

Sociological Explanation of Factors Affecting Households Energy Consumption in Iran

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Abstract

How energy is consumed as part of a lifestyle has attracted a lot of attention. Energy consumption, like other socio-economic phenomena, is influenced by various factors. The current paper aims at identifying the factors affecting the attitude towards households' energy consumption in Iran (Mashhad). In recent decades, energy consumption has become one of the major urban issues with the growth of urban population, increasing. Mashhad is also one of the metropolises of Iran that according to statistics has a high consumption. Thus, the current paper was conducted quantitatively through a questionnaire with a sample of 540 households using cluster sampling method. The results showed that independent variables explained the variance of the dependent variable by 21.5%. Other results showed that the variables of religiosity, social inequality, environmental knowledge and social comparison directly affect household energy consumption and the variable of mass media use indirectly affected energy consumption by affecting social inequality.

Introduction

The rapid increase in energy production and consumption, followed by the increase in food production and economic growth over the past two centuries, has led to a dramatic increase in world population (from about 1 billion in 1800 to about 7 billion in 2000) during the so-called energy revolution (Christophorou, 2018). Today, energy is considered as a basic necessity for social life and social integration, which has a strong relationship with social structure and power relations. Energy consumption has become part of social classification, and often social inequalities are manifested in different uses of energy (Burnner & Mandl, 2014).

In its World Energy Outlook report, the International Energy Agency predicts that energy consumption will continue to grow by 2035. According to the report, global energy consumption will grow by 36% from 2008 to 2035. The results also show that slightly more than 25 percent of the Middle East gas production is done by Iran, while the Middle East has only 12.5 percent of total world consumption, and in the latest statistical report (British Petroleum) in 2011, Iran consumed 1.5 million cubic meters more than production (Bakhtiari and Yazdani, 2012).

Higher energy consumption will eventually lead to more carbon dioxide emissions. Statistics show that given the rate of economic development of countries energy consumption can lead to more greenhouse gas emissions, but the figures do not match in Iran. The results of global statistics show that the countries with the highest ranking in carbon dioxide production are China, USA, India, Russia, Japan, Germany, Canada, Iran, South Korea and Indonesia. In other words, Iran ranks eighth in carbon dioxide production, while Iran's economic ranking in the world is 65. However, it should be noted that the basis of the economic ranking of countries is income, as a country like Qatar ranks first in the world, and this ranking is only due to the sale and export of a single product, namely oil. The 10 higher economically ranked countries are Qatar, Macau, Luxembourg, Brunei, Ireland, the United Arab Emirates, Kuwait, Switzerland and San Marino (World Statistics Database), respectively.

Early views on consumption (e.g. Adorno and Horkheimer) emphasized political and economic implications in the macro dimension, regardless of consumers. In contrast, people like Schor (2008) emphasize individual aspects in which people are able to reduce environmental impact by reducing working hours and luxuries while increasing their quality of life. Of course, some consumption behaviors are due to habits and lifestyles that are due to the ways of socializing and learning from the past (Dietz et al., 2020).

Consumption is a major part of human behavior that the behavioral and psychological mechanisms of consumption underlie home consumption patterns, however, the foundations of consumer behavior remain largely unknown and undiscovered. The problem of over-consumption of a phenomenon [such as energy] becomes more apparent, especially at the medium or macro level. In systems of considerable big size [such as the earth], too much loss of a particular phenomenon [such as energy] has little effect at the individual level, because the effects of individual consumption behavior are determined only collectively (Goldblatt, 2007). However, these effects at the level of communities with excessive consumption patterns have dangerous effects on the world.

Communities are a combination of individuals with particular beliefs, values, norms, and ways of thinking, and this means that each is nurtured in their own cultural context, and so their response to a thing or situation may vary from one who lives in another cultural context. Although modernity has destroyed some traditions, it has nevertheless led to other approaches that are more in line with commercial, economic and political interests (Inglis, 2005).

on the other hand; it should be noted that collective culture, through accepted discourses and economic institutions, also addresses the issue that consumers adapt goods to their lives in meaningful ways, and that these meanings are created through multiple and overlapping increments; that is, through consumers and as an integral part of their consumption. Hence, the term "consumer culture" seeks to suggest that core values and identities are tied to or transmitted through consumption and commodities (Slater and Tonix, 2015).

The International Energy Agency, in a report on the World Energy Outlook, predicts that energy consumption will continue to grow by 2035. The report also states that global energy consumption will grow by 36% from 2008 to 2035. The results show that slightly more than 25 percent of the Middle East gas production takes place in Iran, while the Middle East has only 12.5 percent of total world consumption, and in the latest statistical report (BP) of 2011, Iran consumed 1.5 million cubic meters more than production. The cube has consumed more than production (Bakhtiari and Yazdani, 2012). However, a large part of the country's energy resources is wasted every year due to inadequate technology, reasonable energy prices and carelessness in consumption. Natural gas enjoys a special advantage, given its relatively cheap and competitive price compared to the thermal energy it produces, the well-being of households in terms of ease and continuity of access to it, less environmental pollution compared to other fuels and many other benefits (Janjan et al., 2009). The 10 highest electricity consumer countries in the world are: China, USA, Russia, India, Japan, Germany, Canada, Brazil, South Korea and France, respectively, in which Iran ranks 18th. Meanwhile, the top 10 countries in electricity production are: China, USA, India, Russia, Japan, Canada, Germany, Brazil, France and South Korea, and Iran ranks 16th out of 219 countries (global statistics)[1].

Iran is the third largest producer of natural gas in the world, while a large part of its production goes to domestic consumption. The share of heating is 29% of production, 24% of power generation, 15% of non-petrochemical industries, 13% of petrochemical industries, 9% of injection and 3% of transportation. Also, more than 90% of households use natural gas for energy, and this fuel replaces liquefied hydrocarbons and is used for heating and cooking, increasing consumption by 180 million cubic meters per day over the past 25 years. (Deputy of Infrastructure Research and Production Affairs, 2009). The current paper aims at answering the following questions:

1. What are the main social factors affecting people's energy consumption?
2. What are the main cultural factors affecting people's energy consumption?
3. What are the main environmental factors affecting people's energy consumption?

Litreature Review

Numerous researches have been done to explain the effect of the variables affecting the energy consumption of people in different places, and here are the most important and influential researches.

- Mozaffari and Motefaker Azad (2018) in a study using secondary data showed that social capital is different in different provinces and social capital has a negative impact on household electricity consumption in the provinces, meaning that with increasing social capital, electricity consumption will decrease and per capita household income will also affect electricity consumption.
- Zare et al. (2013) in a study with a statistical sample of 383 households living in Yazd showed that the higher income is among the factors affecting the inappropriate pattern of energy consumption. With the increase of religiosity in the doctrinal and emotional dimensions, energy consumption has a more appropriate pattern. While domestic media have a positive but weak impact on consumption patterns, international media have a negative impact.
- Hansen conducted a research from 2011 to 2012, combining quantitative methods with qualitative perspectives. The results show that increased income will lead to the purchase of larger and more specific homes, and as a result will lead to more energy consumption. Education was also indirectly effective in that as education increased, individuals' incomes and thus social status, resulting in larger homes and increased heat.
- McClaren (2015) studied and explained attitudes related to energy and energy saving behaviors and research findings showed that economic factors such as income have influenced the installation of energy saving lamps and most people by adjusting the thermostat or having one or two energy saving lamps save energy at home.
- Funk and Alper in a study in 2002 and 2014 tried to study the impact of religion on various aspects of American life, especially the environment, online and by telephone. Some results showed that only 6% of the sample believe that religious beliefs have lots of impact to think about protecting their environment. Also, religious affiliation and church attendance had nothing to do with people's perceptions of climate change, deep-sea research and drilling, and increased use of nuclear energy.
- DeWaters & Powers (2011) showed in a study that students are concerned about energy problems, although this concern has little to do with cognition and behavior due to their limited knowledge; higher education students performed better in this regard, in other words, in addition to worrying, they also had appropriate energy consumption behavior. Behavior is also more important than having knowledge of energy, and only about one-third of students recognized energy conservation as the fastest and cheapest way to meet energy needs.

Grevet & Manckoff (2009) in a study using secondary data analysis showed that people generally like to make social comparisons but prefer that the comparison be through non-rhythmic graphs. Also, people who could compare energy consumption showed more energy savings.

Theoretical Framework

Studies have shown that the subject of the environment, its harms and sociological dimensions, especially in the beginning, has been less considered by sociological knowledge. This can be due to various reasons, including the fact that at the beginning of the formation of sociological knowledge, human society had not yet experienced environmental problems as it is today, on the other hand, sociology was involved in more objective and serious issues such as political, social and religious chaos. (Ritzer, 1387). As Norgaard points out, in the beginning, modern sociology focused only on the development of societies and did not include environmental crises (Norgaard, 2000).

Since 1970s, sociology made its way into environmental studies and energy consumption as a social action, and many thinkers in this field rejected the monolithic economic view that human action, including consumption, a function of profit and loss and emphasized other social factors and variables such as preferences, social status, etc. As research has shown, for example, consumer preferences to buy goods and services can depend on demographic, environmental (geographical) and attitudes variables (McClaren, 2015).

In the beginning, the sociology of energy consumption, like other topics in the sociology of consumption over the past two decades, has been that people use it "for everyday life," so it mostly refers to theories like that of Veblen. Veblen considers the two main ways of displaying wealth to be the Conspicuous Leisure and the Conspicuous Consumption (Zokaei, 2012). He believed that most of the leisure time of the rich is not spent in front of the spectators, but can only serve the purposes of their fame. This result should be demonstrable, measurable and comparable to their competitors in other classes of products in the same class. This result should be demonstrated to their competitors in other provable, measurable, and comparable classes of products in the same class (Veblen, 2003). Veblen, as a socialist economist, rejects individualistic economic utilitarianism (Fadaei, 2017). According to Veblen, financial ability or any wealth in order to be able to provide a status for its owner, must be ostentatious and showy and must show itself in consumption. And since wealth is the most important factor in gaining prestige, it must have an external appearance and the best example of it is demonstrative consumption (Veblen, 2004). Hence, in the modern world, consumption is more common for display. Accordingly, Veblen emphasized only the agent, but by presenting theories that were later combined, such as Bourdieu's theory, he tried to establish a link between the agent at the micro level and the structure at the macro level. In this theory, an attempt was made not to focus the sociological view of a phenomenon such as energy consumption only on the micro level.

Bourdieu knows three types of capital to affect people's habits: The first type of capital is social capital, which is related with owning a sustainable network of more or less institutionalized relationships of mutual acquaintance and knowledge. In other words, group membership provides its members with the support of its collective capital. Thus, social capital includes resources based on links and group membership. As a result, both bond density and durability are important. The second type of people's capital is economic capital. Economic capital, which is related to one's wealth and income, is directly converted into money and can be institutionalized in property rights (Bourdieu, 1986). The third capital is cultural capital. For cultural capital should be an important mechanism of social reproduction, educational qualifications are an important mechanism through which wealth and power are transferred (Sullivan, 2002). According to Bourdieu, most people bring their cultural capital from their families (Swedenberg, 2012). Of course, it should be borne in mind that cultural capital inherited from the family or acquired in school is to some extent the definition of cultural

capital (Bourdieu, 2018). In addition to Bourdieu, Giddens also took a holistic view of the issues, so as Giddens in his discussions considers the element of trust in the modern age as an essential element, especially in scientific and expert matters, and since the high impact of energy consumption on the atmosphere is also an expert discussion, thus the element of trust is essential. He also emphasizes the element of reproduction through schools and the media that these two intermediate structures are able to institutionalize a sense of inequality or the learning of values in individuals. Giddens (2009) refers to cultural reproduction through social institutions that, along with schools, encourage the perpetuation of social and economic inequalities. He focuses on the means by which schools influence the learning of values, attitudes, and habits through a covert program. According to him, mass media today have a role beyond providing entertainment and have a profound impact on people's lives. Mass media provide and shape a lot of information that we need and use in our daily lives (Beheshtinejad, 2016).

Baudrillard is a theorist who has paid serious attention to the mass media. In his view, the media in the postmodern world is a tool that not only does not convey the message, but also represents reality itself. In fact, television is the creator of the world in which any construction can take place (Zahedi and Nourani, 2010). According to Baudrillard, in the current age and with the presence of mass media in all spaces, a new reality is created that includes a mixture of people's behaviors and media images (Reyshhari et al., 2009). Also, according to Baudrillard's theory, the meaning of "dissolving television and life in each other" is that the mass media have become so influential in social life that they play a decisive role in social life and it is difficult to distinguish reality from unreality (Payende, 2013). In addition to Giddens' emphasis on the structure of the media, Baudrillard tried to take a fresh look at phenomena from a macro perspective and through the lens of television that can shape people's lives. Therefore, it can be said that according to Giddens and Baudrillard, the mass media, especially television, have a great ability to influence people's energy consumption and even change people's lifestyles. Thus, according to Baudrillard, mass media, especially television, can influence people's consumption culture.

Materials and Methods

Sampling is one of the most important issues in the social sciences, which is measured by the size of the population or the subjects to be sampled (Sarmad et al., 2001).

$N=913819$: Total household population in Mashhad $s^2=.351$:Attribute variance

$t= 1.96=3.8416$: Degree of confidence

$d=0.05=0.0025$:Probability of Error

$$n = \frac{913819 \times 1.96^2 \times 0.351}{913819 \times 0.05^2 + 1.96^2 \times 0.351} = \frac{1232195.0017104}{(2284.5475) + (1.3484016)} = \frac{1232195.0017104}{2285.8959016} \\ = 539.042 \cong 540$$

4-1- Sampling

Cluster sampling; this sampling is generally used for large regions (Rafipour, 2010). For this study, sampling was done from all 35 regions in 13 districts of Mashhad.

At first, an attempt was made to obtain the most recent division of regions and districts according to the category of space segmentation (status clusters) and according to Hataminejad et al. (2015) and given the adaptation of the development of the regions with the division of space (status clusters) five categories were named into in terms of development. Electricity and gas infrastructure was also considered as a variable due to the fact that it is usually related to the development of regions and also usually leads to feelings of inequality and consumption.

In the next step, having determined the sample size and in order for samples from all districts to be present in the sample, one neighborhood from each districts were selected at random numbers and sampling was done in the selected neighborhood of each districts as a proportional quota. The questioners were also reminded to distribute the questionnaires randomly among the blocks and to fill in only one questionnaire in each block. The blocks were filled in as regular numbers, ie one questionnaire for every 5 blocks.

4.1.1 Preliminary test

The nature of research variables requires careful design of questions. Thus, before the final implementation of the questionnaire, the designed items and the structure of the questionnaire were tested in two stages. In the first stage, i.e. in the preliminary test stage, after referring the questions to the supervisors and the consulting experts and collecting the experts' opinions about the content and the wording of each item, the necessary corrections were made and the questionnaire was finalized. After preparing the questionnaire, it was tested among 40 citizens of Mashhad and after evaluating the Cronbach's alpha level as well as the type of response of the respondents to the questions, a number of questions were removed or corrected.

Results

5-1- Research validity and reliability

Measuring the validity and reliability is important for any social research (Sarukhani, 2008). After preparing the referrals, we must make sure that they measure the concept that we want to measure (Validity) and also make sure that we can trust the answers they give to our questions. The question that people answer today in one way and tomorrow in another way is a useless question (this is the issue of reliability) (De Vaus, 2002).

Table 1:Cronbach's alpha coefficient of scales in the questionnaire

Variables	Dimensions	Questionnaire			
			Number of items	Reliability coefficient	
Energy Consumption	—	8	0.624	0.624	
Religiosity	Practical	3	0.573	0.867	
	Epistemological	3	0.644		
	Emotional	4	0.793		
Social capital	Links	4	0.717	0.803	
	Membership	5	0.825		
Feeling of Social Inequality	—	8	0.784	0.784	
Social Comparison	—	6	0.780	0.780	
Mass Media	—	6	0.565	0.565	
Environmental Knowledge	—	10	0.763	0.763	

5-2 Descriptive results

The results showed that most of the respondents belong to the high school diploma level with 227 samples. Following the high school diploma, the number of bachelor's degree holders is the highest (146 people). The lowest number of respondents is in the illiterate and doctoral categories, in each of which there are 4 samples, although in the illiterate category one sample is male and in the doctoral category there are 3 male samples. 75% of the respondents were married. The main respondents have an income of 2 million Tomans per month, followed by 3 million Tomans, and income of 15 million Tomans was the lowest number among the people surveyed.

5-2-1- Energy consumption

The results show that the energy consumption variable is almost normal. However, given the high sample size (above 30) and the assumption of normal in this case, given the high volume of data, as a result, the variables are considered normal.

The items of this variable are more related to the attitude or the way people face energy consumption. What people will do to save or waste were measured in a Likert scale. Descriptive results of this variable show that 16% of people have moderate and occasional consumption, which means that this percentage of people have moderate consumption; they are not too frugal and not too extravagant. About 35.2% of people are literally wasteful and do not care about consumption and other issues related to energy consumption. About 48.8% of people are frugal and sensitive to the issue of balanced consumption and the consequences of improper consumption.

5-2-2- Religiosity

This variable was measured based on Shojaeezand's (2005) model. Religiosity was considered to have three dimensions: epistemological, practical and emotional. In the epistemological dimension, the intensity of belonging, attachment and trust in the content of religion, in the practical dimension the signs of religiosity (appearance and identity) and attention to religious rites and participation, and in the emotional dimension seeking meaning and creativity were examined. The results showed that the average religiosity (3.37) among people is more than half (2.5). The relatively low variance of individuals' responses indicates individuals' religious agreement. Respondents seem to be more religious and religious in nature.

In total, less than 5% (4.1%) of the people in question do not have very religious beliefs, 73.4% of people are in the range of moderate religiosity and about 22.5% of people have high beliefs.

5-2-3- Social capital

To measure this variable based on Bourdieu's theory, two dimensions of membership and links were measured. In the membership dimension, the average response of people is more than half (4.51) and in the link dimension, it is close to half. And the scatter of responses is almost the same in both dimensions. In both dimensions, the mean and the median are close.

A- Links: Less than half (38.9%) of the respondents have little social relations and less than ten percent (7.4) have very high social relations.

B- Membership: 1.2% of people have little membership in groups. About 36% of the sample stated that they are members of the mentioned groups and are very active in them. In contrast, only 0.2% of sample were not members of any of the groups in question.

5-2-4- Social comparison

Most respondents try to make some comparison for consumption. The average of the answers is more than half (2.5) and it is close to the median and the index. The variance of the respondents, although not very high, has slightly increased compared to other variables. Also, about 8.8% of respondents are against comparing, while about 37.1% often compare their consumption with others, and 54.1% of people believe that one of the best ways to consume is to compare yourself with others to get the right results.

5-2-5- Social inequality

The average social inequality among the respondents is 2.48, which is close to the median, and in other words, the respondents feel that there is a lot of social inequality in the society, and also the amount of variance confirms that there is agreement among the respondents in this regard. 29.9% of the respondents are against the presence of inequality in the society, while 22.2% of the people agree and believe that in today's society, social inequality is high. 47.7% were in the middle.

5-2-6- Environmental knowledge

To measure this variable, ten yes and no items were used to examine the respondents' environmental knowledge. The results showed that people's environmental knowledge is relatively high. The average of their answers is higher than half of the score and shows that people's environmental knowledge is relatively good

and a small amount of variance is a confirmation of this. The results of this section showed that only 5 (0.8%) respondents answered 10 items incorrectly. 42 samples (7.12%) gave at least one correct answer to the questions. However, these answers include less than 50% of the correct answers and 342 samples (57.97%) answered more than half of the questions correctly. The results also show that 201 samples (34.07%) answered all the items correctly.

Table 2: Descriptive statistics of research variables

Variable Name	N	Missing	Mean	Median	Mode	Variance	Kurtosis	Skewness	
Energy Consumption	562	37	3.76	3.75	3.63	0.451	-0.60	-0.18	
Religiosity	565	34	3.37	3.42	4.33	0.534	-0.543	-0.138	
Social Capital	Links	597	2	3.47	3.50	3.00	1.00	-0.129	0.243
	Membership	597	2	4.51	4.60	6.00	1.26	-0.769	-0.369
Social Comparison	593	6	3.13	3.16	3.17	0.615	0.195	-0.175	
Feeling of Social Inequality	571	28	2.48	2.50	2.63	0.568	-0.322	0.080	
Mass Media	560	39	2.85	2.83	3.00	0.461	-0.017	-0.177	
Environmental Knowledge	590	9	0.800	0.90	1.00	0.051	1.556	-1.363	

5-3 Inferential statistics

Hypothesis 1: There is a relationship between feelings of inequality and energy consumption.

The results showed that there is no significant relationship between energy consumption and the feeling of social inequality and in other words, the feeling of inequality in society has no effect on people's consumption attitudes.

Hypothesis 2: There is a relationship between religiosity and energy consumption.

The results confirm that there is a positive and significant relationship (0.243) between energy consumption and religiosity, although the relationship is relatively weak. However, it can be said that in the sample, increasing the religious beliefs in people causes them to have a more positive attitude towards energy consumption.

Hypothesis 3: There is a relationship between media use and energy consumption.

Pearson correlation between energy consumption and media use is significant, positive and weak (0.091).

Hypothesis 4: There is a relationship between social capital and energy consumption.

Pearson correlation between energy consumption and social capital was significant, positive and weak (0.089).

Hypothesis 5: There is a relationship between economic capital and energy consumption.

The results of Pearson correlation coefficient test indicate that there is no significant relationship between energy consumption and economic capital of the samples.

Hypothesis 6: There is a relationship between cultural capital and energy consumption.

The correlation (analysis of variance) between cultural capital (the sample and their parent's education) and energy consumption was not confirmed and this indicates that the cultural capital of individuals has no effect on their energy consumption.

Hypothesis 7: There is a relationship between social comparison and energy consumption.

Pearson correlation between energy consumption and social comparison is significant, positive and relatively weak (0.241).

Hypothesis 8: There is a relationship between environmental knowledge and energy consumption.

The results confirm that there is a positive and significant relationship (0.255) between energy consumption and environmental knowledge, although the relationship is relatively weak. However, it can be said that in the study sample, increasing environmental knowledge and awareness of people leads to a more positive attitude towards energy consumption.

5-4 Regression analysis of energy consumption variables

Table 3:Regression analysis of energy consumption variables

Research hypotheses	Non-standard coefficient		Standard coefficient		sig
	B	Standard deviation	β	t	
constant number	2.163	0.317		6.184	0.000
Income	0.025	0.017	0.070	1.510	0.132
Job prestige	0.004	0.003	0.060	1.298	0.195
Religiosity	0.218	0.043	0.239	5.040	0.000
Environmental Knowledge	0.547	0.131	0.184	4.166	0.000
Mass Media	0.023	0.048	0.022	0.469	0.639
Social Comparison	0.186	0.041	0.220	4.486	0.000
Feeling of Social Inequality	-0.148	0.043	-0.165	-3.481	0.001
Social Capital	0.105	0.035	0.142	2.983	0.003

Square R, which is in fact the coefficient of explanation, shows that this analysis explains 0.187 and in other words 18.7% of the changes in the dependent variable. The table above shows that all variables except mass media and job prestige of individuals are able to influence energy consumption and have the ability to predict behavior. Also, the results of the above table show that the greatest impact on energy consumption goes for

individual values (religiosity), social comparison and then environmental knowledge and then social capital of individuals, respectively.

5-5 Structural equation model

In a structural equation model, the researcher, on the one hand, seeks to measure a set of references and, on the other hand, analyzes the structural relationships between the hidden variables. Therefore, some of the variables in the structural model may be of the observed variables. On the other hand, the structural equation model is a combination of measurement and structural models. Measurement models are derived from the theoretical foundations of the studied phenomena and structural models are derived from the theoretical foundations of research (Ghasemi, 2009).

Table 4: Modified model indices

	CMIN/DF	PGFI	CFI	PCFI	RMSEA	HOELTER 0/05
Model indices	3.196	0.538	0.898	0.587	0.061	252
Optimal minimum value	1	0.5>	90>	0.5>	0.05<	200
Optimal maximum value	5	0.6>		0.6>	0.08<	<200

The results of the Indies in Figure (1) of the structural equation model show that this model is acceptable. In particular, indices such as the root-mean-square deviation (RMSD) and the Holter enjoy good values. The normalized Chi-square index (CMIN / DF) is also one of the indices for model acceptability. Schumacher and Lumax (2009) considered values between 1 and 5 acceptable. Therefore, the above model can be considered an acceptable model.

Table 5: Results of the values of the variables in the structural equation model

Variable	Standard value	standard error	Critical Ratio (C.R)	P-Value
capital ← Social Capital	-0.214	0.106	-2.750	0.000
capital ← Cultural Capital	0.584			
Mass Media ← Social Inequality	0.194	0.044	4.914	0.016
capital ← Religiosity	0.201	0.102	2.328	0.011
Cultural Capital ← Religiosity	-0.317	0.062	-3.534	0.002
Social Capital ← Social Inequality	-0.191	0.047	-3.340	0.000
Social Capital ← Social Comparison	0.176	0.051	3.131	0.001
capital ← Economical Capital	0.854	0.555	2.002	0.000
Religiosity ← Environmental Knowledge	-0.084	0.019	-2.065	0.006
Mass Media ← Environmental Knowledge	-0.031	0.022	-0.752	0.000
Social Inequality ← Social Comparison	0.268	0.043	6.930	0.020
Economical Capital ← Job prestige	0.774	2.376	4.408	0.000
Social Capital ← Membership	0.770			
Social Capital ← Links	0.561	0.146	4.434	0.000
Cultural Capital ← Education	0.422	0.054	9.107	0.000
Cultural Capital ← Mo. EDU.	0.746			
Cultural Capital ← Fa. EDU.	0.841	0.101	12.782	0.000
Economical Capital ← Income	0.380			
Social Inequality ← Energy Consumption	-0.150	0.036	-3.767	0.000
Social Comparison ← Energy Consumption	0.266	0.033	6.632	0.000
Religiosity ← Energy Consumption	0.196	0.033	5.081	0.000
Envir. Knowledge ← Energy Consumption	-0.093	0.072	-2.445	0.014
capital ← Energy Consumption	0.032	0.053	0.625	0.532

The results of the above table show that there is a relationship between energy consumption and the variables of social inequality, social comparison and environmental knowledge consistent with the regression results and correlation coefficients, in other words, these variables directly affect sample's energy consumption.

The variable of media is indirectly more effective in influencing social energy consumption by influencing social inequality than by influencing the increase of environmental knowledge. In other words, it can be claimed that

mass media has not taken an effective step to increase environmental knowledge of individuals for optimal energy consumption, but increased the feeling of social inequality.

Religiosity as one of the cultural variables affects the optimal use of energy both directly through religious teachings and indirectly through environmental knowledge.

Conclusion and Discussion

Today, energy consumption is one of the concerns of different countries with influential micro and macro consumption factors. Nowadays, energy consumption increases for a variety of reasons including the increase of population, development of industrial cities, the change of culture towards individualism and according to Veblen theory, people tendency toward showing their class through consumerism. Therefore, environmental sociology is one of the new branches of sociology today that addresses the behavior of energy consumers along with economic sociology.

The theoretical part of the results of previous and experimental researches showed that the effective variables of social field such as capital (economic, social and cultural) and social comparison, the variables of the cultural field including religiosity and mass media and the variables of the environmental sociology field, namely environmental knowledge affect energy consumption.

According to Bourdieu's theory, types of capital have an effect on people's consumption. The results of the current paper showed that social capital has a positive effect on energy consumption. However, the other two capitals are not related to energy consumption and in other words have no effect on energy consumption. The results of structural equation model showed that social capital has an inverse effect on people's sense of social inequality, meaning that the stronger a person's social capital, the less people feel social inequality, which of course can be due to the strengthening of relationships between people and also there is an inverse relationship between feelings of social inequality and energy consumption, meaning that people with lower feelings of social inequality will not retaliate for more energy consumption, and thus it can be inferred that the impact of links and membership in different groups (more social capital)) makes people experience less inequality. In fact, when people do not have an outward view of things but have a realistic view, it will cause energy consumption (as it was revealed in initial interviews that some people consume more simply because of retaliatory behavior due to social inequality) to reduce energy consumption. And as Giddens well points out, mass media is one of the factors that increase the sense of social inequality among individuals, and the structural equation model confirms this.

According to Baudrillard theory, the mass media today is an effective tool in the hands of the government and can be used to change the behavior of the consumer culture of individuals and used in the direction of macro-policies. The results of the present study also showed that the impact of the media on people's religiosity is almost zero, but people make choices based on their religiosity. Also consistent with the results of the research of Zare et al. (2013), the effect of mass media on consumption, although positive and very small, but this effect is indirect and through the effect on people's sense of social inequality on energy consumption.

The results of the current analysis also showed that the social comparison of individuals has a direct and positive effect on energy consumption of individuals and this research is consistent with the results of Grout

and Mankaf (2009) which shows that individuals through social comparison and in fact through the comparisons they make among themselves and others are able to manage and modify their consumption as well.

Previous research (Hansen (2016), McClaren (2015)) emphasized the effect of people's income on people's energy consumption behavior, so that with increasing income, people's energy consumption will also increase, while the results of the current paper did not confirm this result, and showed that there is no relationship between people's energy consumption and people's income.

The results of the current paper, consistent with the results of Zare et al. (2013), show that religiosity is effective on energy consumption with a positive effect, meaning that the more people show commitment to their values, the more will show appropriate energy consumption behavior. It also showed that there is a weak relationship between religiosity of individuals and their environmental knowledge and considering that they were questioned in relatively religious communities, it seems that the effects and religious teachings affect their environmental behavior and this research is consistent with Funk and Alper (2015) that showed the relationship between people's religiosity and their environmental behavior and confirm it.

According to the results, it seems that if the government wants more proportionate consumption by the people, it should first try to reduce the feeling of social inequality and the mass media should avoid emphasizing this inequality and sometimes exaggeration as much as possible. And at the same time take steps to increase public confidence in organizations (for example, by increasing the transparency of measures and formulas for calculating bills), which can be done by comparing the two that arise between people in a neighborhood in which people are aware of which consumption groups are relative to those around them. Also, the increase in social capital of individuals shows that in different provinces, the amount of this social capital is different, so it is possible to increase social capital in different provinces with low amounts.

Declarations

Statements and declarations

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors. The authors declare no competing interests.

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Author Contribution

All authors reviewed the manuscript. The first author as the responsible for the Ph.D. dissertation and the other authors as professors were in the process of writing and guiding. This article is a part of the Ph.D. dissertation

approved by the university. The present study is part of a Ph.D. dissertation in economic sociology approved by the Ferdowsi University of Mashhad

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Footnotes

1. <http://world.bymap.org/>

Figures

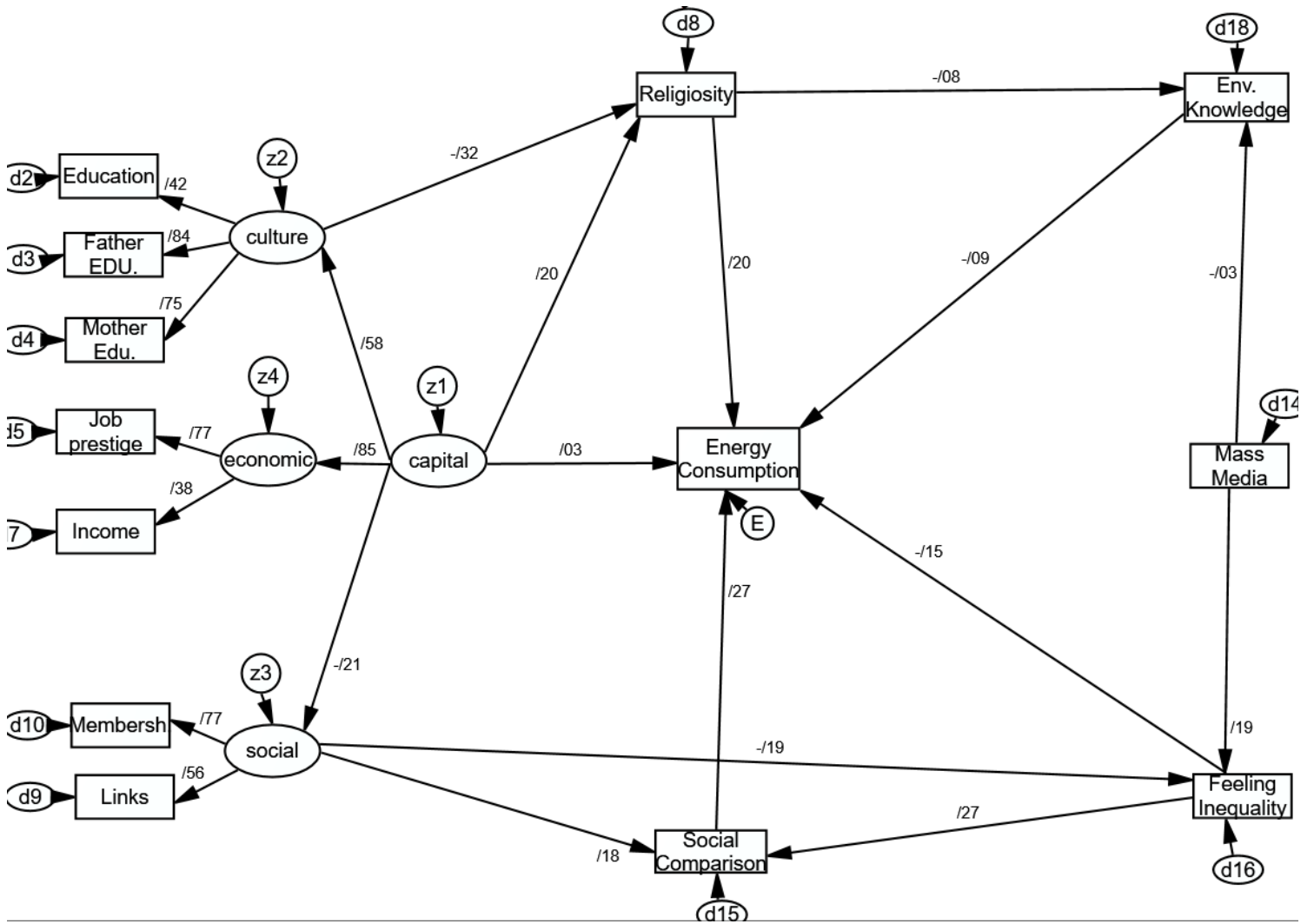


Figure 1

Research structural equation model