Süleyman Demirel Üniversitesi
Fen Bilimleri Enstitüsü Dergisi
Cilt 27, Sayı 3, 503-526, 2023

Süleyman Demirel University
Journal of Natural and Applied Sciences
Volume 27, Issue 3, 503-526, 2023

DOI: 10.19113/sdufenbed.1364369

Evaluation of the Effect of Plastic Bag Charging on Consumers' Behaviors by a Questionnaire on University Staff

Başak UÇMAN[1], Hüseyin YAZICI*[2]

[1]Süleyman Demirel University, Faculty of Engineering, Department of Environmental Engineering, 32260, Isparta, Turkey

[2]Isparta University of Applied Sciences, Vocational School of Aksu Mehmet Süreyya Demiraslan, Department of Environmental Protection Technologies, 32510, Isparta, Turkey

(Alınış / Received: 21.09.2023, Kabul / Accepted: 31.10.2023, Online Yayınlanma / Published Online: 25.12.2023)

Keywords
Plastic bag,
Charging,
Consumer's behavior,
Questionnaire

Abstract: In this study, it was aimed to investigate the effect of plastic bag charging (PBC) practice, which was implemented in Turkey since the beginning of 2019, on consumers' behaviors and the factors affecting the consumers' behaviors on plastic bag (PB) consumption and their perceptions. For this purpose, a questionnaire with 363 participants was conducted for university staff including academics, administrative and support staff. The outputs were obtained by analyzing the participant-reported data through independent sample *T* test and one-way variance analysis (ANOVA) in the IBM SPSS Statistics 21.0 program. The findings revealed that the PBC caused statistically significant changes on consumers' behaviors with respect to the socio-demographic variables. Based on the overall findings obtained, it was found that the PBC practice contributes to the goals and targets in reducing the consumption of PBs at a certain level. In addition to that, it was concluded that various policies that might be an alternative or a support for the ongoing implementation should be taken under consideration by policymakers to achieve a truly sustainable success from the implementation.

Plastik Poşet Ücretlendirmesinin Tüketici Davranışları Üzerine Etkisinin Üniversite Personellerine Yönelik Anketle Değerlendirilmesi

Anahtar Kelimeler
Plastik poşet,
Ücretlendirme,
Tüketici davranışları,
Anket

Öz: Bu çalışmada, ülkemizde 2019 yılı başlangıcı itibariyle yürürlüğe giren plastik poşetlerin ücretlendirilmesi (PPÜ) uygulamasının tüketici davranışları üzerine etkisinin ve tüketicilerin plastik poşet tüketimine yönelik davranış ve algılarını etkileyen faktörlerin incelenmesi amaçlanmıştır. Bu amaçla akademik, idari ve işçi personellerden oluşan üniversite çalışanlarına yönelik 363 katılımcı ile bir anket çalışması gerçekleştirilmiştir. Çıktılar, katılımcı cevaplarından elde edilen verilere IBM SPSS Statistics 21.0 programında bağımsız örneklem T testi ve tek yönlü varyans analizi (ANOVA) uygulanarak elde edilmiştir. Elde edilen bulgular, PPÜ uygulamasının tüketici davranışları üzerine sosyo-demografik değişkenlere göre istatistiksel olarak anlamlı farklılıklara sebep olduğunu ortaya koymuştur. Elde edilen tüm bulgulara dayalı olarak PPÜ uygulamasının poşet tüketimini azaltmadaki amaç ve hedeflere belirli düzeyde katkı sağladığı tespit edilmiştir. Bununla birlikte uygulamanın gerçek anlamda sürdürülebilir şekilde başarıya ulaşabilmesi için mevcut uygulamaya alternatif veya destek olabilecek çeşitli uygulamaların da politika yapıcılar tarafından değerlendirmeye alınması gerektiği sonucu ortaya çıkmıştır.

1. Introduction

The concept of sustainability was first used in the 1987 Brundtland Report, Report of the World Commission on Environment and Development: "*Our Common Future*" and was defined as "*development that meets the needs of the present without compromising the ability of future generations to meet their own*

*Corresponding author: huseyinyazici@isparta.edu.tr

needs". The concept of sustainability has become widespread worldwide after the publication of this report [1]. Within the perspective of marketing activities, the concept of sustainability emphasizes the regulation of production and marketing activities in a way that minimizes their negative effects on the environment. In recent years, consumers have become conscious individuals with a high level of awareness about environmental pollution, but individual efforts by consumers are not considered sufficient to reduce the negative effects on the environment [2].

The first example that many people think of regarding negative environmental impacts is the use of plastics [2]. In a survey conducted with 160 participants from Japan and 191 participants from Turkey, the effects of single-use disposable products were investigated in terms of sustainable consumptions and the behaviors and contradictions of consumers they experienced with these products and how they established a relationship with such products were examined [3]. According to the results of the study, it has been determined that the disposable products that are widely thought to cause ecological problems are food packaging, beverage packaging and plastic bags (PBs).

In the Procedures and Principles Regarding the Plastic Bags Charging published in January 2019 by the General Directorate of Environmental Management of the Turkish Ministry of Environment, Urbanization and Climate Change, PBs are defined as "*bags with or without handles made of plastic, supplied to consumers at the points of sale for the purpose of carrying goods or products*" [4]. PBs are generally divided into two types: (i) disposable and reusable PBs, depending on their usage purposes, and (ii) degradable and non-degradable PBs, according to their ecological properties [5]. Because PBs are cheap, lightweight and durable, they are among the most used products in our daily lives and produced in a number of hundreds of billions every year [6]. PBs, which are used by consumers to carry the products purchased and to protect the products from external factors, can cause irreversible environmental damages due to their worldwide consumption [2].

Although the use of PBs provides some convenience in our daily life, such as wrapping, packaging, and carrying of products, these bags pose several environmental risks because they are not biodegradable [7-9]. While the direct impacts of PB litter are the costs arising from the collection, removal and disposal of the litter or impairment of storm water systems, the indirect impacts are associated with aesthetics, tourism, and marine litter [6].

In some reports, it has been stated that banning the use of PBs was not effective in environmental protection works because the volume of PBs is not large. For example; in Japan, PBs constitute a small portion of 2% of the total amount of plastic wastes. At this point, the main problem is seen as the problems occurring in the aquatic ecosystem. Scientists have found that some aquatic creatures such as sea turtles, manatees and whales consume PBs in the sea. For example; in 2018, 80 PBs were detected in the stomach of a male short-finned pilot whale found dead in Songkhla, Thailand. In March 2019, 40 kg of PBs were removed from the stomach of a young whale that washed up on the beach of Mindanao city, Philippines. In May 2020, a green sea turtle was rescued in Rayong, Thailand, after swallowing a 30 cm long PB [10].

Developing appropriate separate collection systems (e.g. large-volume containers with covers) to prevent the use of PBs as bin bags for their disposal is the decisive factor in reducing the placement of bin bags and PBs in sanitary landfills, thus avoiding their dispersion by wind and subsequent impacts on the environment [6]. Together with such solutions, various legislations have also implemented in many countries in order to reduce the global consumption of PBs, including the permanent ban on the use of PBs throughout the country, charging certain fees or taxes on PBs, or the implementation of partial fees and bans at the regional level [11]. To prevent unaesthetic issues and environmental pollution caused by plastic shopping bags and to reduce the number of PBs consumed in Turkey, a national charging practice for PBs has been implemented by the beginning of 2019. With the implementation, specifying that PBs will not be provided free of charge at the point of sale of goods or products after December 31, 2018, it has been targeted to reduce the consumption of PBs in Turkey, not to exceed 40 PBs per person annually by 31 December 2025.

Policies implemented by governments to reduce the consumption of PBs sometimes make it difficult for consumers to change their consumption behaviors. It is difficult for consumers, especially having low-income levels, to adapt to such practices, since the alternatives offered to consumers are not always suitable for them [2]. According to the report on what should be known about PBs published by the Rigid Plastic Packaging Manufacturers Association (SEPA, Turkey) [12], the pollution that occurs due to the products produced from plastic and thrown away to the sea or nature after they become a waste is a result of human behavior. In the report, it was stated that instead of showing plastics as the culprit of pollution, it would be a more accurate approach to take measures for the people who are actually responsible for the pollution. On the other hand, it has been reported that environmental awareness should be increased in order for individuals to take more responsibility, but the most important problem in this regard is the inability to create sufficient environmental awareness.

The study conducted by Dursun [13] aimed to determine consumers' reactions to the PBC practice

after its implementation in Turkey and to reveal the factors causing attitudinal resistance to the practice. The findings revealed that the expected benefit from the practice was not compatible with the idea that consumers would provide behavioral support for the practice, in other words, behavioral support was not provided by positive attitudes towards the practice. It has been stated that the main factors that reduce attitudinal support for the practice were the low level of knowledge of consumers, the low level of expectation for effectiveness of the practice and the high costs arising from the practice. As can be understood, consumer behavior has a decisive role in trying to reduce the consumption of PBs through charging, which has recently been implemented in Turkey, on the effectiveness of the practice.

In this study, the effect of PBC practice on consumers' behaviors and the factors affecting the consumers' behaviors on the consumption of PBs and their perceptions for the practice were examined. Various socio-demographic variables were investigated to determine whether the variables caused any statistically significant changes on (i) the consumption habits of the participants in shopping, (ii) the reuse of PBs, and behaviors of the participants for disposal of PBs, (iii) the use of PBs and alternative carrying bags, and attitudes of the participants towards them, and (iv) thoughts and perceptions of the participants on the PBC practice and problems and environmental pollution caused by PBs. For this purpose, a questionnaire with 363 participants was conducted for university staff, including academics, administrative and employees with different income levels and different educational backgrounds, and the participant-reported data obtained were evaluated using statistical analysis techniques.

2. Material and Method

2.1. The universe and limitations of the study

The universe of the study consists of academics, administrative and support personnel working in higher education institutions (universities) in Turkey. The reason why the universe of the study was chosen as university staff is that these people with different socio-demographic characteristics are organized together in a campus environment and these people can be easily reached in face-to-face surveys. The total population of the whole academics, administrative and support personnel working in all universities in Turkey has not been known clearly by the authors. Since applying a face-to-face questionnaire by reaching the entire universe of the study requires a great deal of time and effort, and the profile of the intended population was thought to be similar in many universities, the universe of the study was limited to the university staff of Süleyman Demirel University (Isparta, Turkey) in the central campuses. The total population of academics, administrative and support personnel working at Süleyman Demirel University was informed to be 4569 people by the Directorate of Personnel Department. Therefore, the universe of the study consisted of 4569 people due to the mentioned limit.

The application area of the study was all academic and administrative units where academics, administrative and support personnel work at. Questionnaires were applied only to the participants in the units where a positive response was received for the applicability of the questionnaire, among all units for which permission to conduct the questionnaire was requested by official letter.

2.2. Sample size of the study

In determining the representativeness of the sample group to the universe of study, in other words, the sample size, the confidence interval was assumed to be 95%. Aksöz et al. [14] stated that the minimum sample size that would represent a universe of 5000 people at a 95% of confidence interval was 357 people. Accordingly, a sample group was created from a total of 363 university staff randomly selected from the universe to ensure a quantitative validity in terms of the number that would represent the universe of the study.

To determine how many of the 363 university staff should be consisted of academics, administrative and support personnel, the total sample size of each staff group was divided to the total size (4569 people) of the universe of the study. According to the information obtained from the University's Directorate of Personnel Department, a total of 1664 support personnel (36.4% of the universe), 1131 administrative personnel (24.7% of the universe) and 1774 academic staff (38.8% of the universe) has been working by year 2019. Accordingly, it was determined that a questionnaire should be conducted by randomly selecting 133 participants from support personnel, 90 participants from administrative and 140 participants from academic staff out of 363 people in the sample group.

2.3. Questionnaire design

The questionnaire was mainly designed to determine the effect of PBC practice on the consumers' behaviors according to the following hypotheses:
***H_0**: PBC caused no significant change according to socio-demographic variables on consumers' behaviors.*
***H_1**: PBC caused a significant change according to socio-demographic variables on consumers' behaviors.*

For the preparation of questions, a study carried out by Martinho et al. [6] was utilized (by obtaining permission from the responsible author of the article via e-mail), and questions were revised by taking the procedures and principles specified in the relevant

legislation in force regarding the PBC implementation in Turkey into account. Data collection was carried out on the university campus during face-to-face interviews with participants in November-December, approximately 10 months after the beginning of the PBC implementation entered into force in 2019.

The questionnaire basically consists of two sections (Appendix A). The first section consists of 7 questions (Q1-Q7) to determine the socio-demographic characteristics of the participants (gender, age, family size, occupation, income level, marital status, and educational background). The second section consists of 61 questions associated with the consumption and disposal behavior dimension of the questionnaire (37 questions) and the thought and perception dimension (24 questions). Since the five questions between Q8 and Q12 were not adapted to the 5-point Likert scale, they were not included in the statistical analyzes used to analyze the data obtained from the responses given to the other 56 questions (Q13-Q68) in the second section. For this reason, questions between Q8 and Q12 were also included in the first section. Questions related to the consumption and disposal behaviors dimension of the questionnaire (Q8-Q44) were prepared to request participants that indicate their consumption habits in shopping, their behavior concerning reuse and disposal of PBs, their behavior concerning use of PBs and alternative carrying bags and their attitudes towards them. Questions between Q45 and Q68 (24 questions) were prepared to determine the thoughts and perceptions of the participants about the problems caused by PBs, environmental pollution and PBC. Participants' responses for questions between Q13 and Q68 were measured with a 5-level Likert-type scale ranging from 1 (=totally disagree) to 5 (=totally agree).

2.4. Data analysis techniques

Questions related to the socio-demographic characteristics (Q1-Q7) and the first five questions (Q8-Q12) in the second section were tested with the frequency distribution method in order to determine the frequency values (% distribution). Differences between independent groups with two-samples (gender and marital status) were determined by running the independent sample *T* test for each question (Q13-Q68) with a confidence interval of 95%.

To determine whether there are any statistically significant differences between the means of three or more independent groups, one-way ANOVA test is used [15]. For this reason, in the current study, one-way ANOVA test was used to compare the means between the groups with three or more samples (age, education level, occupation, income level and family size). Initially, one-way ANOVA test was performed to determine whether there were any statistically significant differences for each question (Q13-Q68) in the second part of the questionnaire and whether their variances were equal. For the questions in which a statistically significant difference was determined, Post-Hoc tests were run to determine which specific groups differed from each other. Equality or inequality of variances are taken into account on the basis of selecting the test(s) that may be suitable for statistical evaluation among various Post-Hoc tests. If the variances are equal, the tests to be selected are different; if they are not equal, the tests to be selected are different. In the selection of Post-Hoc tests, it is also taken into consideration whether the sample size for the tested expressions are equal or not [16]. In the current study, Gabriel Post-Hoc test was performed for the questions with equal variances, and Games-Howell test was performed for the questions with unequal variances by taking the data related to the equality of variances obtained from the ANOVA test and the sample sizes into account.

IBM SPSS Statistics 21.0 program was used for all statistical analyses.

3. Results

3.1. Results for the socio-demographic characteristics and consumption habits of respondents

The frequency distributions of the respondent-reported data for Q1-Q7 related to the socio-demographic variables were presented in Table 1. According to the data, 175 of 363 participants (48.2%) were women and 188 (51.8%) were men. Regarding age, 109 participants (30%) were 18-29, 136 (37.5%) were 30-39, 94 (25.9%) were 40-49, and 24 (6.6%) were 50-59. It is seen that most participants (67.5%) were under 40 years old and none of the participants was older than 60. While 150 participants (41.3%) had a postgraduate degree (PG), 138 (38%) had a college or undergraduate (CUG) degree, 49 (13.5%) had a high school degree (HS) and 23 (6.9%) had a primary school (PS) degree. Accordingly, it is understood that most participants (79.3%) had a graduate degree from university. While 133 participants (36.6%) were academic personnel, 130 (35.8%) were support personnel and 99 (27.3%) were administrative personnel. The family size of participants was mostly 4 people (31.1%), followed by 3 people (27.0%), 1 person (16.0%), 2 people (14.9%), 5 people (8.0%) and more than 5 people (2.8%). According to this result, it is understood that the family in which 57.9% of the participants live together had a member size of 1 to 3. While the average household income per month for 99 participants (27.3%) was between 5000 and 7500 TL, 86 participants (23.7%) had an income between 3000 and 5000 TL, 63 (17.4%) had an income between 2000 and 3000 TL, 52 (14.3%) had an income between 7500 and 10000 TL, 35 (9.6%) had an income >10000 TL and 28 (7.7%) had an income <2000 TL. Approximately half of the participants (48.8%) stated

that the monthly average household income was less than 5000 TL.

The results of the frequency distribution analysis for the first five questions (Q8-Q12) related to the consumption habits of participants were shown in Figure 1-5. According to the participants-reported data obtained for Q8, 41.9% of the participants spend 10-25% of the total monthly income on shopping, while 37.5% of the participants spend 25-50% of the total monthly income on shopping (Figure 1).

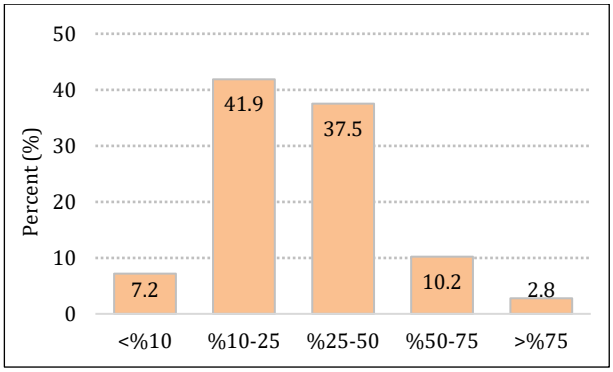

Figure 1. The percentage of household's total monthly income spent on shopping.

According to the data obtained for Q9, which was intended to determine the frequency of doing grocery shopping only, most participants (56.7%) responded that they do grocery shopping once per week (Figure 2).

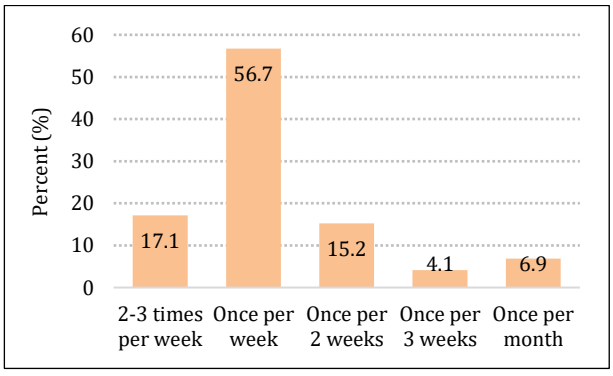

Figure 2. Frequency of doing grocery shopping only

According to the data for Q10 intended to determine the number of PBs used by participants in grocery shopping, only 10.2% of the participants stated that they do not use any PBs while more than half of the participants (53.2%) stated they use more than 4 PBs during a grocery shopping (Figure 3).

According to the data obtained for Q11, which was intended to determine the frequency of doing market shopping and other shopping, 39.9% of the participants responded that they shop 2-3 times per week and 22.9% responded that they shop once per week. (Figure 4).

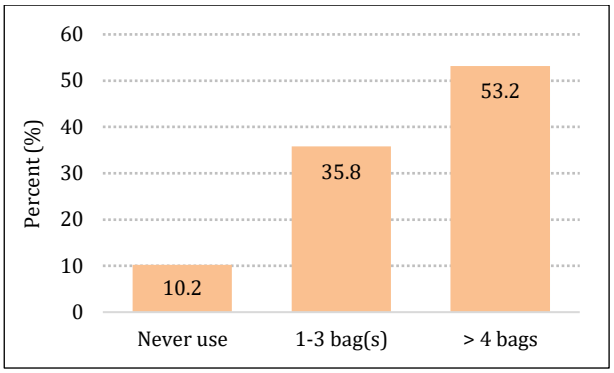

Figure 3. Number of plastic bags used for grocery shopping.

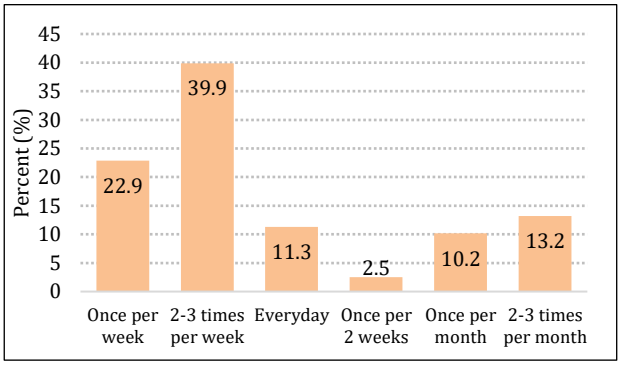

Figure 4. Frequency of doing market shopping or other shopping.

According to the data obtained for Q12, which was related to the number of PBs used by participants in market shopping and other shopping activities, only 23.4% of the participants responded that they never use PBs during a shopping activity (Figure 5).

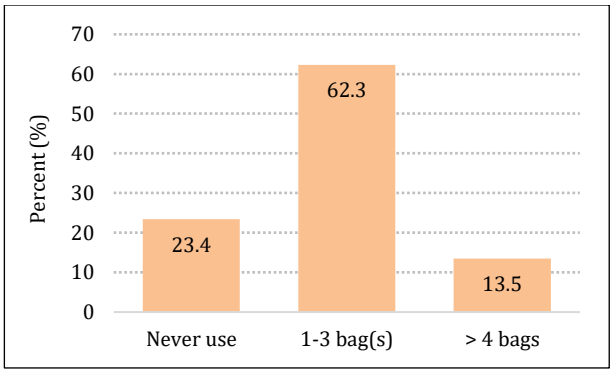

Figure 5. Number of plastic bags used for market shopping or other shopping.

From the overall results obtained for Q8-Q12, it was understood that most participants (more than half) have consumption habits such those only doing grocery shopping or market/other shopping at least once per week, while the rate of participants who do not consume any PBs was quite low.

Table 1. Results of frequency distribution test for the socio-demographic characteristics

	Frequency (N)	Percent (%)		Frequency (N)	Percent (%)
Gender (Q1)			**Occupation (Q5)***		
Female	175	48.2	Support personnel	130	35.8
Male	188	51.8	Administrative personnel	98	27.0
Age (Q2)			Academic personnel	133	36.6
18-29	109	30.0	**Family size (Q6)***		
30-39	136	37.5	1	58	16.0
40-49	94	25.9	2	54	14.9
50-59	24	6.6	3	98	27.0
Marital status (Q3)			4	113	31.1
Married	206	56.7	5	29	8.0
Single	157	43.3	>5	10	2.8
Educational background (Q4)*			**Average household income per month (TL) (Q7)****		
Primary school graduate	23	6.3	<2000	28	7.7
High school graduate	49	13.5	2000-3000	63	17.4
College/Undergraduate degree	138	38.0	3000-5000	86	23.7
Postgraduate degree	150	41.3	5000-7500	99	27.3
			7500-10000	52	14.3
			>10000	35	9.6

*: Contained missing values; **: Salaries valid for 2019 were taken into account.

3.2. Reliability analysis

Cronbach's alpha coefficient is frequently used to examine whether the expressions in Likert-type questionnaires have a homogeneous structure. A high Cronbach's alpha coefficient means that the expressions in the questionnaire consist of expressions that are consistent with each other and that measure the same feature. According to the Cronbach's alpha coefficient obtained from the analysis, the reliability of the whole questionnaire or its dimensions, if exist, is interpreted as follows [17]:

- Unreliable if $0 < R^2 < 0.40$
- $0.40 < R^2 < 0.60$, low reliability
- $0.60 < R^2 < 0.80$, highly reliable
- $0.80 < R^2 < 1.00$, highly reliable

For the current study, the results from reliability analysis for the consumption/disposal behavior dimension, the thought/perception dimension and the whole questionnaire were shown in Table 2. Accordingly, it was determined that the reliability was "highly reliable" for the consumption/disposal behavior dimension, the thought/perception dimension, and the whole questionnaire.

Table 2. Results of the reliability test for the whole questionnaire and its related dimensions

	Number of questions	Cronbach's alpha coefficient
Consumption/disposal behavior dimension (Q13-Q44)	32	0.679
Thought/perception dimension (Q45-Q68)	24	0.752
The whole questionnaire (Q13-Q68)	56	0.801

3.3. Results of significance tests

3.3.1. Independent sample *T* tests

According to the responses given to the questions in the consumption/disposal behaviors and thought/perception dimensions of the questionnaire, the results of whether the PBC practice influenced consumers' behaviors differs in terms of gender and marital status were explained in this section.

Regarding gender, a significant difference ($P<0.05$) was determined for questions 19, 23, 25, 26 and 27 in the consumption/disposal behavior dimension and for questions 50 and 62 in the thought/perception dimension (data not shown). Based on the results, it was understood that female participants have more positive attitudes than male participants for the consumption/disposal behaviors and thoughts/perceptions.

Regarding marital status, a significant difference ($P<0.05$) was determined for questions 15, 19 and 21 in the consumption/disposal behavior dimension and for questions 54, 61 and 62 in the thought/perception dimension (data not shown). According to the results, it was understood that married participants have more positive attitudes than single participants for the consumption/disposal behaviors and thoughts/perceptions. As a result, it was found that the PBC caused a significant change in consumers' behaviors and thoughts/perceptions in terms of both gender and marital status variables.

3.3.2. One-way ANOVA tests

In this section, according to the participant-reported data for the questions in the consumption/disposal

behavior dimension (Q13-Q44) and thought/perception dimension (Q45-Q68) of the questionnaire, the results of whether the PBC practice influenced consumers' behaviors and thoughts/perceptions in terms of age, education level, occupation, income level and family size were explained in this section.

Test results related to the questions for which a significant difference (P<0.05) was determined by one-way ANOVA test and Post-Hoc test results showing for which groups the difference occurred were presented for each of the independent variables examined (Appendix B). Results related to the questions for which no significant difference was determined by the ANOVA test was not presented in this study. Considering the obtained results, it was found that;

→ exhibiting a more positive attitude to the behaviors towards reducing PB consumption after the PBC practice and to the thoughts and perceptions towards the reasons for the implementation and benefits of the PBC practice increased with the increasing age of the participants.

→ the increasing education level of the participants made their attitudes more positive in terms of both the consumption/disposal behaviors dimension and thought/perception dimension.

→ occupation of the participants did not cause any significant difference in their consumption habits in terms of all the groups, but the participant group consisting of academic personnel showed more positive attitudes towards disposal habits and thought/perception dimensions than the other groups.

→ income level of the participants did not cause any significant difference in consumption habits in terms of for all the groups, but attitudes of the participants towards disposal habits and thought/perception dimensions become more positive as the income level increased.

→ family size was an influencing factor that caused significant differences for some questions in consumption/disposal habits and thought/perception dimensions, but this variable was a factor that did not allow any consistent evaluation in terms of evaluating the determined differences in relation to each other.

4. Discussion and Conclusion

In this section, only the results related to any given question, for which the significant differences were determined commonly for more than one variable (for example, both occupation and income level), were discussed in detail within the dimensions of the questionnaire.

4.1. Consumption/disposal behavior dimension

For the consumption/disposal behavior dimension, significant differences in terms of gender, marital status, age, educational status, occupation and income level variables were found to be common for questions 15, 19, 26, 28, 29, 30, 32, 33, 34, 35, 36 and 42 (Appendix B).

For Q15 "*We do shop even though we do not need to do*.", the significant differences obtained from the ANOVA test were determined in terms of age and marital status variables. According to the results of Post-Hoc test and the mean values obtained from the ANOVA test, it was found that the participants between ages 50-59 exhibit more negative attitude towards doing shopping even though they do not need to do, while the participants who are single exhibit more positive attitude to the same behavior. Assuming the participants between ages 50-59 are married individuals at the same time, it can be concluded that married consumers exhibit more negative attitude to do unnecessary shopping when compared to single participants. Yaraş et al. [18] mentioned two different consumer groups, described as "*utilitarians*" and "*hedonists*", in their study where they examined the clustering of consumers according to their attitudes and behaviors towards shopping malls. Accordingly, "*utilitarians*" were defined as a group that does not like shopping very much and does shopping only when there is a need to meet that need, while "*hedonists*" defined as a group find shopping is fun and think that shopping malls are places to have a good time rather than just a place to shop for their needs. According to the results, a significant difference was determined between the utilitarian group, most of whom were married, and the hedonists group, who were reported to be single, in terms of marital status. Results of the study conducted by Yaraş et al. [18], that were obtained according to the frequencies of marital status and age variables and the answers obtained from the statements asked to the participants about the reasons for visiting shopping malls, supported the findings obtained for Q15 in the current study.

Results of Post-Hoc test obtained for Q19 "*We usually carry the products we buy with reusable bags.*" revealed that women or married participants have more positive attitudes than the participants between ages 18-29. The same result was also reported by Şentürk [19]. The frequency distribution results for questions 18, 19, 20 and 21 intended to determine the type of carrier bag used to carry the products purchased from shopping showed that recyclable bags are preferred by the participants with a rate of 55.1%, while PBs, trolleys and string bags/paper bags are preferred with a rate of 45.7, 38.6 and 30.0%, respectively (data not shown). These results implied that consumers generally prefer reusable bags or PBs to carry the products they buy from shopping. This finding was also supported by Martinho et al. [6] found that the

most used carrier products in shopping after the PBC practice in Portugal was reusable bags as well as PBs. It was understood that after the PBC implementation in Turkey entered into force, reusable bags were preferred as well as PBs for the transportation of products purchased in shopping. This finding was further supported by Şentürk [19], reporting that approximately 75% of the participants responded that they increased the use of their own bags or bags in shopping after the PBC practice compared to their habits before the practice. In the current study, no significant difference was determined among the participants in preferring PBs as a carrier product in terms of any variable, while there were significant differences in preferring the other carrier products (reusable bags, string bag/paper bag and trolley) in terms of several variables. Regarding the preference of reusable bags, married or female participants showed more positive attitude than more young participants between ages 18-29. This result confirmed that married or female consumers are more conscious and positive for behaviors that can reduce the consumption of PBs.

For Q26 "*We prefer the carrier bags we bring from home because they are more useful/practical than the bags we buy.*", the significant differences obtained from the ANOVA test were determined in terms of educational level and marital status variables. According to the results of Post-Hoc test and the mean values obtained from the ANOVA test, it was found that exhibiting a more positive attitude to bringing a carrier product from home, due to its usefulness against the purchased one, increased with the increasing education level of the participants, and that female participants exhibit more positive attitude than male participants for the same behavior. Considering the frequency distribution results for questions 25, 26, 27 and 28, the reason for bringing a carrier product from home as an alternative to carrier products purchased for a fee was responded with a rate of 48.2, 57.2, 62.0 and 66.0%, respectively (data not shown). According to these results, it was concluded that participants prefer to bring their own carrier bags from home due to the charge for PBs as well as damages in the environment caused by PBs rather than the usefulness of PBs. This result revealed that education level of the participants as well as gender are the main variables that push the participants to exhibit more positive behavior in terms of the reasons for their preferences towards bringing their own carrier bags from home. Martinho et al. [6] stated that the main reasons of the consumers' preference for bringing their own carrier bags from home for shopping in Portugal were the fee for PBs and the increasing environmental concerns after the PBC implementation. The driving force for the latter reason was reported to be the increase in public awareness on the environmental problems related to PBs, which were provided to consumers through awareness campaigns along with the PBC practice. These findings confirmed the results of the current study. As can be understood, the increasing environmental awareness on the harms of PBs results in the increase in the rate of preferring alternative carrier products, such as reusable bags that are not harmful to the environment, as well as PBs. In addition, according to the significant differences determined for Q28 in terms of the variables of age and education level, it was concluded that the increasing education level of the participants results in the increase in exhibiting more positive attitude towards not wanting to use too many bags increases (Appendix B). On the other hand, it was found that the participants older than 40 age have a more positive attitude for the same behavior than participants younger than 40 age. In the study carried out by Demirel [20], the attitudes and behaviors of the undergraduate students of Kafkas University towards the PBC practice were measured. It was reported that students' attitudes and behavioral support levels towards the practice were high and that their priorities for attitudinal and behavioral support originated from environmental awareness. Considering that more than half of the students participating in the research were in the third and fourth grade, these findings were associated with the contribution of the environmental education that the students received at the undergraduate level.

The results obtained for questions Q29, 30, 32, 34 and 36 intended to determine participants' disposal behavior for the PBs and how they utilize the PBs left over from shopping in subsequent shopping revealed that the participants having a PG degree exhibit more different attitudes as compared to the other participant groups having a CUG or HS degree. According to the result obtained for Q29, the highest mean value (4.311±0.848, Appendix B) was obtained for the participants having a PG degree as compared to other participant groups. This indicated that participants having a PG degree prefer to use the PBs they get from shopping as garbage bags rather than throwing them in the garbage bin or recycling bin or keeping them to use again in another shopping. Considering that 41.3% of the participants are PG graduated (Table 1), it can be thought that most of the participants who are academic personnel are also PG graduated. For this case, according to the difference test results obtained for Q29, it was seen that there was a consistency between the behavior of the participants who are academic personnel (134 people) and the behavior of the participants who are PG graduated (148 people). On the other hand, according to the result obtained for Q48, showing that the participant group with lower monthly income have no clear idea about paying a charge for the PBs obtained from the points of sale, it could be thought that they repeatedly use the PBs existing in their homes for different purposes by keeping the PBs as much as possible. It was seen that no significant difference was determined for Q29 in terms of the

average household income per month of all participant groups, but the mean values for each group increased with the increasing income level (Appendix B). According to this result, it could be concluded that the participant groups having higher average monthly income exhibit more positive attitude towards using the PBs they get from shopping by paying a charge as garbage bags when they get home. This result showed a consistency with the result implying that the participant groups, who are academic personnel or have a PG degree, prefer to use PBs obtained from shopping as garbage bags. In conclusion, the results obtained for questions between Q29 and Q36 showed that the participant group, most of whom are academic personnel who are also estimated to have a PG degree, exhibit an attitude towards generally using the PBs they get from shopping as garbage bags (Q29), and that the other participant groups (administrative personnel and support personnel) exhibit an attitude towards generally keeping the PBs for the next shopping (Q32) or using them to carry several goods/products other than carrying groceries (Q33) rather than using them as garbage bags, throwing them directly into the garbage bin (Q30) or throwing it into the recycling bin (Q31). Regarding the monthly income level, the participant group with a low-income level prefer to keep the PBs to use in future shopping (Q32) or to use them to carry other goods/products (Q33) and to use a PB repeatedly (Q35 and 36) as compared to other participant groups.

For Q42 "*We bought garbage bags roll during our shopping in the last six months.",* the significant differences obtained from the ANOVA test were determined in terms of occupation and marital status variables. According to the results of Post-Hoc test and the mean values obtained from the ANOVA test, it was found that female participants exhibit more positive attitude than male participants and the participant group who are administrative personnel exhibit more positive attitude than the participant group who are support personnel towards buying garbage bags roll during shopping in the last six months (Annex B). The frequency distribution results for Q42 showed that 47.0% of the participants responded "*totally disagree*" or "*disagree*" in terms of occupation variable and 46.7% of the participants responded "*agree*" or "*totally agree*" (data not shown). A similar distribution result was also obtained for Q43 "*We did not buy any garbage bags roll during our shopping in the last six months.",* for which no significant difference was determined in terms of any variables. Combining the distribution results obtained for Q42 and 43, it could be concluded that approximately half of the participants bought garbage bags roll during their shopping in the last six months, while the other rest of the participants did not buy any. These results implied that the participant group who responded that they did not buy any garbage bags roll during shopping in the last six months may be the participant group who are academic personnel or PG graduated, generally preferring to use the PBs they get from shopping as garbage bags, whereas the participant group responded that they bought garbage bags roll during shopping in the last six months may be the participant group who are administrative and support personnel or have a low-level income.

According to the overall results, it could be concluded that the participants who are female, married, older, or with a higher education level are more conscious and positive in the behaviors towards reducing the consumption of PBs, while the younger or single participants are more positive in the behaviors that may cause the consumption of PBs to increase. Regarding gender and marital status variables, similar results were also obtained by Topal et al. [21]. Accordingly, the results of the mentioned study revealed that the variables of gender and marital status showed statistically significant differences compared to the mean values. It was reported that female participants exhibited more environmentalist attitudes and behaviors than male participants, had a higher level of awareness on the environmental issues and their intention towards not using the PBs paid a charge was more positive, and in terms of marital status, married participants had more positive behaviors and intentions towards not using PBs than singles. Yasa and Cop [22] found that frequency for bringing a reusable carrier bag for shopping by female participants and their behaviors towards reducing the use of PBs were higher than male participants. Şentürk [19] found that approximately 80% of the participants reduced the use of PBs after the PBC implementation in Turkey, the remaining 20% did not make any behavioral changes for this purpose, and 62% of this 20% consisted of male participants. The reasons given by male participants who did not make any behavioral changes to reduce PB consumption were that it was difficult to keep an alternative carrier bag or a used PB around them, their shopping was mostly unplanned, and they often forgot their own carrier bags at home.

The results obtained from the questions intended to determine the disposal methods of the PBs by the participants showed that the mostly preferred method was to use as garbage bags with a rate of 83.0%, while the other methods, such as using PBs to carry groceries or keeping them for the next shopping was preferred with a rate of 56.4 and 43.7%, respectively. These results indicated that all participants use the PBs obtained from shopping at least once for different purposes, thus generally contributing to reducing the consumption of the PBs, rather than disposing of them by throwing them directly into the garbage bins or recycling bins. The results determined for the behaviors towards the disposal of PBs showed that the participants who are academic personnel or have a higher education level or income level have an attitude towards generally using PBs as garbage bags instead of using them for the next shopping or keeping them to carry other products. In addition to that, the results

indicated that these groups are also the participant group who stated that they did not buy any garbage bags roll during their shopping in the last six months. On the other hand, the participants who are administrative and support personnel or have a lower income or education levels have an attitude towards repeatedly using PBs at least once by such a way keeping them for the next shopping or using them to carry groceries or other products, rather than throwing them directly into the garbage bins or recycling bins. It was estimated that these groups might be the group that stated that they bought garbage bags roll during their shopping in the last six months. Yasa and Cop [22] found that 96.5% of the participants reused the PBs and the most common way was to use them as garbage bags. Şentürk [19] reported that while the use of the PBs obtained from shopping as garbage bags was approximately 84% on average before the PBC implementation, it decreased to 70% after the implementation, and that the frequency of consumers purchasing garbage bags roll was 61% on average before the application, while it increased to 69% after the implementation. The fact that there was no decrease at the expected level after the PBC practice was attributed to the fact that the unit price of garbage bags roll was generally higher than the charge paid for PBs.

Considering the result that the participants generally prefer PBs or reusable bags to carry the products they bought from shopping, the situation regarding whether the PBs used in shopping were bought by paying a fee from the point of sale or whether they were brought from home was examined. According to the frequency distribution for the questions intended to determine the source of carrier bags used by the participants in shopping (Q22, 23 and 24) and the questions intended to determine whether the PBs left over from shopping were used in subsequent shopping (Q34, 35 and 36), it was determined that;

→ 41.1% of the participants responded "*I agree*" or "*I strongly agree*" to the question that all PBs used for shopping were brought from home,

→ 59.4% responded to the question regarding the buying of all the bags as "*I disagree*" or "*I strongly disagree*", and,

→ 51.0% responded "*I agree*" or "*I strongly agree*" to the question that some of them were brought from home and some were bought (data not shown).

These results revealed that approximately half of the participants bring all of the PBs they used for shopping from home, while approximately half of them buy all of them. It was understood that approximately half of the participants use the PBs left over from shopping at least once in the next shopping (Q35), while 55.2% of the participants responded that they never use the PBs left over from the shopping for the next shopping (Q34). Combining the results obtained for question Q19 and Q34, it was estimated that the source of approximately half of the PBs used by participants for carrying products they bought from shopping is the PBs obtained from previous shopping. This result can further be supported by the result obtained for Q32, which revealed approximately half of the participants responded as keeping PBs to use in other shopping. On the other hand, the results regarding showing positive participation in bringing at least one carrier bag to all (Q40) and most (Q39) shopping done in the last six months (51.7% for both questions, data not shown) and not showing positive participation in forgetting to bring a carrier bag for all (Q37) and most (Q38) shopping done in the last six months also confirmed the result that revealed , the source of approximately half of the PBs used by participants for carrying products they bought from shopping is the PBs obtained from previous shopping. These results obtained for questions Q37-40 were in consistent with the result obtained in the study conducted by Yasa and Cop [22], reporting that more than half of the participants (54.1%) always bring their own carrier bags to carry the products in shopping.

4.2. Thought/perception dimension

For the thought/perception dimension, significant differences in terms of all variables were found to be common for questions Q45, 46, 47, 48, 49, 54, 56, 61, 62, 63 and 67 (Appendix B).

For Q45 "*We think that plastic bags are a problem for environment and health.*", the significant differences obtained from the ANOVA test were determined in terms of occupation and educational level variables. According to the mean values (X=4,097±1,1306 for occupation and X=4,098±1,1263 for educational level, data not shown), it was understood that participants agree with the idea that PBs are harmful to the environment and human health. This finding can be confirmed by the fact that all participants, regardless of the variables, responded Q45 as "*agree*" and "*strongly agree*" with a rate of 84.2% (data not shown). The differences determined for Q45 implied that regarding the educational level and occupation variables, the participant group who have a PG degree is more positive than the other groups and the participant group who are support personnel is more negative than the other groups in the opinion that PBs are harmful to the environment and human health. Considering the mean values of each group for these variables, it was seen that the mentioned opinion becomes more positive with the increasing educational level and among support, administrative and academic personnel according to the ascending order of the mean values. Similarly, Martinho et al. [6] found that 84.9% of the participants agreed that PBs are harmful to the environment and human health. In the study of Yasa and Cop [22], it was determined that 62.2% of the participants think that PBs cause environmental damage and associated this result with more than half of the participants having knowledge

about the harms of PBs. Depending on this result, a significant difference was determined between the use of PBs and the level of awareness about the environmental problems caused by PBs. It was also determined that 71.2% of participants, who responded that they could describe the damage caused by PBs to the environment, do not use any PB, and only 28.8% of those, who responded that they are aware of this damage but could not describe it, do not use PBs.

The abovementioned results determined for question Q45 were similarly determined for question Q46 "*We know that plastic bags have been charged a fee per plastic bag taken from the point of sale by the beginning of January 2019*." Accordingly, for Q46, it was determined that the participant group according to their education level, who have a PG degree, have a more positive attitude compared to other groups, and the participant group according to their occupation, who are support personnel, have a more negative attitude than the other groups. Considering the mean values of each group for occupation and educational level variables, it was seen that the mentioned opinion becomes more positive with the increasing educational level, and among support, administrative and academic personnel according to the ascending order of the mean values. Regardless of the variables, the frequency distribution for Q45 was determined to be 87.3% for "*agree*" and "*strongly agree*" (data not shown).

According to the participant-responded data for Q47 *"We know that plastic bags have been charged a fee, but we do not have much information about the details of the implementation."*, it was determined that approximately half of the participants (41.8%, data not shown) do not have much information about the details of the implementation although they responded that they know PBs have been charged a fee. According to the mean values of each group for occupation, income level, and educational level variables, it was understood that more positive attitude is exhibited among academic, administrative and support personnel according to the ascending order of the mean values for the mentioned opinion, while attitudes become more negative with the increasing income and educational level. The same attitudinal trends were also valid for question Q48 "*We support the charging implementation for plastic bags*.". Accordingly, supporting the PBC implementation becomes more positive with the increasing educational and income level, and among support, administrative and academic personnel according to the ascending order of the mean values. Regardless of the variables, according to the frequency distribution of responses given for Q48, it was understood that 59.2% of the participants (data not shown) supported the PBC implementation by responding as "*agree*" and "*strongly agree*".

According to the results obtained for questions Q45, 46, 47 and 48, the fact that the participant group, who are academic personnel or have a PG degree, have more positive thoughts than the other groups indicated that the level of education is an important factor affecting the consumption of PBs. According to the significant differences determined for Q48 in terms of income level as well as the variables of education level and occupation, it could be concluded that participants' attitudes towards supporting the PBC implementation are shaped depending on their behavioral attitudes towards reducing the consumption of PBs. It was estimated that these attitudes are most likely based especially on the economic concerns arising from the charge paid for PBs as well as the awareness of the harms of PBs. This situation can be confirmed by the finding revealing that the attitude towards supporting the PBC practice becomes more positive with the increasing income level of the participants, and by the result for Q47 showing that the charging practice is not supported by 41.8% of the participants (data not shown).

For Q49 "*We think that the fee of 25 kurus per plastic bag is excessive*.", it was determined that, regardless of the variables, the participants responded as "*agree*" and "*strongly agree*" with a rate of 38.1% and "*disagree*" and "*strongly disagree*" with a rate of 47.2% (data not shown). A similar result was reported by Şahin [23], who found that 47.2% of the participants responded positively that the charge of 25 kurus is reasonable and should not be increased. According to the results of Post-Hoc test and the mean values obtained from the ANOVA test in terms of the variables of occupation, age and education level, it was determined that the participants between ages 18-29 exhibit more positive attitude to the mentioned thought, while the participants who are academic personnel or have a PG degree exhibit more negative attitude.

For Q54 "*To my opinion, our government put the plastic bag charging implementation into force to conserve natural resources*.", it was determined that 22.5% of the participants disagreed or strongly disagreed with this thought, while 57.8% agreed or strongly agreed (data not shown). Regarding age and marital status variables, for which a significant difference was determined, it was found that the participants between ages 18-29 exhibit more negative attitude to the mentioned thought than the other groups, while the participants who are married exhibit more positive attitude than the single participants. On the other hand, it was found that no significant difference was determined for the other relevant questions intended to determine participants' perceptions regarding the reason for charging of PBs (Q51, 52 and 53) in terms of any of the variables. Results of the frequency distribution for these questions showed that 39.7% of the participants responded positively (agree/strongly agree) that the PBC was implemented

by the government to collect more revenue, while 57.9 and 56.9% of the participants responded positively that the PBC was implemented by the government to motive reduce the consumption of PBs and increase the use of reusable and recyclable carrier bags.

For Q56 "*After the implementation was entered into force, our behaviors towards reducing plastic bags consumption changed.*", the significant differences obtained from the ANOVA test were determined in terms of occupation and educational level variables. According to the results of Post-Hoc test and the mean values obtained from the ANOVA test, it was found that attitudes to the mentioned thought become more positive with the increasing educational level, and among support, administrative and academic personnel according to the ascending order of the mean values. Results of the frequency distribution test showed that most of the participants (69.7%) responded that they think that their behavior towards reducing the consumption of PBs changed after the PBC practice. In addition to that, it was seen that 68.2% of the participants responded for Q57 that they will change their habits regarding the consumption of PBs and start reducing the consumption soon. However, these responses given for questions Q56 and 57 were found to be contradictory.

For Q61 "*We think that plastic bags are not provided with charge by all the markets*.", it was determined that 37.8% of the participants do not agree with this thought by responding "disagree" or "totally disagree" and 40.0% the participants do not agree with this thought by responding "agree" or "totally agree" (data not shown). According to the results of Post-Hoc test and the mean values obtained from the ANOVA test, it was understood that married participants or the participants, of whom the family size is two, exhibit more negative attitude to this thought than the other relevant groups.

For Q62 "*From now on, instead of buying plastic bags, we will bring our own bag for all shopping.*", the significant differences obtained from the ANOVA test were determined in terms of gender and marital status variables. According to the results of Post-Hoc test and the mean values obtained from the ANOVA test, it was found that married or female participants have more positive attitude to the mentioned thought than the other groups. Regardless of the variables, results of the frequency distribution test showed that most of the participants (63.7%) responded that "agree" or "totally agree" and only 15.5% of the responded that "disagree" or "totally disagree" (data not shown). These results implied that a small portion of the participants does not intend to bring alternative carrier bags to all of their future shopping. It was estimated that this result is probably due to the participants who responded "agree" or "strongly agree" with a rate of 24.6% for question Q37 "*We forgot to bring our own carrier bags from home for all our shopping over the last six months*.", for which no significant difference was determined in terms of any variable.

For Q63 *"Regarding the plastic bag charging implementation, we think that ….. is more beneficial (The ongoing implementation should be abolished, and the plastic bags should be charge-free as before).",* results of the frequency distribution test revealed that 63.6% of the participants have positive thoughts on the mentioned question (data not shown). Among the groups, for which a significant difference was determined in terms of the variables of educational and income level and occupation, the participants who are academic personnel or have higher income level or a PG degree exhibit more negative attitude to the mentioned thought than the other relevant groups. A similar significant difference was also obtained for Q67 "*Regarding the plastic bag charging implementation, we think that ….. is more beneficial (The implementation can be abolished and replaced with other implementations. For example; each household should be assigned a quota for charge-free plastic bag, then a fee per bag should be charged after the quota is reached).*" in terms of the variables of occupation and income level. Accordingly, it was seen that the participants having the highest monthly average income has a more negative attitude than the other groups, and the attitude becomes more negative among academic, administrative and support personnel according to the descending order of the mean values. The results obtained for Q63 and 67 in terms of the participants who are academic personnel can be further supported by the result obtained for Q59 "*We think that plastic bag charging is an effective and efficient practice in solving environmental problems.",* revealing that the participants who are academic personnel exhibit more positive attitude to the mentioned thought.

The overall results determined for questions Q45, 46, 47 and 48 revealed that the participants' behavior towards reducing the consumption of PBs are shaped according to the thoughts on the harms of PBs to the environment and human health and the economic concerns arising from balancing the financial burden of paying bag fees based on the income level. This finding can be supported by the frequency distribution results obtained for Q50, for which 55.0% of the participants think positively that the consumption of PBs is still high although they have been charged a fee. According to this, it could be concluded that some of the participants are trying to support the implementation by acting with environmental awareness since they think that the consumption of PBs is still high although the bags are provided for a fee, and some of the participants support the implementation regardless of environmental awareness by taking various measures to balance the financial burden of paying bag fees according to their income levels as well as considering that the

consumption of PBs is not excessive. Topal et al. [21] reported that the results of several studies [6, 9, 13, 24] indicated that the environmental awareness of the consumers about the possible harms of PBs to the environment facilitated the adoption of public measures related to the reduction of the consumption PBs and internalization of the related actions. Additionally, it was stated that consumers reduced the use of PBs up to a certain level due to the environmental concerns, but mostly due to the legal obligation, and they could not internalize this action sufficiently.

The results determined for the questions intended to determine the participants' perceptions in terms of the reasons for the PBC implementation revealed that the implementation created the expected perceptions for more than half of the participants. This result showed a consistency with the results of questions Q45, 46, 47 and 48. Moreover, the obtained results confirmed that the way in which the aims and objectives of the PBC implementation are perceived by the participants is an important factor in shaping the participants' behaviors that affect the efficiency expected from the implementation. Martinho et al. [6] reported that before the PBC implementation, 45.9% of participants responded that implementation motivated by the Portugal government to collect more revenue and 32.4% responded that the implementation motivated to reduce the consumption of PBs. After the PBC implementation, the percentage of respondents indicating the motive was to reduce the consumption of PBs decreased to 18.3%, and the percentage who considered the tax as just another revenue to the government increased to 60.6%. Based on this, it was stated that although most of the participants support the application, it is thought that the Portugal government implemented the PBC only as a financial support tool. It has been reported that the obtained results may have arisen due to the economic crisis that Portugal was experiencing in those years, and if it had been clearly stated to the consumers for what purpose the government would use the income obtained from the implementation, consumers' perceptions about the reasons of the implementation might have been different.

According to the results determined for questions intended to determine the participants' opinions about different implementation alternatives that can be put into effect in the future regarding the PBC (Q63, 64, 65, 66, 67 and 68), it was understood that more than half of the participants (63.6%) have no expectation such that the implementation should be completely abolished and the PBs should be charge-free as before. This result was also be confirmed by the result obtained for Q59, for which 57.6% of the participants positively responded that the PBC is an effective and efficient implementation in solving environmental problems. It was determined that more than half of the participants (63.0%) do not agree with an alternative implementation such that the implementation should be carried out by charging a fee higher than 25 kurus per bag. On the other hand, approximately half of the participants (46.4%) have a positive thought, and some (32.5%) have a negative thought on the continuation of the 25 kurus fee paid per bag in the ongoing practice. These results indicated that implementing a charge of 25 kurus per bag to reduce the consumption of PBs is thought positively by the majority of participants. However, the result showing that 75.7% of the participants agree that it would be more beneficial to maintain the PBC implementation along with various encouraging promotions to reduce PB consumption revealed that alternative support policies are needed to encourage consumers to reduce the consumption of PBs, as well as trying to restrict the consumption by charging only. On the other hand, the results determined for question Q67 indicated that although a low rate of positive participation was shown by the participants, an alternative charging policy could be implemented by taking into account the consumer groups with low-income levels, instead of the current practice. Topal et al. [21] emphasized that in order for an environmental attitude of consumers towards shopping with eco-friendly carrier bags without using PBs to be sustainable and for such an attitude to become a social habit, the PBC implementation should be supported by pro-active practices other than financial measures that will increase consumers' environmental awareness.

4.3. Recommendations

According to the results of the study, awareness creation programs to ensure all PB consumers, especially single, male, and young individuals, become more positive in their behaviors towards reducing the consumption of PBs, which can be organized by policymakers, local governing bodies, environmental organizations, non-governmental organizations or consumption points, might be taken into consideration.

Based on all the findings, it can be concluded that the PBC practice contributes to a certain level to the goals and objectives of the implementation for reducing the PB consumption. Given the fact that 61.3% of the participants think that they are in the adaptation for the PBC practice and that 40% of the participants think that PBs are not provided for a charge by all the markets, it becomes clear that all relevant stakeholders (PB suppliers and consumers) need to support the practice more effectively and consciously for reducing the PB consumption. In order to achieve a truly sustainable success in accordance with the goals and objectives expected from the practice, policy makers can re-examine the challenges and disruptions encountered in the implementation and make arrangements. Furthermore, various practices that may be alternative to the current practice can also be

evaluated and put into action in order to meet consumers' expectations. On the other hand, more research studies are required to evaluate the situation from the side of PB suppliers.

Considering the reliability results of the questionnaire, it can be concluded that the study has aspects that are open to further improvements. On the other hand, it may be necessary to apply different data analysis techniques in order to evaluate the results and findings more comprehensively or differently. Due to the limitations of the study, it should be noted that the results obtained from the study and related findings are valid only for the area and universe where the study was conducted. In order to obtain results that represent the whole country, it is necessary to carry out similar studies in different study areas and on different universes.

Acknowledgement

The authors would like to express their gratitudes to Assoc. Prof. Dr. Hamza KANDEMİR from Isparta University of Applied Sciences for contributing to the statistical analysis of the questionnaire data. Administrative chiefs of the units of Süleyman Demirel University who were requested permissions for the applicability of the questionnaire and responded positively to the requests, staff members of Graduate School of Natural and Applied Sciences who contributed to the preparation of the official letters for the permission request, and participants of the questionnaire are thankfully acknowledged by the authors. This paper was produced from M.Sc. thesis entitled "Evaluation of the effect of plastic bag charging on the consumers' behavior by questionnaire method: The case of Isparta province", of which the data were collected in 2019 and prepared in 2020 by the author Başak Uçman.

Declaration of Ethical Code

In this study, we undertake that all the rules required to be followed within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive" are complied with, and that none of the actions stated under the heading "Actions Against Scientific Research and Publication Ethics" are not carried out.

References

[1] United Nations, 1987. Report of the World Commission on Environment and Development: Our Common Future. https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf (Date accessed: 13.06.2019).

[2] Taşçıoğlu, M., 2020. Tüketicilerin Plastik Market Poşetleriyle İlgili Algılarını Etkileyen Faktörlerin Senaryo Bazlı Deney Yöntemiyle İncelenmesi. Yönetim ve Ekonomi Araştırmaları Dergisi, 18(1), 122-137.

[3] Özer, D., 2017. An Inquiry on Sustainability and Consumption Through Single-Use Disposable Products. Middle East Technical University, Graduate School of Natural and Applied Sciences, Department of Industrial Design, Ph.D. Thesis, 284p, Ankara.

[4] Turkish Ministry of Environment, Urbanization and Climate Change, 2019. Procedures and Principles Regarding the Plastic Bags Charging. https://webdosya.csb.gov.tr/db/turkce/icerikler/plasposueknS20200102-20200102143540.pdf (Date accessed: 05.01.2020)

[5] Kılıçer, E., 2018. Plastik Poşet Vergisi ve Örnek Ülke Uygulamaları. Vergi Sorunları Dergisi, 357, 55-64.

[6] Martinho, G., Balaia, N., Pires, A., 2017. The Portuguese Plastic Carrier Bag Tax: The Effects on Consumers' Behavior. Waste Management, 61, 3-12.

[7] Jayaraman, K., Hasnah, H., Sung, G.B., Lin, S.K., 2011. Consumer Reflections on The Usage of Plastic Bags to Parcel Hot Edible Items: An Emprical Study in Malaysia. Journal of Cleaner Production, 19, 1527-1535.

[8] Resetar-Deac, A.M., Deak, G.Y., Marinescu, P., Daescu, V., 2015. The Plastic Materials Impact of Environment and Health: Population Awareness in Romania. Journal of Environmental Protection and Ecology, 16(1), 183-193.

[9] Gürbüz, H., Yılmaz, V., 2018. Üniversite Öğrencilerinin Naylon Poşet Kullanımına İlişkin Tutum ve Davranışlarının Yapısal Eşitlik Modellemesiyle Araştırılması. Sosyoekonomi, 26(38), 135-149.

[10] URL-5, 2020. Marine Lives Matter. https://theaseanpost.com/article/marine-lives-matter (Date accessed: 27.08.2020)

[11] Wikipedia, 2023. Plastic Bag Ban. https://en.wikipedia.org/wiki/Plastic_bag_ban#/media/File:Plastic_bag_legislation.svg (Date accessed: 16.08.2023)

[12] URL-7, 2020. What Should be Known About Plastic Bags. https://sepa.org.tr/wp-content/uploads/2020/02/poset.pdf (Date accessed: 16.03.2020)

[13] Dursun, İ., 2019. Türkiye'de Plastik Poşetlerin Ücretlendirilmesi Uygulamasına Yönelik Tüketici Tepkilerinin Belirlenmesi. İşletme Araştırmaları Dergisi, 11(1), 427-446.

[14] Aksöz, E. O., Aydın, B., Yücel, E. 2021. Tourists Approaches to Eco-Friendly Hotels and

Determination of Green Hotel Preferences: The Case of Eskişehir. Turizam, 25(2), 83.95.

[15] URL-14, 2009. One-way ANOVA. https://www.istatistik.gen.tr/?p=29E (Date accessed: 12.04.2020)

[16] URL-15, 2020. Correct Use of Post-Hoc Test. http://istatistikturkiye.com/post-hoc-testlerinin-dogru-kullanimi/ (Date accessed: 16.07.2020)

[17] Yıldız, D., Uzunsakal, E., 2018. Alan Araştırmalarında Güvenilirlik Testlerinin Karşılaştırılması ve Tarımsal Veriler Üzerine Bir Uygulama. Uygulamalı Sosyal Bilimler Dergisi, 2(1), 14-28.

[18] Yaraş, E., Özbük, M.Y., Göncü, Z.Ü., 2016. Tüketicilerin Alışveriş Merkezlerine Yönelik Tutum ve Davranışlarına Göre Kümelenmesi. International Review of Economics and Management, 4(2), 16-32.

[19] Şentürk, G., 2020. Plastik Poşet Ücretinin Tüketici Davranışlarına Etkisinin Davranışsal İktisat Bağlamında Değerlendirilmesi. Marmara University, Institute of Social Sciences, Department of Economics, M.Sc. Thesis. 135p, İstanbul.

[20] Demirel, M, 2023. Plastik Poşetlerin Ücretlendirilmesi Uygulamasının Çevre Bilincine Olası Katkıları: Kafkas Üniversitesi Örneği. Çankırı Karatekin Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Cilt 13, Sayı 1, ss. 152-184.

[21] Topal, M.H., Günay, H.F., Uğur, C.Y., Aydın, A., 2020. Sebepli Eylem Teorisi Bağlamında Ücretli Poşet Kullanım Niyeti Üzerinde Etkili Faktörlerin İncelenmesi. Küresel İktisat ve İşletme Çalışmaları Dergisi, 9(17), 86-107.

[22] Yasa, Y.A., Cop, R., 2019. Yeşil Pazarlama Anlayışında Tüketicilerin Plastik Poşet Kullanımına Yönelik Bakış Açıları: Belçika Örneği. Gazi İktisat ve İşletme Dergisi, 5(1), 34-45.

[23] Şahin, Ö., 2023. Türkiye'de Plastik Poşet Vergisi Uygulaması: Sorunlar ve Çözüm Önerileri. Zonguldak Bülent Ecevit University, Institute of Social Sciences, Department of Business, M.Sc. Thesis. 189p,

[24] Dursun, İ., 2020. Plastik Poşetlerin Ücretlendirilmesi Uygulamasına Gösterilen Tutumsal ve Davranışsal Desteğin Açıklanmasına Yönelik Model Önerisi. Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 13(1), 129-148.

Appendices

Appendix A. The questionnaire

SECTION 1: Please tick the box for your answer.

1. Gender	Female ☐	Male ☐				
2. Age	18-29 ☐	30-39 ☐	40-49 ☐	50-59 ☐	> 60 ☐	
3. Marital status	Married ☐	Single ☐				
4. Education level	I'm not graduated but literate ☐	Primary school graduated ☐	High school graduated ☐	College/Undergraduate degree ☐	Postgraduate degree ☐	
5. Occupation	Support personnel ☐	Administrative personnel ☐	Academic personnel ☐			
6. Family size	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	> 5 ☐
7. Average household income per month	< 2.000 TL ☐	2.000-3.000 TL ☐	3.000-5.000 TL ☐	5.000-7.500 TL ☐	7.500-10.000 TL ☐	> 10.000 TL ☐
8. The percentage of your household's total monthly income spent on shopping (Market-grocery and other shopping)	> 10% ☐	10-25% ☐	25-50% ☐	50-75% ☐	> 75% ☐	
9. Frequency of doing grocery shopping only	2-3 times per week ☐	Once per week ☐	Once per 2 weeks ☐	Once per 3 weeks ☐	Once per month ☐	
10. Number of plastic bags used for grocery shopping	Never use plastic bags ☐	1-3 bag(s) ☐	> 4 bags ☐			
11. Frequency of doing market shopping or other shopping	Once per week ☐	2-3 times per week ☐	Everyday ☐	Once per 2 weeks ☐	Once per month ☐	2-3 times per month ☐
12. Number of plastic bags used for market shopping or other shopping	Never use plastic bags ☐	1-3 bag(s) ☐	> 4 bags ☐			

Appendix A (Continue)

SECTION 2: Please answer the questions in this section on behalf of your family, taking into account all individuals currently living in your home. Please answer all questions completely.

	Totally disagree	Disagree	No opinion	Agree	Totally agree
	(1)	(2)	(3)	(4)	(5)
13. It is not necessary to do grocery or other shopping for our family.	☐	☐	☐	☐	☐
14. It is not necessary to do grocery shopping for our family.	☐	☐	☐	☐	☐
15. We do shop even though we do not need to do.	☐	☐	☐	☐	☐
16. Our income level affects our shopping expenses.	☐	☐	☐	☐	☐
17. Too many plastic bags enter our home after our shopping.	☐	☐	☐	☐	☐
18. We usually carry the products we buy with plastic bags.	☐	☐	☐	☐	☐
19. We usually carry the products we buy with reusable bags.	☐	☐	☐	☐	☐
20. We usually carry the products we buy with string bag/paper bag.	☐	☐	☐	☐	☐
21. We usually carry the products we buy with trolley.	☐	☐	☐	☐	☐
22. We usually bring all the carrier bags we use for shopping from home.	☐	☐	☐	☐	☐
23. We usually bring some of the carrier bags we use for shopping from home and buy some of them.	☐	☐	☐	☐	☐
24. We usually do purchase all the carrier bags we use for shopping.	☐	☐	☐	☐	☐
25. We prefer the carrier bags we bring from home in order to not pay the bag fee.	☐	☐	☐	☐	☐
26. We prefer the carrier bags we bring from home because they are more useful/practical than the bags we bought.	☐	☐	☐	☐	☐
27. We prefer the carrier bags we bring from home because they are less harmful to the environment.	☐	☐	☐	☐	☐

Appendix A (Continue)

	Totally disagree (1)	Disagree (2)	No opinion (3)	Agree (4)	Totally agree (5)
28. We prefer the carrier bags we bring from home because we do not want to use too many plastic bags.	☐	☐	☐	☐	☐
29. When we get home after shopping, we use plastic bags as garbage bags.	☐	☐	☐	☐	☐
30. When we get home from shopping, we throw plastic bags in the garbage bin.	☐	☐	☐	☐	☐
31. When we get home from shopping, we put plastic bags in the recycling bin.	☐	☐	☐	☐	☐
32. When we get home from shopping, we keep plastic bags to use again for shopping.	☐	☐	☐	☐	☐
33. When we get home from shopping, we keep plastic bags to carry other products.	☐	☐	☐	☐	☐
34. We do not use any plastic bag left over from shopping for the next shopping.	☐	☐	☐	☐	☐
35. We use a plastic bag left over from shopping at least once for the next shopping.	☐	☐	☐	☐	☐
36. We use a plastic bag left over from shopping more than four times for the next shopping.	☐	☐	☐	☐	☐
37. We forgot to bring our own bags from home for all our shopping over the last six months.	☐	☐	☐	☐	☐
38. We forgot to bring our own bags from home for most of our shopping over the last six months	☐	☐	☐	☐	☐
39. We brought our own bags from home for most of our shopping over the last six months.	☐	☐	☐	☐	☐
40. We brought at least one bag from home for all our shopping over the last six months.	☐	☐	☐	☐	☐
41. To bring reusable carrier bags for shopping is difficult for us.	☐	☐	☐	☐	☐
42. We bought garbage bags roll during our shopping in the last six months.	☐	☐	☐	☐	☐
43. We did not buy any garbage bags roll during our shopping in the last six months.	☐	☐	☐	☐	☐

Appendix A (Continue)

	Totally disagree (1)	Disagree (2)	No opinion (3)	Agree (4)	Totally agree (5)
44. Before plastic bags were charged a fee, we would take more plastic bags than we need from the point of sale.	☐	☐	☐	☐	☐
45. We think that plastic bags are a problem for environment or health.	☐	☐	☐	☐	☐
46. We know that plastic bags have been charged a fee per plastic bag taken from the point of sale by the beginning of January 2019.	☐	☐	☐	☐	☐
47. We know that plastic bags have been charged a fee, but we do not have much information about the details of the implementation.	☐	☐	☐	☐	☐
48. We support the charging implementation for plastic bags.	☐	☐	☐	☐	☐
49. We think that the fee of 25 kurus per plastic bag is excessive.	☐	☐	☐	☐	☐
50. Although plastic bags have been charged a fee, we think that consumption of plastic bags is still high in Turkey.	☐	☐	☐	☐	☐
51. To my opinion, our government put the plastic bag charging implementation into force to collect more revenue.	☐	☐	☐	☐	☐
52. To my opinion, our government put the plastic bag charging implementation into force due to the excessive consumption of plastic bags.	☐	☐	☐	☐	☐
53. To my opinion, our government put the plastic bag charging implementation into force to increase the use of reusable and recyclable carrier bags.	☐	☐	☐	☐	☐
54. To my opinion, our government put the plastic bag charging implementation into force to conserve natural resources.	☐	☐	☐	☐	☐
55. We are in the adaptation period for the plastic bag charging implementation.	☐	☐	☐	☐	☐
56. After the implementation entered into force, our behavior towards reducing plastic bags consumption changed.	☐	☐	☐	☐	☐
57. We will change our habits regarding plastic bag consumption and start reducing the consumption soon.	☐	☐	☐	☐	☐
58. We would support if the use of plastic bags were banned completely.	☐	☐	☐	☐	☐

Appendix A (Continue)

		Totally disagree (1)	Disagree (2)	No opinion (3)	Agree (4)	Totally agree (5)
59. We think that plastic bag charging is an effective and efficient practice in solving environmental problems.		☐	☐	☐	☐	☐
60. We think that plastic bags used to carry vegetables and fruits after grocery shopping must also be charged a fee.		☐	☐	☐	☐	☐
61. We think that plastic bags are not provided with charge by all the markets.		☐	☐	☐	☐	☐
62. From now on, instead of buying plastic bags, we will bring our own bag for all our shopping		☐	☐	☐	☐	☐
Regarding the plastic bag charging implementation, we think that ……..... is more beneficial.	**63.** The ongoing implementation should be abolished, and the plastic bags should be charge-free as before.	☐	☐	☐	☐	☐
	64. The fee should remain the same at 25 kurus per bag.	☐	☐	☐	☐	☐
	65. The implementation should be maintained with a higher fee per bag.	☐	☐	☐	☐	☐
	66. The use of plastic bags should be banned completely.	☐	☐	☐	☐	☐
	67. The implementation can be abolished and replaced with other implementations. For example; each household should be assigned a quota for charge-free plastic bag, then a fee per bag should be charged after the quota is reached.	☐	☐	☐	☐	☐
	68. The fee should remain the same at 25 kurus per bag, but incentive promotions should be implemented to reduce plastic bag consumption.	☐	☐	☐	☐	☐

Appendix B. Results from one-way ANOVA and Post-Hoc tests

Variable	Quest. No	Groups (G)	Freq. (N)	Mean (X)	Std. Dev. (SD)	*Sig1	**Sig2	Diff. Groups	Quest. No	Groups (G)	Freq. (N)	Mean (X)	Std. Dev. (SD)	*Sig1	**Sig2	Diff. Groups
Age	15	18-29	109	2.413	1.2635	0.002	0.024	G4-G1 G4-G2 G4-G3	49	18-29	109	3.147	1.3933	0.402	0.044	G2-G1
		30-39	136	2.390	1.2776					30-39	136	2.640	1.4487			
		40-49	94	2.330	1.2477					40-49	94	3.000	1.4368			
		50-59	24	1.583	0.7755					50-59	23	3.000	1.6514			
	19	18-29	108	2.991	1.1232	0.170	0.027	G3-G1	51	18-29	108	3.250	1.2465	0.118	0.036	G2-G1
		30-39	131	3.382	1.2917					30-39	128	2.797	1.2696			
		40-49	90	3.478	1.3259					40-49	81	3.198	1.3548			
		50-59	23	3.435	1.1995					50-59	23	2.913	1.5642			
	28	18-29	108	3.250	1.2907	0.198	0.049	G3-G2	54	18-29	107	3.168	1.2551	0.018	0.012	G3-G1
		30-39	131	3.191	1.2837					30-39	131	3.427	1.2218			
		40-49	84	3.667	1.2451					40-49	85	3.741	1.0818			
		50-59	24	3.375	1.2446					50-59	23	3.217	1.5062			
	40	18-29	108	2.898	1.2821	0.624	0.048	G3-G1								
		30-39	132	3.197	1.3102											
		40-49	84	3.393	1.2708											
		50-59	24	2.958	1.1971											
Education	16	PS	22	3.591	1.4690	0.000	0.005	G3-G5	30	PS	23	1.957	1.1862	0.310	0.013	G4-G5
		HS	48	3.438	1.4718					HS	46	2.043	1.1147			
		CUG	138	3.964	1.1296					CUG	129	2.147	1.1257			
		PG	150	4.060	0.9500					PG	138	1.725	0.9572			
	17	PS	22	2.273	1.2792	0.973	0.031	G2-G4	32	PS	23	3.174	1.3702	0.898	0.009	G4-G5
		HS	49	2.531	1.1920					HS	47	3.149	1.3984			
		CUG	137	2.964	1.2332					CUG	128	3.172	1.3108			
		PG	147	2.755	1.2140					PG	140	2.657	1.3506			
	26	PS	22	2.318	1.4601	0.642	0.018	G2-G3 G2-G5	34	PS	23	2.087	1.2400	0.010	0.004	G5-G2 G5-G3
		HS	47	3.362	1.2585					HS	48	2.250	1.3128			
		CUG	128	2.984	1.3220					CUG	130	2.554	1.2884			
		PG	140	3.129	1.3077					PG	140	2.943	1.4483			
	28	PS	23	2.739	1.4212	0.021	0.002	G3-G5	35	PS	23	3.304	1.2590	0.176	0.021	G4-G5
		HS	47	2.872	1.3928					HS	46	2.783	1.3970			
		CUG	131	3.466	1.2545					CUG	133	3.075	1.2286			
		PG	143	3.476	1.1917					PG	145	2.669	1.2859			
	29	PS	22	3.591	1.3683	0.000	0.000	G3-G5	36	PS	23	2.522	1.3774	0.000	0.002	G4-G5
		HS	48	3.563	1.4426					HS	47	2.340	1.2385			
		CUG	137	4.036	0.9956					CUG	128	2.516	1.1771			
		PG	148	4.311	0.8480					PG	140	2.000	1.0457			

(*: *p* value for the equality of variances test; **: *P* value for one-way ANOVA test; PS: Primary school; HS: High school; CUG: College/Undergraduate degree; PG: Postgraduate degree)

Appendix B (Continue)

Variable	Quest. No	Groups (G)	Freq. (N)	Mean (X)	Std. Dev. (SD)	*Sig_1	**Sig_2	Diff. Groups	Quest. No	Groups (G)	Freq. (N)	Mean (X)	Std. Dev. (SD)	*Sig_1	**Sig_2	Diff. Groups
Education	45	PS	21	3.952	1.2440	0.030	0.001	G5-G3 G5-G4	49	PS	23	3.043	1.6646	0.135	0.029	G5-G3 G4-G5
		HS	48	3.646	1.3446					HS	48	3.042	1.3362			
		CUG	138	4.007	1.1106					CUG	138	3.130	1.4133			
		PG	150	4.347	0.9898					PG	150	2.640	1.4576			
	46	PS	23	3.870	1.3247	0.050	0.000	G5-G2 G5-G3	56	PS	23	3.130	1.6322	0.000	0.003	G3-G5
		HS	48	3.875	1.1416					HS	48	3.292	1.3202			
		CUG	138	4.196	1.0797					CUG	136	3.647	1.0855			
		PG	150	4.507	0.8172					PG	150	3.833	0.9153			
	47	PS	23	2.957	1.4295	0.219	0.000	G5-G3 G5-G4	63	PS	23	2.348	1.4957	0.007	0.001	G5-G3 G5-G4
		HS	47	3.468	1.1951					HS	46	2.609	1.3901			
		CUG	138	3.007	1.2815					CUG	133	2.556	1.4377			
		PG	150	2.427	1.3074					PG	144	1.958	1.2453			
	48	PS	23	2.957	1.4917	0.566	0.003	G5-G2								
		HS	47	3.043	1.3666											
		CUG	138	3.384	1.3253											
		PG	149	3.725	1.3041											
Occupation	14	SP	130	1.731	1.0696	0.000	0.002	G1-G3	34	SP	125	2.280	1.2352	0.001	0.001	G1-G3
		AdP	97	1.464	0.7781					AdP	90	2.700	1.3529			
		AcP	134	1.351	0.6856					AcP	128	2.930	1.4645			
	29	SP	128	3.711	1.2433	0.000	0.000	G1-G2 G1-G3	35	SP	127	3.087	1.2911	0.388	0.003	G3-G1 G3-G2
		AdP	95	4.137	1.0580					AdP	91	3.033	1.2152			
		AcP	134	4.313	0.8080					AcP	132	2.583	1.2843			
	30	SP	125	2.112	1.1515	0.059	0.001	G3-G1 G3-G2	36	SP	126	2.643	1.2678	0.000	0.000	G1-G2 G1-G3
		AdP	89	2.101	1.1083					AdP	88	2.239	1.1037			
		AcP	125	1.672	0.8960					AcP	127	1.961	1.0266			
	31	SP	125	2.400	1.2181	0.001	0.004	G3-G1 G3-G2	41	SP	128	2.531	1.2794	0.382	0.049	G2-G3
		AdP	88	2.455	1.0711					AdP	97	2.825	1.2666			
		AcP	125	2.008	0.9878					AcP	133	2.421	1.1948			
	32	SP	126	3.206	1.3465	0.849	0.000	G3-G1 G3-G2	42	SP	128	2.641	1.3732	0.198	0.016	G2-G1
		AdP	87	3.138	1.2865					AdP	92	3.174	1.3876			
		AcP	128	2.570	1.3439					AcP	131	3.000	1.4728			
	33	SP	126	3.365	1.2432	0.004	0.002	G3-G1 G3-G2	45	SP	127	3.764	1.2438	0.017	0.000	G1-G2 G1-G3
		AdP	89	3.506	1.1294					AdP	98	4.153	1.1155			
		AcP	127	2.945	1.3352					AcP	134	4.373	0.9393			

SP: Support personnel; **AdP**: Administrative personnel; **AcP**: Academic personnel

Appendix B (Continue)

Variable	Quest. No	Groups (G)	Freq (N)	Mean (X)	Std. Dev. (SD)	*Sig1	**Sig2	Diff. Groups	Quest. No	Groups (G)	Freq (N)	Mean (X)	Std. Dev. (SD)	*Sig1	**Sig2	Diff. Groups
Occupation	46	SP	129	3.938	1.1776	0.002	0.000	G1-G2 G1-G3	56	SP	129	3.419	1.2481	0.000	0.011	G1-G3
		AdP	98	4.316	1.0898					AdP	96	3,.698	1.1343			
		AcP	134	4.530	0.7223					AcP	134	3.821	0.9082			
	47	SP	128	3.102	1.2788	0.443	0.002	G1-G3	59	SP	128	3.156	1.3942	0.003	0.046	G1-G3
		AdP	98	2.847	1.3343					AdP	98	3.337	1.2348			
		AcP	134	2.530	1.3472					AcP	134	3.545	1.1478			
	48	SP	128	3.180	1.3886	0.000	0.000	G3-G1 G3-G2	63	SP	126	2.452	1.3776	0.000	0.005	G3-G1 G3-G2
		AdP	98	3.276	1.4343					AdP	92	2.543	1.5293			
		AcP	133	3.835	1.1946					AcP	130	2.000	1.2575			
	49	SP	129	3.062	1.4348	0.950	0.002	G3-G1 G3-G2	67	SP	126	3.000	1.3266	0.943	0.003	G3-G1 G3-G2
		AdP	98	3.173	1.4289					AdP	92	2.989	1.3051			
		AcP	134	2.560	1.4328					AcP	130	2.500	1.3133			
Income level	32	a	28	3.179	1.2781	0.158	0.011	G3-G5	48	a	26	3.231	1.5571	0.019	0.033	G2-G6
		b	61	2.934	1.4008					b	62	3.145	1.3410			
		c	79	3.316	1.2356					c	86	3.279	1.4113			
		d	92	2.913	1.3231					d	99	3.505	1.3430			
		e	49	2.408	1.3373					e	52	3.731	1.2226			
		f	32	2.813	1.5541					f	35	3.943	1.2353			
	33	a	28	3.214	1.1974	0.002	0.009	G3-G4 G3-G5	63	a	27	2.259	1.3183	0.000	0.024	G2-G6
		b	62	3.306	1.3255					b	61	2.787	1.5823			
		c	79	3.671	1.0708					c	82	2.427	1.4318			
		d	93	3.108	1.2464					d	97	2.196	1.3435			
		e	48	2.854	1.3525					e	49	2.082	1.2721			
		f	32	3.094	1.3995					f	33	1.879	1.1112			
	36	a	28	2.429	1.1996	0.022	0.001	G5-G2 G5-G3 G5-G4	67	a	27	2.963	1.4539	0.277	0.024	G3-G6
		b	61	2.721	1.3055					b	62	2.726	1.4162			
		c	80	2.288	1.1160					c	82	3.195	1.2417			
		d	92	2.293	1.1817					d	96	2.760	1.2876			
		e	48	1.750	0.8873					e	49	2.571	1.3844			
		f	32	2.094	1.1176					f	33	2.364	1.1677			
	47	a	27	3.111	1.4500	0.335	0.015	G2-G6								
		b	63	3.159	1.2470											
		c	86	2.895	1.3808											
		d	98	2.694	1.2134											
		e	52	2.808	1.3868											
		f	35	2.200	1.3890											

SP: Support personnel; **AdP**: Administrative personnel; **AcP**: Academic personnel; **a**: <2.000 TL; **b**: 2.000-3.000 TL; **c**: 3.000-5.000 TL; **d**: 5.000-7.500 TL; **e**: 7.500-10.000 TL; **f**: >10.000 TL

Appendix B (Continue)

Variable	Quest. No	Groups (G)	Freq (N)	Mean (X)	Std. Dev. (SD)	*Sig1	**Sig2	Diff. Groups	Quest. No	Groups (G)	Freq (N)	Mean (X)	Std. Dev. (SD)	*Sig1	**Sig2	Diff. Groups
Family size	20	1	54	2.278	1.2800	0.016	0.000	G6-G1 G6-G2 G6-G3 G6-G4 G6-G5 G2-G1 G2-G3	58	1	57	3.474	1.3243	0.002	0.043	G6-G3 G6-G4 G5-G4
		2	51	3.118	1.3364					2	54	3.444	1.2689			
		3	93	2.280	1.2885					3	98	3.306	1.2796			
		4	106	2.632	1.3616					4	113	3.204	1.2967			
		5	28	2.571	1.2301					5	29	3.931	0.9611			
		>5	10	1.400	0.5164					>5	9	4.111	0.6009			
	43	1	57	3.211	1.5087	0.002	0.025	G6-G3 G6-G4	60	1	57	3.088	1.4051	0.180	0.015	G1-G4 G1-G2
		2	52	3.173	1.3823					2	54	2.574	1.2378			
		3	94	2.734	1.4003					3	98	2.551	1.2773			
		4	107	2.720	1.4327					4	113	2.381	1.2343			
		5	29	2.897	1.4229					5	29	2.759	1.2437			
		>5	9	4.000	0.8660					>5	9	2.000	1.0000			
	55	1	58	3.638	1.1802	0.522	0.004	G3-G4	61	1	57	3.404	1.3210	0.147	0.041	G1-G4
		2	54	3.093	1.1699					2	54	2.630	1.2929			
		3	98	3.643	1.1510					3	97	2.959	1.2576			
		4	113	3.115	1.2229					4	113	3.115	1.2730			
		5	29	3.586	1.1807					5	29	3.103	1.1131			
		>5	9	3.667	1.3229					>5	9	2.778	0.8333			
	57	1	58	3.724	1.0562	0.189	0.031	G4-G5								
		2	54	3.611	1.1060											
		3	98	3.633	1.0972											
		4	113	3.389	1.1215											
		5	29	4.103	1.0122											
		>5	9	4.000	0.7071											