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How to Cross the Chasm for the Electric Vehicle World's Laggards—A Case Study in Kuwait

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Abstract: Ever since the discovery of oil in 1938, the State of Kuwait has increasingly sought out international brands in the car market due to the high purchasing power of Kuwaiti nationals. However, the makers of electric vehicles (EVs) have not been able to penetrate this market, with the exception of innovators and early adopters. The phenomenon in disruptive innovation theory—called "Crossing the Chasm"—regarding a mass market appeal has not yet occurred in Kuwait. Through deep interviews with 12 Kuwaiti owners of EVs and automotive dealers who sold either EVs or Hybrid Electric Vehicles (HEVs), 10 key reasons for this phenomenon have been previously revealed, which were used to develop an extensive questionnaire. A total of 472 car drivers aged from 18 to 30, identified as the "early majority", completed the questionnaire to achieve the objective of identifying the factors required to create a mass market for EVs in Kuwait. The results demonstrated that potential customers highly preferred three different types of attributes of EVs: environmental, financial, and technological. There were significant differences in the identified attributes preferred by Kuwaiti individuals for EVs in terms of the number of cars owned and the sector of employment. Moreover, the results of our study indicate that potential customers are very willing to buy EVs in the future, considering both their financial and infrastructure attributes. There were further significant differences in the identified necessary conditions to buy EVs in terms of educational level and monthly income. This study discusses a variety of valuable promotional tactics, which may be implemented in conjunction with public incentives and policy changes in the State of Kuwait. This information is considered useful for marketers and designers who wish to tap into this lucrative market, which is significantly different from that in the global North.

Keywords: electric vehicles; disruptive innovation; customer preferences; emerging market; Kuwait; EV infrastructure

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1. Introduction

This paper is the fifth published paper stemming from the project called "Breaking the Internal Combustion Engine Reign: A Mixed-Methods Study of Attitudes Towards Using and Purchasing Electric Vehicles in Kuwait," funded by the Kuwait Foundation for Scientific Advancement (KFAS) and managed by the Middle East Center of the London School of Economics. The project is complementary to the research of the KFAS on infrastructure and top-down policy, as well as research conducted by the National Laboratory of the Kuwaiti Institute for Scientific Research (KISR), mainly focused on EV batteries and their charging capacity under extreme heat conditions. This study, on the other hand, follows a bottom-up approach to capture customer preferences and attitudes towards EVs through the use of information gained from deep interviews with existing owners and automotive dealers in order to develop an extensive questionnaire, which we issued to potential consumers. The final outcome of this study is a series of suggestions for national and local governments, service providers, and automobile dealers that wish to break into this

market, of which policies, practices, procedures, and infrastructural and automobile design are likely to yield the biggest impact, in terms of making EVs appealing to mainstream automobile consumers [1–4].

The concept of sustainable mobility is changing for the better. EV sales are expected to increase dramatically in the coming years; in particular, EV sales have been predicted to rise from 2.7% at present to 58% by 2040 [5]. Accordingly, European Economic Area (EEA) countries are seeking to ban the sales of all fossil-fueled cars by 2040 in order to achieve net-zero emissions by 2050 and have stated their apparent intentions to halt investing in new ICE platforms and models to end ICE vehicle production [6,7]. Hence, major car manufacturers have agreed to stop producing new ICE cars by 2040. For instance, some developed countries—namely, Norway, Iceland, and the Netherlands—are at the forefront of this transition, with up to 20% of their car fleet being fully or partially electric [8]. On the other hand, some developing countries—particularly those such as Kuwait—are considered to be the world's laggards regarding EV adoption, with less than 1/1000th of the world's average [3]. Consumer mindsets have also shifted toward sustainable mobility [9]. Consequently, the EV landscape in Kuwait needs to be examined and inspected, particularly from the perspective of consumer behaviors.

The concepts of consumer behavior and awareness are changing as more consumers come to accept alternative and sustainable mobility modes [10]. Customer preferences have been studied by numerous researchers and marketers in order to support the strategic planning and decision-making of business managers [11,12]. The acknowledgment of customer preferences provides useful insights for serving and executing EV marketing campaigns, which might lead them to better design features that might be appealing to new EV customers in the target market. Consequently, this might enhance customer satisfaction and, hence, create an EV community beyond early adopters or early users of EVs.

Although researchers have begun to examine the EV landscape worldwide, very little research has examined this landscape in emerging markets such as that of Kuwait. Furthermore, limited research has considered conventional car drivers in this context. Therefore, the aim of this study was twofold:

(i) To identify the preferences of EV early majority/pragmatic consumers in Kuwait, as perceived by conventional ICE car drivers;
(ii) To examine the influence of several selected demographic variables on preferences of early majority/pragmatic consumers, which might sway them to switch over from ICE vehicles to EVs, thus creating a mass market for EVs in Kuwait.

The present study hence contributes to various existing bodies of literature: (i) Five types of attributes—financial/economic, technological, infrastructure, brand, and social/environmental attributes—are considered collectively and comprehensively within a single choice set for EVs. It is important to note that, while the attributes have been examined separately among existing studies, they have not been collectively considered previously; (ii) emphasis is placed on conventional car drivers, which has not been explored previously in the literature; and (iii) this study fills a gap in the existing literature by adding more significant knowledge on the EV phenomenon, in terms of preferences, along with consumer demographic background data obtained from a large-scale survey in Kuwait.

The burgeoning sustainable development needs to be accomplished through the use of green energy to protect human health and the environment, ensuring the target of zero CO_2 by 2050 for all countries [13–15]. Regarding sustainable consumption, the automotive industry has undergone a major transformation and is endeavoring to lessen the environmental damage (e.g., air pollution, carbon footprints, greenhouse gas emissions) caused by excessive oil consumption, which is expected to reach 100,600,000 barrels per day by the end of 2023, compared with 3,100,000 barrels in 2021 [16]. The industry is trying to rapidly increase the production investment into EVs, as well as shifting the consumer response in this regard.

2. Problem Statement and Significance: Highest EV Adopters vs. the Lowest Ones

Even though geographically different, Kuwait and Norway have many similarities in terms of their wealth accumulation, economy, and population. As of the end of 2022, Norway had a population of 5.5 million, whereas Kuwait had close to 4.3 million residents [17]. Both nations are heavily reliant on oil production for wealth generation, with Kuwait in 10th and Norway in 13th place, in terms of wealth derived from such production. Kuwait's crude oil reserves account for 6.1% of the world's reserves—the 6th highest in the world. Petroleum production accounts for over half of Kuwait's GDP, 92% of its export revenues, and 90% of its governmental income. In comparison, Norwegian oil reserves only account for 0.3% of world reserves, or only 18th in the world [18]. However, Norwegians have invested their proceeds from oil more prudently, as they have accumulated a 1.1 trillion-USD sovereign wealth fund, compared with the 0.8 trillion-USD sovereign fund in Kuwait. [19]. In terms of GDP per capita (adjusted for purchasing power), these countries are also similar, with Norway having USD 78,128 vs. USD 51,528 GDP per capita for Kuwait, according to IMF estimates for 2022 [20].

One of the reasons that Kuwait has a lower GDP per capita than Norway is because of the high number of relatively low-paid ex-pats living in Kuwait. Expats account for 70% of the population of Kuwait, of which one-fourth are low-paid domestic workers, which equates to one domestic worker for every two Kuwaiti citizens. Norway, on the other hand, has a very homogeneous population, with only 20% of the population being immigrants or first-generation. In Norway, half of the immigrants are now citizens—something that would be next to impossible in Kuwait [17]. When it comes to car ownership, the rate is 2.3 million in Kuwait vs. 3.4 million in Norway. The reason for this difference can mainly be explained in terms of restrictions on acquiring driving licenses for ex-pats, who only own about 500,000 cars [3]. Kuwaiti citizens are about six times more likely to have a car than the ex-pats living there. Surprisingly, the lower number of cars in Kuwait has not led to lower CO_2 emissions than Norway. Kuwait emits 21 tCO_2e/person, with transport being the third-highest greenhouse gas (GHG)-emitting sector. Ground transportation only accounts for 12% of the total release of GHGs. Although this percentage might appear low, in comparison to other sectors, one should keep in mind that the emissions per capita in Kuwait are ranked the second highest in the world (after Qatar) and are about three times higher than the average in the European Union. This ratio also holds with respect to oil-producing Norway, which emits approximately one-fifth of the per capita emissions of Kuwait (6.7 tCO_2e/person) [21].

One of the reasons for this stark difference is that Norway has already replaced 20% of its ground transportation fleet with Electric Vehicles (about 800,000 EVs), with plans for 100% replacement. As a result, Norway achieved a 3% permanent reduction in the country's release of GHGs [22]. As this transition has yet to take place in Kuwait and EVs on Kuwaiti streets, only account for a fraction of a percent (around 300 at the end of 2021 and 600 at the end of 2022), mass EV adoption offers a tremendous opportunity to lower GHG emissions in Kuwait. EVs, as a replacement for Internal Combustion Engine (ICE) cars, offer a viable solution to Kuwait's pledge to lower GHG emissions. This would allow progress to be made towards both the United Nations, through their Nationally Determined Contributions (NDCs), and for their own national vision for the State of Kuwait by 2035, especially towards achieving its sustainability goal number 13, which states that Kuwait must "Take urgent action to combat climate change and its impacts" [23].

In a recently published article by the authors, entitled "How to sell zero-emission vehicles when petrol is almost for free" [3], as well as in research conducted by the Kuwait Institute for Scientific Research (KISR) on EV battery performance in high-temperature environments [24,25], we can state the ten main reasons for the ultra-low EV adoption rate in Kuwait:

1. Absence of fast-charging and powerful EV public charging stations that rely on 300 kW Direct Current (DC to DC), which could charge the most popular large-battery EVs in Kuwait to an 80% charge in about 20 min [26].

2. The reluctance of Kuwaiti landlords (as ex-pats are not permitted to own real estate by law in the State of Kuwait) to allow ex-pat-owners of EVs to install fast-charging 11 kW EV amplifier wall-boxes in or around their rented apartments, which could reduce the charging-time from up to 48 h for the biggest batteries down to only 5–10 h.
3. The State of Kuwait subsidizes petrol for its residents and, as a result, has one of the world's lowest retail gasoline prices (at USD 0.34 per liter). In comparison, one liter of retail petrol costs just over USD 2 (almost six times more) in Norway [27].
4. Neither the State of Kuwait nor its municipalities offer financial incentives to buy or own EVs instead of ICE cars. In comparison, Norway offers a long list of incentives, including
    a. Import and value-added tax exceptions from the purchasing price;
    b. Road tax exceptions;
    c. Ferry and toll-road fee exceptions;
    d. Permission to drive EVs on designated fast lanes for buses;
    e. Free municipal parking.

These incentives make it both cheaper to buy and own EVs over ICE cars in Norway, whereas the opposite is true for purchasing EVs in Kuwait. Furthermore, when considering the potential depreciation in value when re-selling, maintenance costs, as well as low fuel costs due to subsidies, drivers in Kuwait still simply do not see any economic benefit to converting to EVs, mainly as the purchasing cost is about 20% higher than equivalent ICE cars [3].

5. The lack of an EV community and exposure, stemming from the low number of EVs on the streets, indicate that EVs have not yet "crossed the chasm" in Kuwait—a term used for a disruptive innovation in which a certain type of technology eventually takes over the existing one [28]. The main hurdle is when the market is dominated by an early niche market made up of "innovators and techies" on the one hand, along with "visionaries and early adopters," while the market has not yet reached the "early-majority or the pragmatists." The reasons for this inability to reach the mass market can be explained by the Technology Acceptance Model (TAM), which provides two explanations: "the lack of perceived usefulness" along with "the unease of use" [29]. Our study supports this theory, as the most commonly sold EV in 2021 in Kuwait was the Porsche Taycan EV for approximately USD 200,000. This was bought primarily as the third or fourth car by affluent Kuwaiti males in their fifties and sixties as a status symbol rather than as a primary mode of transport. According to a dealership interview, the benefit of ownership for buyers was not primarily environmental but rather to be significantly faster than supercars such as those of Ferrari, Lamborghini, and so on, as the gearless EV powertrain allows for acceleration which no ICE car can compete with [3].
6. Potential EV drivers have apprehension as to how many years the battery will last in the extreme heat of Kuwait, as many have witnessed their cell phones automatically shutting down outside or inside of a car due to heat exposure. Generally, there is an 8-year guarantee on the battery (or about 150,000 km driven). The average life of an ICE car is 12–13 years, about 5 years longer than the EV battery warranty lasts. As a new EV car battery in the ninth year might cost more than the market value of the car at that time, replacing the battery might not be deemed worth the money. Thus, the life of the battery might dictate the life of the car. With potentially 30–40% less lifetime, rapid depreciation might represent the highest cost of ownership to EV owners. Luckily, KISR—the National Laboratory of Kuwait—has researched this phenomenon and has and will continue to publish data that will hopefully appease the concerns of consumers regarding this issue.
7. The almost total lack of maintenance, due to EVs only having 20 moving parts vs. up to 2000 in ICE cars, can actually pose a problem. EV owners complain that because EVs do not need as much maintenance, dealerships are reluctant to build up technical capacity or parts inventories. For example, Tesla does not even have a dealership in

Kuwait, as all updates and inspections are conducted online. Such a lack of facilities has proven problematic in the case of accidents or other mishaps [3].

8. EV owners have pointed out that the ground clearance of the car is especially important for EVs in Kuwait (i.e., the distance from the lowest point of the car to the ground). High speedbumps in residential areas aiming to keep out low-riding power cars are a problem, as they may damage the battery at the bottom of the EV.
9. Some efforts have been made by municipalities, shopping centers, and transportation authorities to have designated parking spaces with or without charging facilities. However, as no penalty is typically levied on ICE car drivers—in contrast to those who park in handicapped parking spaces—virtually all EV owners we talked to complained that the designated parking was not respected as exclusive to EVs.
10. Although farfetched, there is a moderate to strong correlation when comparing the percentage of women in national congresses worldwide, and the percentage of EVs sold that year. For example, the national parliament in Norway is represented by 46% women, with 9 out of 19 ministers being women. The Kuwait parliament, on the other hand, only has 2 women out of 50 seats and 1 woman out of 12 ministers. Several studies conducted by the Organization for Economic Cooperation and Development (OECD), among others, have demonstrated that women in power demonstrate more environmental concern than their male counterparts. This ratio might explain, in part, why the State of Kuwait has been slower than Norway to provide a support system for EV adoption [4].

Our research did not indicate that the perceived safety of EVs was a problem for current EV owners or potential EV drivers in Kuwait, as EVs are generally viewed as safer than ICE cars. This notion corresponds to American safety data from 2021, which states that EVs are about 60 times less likely to catch fire than a combustion engine car [30]; or, as Ian Must worded it, "What part of combustion in an Internal combustion engine do you not understand" [31]. Neither was the price of electricity for charging the EV a problem, as this is also subsidized and only costs about KWD 0.009 (or about USD 0.03) per kWh for a home, amounting to about USD 15 per month for average EV use [32]. Finally, our interviewees were largely aware that, due to about 3-fold higher efficiency of EV engines over ICEs regarding the transformation of the energy from the tank/battery to the wheels, EVs are still significantly environmentally friendlier than ICE vehicles, even though electricity is made using natural gas in Kuwait and more CO_2 is emitted in the construction of an EV due to the size of its battery [33].

Whether one of these ten reasons for the low EV adoption rate is more prevalent than the other is not the focal point of this paper. Experience from the oil-producing country Norway clearly indicates that mass adoption of EVs is a viable option for lowering greenhouse gas emissions and is a worthwhile tool for the State of Kuwait to meet its national and international commitments to lowering such emissions. Additional benefits derived from mass EV adoption potentially include improved air quality (as EVs are emission-free) and reduced sound pollution (as EV engines are also soundless).

3. Literature Review

In the recent literature, several reviews related to barriers and opportunities that affect the economics and development of public charging infrastructures have been conducted [34,35]. Reviews have comprehensively studied aspects such as charging solutions and optimization techniques, charging scheduling, data mining, load forecasting, wireless charging technologies, cybersecurity of onboarding charging systems, power system quality in smart microgrids and multi-microgrid networks, the application of green energy to supply EV loads, and prediction-based mechanisms for dynamic response schemes compatible with smart prosumer behaviors [36–49].

This study is a part of wider research, starting with a pilot study with 50 participants [2], that attempted to provide initial insight into new conventional car purchasing behaviors among consumers in Kuwait. Interestingly, the study concluded that there are

three potential new conventional car buyer segments. The first was identified as the 'Value Seeker' group, as early majority pragmatists which are not likely to become early adopters of EVs in the GCC region. The second segment is the 'Performance Seeker' group, mainly including early-adopter younger men who prefer EVs due to their high torque (0 to 100 km in a few seconds). Finally, the third segment was the 'Safety Seekers,' a niche market mainly consisting of environmentally conscious younger women who may prefer to drive EVs, with low maintenance as a predictive determining factor for EV adoption in the GCC region in the future. It is clear that, as the study was only a pilot study delivering various predictions, there was a lack of empirical evidence. These predictions were certainly not based on collective factual data but, instead, based on the assumptions and subjective interpretations of the authors. This study was followed by qualitative deep interviews with automotive dealers in Kuwait, as well as several EV (Tesla) owners [3]. This study revealed that two dealerships dominated the market: Porsche and Mercedes. As of 2022, there was no dealership for Tesla, and these cars were imported from neighboring countries (e.g., Saudi Arabia, Bahrain, and the United Emirates). The interviews confirmed that were market niches for EVs, as per the pilot study. The majority of women, according to Mercedes car dealers, preferred to buy EVs due to environmental concerns, their soundlessness, and lack of maintenance. However, contradictory to the pilot study, the high torque and high performance of EVs did not affect their purchase by younger men but, instead, men in their 50 s to 60 s who were not environmentally concerned at all but were attracted by technology, luxury, and the faster pick-up to 100 km than high-performance ICE sports cars. A large, extended survey superseded these two studies. The purpose of this study was two-fold, including studying how to facilitate mass EV adaptation to lower the CO_2 emissions in Kuwait, which is the second-highest in the world per capita, by examining attitudes towards EVs and the environment [1]. The present study, on the other hand, explores the marketing potential of EVs. Hence, we conducted an extensive literature review to identify the attributes of EVs that have been studied around the world (i.e., developed, developing countries, and the MENA region) as perceived by potential customers of EVs (see Table 1 and Figure 1).

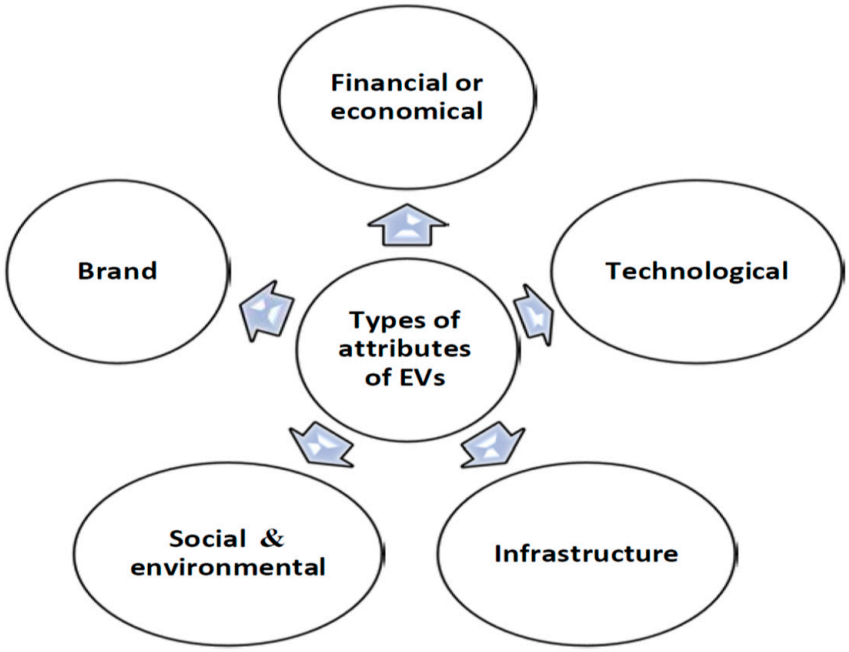

Figure 1. Types of attributes of EVs, as identified by potential customers around the world. Source: Authors 2023.

Table 1. Types of attributes of EVs as identified by potential customers around the world.

Types of Attributes	Industrialized Countries (Global North)	Developing Countries (Global South Excluding MENA Region)	MENA Region (Arab World)
Financial or economical attributes	Archsmith et al. (2021) [50], Mandys (2021) [51], Guerra and Daziano (2020) [52] Miranada and Delgado (2020) [53], Higueras-Castillo et al. (2019) [54], Rietmann and Lieven (2019) [55], Kowalska-Pyzalska et al. (2021–22) [56,57]	De Oliveira et al. (2022) [58], Lashari et al. (2021) [59], Dasharathraj et al. (2020) [60], Colak and Kaya (2020) [61], Li et al. (2020) [62], Bhalla et al. (2018) [63], Zhang et al. (2018) [64]	Eneizan (2019, Jordan) [65]
Technological attributes	Mandys (2021) [51], Archsmith et al. (2021), [50], Higueras-Castillo et al. (2019) [54]	De Oliveira et al. (2022) [58], Kim et al. (2022) [66] Ho and Huang (2022) [67], Kowalska-Pyzalska et al. (2021–22) [56,57], Kongklaew et al. (2021) [68], Khurana et al. (2020) [69], Colak and Kaya (2020) [61], Khurana et al. (2020) [70], Dasharathraj et al. (2020) [60], Haider et al. (2019) [70]	Hamwi (2022, Kuwait) [24,25]
Infrastructure attributes	Archsmith et al. (2021) [50], Miranada and Delgado (2020) [53], Guerra and Daziano (2020) [52], Rietmann and Lieven (2019) [55], Ottesen and Banna (2018) [71], Hardman et al. (2018) [72]	Kim et al. (2022) [66], De Oliveira et al. (2022) [58], Kongklaew et al. (2021) [68], Khurana et al. (2020) [70], Bhaskar et al. (2020) [73], Haider et al. (2019) [70], Bhalla et al. (2018) [63]	Shareeda et al. (2021, Bahrain) [74], Jreige et al. (2021, Lebanon) [75]
Social and environmental attributes	Archsmith et al. (2021) [50], Higueras-Castillo et al. (2020) [54], Miranada and Delgado (2020) [53], Vilchez et al. (2019) [76], Rietmann and Lieven (2019) [55]	Fan and Chen (2022) [77], Kim et al. (2022) [66], De Oliveira et al. (2022) [58], Dasharathraj et al. (2020) [60], Colak and Kaya (2020) [61], Haider et al. (2019) [70], Lin and Wu (2018) [78], Zhang et al. (2018) [35]	Al-Buenain et al. (2021, Qatar) [79], Shareeda et al. (2021, Bahrain), [74], Eneizan (2019, Jordan), [65]
Brand attributes	Kowalska-Pyzalska et al. (2021–22) [56,57]	Vongurai (2020) [80], Dasharathraj et al. [60]	

As shown in Table 1, five types of attributes have been investigated in the previous literature, including financial/economic, technological, infrastructure, brand, and social/environmental attributes. However, most studies have investigated one, two, and/or three types of these attributes, while no study has examined these five attributes collectively. Specifically, financial/economic attributes include features relating to the cost of EVs, such as purchase price, repair cost, maintenance costs, insurance costs, charging costs, warranty, and guarantee costs. Technological attributes encompass features relating to the technology used in EVs, such as battery life, battery performance, driving range, maximum speed, recharging time, acceleration, technology advancement, operating condition (i.e., heater and air condition), safety, trust, reliability, and engine performance (i.e., low noise). Infrastructure attributes include features relating to the infrastructure supporting EVs, such as charging stations and networks, commercial and public recharging infrastructure, home-based charging infrastructure, road and public infrastructure. Social and environmental attributes include features related to the governmental policies that serve social and environmental purposes, such as free parking spots, reduction in sales price, governmental

subsidies and incentive policies, health and safety, tax reduction policy, and penalizing policies for conventional cars, as well as environmental friendliness. These four attribute types have been extensively investigated in the previous literature from both developed and developing countries. Brand attributes, including features such as design, brand reputation, credibility, and comfort, have been investigated to a lesser extent in the previous literature in both developed and developing countries. However, very little research has explored all five attribute types in the MENA region, particularly in Kuwait. Furthermore, little research has examined these types from the perspectives of conventional car drivers as potential customers.

It is necessary to point out that the previous literature investigating consumers' preferences for EVs typically considered a single layer of the five attributes, while other valuable factors for prediction were ignored and neglected. Interestingly, very few studies examined more than the two attributes in combination. Therefore, for the present study, we aimed to investigate all five types of attributes together in order to provide a comprehensive and up-to-date holistic picture of EV preferences. As such, the present paper helps to address this fundamental gap in the literature. Another advantage is that, by considering all five attribute types altogether, we hope to lay a solid foundation for upcoming studies to consider future re-occurring issues, as well as assist in the prediction of possible solutions for promoting the adoption of EVs, based on the present findings of this study.

In light of the above, none of the studies in the existing literature have specifically explored consumer preferences regarding EVs in Kuwait, as a critical part of the MENA region. Moreover, few studies have considered conventional car drivers in a similar context. Therefore, there is a need to explore consumer preferences for EVs from the perspective of conventional car drivers in order to identify which of these five types of attributes are considered most important by potential consumers in Kuwait, as this region constitutes a very promising market. Hence, we aimed to fill this gap in the literature by adding more significant knowledge, as stated in the introduction.

4. Data Collection and Methodology

4.1. Research Instrument

We employed a survey method by issuing a questionnaire to 472 conventional car drivers in order to achieve the objective of this study. This is part of a wider study, called "Breaking the ICE reign: mixed method study of attitudes towards buying and using EVs in Kuwait". A large-scale online questionnaire was used to provide a broader picture of the EV landscape in Kuwait and to confirm the prior survey results. A pilot test evaluation of the questionnaire has been described by Ottesen et al. (2022) [2], following which some changes and revisions were made to the format and overall design of the questionnaire. The first part focuses on data related to the demographic characteristics of the respondents, covering gender, age, marital status, education, nationality, employment, field of employment, number of cars owned by the household, job role, and household income. This first part consisted of 10 items concerning the demographic characteristics of the respondents. The second part of the questionnaire consisted of 18 closed-ended questions, which served to enrich our understanding regarding the preferences and viewpoints of conventional car drivers in Kuwait.

4.2. Sampling Procedures and Size

As this study aimed to collect data about EVs, we focused on the drivers and owners of conventional cars, who could be considered potential buyers of EVs. We decided to use the random sampling technique for data collection. For this study, the population is composed of all people who drive and/or own conventional cars in Kuwait. As the population of this study was over 100,000, the minimum required sample size for survey research was 384, as suggested by Krejcie and Morgan [81], and any sample size over 500 was considered very good, as recommended by Comrey and Lee [82]. A large sample size enables the collection of meaningful demographic data and allows one to reach actionable conclusions

regarding the population. We stopped collecting data after collecting questionnaires from 604 participants. The final sample included 472 (78.1% response rate) questionnaires, which were used in the subsequent analysis.

4.3. Data Collection Procedure

Two web links were formulated, one for the Arabic version and another for the English version of the questionnaire. The authors formulated the questionnaire using Google Forms, which is a validated tool used for data collection. The researchers distributed the questionnaires among several groups in Kuwait who usually drive and/or own conventional cars, including students, the general public, faculty members, and tutors, in order to collect their feedback and comments using the two web-based links. The respondents to the questionnaire had to be at least 18 years old and conventional car drivers/owners to participate in the study. The data collection stage started in February 2022 and ran until May 2022. The purposes of the study were explained to participants, and they were asked to complete the questionnaire. The instructions for completing the questionnaire were given on the cover page in order to avoid any misunderstanding about the issue. To ensure the objectivity of the study, the respondents were asked one qualifying question to ensure whether they drive and/or own a conventional car. Only after this were they allowed to answer the rest of the questionnaire. A total of 604 persons participated in this study. After removing 132 questionnaires (i.e., those who did not have or drive a car), a total of 472 questionnaires were analyzed. As shown in Table 2, there was an approximate gender balance within the data (238 males and 234 females). Additionally, 64% of the sample (n = 304) were in the age category of 26 to 60 years, reflecting the car ownership status in Kuwait.

Table 2. Summary of the demographic characteristics of the respondents.

Variable	Categories	N = 472	%
Gender	Male	238	50.4%
	Female	234	49.6%
Age Range	18–25 years	168	35.6%
	26–39 years	222	47.0%
	40–49 years	61	12.9%
	50–60 years	21	4.4%
Marital Status	Single	272	57.6%
	Married without kids	37	7.8%
	Married with 1 kid	35	7.4%
	Married with 2 kids	42	8.9%
	Married with 3 kids or more	86	18.2%
Ethnicity	Kuwaiti	287	60.8%
	Arab Non-Kuwaiti	144	30.5%
	Asian Non-Arab	38	8.1%
	American, European, or Australian	2	0.4%
	African Non-Arab	1	0.2%
Number of Cars in household	One car	62	13.1%
	Two cars	139	29.4%
	Three cars	70	14.8%
	Four cars	66	14.0%
	Five cars or more	135	28.6%

Table 2. *Cont.*

Variable	Categories	N = 472	%
Educational Level	Less than high school	8	1.7%
	High School diploma	108	22.9%
	Trade/Commerce degree	55	11.7%
	Bachelor's degree	259	54.9%
	Master's degree	31	6.6%
	PhD	11	2.3%
Employment	Private sector	176	37.3%
	Public sector	152	32.2%
	Unemployed	83	17.6%
	Self-employed	35	7.4%
	Family-owned business	26	5.5%
Field of employment	Other private services	139	29.4%
	Government and Ministries	125	26.5%
	Family business	61	12.9%
	Education—government or private	46	9.7%
	Oil and Gas sector	32	6.8%
	Large Kuwaiti corporation	29	6.1%
	Health Care—government or private	26	5.5%
	Military or police	14	3.0%
Which of the following best describes your role in industry?	Middle Management	102	21.6%
	Administrative Staff	80	16.9%
	Upper Management	59	12.5%
	Student—Not working	54	11.4%
	Lower Management	38	8.1%
	Support Staff	34	7.2%
	Temporary Employee	28	5.9%
	Self-employed/Business Partner	27	5.7%
	Trained Professional expert	22	4.7%
	Researcher	12	2.5%
	Consultant	8	1.7%
	Skilled Laborer	8	1.7%
Monthly Income	Less than KWD 500 (USD 1650)	149	31.6%
	KWD 500–999	104	22.0%
	KWD 1000–1499	111	23.5%
	KWD 1500–1999	59	12.5%
	KWD 2000 and above (USD 6600)	49	10.4%

4.4. Statistical Analysis

We conducted statistical analysis using IBM SPSS 19 software. Descriptive statistics (i.e., frequencies and percentages) were computed to analyze the data relating to the demographic characteristics and closed-ended questions. Therefore, no hypothesis was formulated, as the study was conducted to explore the prevalence of attributes of EVs

among potential consumers. ANOVA and *t*-tests were also conducted in order to determine significant differences. The *t*-test was used to compare the mean scores of two different groups of one independent variable that had only two distinct categories and one continuous dependent variable [82], while ANOVA was used to determine whether statistically significant differences in means occurred between more than two groups [83]; that is, ANOVA was used when considering one independent variable with more than two distinct or continuous categories and one continuous dependent variable.

4.5. Data Analysis and Findings

A summary of the demographic characteristics of the respondents is presented in Table 2. An approximately equal number of males (50.4%) and females (49.6%) completed the questionnaire. Approximately half of the participants (47%) were in the age range of 26 to 39 years, while more than a third of them (35.6%) were in the age range of 18 to 25 years. More than half of the respondents were single (57.6%), while approximately a fifth of them (18.2%) were married with three or more children. Approximately two-thirds (60.8%) of the participants were Kuwaiti. More than half of the respondents (54.9%) had a bachelor's degree. More than a quarter of the participants owned two cars (29.4%) or five or more cars (28.6%). More than a third of participants (37.3%) were employed in the private sector, while approximately another third of them (32.2%) were employed in the public sector. Approximately a third of participants (29.4%) worked in other private services, more than a quarter of them (26.5%) worked in the government and ministries sector, and more than a fifth of them (21.6%) were in middle management. The monthly income of more than half of the participants (53.6%) was less than KWD 1000 (USD 3300).

The following scale is used to facilitate reporting the rest of the results:

- High agreement: Calculated mean ($M \geq 3.5$);
- Medium agreement: Calculated mean ($2.5 \geq M < 3.5$);
- Low agreement: Calculated mean ($M < 2.5$)

With regard to the most favorable features of EVs, as perceived by participants (see Table 3 and Figure 2), the participants highly agreed on three features: namely, environmental friendliness, with lower CO_2 leading to better air quality (M = 3.74), much lower fuel price than gasoline (M = 3.54), and soundless engine (M = 3.52). Other features had a medium agreement, such as increased safety in terms of fire and crash tests (M = 3.49), faster and more powerful air conditioning (M = 3.46), much faster acceleration from 0 to 100 km (M = 3.32), and much lower maintenance and associated costs (M = 3.24).

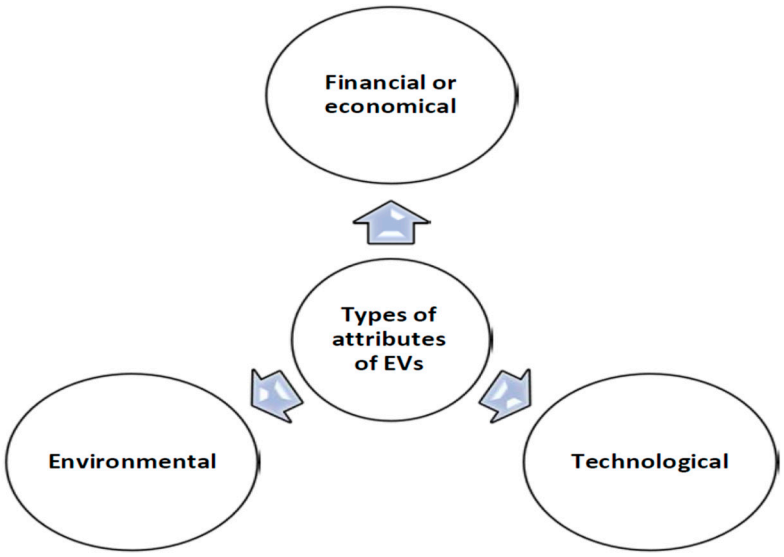

Figure 2. Attributes of EVs highly preferred by consumers in Kuwait. Source: Authors 2023.

Table 3. The most favorable features of EVs as perceived by participants (N = 472).

Type of Attribute (Features)	To What Extent You Agree/Disagree about the Most Favorable Features of EV?	Mean	SD
Social attributes—pro-environmental	Environmental friendliness, less CO_2 that leads to better air quality	3.74	1.308
Financial/economic attributes	Much lower fuel price than gasoline	3.54	1.279
Technological attributes	Soundless engine	3.52	1.305
Technological attributes	Increased safety in terms of fire and crash tests	3.49	1.305
Technological attributes	Faster and more powerful air conditioning	3.46	1.246
Technological attributes	Much faster acceleration (from 0 to 100 km)	3.32	1.236
Financial/economic attributes	Much lower maintenance and associated cost	3.24	1.311

With regard to the requirements to buy EVs, as perceived by participants (see Table 4 and Figure 3), participants highly agreed on two requirements; namely, if the guarantee of the battery would last at least 10 years or 150,000 km (M = 3.54), and if there was a fast-charging station within 5 km from almost every place in Kuwait (M = 3.51). Other requirements had a medium agreement, such as if they start to see a noticeable change in air quality due to people driving EVs (M = 3.47) if the range (how long they can drive) per full charge would be at least 400 km (M = 3.47), if they had a cool and unique design (M = 3.43), if the price was the same or lower than an equivalent gasoline car (M = 3.39) if the re-selling value would be equivalent or higher than that of a gasoline car (M = 3.39), and if the price of gasoline would increase three-fold (M = 3.33).

Table 4. The requirements to buy EVs as perceived by participants (N = 472).

Types of Attributes (Features)	I Would Buy an EV if . . .	Mean	SD
Financial/economic attributes	If the guarantee of the battery lasted at least 10 years or 150,000 km	3.54	1.189
Infrastructure attributes	If there was a fast-charging station within 5 km from almost every place in Kuwait	3.51	1.193
Social attributes—pro-environmental	If I start to see noticeable change in air quality because people are driving EVs	3.47	1.162
Technological attributes	If the range (how far you can drive) per full charge would be at least 400 km	3.47	1.160
Brand attribute	If they were cool and unique design	3.43	1.217
Financial/economic attributes	The price was same or lower than equivalent gasoline car	3.39	1.287
Financial/economic attributes	If the reselling value was equivalent or higher than gasoline car	3.39	1.164
Financial/economic attributes	If gasoline prices increased three-fold	3.33	1.220
Infrastructure attributes	There was a special EV lane on major highways such as highway 30 and 40	3.27	1.165
Social attributes—social acceptance	If most of my friends or family bought an EV	2.97	1.152

The *t*-test and ANOVA were conducted to determine significant differences between the most favorable features of EVs identified in the study in terms of four background variables having two groups (i.e., gender, marital status, ethnicity, and the number of cars owned) and four background variables with more than two groups (i.e., age range, education, employment, and monthly income), respectively. The results are summarized in Table 5. When the mean score of features was compared across the eight background variables, there were strong significant differences in the mean scores of the features regarding the number of cars owned and employment. Participants who had one or two cars highly agreed on the environmental friendliness (M = 3.91, $p = 0.02$) and soundless engine (M = 3.68, $p = 0.024$) attributes of EVs, while participants who had three cars

or more moderately agreed on the soundless engine feature, and highly agreed on the environmental friendliness of EVs. Furthermore, participants employed in the public sector highly agreed on the environmental friendliness (M = 3.91, p = 0.001), much lower fuel price (M = 3.69, p = 0.004), and soundless engine (M = 3.68, p = 0.011) of EVs, while participants who were employed in a family-owned business moderately agreed on these features. On the other hand, no significant differences in the most favorable features of EVs identified in the study could be related to the other six background variables of the participants.

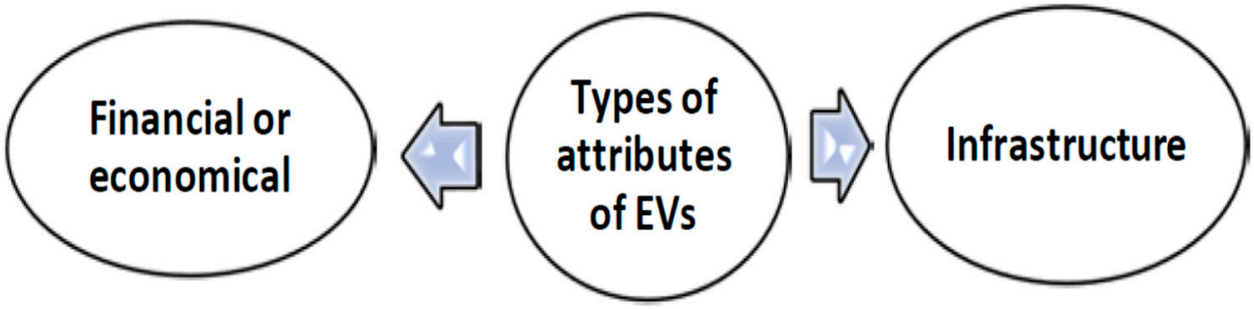

Figure 3. Types of attributes of EVs in Kuwait as identified by customers as highly necessary to buy EVs in the near future. Source: Authors 2023.

Table 5. Comparison of mean scores of the highly preferred favorable features of EVs in terms of eight background variables of the participants.

Variables	Categories (N)	The Highly Preferred Favorable Features of EVs		
		Environmental Friendliness, Less CO_2 and Sod That Lead to Better Air Quality	Much Lower Fuel Price than Gasoline	Soundless Engine
		Mean	Mean	Mean
Gender	Male (N = 238)	3.79	3.63	3.61
	Female (N = 234)	3.70	3.46	3.42
	Sig. (2-tailed)	0.482	0.163	0.113
Marital Status	Single (N = 272)	3.69	3.57	3.43
	Married (N = 200)	3.82	3.51	3.64
	Sig. (2-tailed)	0.277	0.668	0.084
Ethnicity	Kuwaiti (N = 287)	3.73	3.56	3.57
	Non-Kuwaiti (N = 185)	3.76	3.52	3.43
	Sig. (2-tailed)	0.805	0.728	0.247
Number of cars	One to Two cars (N = 201)	3.91	3.65	3.68
	Three cars or more (N = 271)	3.62	3.46	3.40
	Sig. (2-tailed)	0.020	0.117	0.024
Age Range	18–25 years (N = 168)	3.67	3.49	3.40
	26–39 years (N = 222)	3.75	3.55	3.55
	40–60 years (N = 82)	3.89	3.65	3.67
	Sig. (2-tailed)	0.447	0.655	0.260

Table 5. *Cont.*

Variables	Categories (N)	The Highly Preferred Favorable Features of EVs		
		Environmental Friendliness, Less CO_2 and Sod That Lead to Better Air Quality	Much Lower Fuel Price than Gasoline	Soundless Engine
		Mean	Mean	Mean
Education	Less than high school (N = 8)	3.00	3.00	3.00
	High School diploma (N = 108)	3.83	3.67	3.44
	Trade/Commerce degree (N = 55)	3.38	3.31	3.15
	Bachelor's degree (N = 259)	3.78	3.56	3.65
	Master's degree (N = 31)	4.00	3.55	3.55
	Ph.D. (N = 11)	3.64	3.64	3.36
	Sig. (2-tailed)	0.118	0.499	0.104
Monthly Income	Less than KD 500 (N = 149)	3.61	3.45	3.34
	KD 500–999 (N = 104)	3.75	3.53	3.52
	KD 1000–1499 (N = 111)	3.89	3.77	3.74
	KD 1500 and above (N = 108)	3.77	3.46	3.55
	Sig. (2-tailed)	0.392	0.204	0.105
Employment	Self-employed (N = 35)	3.77	3.69	3.46
	Family-owned business (N = 26)	2.81	2.81	2.77
	Private sector (N = 176)	3.81	3.63	3.58
	Public sector (N = 152)	3.91	3.69	3.68
	Unemployed (N = 83)	3.58	3.28	3.35
	Sig. (2-tailed)	0.001	0.004	0.011

Furthermore, the *t*-test and ANOVA were conducted to determine significant differences in the necessary requirements to buy EVs identified in the study in terms of the four background variables having two groups (i.e., gender, marital status, ethnicity, and the number of cars owned) and the four background variables with more than two groups (i.e., age range, education, employment, and monthly income), respectively. The results are summarized in Table 6. When the mean score of features was compared across the eight background variables, there were strong significant differences in the mean scores of the two requirements with respect to the education level and monthly income of participants. Participants who had a master's degree or Ph.D. highly agreed on if there was a fast-charging station within 5 km from almost every place in Kuwait (Ph.D. mean = 4.18, Master's mean = 3.81, $p = 0.002$), while participants who had a bachelor's degree moderately agreed on this condition. Furthermore, participants who had a monthly income between KD 1000 and 1499 or KD 1500 and above highly agreed on if the guarantee of the battery would last at least 10 years or 150,000 km (M = 3.81, M = 3.60, $p = 0.014$), and if there was a fast-charging station within 5 km from almost every place in Kuwait (M = 3.82, M = 3.52, $p = 0.009$), while participants who had a monthly income less than KD 500 moderately agreed on these features. On the other hand, no significant differences in the necessary requirements to buy EVs identified in the study were observed with respect to the other six background variables of the participants.

Table 6. Comparison of mean scores of the identified necessary requirements to buy EVs in terms of eight background variables of the participants.

Variables	Categories (N)	I Would Buy an EV if . . .	
		If the Guarantee of the Battery Would Last as Least 10 Years or 150.000 km	If There Was a Fast-Charging Station Within 5 km from Almost Every Place in Kuwait
		Mean	Mean
Gender	Male (N = 238)	3.57	3.51
	Female (N = 234)	3.51	3.51
	Sig. (2-tailed)	0.592	0.998
Marital Status	Single (N = 272)	3.55	3.53
	Married (N = 200)	3.53	3.48
	Sig. (2-tailed)	0.837	0.666
Ethnicity	Kuwaiti (N = 287)	3.60	3.58
	Non-Kuwaiti (N = 185)	3.45	3.41
	Sig. (2-tailed)	0.189	0.136
Number of cars	One to Two cars (N = 201)	3.56	3.56
	Three cars or more (N = 271)	3.52	3.48
	Sig. (2-tailed)	0.705	0.486
Age Range	18–25 years (N = 168)	3.53	3.55
	26–39 years (N = 222)	3.48	3.42
	40–60 years (N = 82)	3.72	3.68
	Sig. (2-tailed)	0.288	0.198
Education	Less than high school (N = 8)	2.63	2.13
	High School diploma (N = 108)	3.41	3.64
	Trade/Commerce degree (N = 55)	3.55	3.36
	Bachelor's degree (N = 259)	3.60	3.47
	Master's degree (N = 31)	3.68	3.81
	PhD (N = 11)	3.64	4.18
	Sig. (2-tailed)	0.206	0.002
Monthly Income	Less than KD 500 (N = 149)	3.44	3.43
	KD 500–999 (N = 104)	3.33	3.30
	KD 1000–1499 (N = 111)	3.81	3.82
	KD 1500 and above (N = 108)	3.60	3.52
	Sig. (2-tailed)	0.014	0.009
Employment	Self-employed (N = 35)	3.40	3.34
	Family-owned business (N = 26)	3.00	3.12
	Private sector (N = 176)	3.56	3.52
	Public sector (N = 152)	3.64	3.66
	Unemployed (N = 83)	3.52	3.42
	Sig. (2-tailed)	0.129	0.162

5. Discussion

We aimed to examine the consumer preferences of what we labeled as the 'early majority or pragmatists' (83% of the sample was under 40 years old and 75% had at least some level of higher education) regarding the EV market in Kuwait, as well as to explore any differences in these identified preferences with respect to their demographic background. According to the findings, drivers highly preferred three different types of attributes for EVs: Environmental attributes (e.g., in terms of leading to better air quality), financial attributes (e.g., in terms of lower fuel price), and technological attributes (e.g., in terms of their soundless engines). This means that drivers in Kuwait can be expected to prefer EVs over gasoline cars in the future due to their environmental, economic, and technological values. This result is consistent with previous studies in other countries [35,61,62,78]. One plausible explanation for this result is that drivers in Kuwait care about the triple bottom line of sustainability. The government could, therefore, implement awareness plans and agendas to better inform consumers about environmental issues and promote sustainability. This finding implies that the driving force for the adoption of EVs could be the promotion of sustainability. We believe that this form of promotion should be applied by car manufacturers in Kuwait, targeting a wider segment of the population in order to increase the rate of adoption of EVs.

There was a strongly significant difference in the identified preferred attributes for EVs in terms of the employment sector of and the number of cars owned by participants. Participants who were employed in the public sector highly preferred the three types of attributes for EVs more than those who worked in a family-owned business. This means that individuals in Kuwait who are employed in the public sector may prefer EVs over gasoline cars in the future due to their environmental, financial, and technological values. Furthermore, participants who owned one or two cars highly preferred the environmental and technological attributes of EVs, more than those who owned three or more cars. No significant differences in financial attributes could be related to the number of cars owned by participants. This means that individuals in Kuwait who own one or two cars can be expected to prefer EVs over gasoline cars in the future due to their environmental and technological values only, and they do not care as much about the price of fuel. These results characterize individuals who own a maximum of two cars and are employed in the public sector as a potential segment of EV consumers in Kuwait who place value on environmental and technological attributes, particularly regarding better air quality and having a soundless engine. This implies that manufacturers and dealerships should consider targeting these potential buyers and should continually create or maintain a competitive advantage over their competitors in terms of innovating technologies that respond to the evolving nature of environmental concerns. On the other hand, no significant differences in the three preferred attributes for EVs identified in the study could be related to the other six background variables of the participants.

Additionally, drivers were found to be highly willing to buy EVs in the future when considering their financial and infrastructure attributes. This means that drivers in Kuwait can be expected to buy EVs in the future on two conditions: Economy in battery life and the availability of nearby fast-charging station infrastructure. This result is consistent with previous studies in other countries [35,78]. One possible explanation for this result is that drivers in Kuwait are aware of both the importance of the battery life in EVs, as they commonly witness their cell phone turning off due to heat exposure and are aware of the poor EV infrastructure EVs in Kuwait. As such, the manufacturers of EVs should update consumers on the development of battery technology in a timely manner, as well as encourage the government to invest in infrastructure that supports EVs in Kuwait. This implies that EV recharging infrastructure should be accessible and available in all residential areas of Kuwait. This finding implies that the Ministry of Transport should adhere to the suggestions proposed by prior studies concerning the recharging scheduling and optimization of recharging networking in order to prevent any potential infrastructure issues [36–38]. Hence, we recommend that policymakers and government regulators start

constructing infrastructure-related facilities to promote of the adoption of EVs in Kuwait in a secure manner.

We observed a strongly significant difference in the identified necessary conditions to buy EVs when considering the educational level and monthly income of participants. Participants who had a master's degree or Ph.D. were more willing to buy EVs in the future for their infrastructure attributes compared with those who had a bachelor's degree. No significant differences in financial attributes could be related to the educational level of participants. This means that people in Kuwait who had a master's degree or Ph.D. would buy EVs in the future on one condition only; namely, the availability of infrastructure (i.e., nearby fast-charging stations), and they care less about the battery life of EVs. This result characterized highly educated individuals as a potential segment of EVs in Kuwait who favor infrastructure (i.e., recharging networks). Surprisingly, this segment was unique and distinct from other groups, as they did not present favorable attributes highly related to the product itself. This signifies the important role of manufacturers in providing recharging stations and making them accessible across the country of Kuwait. Further, participants who had a monthly income of KWD 1000 (USD 3300) and above were highly willing to buy EVs in the future due to their financial and infrastructure attributes. This means that individuals in Kuwait who have a monthly income of KD 1000 and above can be expected to buy EVs in the future on two conditions: Their economic battery life and the availability of infrastructure (in terms of nearby fast-charging stations). This result characterized individuals who earned KD 1000 and above as a potential segment of EVs in Kuwait who place value on battery warranties and the required infrastructure (i.e., recharging stations) being accessible and widespread. This requires marketers to tailor sustainable products and place emphasis on warranties and guarantees associated with EVs. On the other hand, no significant differences in the two necessary conditions to buy EVs identified in the study could be related to the other six background variables of the participants.

One interesting finding of this study was that drivers were not highly willing to buy EVs in the future due to their brand attributes. This result contradicts the existing literature [56,57], in which brand attributes were considered important by consumers. One plausible explanation for this result is that drivers in Kuwait are already aware of the quality design, brand reputation, credibility, and comfort of EVs, such that there is no need to consider the brand as an important condition to buy EVs in the future. This result deserves further investigation in future research.

6. Limitations and Future Studies

First, although the present study utilized a quantitative questionnaire, it remained essentially focused on a qualitative approach using descriptive statistics due to the lack of a focus on hypothesis testing and empirical testing. For this reason, a range of reliability tests was not conducted for this study. Therefore, future studies should involve empirical investigations of various hypotheses and variables, which may yield a more reliable conclusion regarding the relevant population in Kuwait. Second, the generalizability of the results was limited by the lack of information regarding non-participants. Finally, future studies should place emphasis on both EV owners and managers of car dealership companies, collecting their viewpoints and obtaining more insight into EV-related phenomena in Kuwait. Such a proposed further study should emphasize the 'late majority' EV market, composed of drivers over the age of 40 with a lower level of education, which might reveal some perceptions based on outdated safety records (e.g., perceived safety in terms of fire) or even loyalty to gasoline (as it is the main source of wealth in Kuwait).

7. Conclusions and Implications

This is the first known study exploring consumer preferences for EVs in Kuwait in terms of which factors are influential for the 'early majority' (i.e., a part of the general market vs. a niche one) that could influence their purchasing behavior in favor of EVs. In this way, we provided a comprehensive and up-to-date picture of the preferences regarding

this market. Potential consumers highly preferred three different types of attributes for EVs: environmental, financial, and technological. There were strongly significant differences in the identified preferred attributes of individuals in Kuwait for EVs with respect to the number of cars owned and sector of employment. Drivers who valued EVs most typically owned a maximum of two cars and were employed in the public sector, as well as being environmentally and technologically sensitive. Moreover, potential customers were highly willing to buy EVs in the future due to both their financial and infrastructure attributes. There were also strong significant differences in the identified necessary conditions to buy EVs in terms of educational level and monthly income. Drivers who expressed early interest in adopting EVs were typically highly educated, of mid-range income, and concerned regarding the availability of nearby fast-charging stations. This implies that the upfront purchasing price of EVs might not be important to this segment of the market in Kuwait.

The theoretical and practical implications of this study are significant. On a theoretical level, this study contributes to the limited literature on EVs in developing countries in general and Kuwait in particular, which can help researchers to compare the adoption of EVs between developing and developed countries. On a practical level, the findings suggest that drivers in Kuwait prefer EVs over gasoline cars due to their environmental, economic, and technological benefits. Therefore, marketing campaigns should highlight these values when targeting segments, including car drivers and owners. The number of cars owned by people in Kuwait was found to play an important role in preferring EVs over gasoline cars. People in Kuwait who owned one or two cars preferred EVs due to their environmental and technological benefits alone. Furthermore, the employment sector also plays an important role in the preference for EVs over gasoline cars. People in Kuwait who were employed in the public sector preferred EVs due to their environmental, economic, and technological values. Therefore, there is a need for the customization of marketing campaigns in order to address the preferences of each group.

Moreover, the results of this study suggested that drivers in Kuwait can be expected to use EVs in the future if fast-charging station infrastructure was available in a widespread manner. Therefore, policymakers and government agencies should be encouraged to start building and providing these stations in order to promote the adoption of EVs. Furthermore, this study suggested that drivers in Kuwait can be expected to use EVs in the future for economic purposes, particularly in terms of a long-lasting battery. As such, the manufacturers of EVs should try to develop batteries that last as long as possible.

The availability of nearby fast-charging station infrastructure for EVs was found to be a very important pre-condition for people in Kuwait who have a master's degree or Ph.D. to buy EVs. Therefore, it is important to raise awareness among this group of people about available charging stations in Kuwait. Monthly income was also found to play an important role in encouraging the purchase of EVs in Kuwait. Therefore, marketing campaigns should target this group of people, especially those who earn a monthly salary of more than KD 1000 (KWD 3300). These campaigns should highlight the economic value of EVs and the available EV charging infrastructure. We also suggest that the government develops subsidy programs and financial support for EV buyers in order to combat the elevated EV purchase prices.

Author Contributions: A.O. is the principal investor of the project and is responsible for the conceptualization, methodology, and editing, as well as funding acquisition and administration. S.B. and B.A. were responsible for the literature review, conceptualization, synthesis, methodology, validation, formal analysis, data curation, writing—original draft preparation, and editing. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement: This study was approved by the London School of Economics and Political Science Ethics Committee (00558000004KJE9AAO, dated 24 November 2021).

Informed Consent Statement: Informed statement about the usage and purpose of the study was included in the questionnaire, as directed by the LSE Ethics Committee.

Data Availability Statement: Not applicable.

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

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