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Empirical Analysis of Awareness and Behaviour of the Society Toward Environmental Issues: Case of Turkey

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Abstract: This study aims to provide useful insights into the environmental behaviour of people living in Cankiri province, Turkey. 151 people were questioned in total. Study findings show that the ratio of people familiar with the concepts of Kyoto protocol (43.7%), sustainable development (17.9%) and carbon footprint (2.6%) is rather low. According to male respondents, traffic, housing and migration are the top three problems in their residence area while, female participants mentioned housing, air pollution and water pollution. The results of Chi-square test (χ^2) indicates that there is a statistically significant relationship between gender ($p = 0.012$) and recycling symbols on packing packages and education ($p = 0.002$). Similarly, there is a statistically significant relationship between classifying garbage and gender ($p = 0.016$) or between classifying garbage and education ($p = 0.004$). In addition, residence ($p = 0.001$) and education ($p = 0.001$) have statistically significant relationship with not using the goods containing ozone-depleting substances. Environmental concepts and organisations are commonly known by male respondents, people residing in urban areas and individuals holding a university degree.

Key words: Environmental issues, behaviour, awareness, Chi-square, Turkey

INTRODUCTION

From the beginning of the industrial revolution to the mid-20th century, mankind has moved with the slogan of "pollution creates money". The 20th century will be remembered as a century that environment was polluted and destroyed by human being much more than total of the last centuries (Sayili *et al*., 2000). Environmental problems affect everyone, every sector and every country depending on living conditions, structure of the sector, geographic and socio-economic situation of the country (Akca *et al*., 2007). As starting 1980s, changing consumption pattern and export-oriented industrial production leaded to increase the interests of applied scientists, sociologists, economists, developmental experts and policy makers regarding environmental problems in Turkey.

In recent years, perception and reactions of society to environmental problems have become important in Turkey. Majority of the studies in Turkey were related to attitudes and behaviours of undergraduate students at Agricultural Faculty (Budak *et al*., 2005), Medical Faculty (Vaizoglu *et al*., 2005) or all Faculties (Talay *et al*., 2004; Kose *et al*., 2011; Muderrisoglu and Altanlar, 2011) toward environmental issues. Studies focused on ideas, awareness, attitude and behaviours of others parts of the society were neglected by researchers. Therefore, the main aims of this study were to determine awareness level of people about environmental conservation, assess behaviour of people toward environmental issues and analyse the correlation between socio-demographic characteristics and environmental awareness.

MATERIALS AND METHODS

Primary data was used in the study. In total, 151 people (more than 18 years old) living Cankiri province in Turkey were questioned in the study. The survey was conducted between December 2013 and January 2014. The statistical analysis of data was carried out using SPSS 20. Chi-square test (χ^2) was used to analyse the correlation between socio-demographic characteristics of the respondents (gender, education, residence) and environmental awareness. The data analysis was conducted at 0.05 significance level (Gujarati, 1995; Mirer, 1995).

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RESULTS AND DISCUSSION

Nearly three-fourth of the surveyed people (73.5%) were male. Ratio of female was low due to the socio-cultural structure of Cankiri and the difficulty in gathering information from women. Only the respondents at the age of 18 and more encouragingly participated in the survey. Young people (between 18 and 30) constituted 39.8% of the respondents. It was followed by those between the ages of 31-45 (31.8%) and 46-60 (23.8%). Only 4.6% of the participants were older. As far as income is concerned, nearly half (50.3%) of the respondents had less than $500. Ratio of having income between $501 and $1250 was 35.1%. Only 14.6% of the people had more than $1250. More than three-fourth (76.2%) of the respondents have lived in urban and the rest (23.8%) in rural areas. The respondents holding a University degree (vocational, graduate, postgraduate) had the highest ratio (43.7%). It was followed by high school (27.2%), primary school (17.2%) and secondary school (11.9%) degree holders. It is a fact that workers, officers, students and retired people constitute the great majority of the residents in Cankiri. Therefore, this fact was taken into account while determining the sample size. Nearly one-fifth (21.9%) of the respondents were workers. It was followed by officers (14.6%), students (11.9%), craftsmen (9.9%), farmers (9.3%), retired people (9.3%), housewives (6.6%) and academics (4.6%). Others constitute 11.9% of the respondents.

Respondents were asked "What were the three major problems in Cankiri?". Male respondents answered as traffic, housing and migration. Females stated that housing, air pollution and water pollution were the top three problems in their residence area. The question was analysed in terms of settlement unit, traffic, housing and air pollution. These issues were mentioned by the urban population to be the most significant problems.

Participants from the rural areas brought up migration, water pollution, public transportation and expensiveness. According to people holding a primary school degree, top three problems were migration, water pollution and housing. Parallel to increase in level of education, the perception of the top three problems has changed. Respondents holding a university degree ranked the top three problems as housing, traffic and air pollution, respectively (Table 1).

Some symbols commonly used in packing packages of commercial goods were questioned to measure the level of awareness of consumers regarding the environmental issues. Females, urban population and people with higher educational level have a high knowledge ratio of environmental symbols on packing packages (Table 2).

Nearly 43.7% of the respondents were familiar with the Kyoto protocol. It is followed by the awareness of the concept of sustainable development (17.9%). However, the ratio of people familiar with the concept of carbon footprint is rather low (2.6%). The rest do not have any knowledge about these terms. As the international environmental organisations reported, three-fourth of the respondents (74.9%) has known the TEMA (Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats). Green Peace is known by less than half of the respondents (43.7%). The ratio of people knowing World Wildlife Fund was only 7.3% (Table 3).

Since 1973, World Environment Day is celebrated every year on 5 June throughout the World. In order to test whether people remember world environment day or not, they were asked "Which day is environment day?" Only 4.0% of the respondents answered this question correctly. The vast majority of those who were addressed by the question did not know the world environment day.

Table 1: Top three problems in Cankiri province

	*Problems											
Parameters	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Gender												
Male	62	19	24	33	4	11	35	20	52	31	30	11
Female	16	8	10	19	3	4	7	3	21	8	20	1
Total	78	27	34	52	7	15	42	23	73	39	50	12
Residence												
Urban	67	15	29	35	4	15	22	14	63	27	44	9
Rural	11	12	5	17	3	0	20	9	10	12	6	3
Total	78	27	34	52	7	15	42	23	73	39	50	12
Education												
Primary	9	7	2	13	2	1	17	5	10	8	3	1
Secondary	12	1	4	5	0	1	4	5	9	6	5	2
High School	27	6	9	16	2	5	12	6	16	7	14	2
University	30	13	19	18	3	8	9	7	38	18	28	7
Total	78	27	34	52	7	15	42	23	73	39	50	12

P1: Traffic, P2: Intercity transportation, P3: Inner city transportation, P4: Water pollution, P5: Soil pollution, P6: Noise pollution, P7: Migration, P8: Sewage, P9: Housing, P10: Expensiveness, P11: Air pollution, P12: Other

Table 2: Knowledge of the symbols on packing package (%)

Parameters	Symbol 1 	Symbol 2 	Symbol 3 	Symbol 4 	Symbol 5 
Gender					
Male	46	7	10	51	47
Female	25	4	9	24	23
Total	71	11	19	75	70
Residence					
Urban	64	10	18	66	58
Rural	7	1	1	9	12
Total	71	11	19	75	70
Education					
Primary	5	1	2	4	6
Secondary	4	1	0	7	7
High School	18	4	6	24	18
University	44	5	11	40	39
Total	71	11	19	75	70

Table 3: Knowledge levels of respondents on environmental concepts and organisations

	Concepts (n)			International organisations (n)		
	Carbon footprint	Sustainable development	Kyoto protocol	Green Peace	TEMA	World wildlife fund
Gender						
Male	4	18	49	49	77	8
Female	0	9	17	17	36	3
Total	4	27	66	66	113	11
Residence						
Urban	4	26	58	58	99	9
Rural	0	1	8	8	14	2
Total	4	27	66	66	113	11
Education						
Primary	0	0	4	4	10	0
Secondary	0	0	4	4	7	0
High School	0	3	16	16	35	2
University	4	24	42	42	61	9
Total	4	27	66	66	113	11

More than three-fourth of the respondents had environmental information mostly from television (78.8%). This was followed by the internet (59.0%), printed material (43.1%), social media such as Facebook and Twitter (37.0%). Other information sources benefited by the respondents were friends (20.6%), official organisations (10.6%), radio (8.0%), municipality (6.0%), NGOs (2.0%), schools and brochures (0.7%).

Family, school, science and religion may play an important role in providing individual support to conservation of the nature (Kasapoglu and Turan, 2008). This is supported by the result of the study. Environmental conscious can be raised by education within family or at school (66.9%). It is followed by radio/television programmes (42.4%), newspaper-magazine (27.2%), education at work (23.2%), seminars (23.2%), activities organised by NGOs (13.9%), legal regulations (8.0%), youth camps (6.0%) and drawing and music competitions (2.0%). In addition, respondents were asked "What do you want to do for environmental conservation as an individual?". The answers were working voluntarily (70.2%), donation (16.5%), paying extra taxes (4.0%) and nothing (9.3%).

Individuals believe that their responsibility as consumers for ecological effects is limited and rests firmly on the shoulders of government and economic institutions (Fraj and Martinez, 2007). That idea is not supported by results of this study. Only small part of the respondents (10.6%) thinks that the state is responsible for protecting the environment. Ratio of having no idea is 2.0%. The rest think that individuals should take responsibility in protecting environment.

The idea of "individuals should prefer to use e-bill instead of printed bill in order to protect environment" is supported by 71.6% of the respondents. Nearly, one-fifth (20.4%) of the respondents do not agree with this idea. The rest is neutral.

Great majority of the respondents (77.5%) has a positive idea that schools are the most influential factor in creating environmental awareness. Nearly 14.5% disagree.

More than half of the respondents (50.4%) think that environmental degradation will be higher in the future than today. Nearly 12.0% has no idea. The rest has opposite idea.

Behaviour that consciously seeks to minimize the negative impact of one's actions on the natural and built world (e.g., minimize resource and energy consumption, use of non-toxic substances, reduce waste production) is defined as pro-environmental behaviour (Kollmuss and Agyeman, 2002). One of the most important determinants of behaviour is attitude (Kraus, 1995). Environmental attitude can be defined as "a learned predisposition to respond consistently favourable or unfavourable manner with respect to the environment" (Fishbein and Ajzen, 1975). Kollmuss and Agyeman (2002) define environmental awareness as "knowing of the impact of human behaviour on the environment".

According to research findings, a statistically significant relationship was found between educational level of respondents and preference of the energy saving goods ($p = 0.005$). It means that having higher education level, more energy saving. Recycling of battery is important in terms of environmental conservation. Municipality of Cankiri provided battery collection boxes to the university main building, shopping centres and schools. Survey results have shown that nearly 47% of the respondents were aware of the importance of putting batteries into the collection boxes instead of throwing them into the garbage. There was a statistically significant relationship between gender and attitude of recycling battery ($p = 0.007$). People in rural areas have more close relations with each other than the ones in urban areas due to facts that most are blood related and living in a small community. In such a social context, warning people to be more sensitive to environmental pollution is a simple and a common practice. A significant correlation between residence and warning people to be sensitive to environmental pollution ($p = 0.014$) was found. In recent years, many people have supported social responsibility campaign "collect blue tab to present a wheelchair to disabled people" throughout Turkey. A statistically significant relationship was found between residence and participation in the campaign ($p = 0.028$). The ratio of awareness and consideration of recycling symbols on packing packages is higher among people holding a university degree than the others. The relationship between level of education and attention to recycling symbols is statistically significant ($p = 0.002$). Only 28.5% of the respondents have taken into account recycling symbols on packing packages while buying goods. It is a commonly accepted idea that female is more sensitive about the consumption of healthy and environmental friendly goods, compared to male. The ratio of male and female respondents paying attention to recycling symbols was 22.5 and 38.7%, respectively. According to the results of Chi-square test, there was a significant correlation between gender and recycling symbols on packing packages ($p = 0.012$) and between education level and controlling recycling symbols ($p = 0.002$) (Table 4). Abdul-Wahab and Abdo (2010) found that males were found to have a higher level of knowledge about environmental issues than females. Males were also more environmentally concerned and tended to engage in more environmental behaviours than females. Younger and more educated respondents tended to be more knowledgeable and concerned about the environment than older and less educated respondents.

Sorting disposals is not a common practice in Turkey (Kasapoglu and Turan, 2008). Same could be said for Cankiri province. Majority (61.5%) of the respondents do not arrange their domestic waste for recycling before leaving it to dustbin. Female respondents are more sensitive than male ones in classifying garbage at home or work. Statistically significant relationship was found between gender and separating domestic waste ($p = 0.016$) and also between education level of respondents and separating garbage as glass, paper, plastic and metal ($p = 0.04$). Rural people do not prefer to use goods containing ozone-depleting substances because of habits, traditional life style and budget limits. In addition, parallel to the increase in level of education, the consumption ratio of goods destroying ozone layer has decreased. A significant correlation between residence and not consuming goods destroying ozone layer ($p = 0.001$) and also between education level and consuming goods destroying ozone layer ($p = 0.001$) was observed (Table 4). Increasingly, consumers prefer eco-friendly products, not only because it is healthier but also it helps to sustain the environment for future generations (Fraj and Martinez, 2007). In the study, respondents were asked to evaluate the forthcoming statement "I prefer eco-friendly products to protect environment even if it is expensive". Their answers were; 6.0% always, 16.6% generally, 39.7% seldom and 37.7% never. A significant relationship between education level and the consumption of the eco-friendly products despite high costs was observed ($p = 0.005$). In the past, people used eco-friendly bags made of cotton, wood and wool. Today, plastic bags are more common since they are more practical to use. Only 12.6% of the respondents use eco-bags. According to the results of chi-square test, a statistically significant relationship was found between level of education and using eco-bags ($p = 0.003$) (Table 4).

Table 4: Relations between environmental behaviour and socio-demographic characteristics

Statements	Always	Generally	Seldom	Never	Results χ^2	df	p	CC
Education								
I prefer to buy durable goods having less energy consumption								
Primary	17	3	1	5	23.540	9	0.005	0.367
Secondary	10	2	1	5				
High School	38	1	1	1				
University	49	11	4	2				
Total	114	17	7	13				
Gender								
I leave battery to the battery collection points								
Male	18	8	19	66	12.054	3	0.007	
Female	13	8	5	14				
Total	31	16	24	80				
Residence								
I warn people to be sensitive to environmental pollution								
Urban	21	40	43	11	10.570	3	0.014	
Rural	15	13	7	1				
Total	36	53	50	12				
Residence								
I support the campaign that blue tab is collected								
Urban	33	42	26	14	9.060	3	0.028	
Rural	3	12	12	9				
Total	36	54	38	23				
Gender								
I take into account recycling symbols on packing packages while buying goods								
Male	1	2	22	86	10.891	3	0.012	0.259
Female	2	4	12	22				
Total	3	6	34	108				
Education								
Primary	0	0	2	24	25.864	9	0.002	0.382
Secondary	0	1	1	16				
High School	1	0	6	34				
University	2	5	25	34				
Total	3	6	34	108				
Gender								
I classify garbage as glass, paper, plastic and metal								
Male	5	11	19	76	10.319	3	0.016	0.253
Female	1	9	13	17				
Total	6	20	32	93				
Education								
Primary	3	3	1	19	23.880	9	0.004	0.370
Secondary	0	2	4	12				
High School	3	3	5	30				
University	0	12	22	32				
Total	6	20	32	93				
Residence								
I pay attention not to use goods containing ozone-depleting substances								
Urban	17	27	35	46	17.286	3	0.001	
Rural	13	2	14	7				
Total	30	29	39	53				
Education								
Primary	10	2	11	3	29.073	9	0.001	0.402
Secondary	5	1	4	8				
High School	3	6	10	22				
University	12	20	14	20				
Total	30	29	39	53				
Education								
I prefer to consume environment friendly products to protect environment even if it is expensive								
Primary	0	3	9	14	23.554	9	0.005	0.367
Secondary	1	1	8	8				
High School	6	3	13	19				
University	2	18	30	16				
Total	9	25	60	57				
Education								
I use eco bags instead of plastic bags while shopping								
Primary	1	0	0	25	25.308	9	0.003	0.379
Secondary	0	1	6	11				
High School	0	0	3	38				
University	0	0	8	58				
Total	1	1	17	132				

*CC: Contingency Coefficient. No more than 20% of the expected cell frequencies less than 5

CONCLUSION

Environment is a heritage that is to be preserved and managed for the next generation. This fact places an important responsibility on us. Polluting environment does not affect only us but also the future of our children. Therefore, sensitivity for environmental preservation should be started at home and spread to nationwide and worldwide. The conclusions made from the survey are as follows:

- Respondents do not have enough knowledge of basic environmental concepts (Kyoto protocol, sustainable development, carbon footprint) and worldwide environmental organisations (Green Peace and World Wild Fund). Only a nationwide organisation (TEMA) is commonly known among people in Cankiri
- Environmental concepts and organisations are commonly known by male respondents, people residing in urban areas and individuals holding a university degree
- An insufficient number of people know the World Environment Day (5 June)
- Education in family, formal education and visual-audio media are highly important factors to increase environmental awareness
- Television and the internet are two major information sources that people use regarding environmental issues
- Willing to work voluntarily is the most preferred practice to prevent environmental pollution
- Although, sorting domestic waste is not compulsory in Cankiri province, female respondents are more sensitive than male in sorting domestic waste at home/work
- Preference of eco-bags usage is low in present, compared to the past
- It is not a common practice of people in Cankiri to pay attention to the recycling symbols on packing packages while shopping

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