



Towards a better understanding of socially responsible behavior among young Saudi Arabians: The case of energy saving



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ABSTRACT

Energy consumption in Saudi Arabia is still almost three times the world average today, and the government is seeking to instill a culture of energy saving in the rising generation. Our research's main objective is to expose young people's explanatory attitude antecedents towards energy saving. Indeed, with reference to the current global context of dwindling resources, it is relevant to identify the levers of action to guide consumers towards socially responsible behavior. A quantitative study among 217 young Saudi Arabians and modeling structural equations highlighted the significant impact of subjective norms, cognitions resulting from awareness campaigns as well as the power of habits and the need to preserve comfort. This research has important implications for a country orienting its strategies towards greater social responsibility.

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1. Introduction

The world is undergoing profound changes today with the increase in urbanization, mainly linked to population growth, cities are becoming larger and larger. The dynamics of peri-urbanization thus tend to become widespread in all regions of the world, especially due to the democratization of private vehicles. However, urban sprawl faces several problems such as the decline of agricultural spaces, mobility, or the preservation of the environment. We are therefore confronted with a major problem, that of preserving-protecting the environment in which we live and dealing with the decrease in raw materials and energies-the main factors of industrialization and the development of the consumer society. Raw materials represent indeed a large part of the energy resources of the world industry. For some time now, and in response to this issue, we have seen more and more initiatives, aimed at becoming aware of the importance of this vital issue and therefore adopting responsible behaviors. From an individual perspective, different countries have launched several awareness campaigns, in

order to raise awareness of the importance of engaging in behaviors aimed at preserving the environment and moderating energy consumption.

The past decade has seen a craze for research into socially responsible behaviors. These studies have attempted to highlight the explanatory factors for the adoption of such behaviors. More specifically, in the context of energy consumption, [Gaspar and Antunes \(2011\)](#) sought to identify end-consumers characterization with the intent to determine which variables are correlated with energy-conservation and waste behaviors. [Frederiks et al. \(2015\)](#), through their review of the extensive literature in the field, brought together most of the published works on what could have an influence on the socially responsible behavior of households in terms of their energy consumption. Behaviors regarding energy preservation fall into two categories: Consumption-reduction behaviors such as "setting thermostats, switching off lights, limiting the use of heating/air conditioning systems" ([Abrahamse et al., 2005](#)), and efficiency behaviors materialized by the adoption of energy-saving actions (purchase of energy-efficient appliances, solar panels, etc.). Extensive literature in this area has certainly shown the positive impact of these behaviors on energy savings. However, remains the will of consumers who are not systematically aware of the need to establish concessions and change their daily lives. Individuals often perceive this change as altering well-being and comfort ([Wang et al., 2011; 2014](#)). The conception of

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social norms and the social role played by the individual in this regard can also govern Behavior change (Ajzen, 1991). In this regard, we need to identify and understand what motivates the individual to engage in energy-saving behaviors. This will allow managers to see how they can usefully change behaviors. In other words, in which way they should direct interventions, communication and initiatives.

Awareness strategies must thereby be in line with contextual and individual specificities. Each cultural context has its own unique characteristics. Each category of individuals has a response to public initiatives. An awareness-raising strategy implemented in a specific cultural context is not systematically successful in another context. This justifies the relevance of the plurality of studies from this perspective. In view of these main findings, we propose in this study to try to answer the following central issue: What antecedents can explain the attitude towards energy saving? Our aim is thus to provide a better understanding of what could generate a favorable predisposition towards socially responsible behavior. Drawing on published studies in the field of social sciences and behavior, we examine researches on the link between selected variables and energy conservation behavior. This involves incorporating an examination of the main socio-demographic factors as well as psychological and motivational attributes.

The remainder of this paper is structured as follows. The next section provides a literature review and sets our theoretical hypotheses. Section 3 outlines the study's methodology, followed by the results and discussion in Sections 4. Our work ends with a conclusion in Section 5.

2. Literature review

Responsible consumption is a mode of consumption that takes into account the criteria of sustainable development, i.e. consumption that is both respectful of the environment, beneficial for the economy, good for health, but also positive for the society. Responsibility can relate to many areas: ecological impact of consumption, but also social, economic, health impact, and impact on quality of life. In other words, to consume in a way to preserve resources and the environment as much as possible. In the 1970s, the first academic work on the relationship between consumption and the environment focused on highlighting the determining characteristics of the individual engaged in environmental protection. A stream of research has thus developed, highlighting the link between environmental concern and ecological behavior. The work of Kinnear et al. (1974) has examined the role of individual personal consumption in environmental degradation. These authors adopt the concept of social responsibility to the environment and attempt to identify the social conscience of the individual with regard to the environment. They define the ecologically involved

consumer as a person whose purchasing behavior is in accordance with the conservation of our planet and explore the relationship between the socio-economical and psychological attributes of consumers and their concern for the environment. Since then, research on consumer behavior sees some time a craze for understanding and predicting socially responsible behaviors. Whether it is in the context of the choice of products and brands or the adoption of behaviors aimed at the preservation of resources and the environment, it all starts from the observation that the planet today needs collective awareness. In this perspective, social responsibility can take the form of behaviors aimed at reducing daily energy consumption. As previously suggested, the world has now reached a stage of industrialization threatening the abundance and adequacy of resources. Most of the countries feel the need to control energy consumption, and to invest in the development of alternative resources. It is also essential to engage citizens in this collective awareness and involve them by orienting them towards behaviors in line with this will. For these initiatives to be successful, it is important to underline the individual and contextual backgrounds that could lead to a change in behavior and therefore to act on.

Two main theories have been the basis for understanding such behaviors and which form the theoretical basis of this research. The Theory of Planned Behavior (TPB) and the Norm Activation Model (NAM) have proven particularly helpful in the field of environmental actions (Nordlund and Garvill, 2003; Harland et al., 2007). The TPB provides "a model of the psychological determinants of an individual's behavior" (Ajzen, 1991). According to the TPB, three variables explain the behavioral intent: First, attitude towards desired behavior: favorable or unfavorable. Second, subjective norms, which represent a kind of social pressure to adopt or not adopt a behavior. Finally, perceived behavioral control, i.e. a person's perception of his capacity to adopt a particular behavior. The TPB certifies that a favorable attitude, strong subjective norms, and better-perceived behavioral control, predispose the persons to more friendly behavior toward the environment (Steg and Vlek, 2009). The NAM argues that the personal norm, which arises from awareness of the problem and its consequences, as well as from the attribution of responsibility, influences behavior (Schwartz, 1977). The individual can activate personal standards when he is aware of the problems related to the environment and due to his behavior, feels himself responsible toward these problems, and believes that good deeds can contribute to reducing the problem. In this way, he feels able to engage in necessary actions. An extension of this model by Stern et al. (1999) demonstrated the causal link between values, beliefs, and norms. For these researchers, values are types of beliefs related to effects and they generally underlie desirable objectives that push action. They surpass particular actions or circumstances and act as a

norm by organizing themselves in order of importance. These two models have shown their performance in predicting pro-environmental behaviors that do not need a lot of implication, but are less efficient when the solicitation requires a large concession. These models are the foundation for the construction of the conceptual framework of this research. Indeed, we propose to put our research in a psycho-sociological perspective and to combine all the variables derived from the models, to test simultaneously their impact on the intention to reduce energy consumption as a socially responsible act. In the following, we present synthetic literature on the variables selected.

2.1. The concept of attitude

An attitude is a predisposition that guides or influences behavior. We learn attitudes that cause the consumer to react uniformly favorably or negatively to an object or a class of objects (Fishbein and Ajzen, 1975). Cognitions and past experiences usually contribute to form attitudes. For Katz (1960), the attitude has four functions: (i) An utility function consists to achieve its objectives and avoiding what is junk every day. (ii) A function of protection of the ego which allows the individual to protect himself from impulses that he considers unacceptable, and consequently from threats. (iii) A function of the expression of values while the individual has the possibility through his attitudes to show his environment the type of person he conceives to be. Attitudes thus allow him to express his central values. (iv) A knowledge function to permit an individual to have norms and frames of reference in the world in which he lives, and thus give meaning to his life. In the same line, attitude is the most important concept that guides behavioral intentions. It is therefore the main determinant of consumer behavior (Ajzen, 1991). According to Hamari et al. (2015), attitude positively influences intention, although as the authors claim, there is consumption. Jung et al. (2020) demonstrated that the intrinsic values of sustainable clothing positively influence attitudes and purchasing intentions, and even translate thoughts into action. If the attitude predicts an intention to act (Ajzen, 1991), it is important for us to know what could constitute an antecedent significantly correlated to its formation in our research context. It is therefore our dependent variable. We will try in the following to justify the links between the selected variables and the attitude towards energy saving.

2.2. Antecedents of the attitude towards saving energy

2.2.1. Personal moral standards

The majority of research from a socio-psychological perspective has shown that personal norms activate the altruistic behavior of the

individual. In fact, he adopts a behavior in accordance with the norms to which he adheres. This provides him a feeling of self-esteem and satisfaction while proceeding in a way conflicting with personal norms can direct to adverse emotions of culpability and repentance. In reference to the TPB model (Schwartz, 1977), personal moral norms influence prosocial behavior. In other words, it is a strong moral obligation to adopt behaviors aimed at preserving the environment, such as energy saving (Abrahamse and Steg, 2011). However, for personal norms to be stimulated, individual awareness regarding the importance of such behavior on others and/or the environment is crucial. It must also be aware of the responsibility for such actions (Abrahamse et al., 2009). The researchers suggested that individuals would likely feel compelled to reduce energy if they feel that energy consumption has a negative impact on the planet and that they are personally partly guilty of not supporting it. Many studies in the context of pro-environmental behaviors have highlighted the significant scope of this variable (Hines et al., 1987; Vining and Ebreo, 2002). However, the force of this impact is questionable. In this sense, Kallgren et al. (2000) have shown that standards only guide behavior when they are important. According to Kaiser and Scheuthle (2003), the consideration of the personal moral standard in the TPB greatly enhanced the rationale of the model and that the personal moral standard significantly influences the individual's intention to adopt a positive behavior toward the environment. Wang et al. (2017) have added the personal moral standard into TPB to foretell the intent to adopt green vehicles and noticed that the personal moral standard has a proven impact on the intention of adopting the needed behavior. In fact, it arises from the responsibility or obligation of the individual that will motivate him to adopt prosocial behavior, whereas if this personal moral standard is low, it will have no impact on such behavior. (Chan and Bishop, 2013; Botetzagias et al., 2015; Fornara et al., 2016). In the field of energy conservation, we argue that the more an individual has a strong personal moral standard the more he will feel obligated and responsible, and the more he will tend to save energy. Disobeying his moral norm and responsibility may cause him guilt and discomfort feeling. Hence, we support:

H1: Personal moral norm has a positive impact on the individual's attitude toward saving energy.

2.2.2. Subjective/descriptive norms

Subjective norms reflect the types of thoughts or behaviors of people who are supposed to be important to the individual. Descriptive norms, on the other hand, materialize their actual thoughts and behaviors, which they should in turn adopt. In reference to the theory of self-categorization (Turner et al., 1987), individuals are able to project themselves into a specific group and behave in the

same way as group members; if not, they would lose their legitimacy and feel themselves apart (Hogg and Terry, 2000). More specifically, Chang and Pan (2014) have shown that pro-environmental comportment happens when the individual thinks that others regularly adopt the comportment. Graham-Rowe et al. (2015), Leeuw et al. (2015), and Jun and Arendt (2016) have highlighted the significant impact of the descriptive standard on the intent to engage in the behavior. For Manning (2009), the integration of descriptive standards enhances the explanatory power of TPB and successfully predicts behavioral intention. Greaves et al. (2013) found the same results about the explanatory power of the model but noted the limited role of descriptive and subjective standards in forecasting the intent of the behavior. They found that while the descriptive standard and subjective norm affect individual decisions and ecological behaviors, most individuals are rational and base their comportments on their rational thought. In terms of the subjective standard, the individual has a tendency to comply with the waiting or views of some significant people, that is to say, the consent or non-consent of certain people who matter to an individual may be the basis of the individual's intention to behave (Chen and Tung, 2014). However, Yadav et al. (2018) have found that subjective standards do not have a significant influence on the energy-saving comportment of individuals in the workplace. Thus, the behavior of important people has a strong significant impact on intentions in a pro-environmental context.

H2: Descriptive norm has a positive impact on the individual's attitude toward saving energy.

2.2.3. Cognitions from awareness campaigns

The main barriers to adopting socially responsible behaviors often lie in the lack of information and skills on their scope and relevance. Many researchers argue that information awareness campaigns positively influence awareness and behavior. Steg (2008) has shown that it is more efficacious to convince people to save energy by the way of information, advertising, by enhancing knowledge about energy-saving practices, and by acting on attitudes and cognition. Ouyang and Hokao (2009) have shown that energy-saving education to improve behavior could save 10% of average electricity consumption. Ma et al. (2011) have investigated the impact of information campaigns on the level of consumer awareness in China and found a high level of awareness towards energy issues due to increasing information campaigns. This awareness would appear to be the reason for the strong positive attitudes of Chinese consumers regarding the change of their behavior to face energy challenges. Ha and Janda (2012) have corroborated these results in their study related to the impact of environmental awareness on purchasing intentions for electrical devices. Similarly, other researchers

(Mei et al., 2012; Giang and Tran, 2014; Buchanan et al., 2014; Tran, 2014; Nguyen et al., 2015; Lin, 2015) have found that environmental cognitions are strongly linked to behavioral attitudes and intentions. Recently, Straka et al. (2020) demonstrated the individual behavioral attitude changes toward bats after presenting photos of bats under distress. Similarly, Marchant et al. (2021) confirmed this deep relationship under a Covid19 environment. This exogenous variable thus plays an important role in changing behavioral attitudes and intentions regarding energy conservation. Individuals with information on the scope of energy savings are more likely to engage in economic behaviors (Zografakis et al., 2010; Wang et al., 2011). In addition, the dissemination of information on energy savings could improve sensitivity to energy savings (Steg, 2008). Hence the following hypothesis:

H3: cognition from awareness campaigns has a positive impact on the individual's attitude toward saving energy.

2.2.4. Habits and comfort

Lifestyle and habits are seen as a factor that affects energy-saving behavior. Individuals may have a behavioral intent correlated with a habit. Ma et al. (2007) have argued that lifestyle and entertainment styles determine an individual's energy consumption. Triandis (1980) also pointed out that habits likely control certain behaviors more than conscious intentions. These habits, once established, become very difficult to change. Additionally, energy-saving behaviors are often associated with a concession and sacrifice in welfare. Personal comfort, especially the perceived waste of welfare, can have a significant influence on energy consumption (Samuelson and Biek, 1991; Barr et al., 2005). Any reduction in personal welfare or a perceived menace to quality and lifestyle can reduce the probability of adopting energy-saving comportment. Many researchers have demonstrated that consumers' perceptions of health and comfort are associated with energy consumption (Seligman et al., 1978; Becker, 1981). Seligman and Hutton (1981) showed that comfort and health together, have a synergic effect, which constitutes an important forecaster, representing 30% of the fluctuation in a household's actual electricity consumption. The findings noticed that the more households perceive energy-efficient behavior as a source of discomfort and ill health, the more they particularly consume it. More recently, Barr et al. (2005) have explored the impact of the concession on energy saving in individuals with ecological predisposition versus those who do not. The findings showed that while more than 60% of "committed environmentalists" had an intention to give up some welfare for saving energy, less than 25% of "non-environmentalists" were about to do the same. In addition, while less than 20% of "committed

environmentalists” rated “feeling comfortable at home” as a crucial issue for them, almost 60% of “non-environmentalists” consider this factor as important. Recently, [Liu et al. \(2020\)](#) have found that it is difficult to change habits if conserving household energy does not provide significant financial benefits. Therefore, we propose to validate the following hypothesis:

H4: Habits and need for comfort have a negative impact on the individual's attitude toward saving energy.

3. Research methodology

In this research, we opt for a sample of young students from Hail University, Saudi Arabia. This choice is justified, on the one hand, by our desire to

reduce the biases due to differences in age and behavior with regard to energy consumption, and on the other hand, to explore the significance of the links with 'an age category that represents nearly 50% of the population. We will observe their perception of energy saving behavior and highlight the variables on which to operate to instill in their social responsibility. An online questionnaire was constructed and distributed on the virtual platforms of universities in the Hail region. In this regard, we referred to pre-established measuring instruments in the literature. In order to maximize respondent understanding and engagement, the scales have undergone a back-translation process. The questionnaire included items well in English and Arabic. [Table 1](#) summarizes all the measures adopted.

Table 1: Used measurement scales

Variable	Reference	Purified items after the exploratory phase
Moral engagement	Adaptation of the measure of Gao et al. (2017) in our research context (3 items)	1. I think I have a moral responsibility to save energy. 2. Save energy is depending on my own moral obligation. 3. I would feel unhappy if I do not engage in saving energy behavior.
Cognition	Wang et al. (2014) (2 items)	1. Related information publicities promote my energy-saving behavior. 2. The information learned from the newspapers, television and other media would affect me to take energy-saving behavior.
Need for comfort	Abrahamse and Steg (2009) (3 items)	1. Energy conservation is too much of a hassle 2. Energy conservation means that I have to live less comfortably 3. My quality of life will decrease when I reduce my energy use
Subjective Norms	Ajzen and Sheikh (2013) Scale in different semantic format (3 items)	1. Most people who are important to me think that I should Have saving energy behavior in daily life: __1__: __2__: __3__: __4__: __5__: I should not Have saving energy behavior in daily life 2. Most of people whom I am acquainted, has a saving energy behavior in their daily life definitely true: __1__: __2__: __3__: __4__: __5__: definitely false 3. Most people whose opinions I value would approve of my adopting an energy-saving behavior in my daily life strongly disagree: __1__: __2__: __3__: __4__: __5__: strongly agree
Attitude	Ajzen and Sheikh (2013) Scale in different semantic format (3 items)	1. For me saving energy behavior in daily life is extremely good: __1__: __2__: __3__: __4__: __5__: extremely bad 2. For me adopting an energy saving behavior is extremely valuable: __1__: __2__: __3__: __4__: __5__: extremely worthless 3. For me to adopt an energy saving behavior in my daily life is extremely pleasant: __1__: __2__: __3__: __4__: __5__: extremely unpleasant

We have collected data from a sample of 217 students from various universities programs. We launched a collection on January 31, 2021, and lasted 16 days with several periodic reminders. [Table 2](#) presents a description of the sample.

Table 2: Sample description

Socio-demographic variables	Descriptive statistics
Gender	Males (63%) Females (37%)
Age	18-25 (58%) 25-30 (25%) 30-35 (17%)
Specialty	Administration science (47%) Humanities sciences (24%) Engineering (17%) Medical sciences (12%) 2-3 individuals (14%)
Number of individuals per family	4 -5 individuals (28%) 6 or more (60%)

At the start of the questionnaire, we wanted to highlight the types of energy conservation behaviors that respondents adopt the most frequently. The frequency analysis on the question revealed that

turning off lights when leaving the room (50%), unplugging charging devices (49%), and saving water (35%) are the most cited by our sample.

The conducted data analysis consisted of two phases. First, an exploratory phase under SPSS, in order to purify the measurement scales used. Then, a confirmatory phase under AMOS, via modeling structural equations. This method has the advantage of simultaneously testing several relationships that materialize the hypotheses formulated ([Roussel et al., 2002](#)).

4. Results and discussions

Exploratory Factor Analysis was conducted, retaining the extraction method by Principal Component Analysis (PCA). This method is the one most used in quantitative studies in the social sciences. It is an extremely powerful tool for compressing and synthesizing information, and very useful when dealing with important data to process and interpret. Bartlett's sphericity tests and the MSA

(Measures of Sampling Adequacy) carried out on each of the measurement scales, showed that the data are well suited to factorial analysis. We only eliminate the comfort 4, reducing the "need for comfort" scale to three items. In addition, all factorial contributions exceed 0.5 and are considered significant. The different scales presented good internal consistency (Cronbach's Alpha>0.7) according to Nunnally (1978).

We conduct a Confirmatory Factor Analysis to test the quality of measurement model fit to the original data and assess the convergent and discriminant validity of the selected scale. We opted for the Maximum Likelihood (ML) method. This method, therefore, requires a multi-normality of the variables. We performed an asymmetry test by referring to the Skewness criterion (between -2 and

2), flattening using the Kurtosis criterion (between -3 and 3) for each of the indicators that make up our measurement scales. We also calculated the multivariate Mardia concentration coefficient (3.4). All the obtained values, respect the commonly accepted thresholds. Therefore, we confirm the multi-normality of the data. Such results confirm the reliability of the estimated parameters and the precision of the tests used (Roussel et al., 2002). A first goodness-of-fit test of the measurement model led us to eliminate two items from the cognition scale that presented factor contributions of less than 0.5. The chosen scale now includes two items. We summarize the results obtained in Table 3 and they show an acceptable quality of fit of the overall measurement model.

Table 3: Adjustment and estimation of the global measurement model parameters

	Non-Standardized Factor Contribution	Standardized Factor Contribution	Rho of convergent validity **	Rh� of J�reskog ***
Impli1	0.795	0.739		
Impli2	0.877	0.771		
Impli3	1	0.830		
Implication			0.61	0.82
Sn1	1.000	0.789		
Sn2	0.823	0.69		
Sn3	1.080	0.642		
Subjective Norms			0.50	0.75
Confort1	1	0.847		
Confort2	0.762	0.656		
Confort3	0.685	0.652		
Need for comfort			0.52	0.76
Cogni3	0.963	0.788		
Cogni4	0.980	0.618		
Cognition			0.50	0.66
Atti1	1.000	0.561		
Atti2	1.404	0.839		
Atti3	1.346	0.812		
Attitude		0.55	0.78	
Chi2=181,740 p=0.000 dl= 67				
GFI=0.893 AGFI=0.833 TLI= 0.896 CFI=0.894 SRMR=0.088 RMSEA=0.089,				
Standardized Khi2=2.712				

All factor contributions are statistically significant at a risk <0.001; ** According to the approach of Fornell and Larcker (1981) using the standardized formula; *** J reskog's rho is calculated according to the standardized formula.

All the constructs present an acceptable internal consistency (J reskog's rho>0.6) with reference to the recommendations of Bagozzi and Yi (1988), as well as the convergent validity (VME>0.5). We have selected the approach of Fornell and Larcker (1981)

to evaluate the discriminant validity condition. The results obtained in Table 4 show that the square root of the mean, variance extracted from each of the latent variables is greater than the structural links that it shares with the other constructs.

Table 4: Evaluation of discriminant validity

	Implication	Cognition	Confort	Subjective Norms	Attitude
Implication	0.78	0.117	0.457	0.654	0.212
Cognition		0.70	-0.209	-0.159	0.390
Confort			0.72	-0.019	-0.244
Subjective Norms				0.72	0.277
Attitude					0.74

Diagonal (in bold) presents the square roots of the V.M.E while the numbers above the diagonal present the correlations between the constructs

The conceptual framework constructed was the subject of a structural model analysis with AMOS in order to test the various hypotheses formulated. We first observed the goodness of fit as evidenced by the absolute, incremental, and parsimony indices. In view of the results, we have confirmed the acceptability of the results as presented in Table 5.

The results obtained attest to the significance of the links between cognition, the need for comfort, subjective norms, and attitude towards energy saving. However, the implication with socially responsible practices seems not to have a significant impact. Examination of explanatory power indicates that the model provides a good explanation for the attitude (66%). Table 6 shows the results of the

stability test of the structural model using the Bayesian approach.

Table 5: Results of structure links significance

Hypotheses	Unstandardized regression coefficients	Standardized regression coefficients	P	Validation
implication → attitude	-0.644	-0.938	0.168	Infirmid
cognition → attitude	0.488	0.662	0.012	Confirmed
Comfort → attitude	-0.524	-0.709	0.008	Confirmed
Subjective Norms → attitude	0.678	0.696	0.055	Confirmed

Chi2=229,818 p=0.000 dl=92
GFI=0.885 AGFI=0.83 TLI=0.89 CFI=0.91
RMSEA=0.083 SRMR=0,084 Chi2/dl=2.498

Table 6: Results of the stability test of the structural model using the Bayesian approach

Hypotheses	Estimation ML	Bayesian mean	Difference in absolute value *	Rate of variation of estimators **
Cognition → attitude	0.662	0.69	0.028	4.2%
Confort → attitude	-0.709	-0.68	0.029	4.0%
Subjective Norms → attitude	0.696	0.71	0.014	2.0%

*Difference between the estimators obtained by the Bayesian method and the ML method; **|Bayesian-mean ML estimator | / ML estimator

The present research has highlighted an explanatory antecedent of the attitude towards energy conservation. It is a continuation of research that tried to validate empirical explanatory theories of socially responsible behavior. Our conceptual framework, thus had a theoretical foundation, the TPB and the NAM, and took into account the impact of moral commitment and subjective norms on attitude towards energy saving. Referring to more recent works, we have also considered the impact of information from awareness campaigns to change behavior, and the tendency of individuals to focus on their habits and need to keep the level of comfort. Our conceptual framework thus includes individual and interactional variables.

The findings of the conducted quantitative study highlighted the significance of the relationship between subjective norms, the need for comfort, and the cognition resulting from awareness campaigns. Indeed, according to [Chang and Pan \(2014\)](#) and [Jung et al. \(2020\)](#), the individual is predisposed to follow the behavior of those around him and to imitate it, certainly for the purpose of approval and integration. This result is not surprising since the study of population is part of collectivist culture and behaviors.

The family and the group to which they belong often govern attitudes and perceptions. It is therefore relevant to enhance the favorable predisposition with regard to energy saving to highlight the image of the community, the family, and the power of collective commitment. To reinforce this result, we did not find a significant relationship between individual moral commitment and attitude towards saving energy.

Indeed, socially responsible behavior does not fall within the frame of reference for young people, probably due to early childhood information or awareness deficiency. Yet the majority of theories that have dealt with socially responsible behavior, like the theory of reasoned action and that planned behavior, have highlighted the importance of this variable in the orientation of attitudes and behaviors. We can explain this result by the domination of collective perception in Arab Muslim cultures, unlike predominant individualistic Western

cultures, where everyone is the sole master of his actions and attitudes. In order to inculcate this practice, it may be relevant to work to sensitize young people on the importance of energy-saving and its scope in order to integrate this frame of reference.

Regarding the need for comfort, according to the work of [Barr et al. \(2005\)](#) and [Ma et al. \(2007\)](#); we found a negative relationship. In other words, the more the individual is attached to his comfort and his habits, the more his attitude towards saving energy is weak. It is therefore important to work to separate comfort from saving energy. Today, the majority of products on the market carry savings labels that we should put forward, because it is no longer a question of sacrificing comfort but rather of consuming differently.

At this level, the role of information campaigns becomes crucial. They must indeed highlight information on cost-saving technologies, preservation behaviors, and thus guide their behavior. This result is in line with the significant link that we have identified between cognition resulting from awareness campaigns and attitude. Indeed, in accordance with the study of [Ma et al. \(2011\)](#), young people pay attention to these communication practices that we should use as much as possible in order to create attitudes favorable to energy savings.

5. Conclusion

This research provides practitioners and policymakers in the KSA with the factors that they can strategically operate to influence young people to adopt energy saving behavior. Advancing research towards highlighting factors that shape consumer energy behavior, is important in actual worldwide concerns about climate change and resource scarcity. This can be possible through the involvement of social and behavioral sciences in energy research, as stated by [Sovacool and Dworkin \(2014\)](#).

Solving many energy-related problems in the world requires, among other things, behavioral changes. Shifting consumer behaviors in the desired

direction will be possible by identifying potential causes and explanatory variables that could affect the type, intensity, recurrence, and time of the behavior across time, circumstances, and environments.

This research thus has important managerial implications. This has indeed highlighted the community's power and the importance of strengthening information and awareness campaigns. These variables, thus have a significant influence on the attitude towards energy saving. To our knowledge, this is also one of the rare research projects in KSA in a context of abundant energy, but is also part of the strategy of modernization and opening of the country that cannot be successful only if the Saudi people adopt practices such as socially responsible behavior.

The research has some limitations: We first mention the nature of the sample. During the collection, we made sure to diversify the university institutions in order to involve the multitude of university cultures, with reference to socially responsible behavior. It would thus be interesting to evaluate the conceptual framework with other socio-demographic profiles and other age categories. We have also limited ourselves in our model to the measurement of attitude.

It would be interesting to observe the link of attitude with behavioral intentions in our research context, even actual behavior. It would also be relevant to integrate the impact of social desirability since biases between verbal relations and the act in these contexts are quite frequent. Finally, another limitation was that we did not approach other less widespread measurement scales that could avoid ending up with two-item scales after purification.

The main future direction of research that emerges from this study is to consider in addition to attitude as a global concept, the strength of attitude, a concept that is not widely integrated into research. Yet, as Priester et al. (2004) advance, the strength of attitude with its underlying dimensions such as accessibility, cognitive-affective consistency, extremity, importance, etc. better reflect the predisposition towards socially responsible behavior.

In addition, a good understanding of socially responsible behavior requires in-depth fieldwork, which should make it possible to study ideas, logic, and practices that are not only delivered through quantitative studies. More specifically, it would be relevant to engage in individual interviews for an analysis of representations and practices, the objective would be to bring out the bases on which sensitivity to the values of sustainable development is established.

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Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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