., Saraireh, S., Akour, I., Alneimat, S., & Al-Hawary, S. (2022). The effect of green supply chain on sustainability: Evidence from the pharmaceutical industry. *Uncertain Supply Chain Management*, 10(4), 1261-1270.
- Albayrak, T., Aksoy, Ş., & Caber, M. (2013). The effect of environmental concern and scepticism on green purchase behaviour. *Marketing Intelligence & Planning*, 31(1), 27-39.
- Alhalalmeh, M., Alkhalwadah, R. A., Mohammad, A., Al-Quran, A., Hijjawi, G., & Al-Hawary, S. (2022). The effect of selected marketing activities and promotions on the consumers buying behavior. *Business: Theory and Practice*, 23(1), 79-87.
- Ali, A. (2020). Industrial development in Saudi Arabia: Disparity in growth and development. *Anis Ali (2020). Industrial Development in Saudi Arabia: Disparity in Growth and Development. Problems and Perspectives in Management*, 18(2), 23-35.
- Ali, A., & Ahmad, I. (2016). Environment friendly products: Factors that influence the green purchase intentions of Pakistani consumers. *Pakistan Journal of Engineering, Technology & Science*, 2(1).
- Al-khawaldah, R., Al-zoubi, W., Alshaer, S., Almarshad, M., AlShalabi, F., Altahrawi, M., & Al-hawary, S. (2022). Green supply chain management and competitive advantage: The mediating role of organizational ambidexterity. *Uncertain Supply Chain Management*, 10(3), 961-972.
- Alshawabkeh, R., Al-Awamleh, H., Alkhalwadeh, M., Kanaan, R., Al-Hawary, S., Mohammad, A., & Alkhalwada, R. (2022). The mediating role of supply chain management on the relationship between big data and supply chain performance using SCOR model. *Uncertain Supply Chain Management*, 10(3), 729-736.
- Arbogust, G. (2015). Is skepticism hurting green consumer spending? *Marketing and Media*. Retrieved from <https://www.linkedin.com/pulse/skepticism-hurting-green-consumer-spending-george-arbogust>
- Atkinson, L., & Kim, Y. (2015). "I drink it anyway and i know i shouldn't": Understanding green consumers' positive evaluations of norm-violating non-green products and misleading green advertising. *Environmental Communication*, 9(1), 37-57.

- Bayani, N. (2016). Ecology and environmental challenges of the Persian Gulf. *Iranian Studies*, 49(6), 1047-1063.
- Berck, P., Levy, A., & Chowdhury, K. (2012). An analysis of the world's environment and population dynamics with varying carrying capacity, concerns and skepticism. *Ecological Economics*, 73, 103-112.
- Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative*: Prentice Hall Upper Saddle River, NJ.
- Dagher, G., Itani, O., & Kassar, A. N. (2015). The impact of environment concern and attitude on green purchasing behavior: Gender as the moderator. *Contemporary Management Research*, 11(2).
- Dangelico, R. M., & Vocalelli, D. (2017). "Green marketing": An analysis of definitions, strategy steps, and tools through a systematic review of the literature. *Journal of Cleaner Production*, 165, 1263-1279.
- De Pechpeyrou, P., & Odou, P. (2012). Consumer skepticism and promotion effectiveness. *Recherche et Applications en Marketing (English Edition)*, 27(2), 45-69.
- Do Paço, A. M. F., & Reis, R. (2012). Factors affecting skepticism toward green advertising. *Journal of Advertising*, 41(4), 147-155.
- Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*: Oxford University Press.
- Esmailpour, M., & Bahmiary, E. (2017). Investigating the impact of environmental attitude on the decision to purchase a green product with the mediating role of environmental concern and care for green products. *Management & Marketing Challenges for the Knowledge Society*, 12(2), 297-315.
- European Union. (2009, 31/12/2019). Environment "facts and figures". *Environment "Facts and Figures"*. Retrieved from https://ec.europa.eu/environment/eussd/smgp/facts_and_figures_en.htm
- Forecasts. (2020 - 2025). The kingdom of Saudi Arabia manufacturing industry sector - growth, trends and forecasts. *The Kingdom of Saudi Arabia Manufacturing Industry Sector - Growth, Trends and Forecasts*. Retrieved from <https://www.mordorintelligence.com/industry-reports/manufacturing-industry-in-the-kingdom-of-saudi-arabia-industry>
- Foreh, M. R., & Grier, S. (2003). When is honesty the best policy? The effect of stated company intent on consumer skepticism. *Journal of Consumer Psychology*, 13(3), 349-356.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18(3), 382-388.
- Goh, S. K., & Balaji, M. (2016). Linking green skepticism to green purchase behavior. *Journal of Cleaner Production*, 131, 629-638.
- Guldal, E. (2019). *Consumer skepticism: Attitude-behavior gap in green marketing and the role of ecopreneurs in the market*. Università Ca'Foscari Venezia,
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (pls-sem)*: Sage Publications.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). Pls-sem: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152.
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (pls-sem) an emerging tool in business research. *European Business Review*, 26(2), 106-121.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40(3), 414-433.
- Henseler, J., Hubona, G., & Ray, P. A. (2016). Using pls path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2-20.
- Jaiswal, D., & Kant, R. (2018). Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers. *Journal of Retailing and Consumer Services*, 41, 60-69.
- Joshi, G. Y., Sheorey, P. A., & Gandhi, A. V. (2019). Analyzing the barriers to purchase intentions of energy efficient appliances from consumer perspective. *Benchmarking: An International Journal*, 26(5), 1565-1580.
- Joshi, Y. (2017). Investigating the influence of spirituality, environmental concern and ecological knowledge on consumers' green purchase intention. *PURUSHARtha-A Journal of Management, Ethics and Spirituality*, 9(2), 54-61.
- KEN, J. (2015). Green can be cool and profitable. *Green Can Be Cool And Profitable*. Retrieved from <https://www.environmentalleader.com/2014/07/green-can-be-cool-and-profitable/>
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*: New Age International.
- Kumar, S., & Phrommathed, P. (2005). *Research methodology*: Springer.
- Leonidou, C. N., & Skarmeas, D. (2017). Gray shades of green: Causes and consequences of green skepticism. *Journal of Business Ethics*, 144(2), 401-415.
- Li, G., Li, W., Jin, Z., & Wang, Z. (2019). Influence of environmental concern and knowledge on households' willingness to purchase energy-efficient appliances: A case study in Shanxi, China. *Sustainability*, 11(4), 1073.
- Malik, S., & Qazi, A. (2017). Factors affecting green purchase intention and the role of consumer skepticism. *Journal of Quality and Technology Management*, 14(II), 93-111.
- Matthes, J., & Wonneberger, A. (2014). The skeptical green consumer revisited: Testing the relationship between green consumerism and skepticism toward advertising. *Journal of Advertising*, 43(2), 115-127.
- Mohammad, A., Aldmour, R., & Al-Hawary, S. (2022). Drivers of online food delivery orientation. *International Journal of Data and Network Science*, 6(4), 1619-1624.

- Mostafa, M. M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31(3), 220-229.
- Naidoo, M., & Gasparatos, A. (2018). Corporate environmental sustainability in the retail sector: Drivers, strategies and performance measurement. *Journal of Cleaner Production*, 203, 125-142.
- Newton, J. D., Tsarenko, Y., Ferraro, C., & Sands, S. (2015). Environmental concern and environmental purchase intentions: The mediating role of learning strategy. *Journal of Business Research*, 68(9), 1974-1981.
- Nguyen, T. T. H., Yang, Z., Nguyen, N., Johnson, L. W., & Cao, T. K. (2019). Greenwash and green purchase intention: The mediating role of green skepticism. *Sustainability*, 11(9), 2653.
- Pagiaslis, A., & Krontalis, A. K. (2014). Green consumption behavior antecedents: Environmental concern, knowledge, and beliefs. *Psychology & Marketing*, 31(5), 335-348.
- Pan, S.-Y., Gao, M., Kim, H., Shah, K. J., Pei, S.-L., & Chiang, P.-C. (2018). Advances and challenges in sustainable tourism toward a green economy. *Science of the Total Environment*, 635, 452-469.
- Papadas, K.-K., Avlonitis, G. J., & Carrigan, M. (2017). Green marketing orientation: Conceptualization, scale development and validation. *Journal of Business Research*, 80, 236-246.
- Patel, J. D., Gadhavi, D. D., & Shukla, Y. S. (2017). Consumers' responses to cause related marketing: Moderating influence of cause involvement and skepticism on attitude and purchase intention. *International Review on Public and Nonprofit Marketing*, 14(1), 1-18.
- Pomeroy, A., & Johnson, L. W. (2009). Advertising corporate social responsibility initiatives to communicate corporate image. *Corporate Communications: An International Journal*, 14(4).
- Randheer, K., Trabulsi, H. U., Al Ajmi, H. A., & Al Jasser, H. K. (2017). Emerging industry: A case of automobile manufacturing in Saudi Arabia. *Journal of Marketing Research and Case Studies*, 2017, 14-17.
- Rizkalla, N. (2017). Determinants of sustainable consumption behavior: An examination of consumption values, pce environmental concern and environmental knowledge. *International Journal of Social Science and Humanity*, 7(12).
- Rosenbaum, M. S., & Wong, I. A. (2015). Green marketing programs as strategic initiatives in hospitality. *Journal of Services Marketing*.
- Safari, A., Salehzadeh, R., Panahi, R., & Abolghasemian, S. (2018). Multiple pathways linking environmental knowledge and awareness to employees' green behavior. *Corporate Governance: The international journal of business in society*, 18(1), 81-103.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*: Pearson education.
- Sekaran, U., & Bougie, R. (2016). *Research methods for managers: A skill-building approach* (7th ed.). New Jersey, USA: John Wiley & Sons, Inc.
- Silva, M. E., de Sousa-Filho, J. M., Yamim, A. P., & Diógenes, A. P. (2019). Exploring nuances of green skepticism in different economies. *Marketing Intelligence & Planning*, 38(4), 449-463.
- Skarmeas, D., Leonidou, C. N., & Saridakis, C. (2014). Examining the role of CSR skepticism using fuzzy-set qualitative comparative analysis. *Journal of Business Research*, 67(9), 1796-1805.
- Smith, S., & Paladino, A. (2010). Eating clean and green? Investigating consumer motivations towards the purchase of organic food. *Australasian Marketing Journal (AMJ)*, 18(2), 93-104.
- Suki, N. M. (2016). Consumer environmental concern and green product purchase in Malaysia: Structural effects of consumption values. *Journal of Cleaner Production*, 132, 204-214.
- Sustainable Brands. (2019). Black lives matter; racial equity is fundamental to our vision of a flourishing future. *Walking the Talk*. Retrieved from <https://sustainablebrands.com/>
- Szabo, S., & Webster, J. (2020). Perceived greenwashing: The effects of green marketing on environmental and product perceptions. *Journal of Business Ethics*, 1-21.
- Tan, L. P., Johnstone, M.-L., & Yang, L. (2016). Barriers to green consumption behaviours: The roles of consumers' green perceptions. *Australasian Marketing Journal (AMJ)*, 24(4), 288-299.
- Tariq, E., Alshurideh, M., Akour, I., & Al-Hawary, S. (2022). The effect of digital marketing capabilities on organizational ambidexterity of the information technology sector. *International Journal of Data and Network Science*, 6(2), 401-408.
- Trivedi, R. H., Patel, J. D., & Acharya, N. (2018). Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing. *Journal of Cleaner Production*, 196, 11-22.
- Tucker, E. M., Rifon, N. J., Lee, E. M., & Reece, B. B. (2012). Consumer receptivity to green ads: A test of green claim types and the role of individual consumer characteristics for green ad response. *Journal of Advertising*, 41(4), 9-23.
- Ulusoy, E., & Barretta, P. G. (2016). How green are you, really? Consumers' skepticism toward brands with green claims. *Journal of Global Responsibility*, 7(1), 72-83.
- Vehovar, V., Toepoel, V., & Steinmetz, S. (2016). Non-probability sampling. *The Sage handbook of survey methods*, 329-345.
- Welman, C., Kruger, F., & Mitchell, B. (2005). *Research methodology*: Oxford University Press Cape Town.
- Witek, L. (2017). Barriers to green products purchase—from Polish consumer perspective. In *Innovation management, entrepreneurship and sustainability (imes 2017)* (pp. 1119-1128): Vysoká škola ekonomická v Praze.
- Yu, J. (2020). Consumer responses toward green advertising: The effects of gender, advertising skepticism, and green motive attribution. *Journal of Marketing Communications*, 26(4), 414-433.
- Zarei, A., & Maleki, F. (2018). From decision to run: The moderating role of green skepticism. *Journal of Food Products Marketing*, 24(1), 96-116.

Zareie, B., & Navimipour, N. J. (2016). The impact of electronic environmental knowledge on the environmental behaviors of people. *Computers in Human Behavior*, 59, 1-8.

Zhang, X., & Fares, K. (2017). Customers' attitude towards certified food service: The influence of green attributes, green skepticism and the comparison of LOHAS.



© 2023 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).