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Article

Water consumption habits of a north-western Turkish community: A cross-sectional study

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ABSTRACT: The aim were to determine the drinking water preferences of people applied to a family health center. This cross-sectional study was carried out from April 01st to May 31st, 2022. The data were evaluated using the chi-square test and percent ratios with a significant of $P < 0.05$. The mean age of all 432 respondents was 48.03±15.86. It was determined that those aged 31-45 had drunk more bottled water ($p<0.01$) and more spring water ($p<0.001$), that those aged 65 and over more purified water ($p<0.001$), that women more tap water ($p<0.001$), that married people had drunk more demijohn and tap water ($p<0.001$, each one), that divorced/widows had drunk more packaged and purified water ($p<0.001$, each one), that the illiterate/literate bottled water ($p<0.001$, per one), that those who had no income/people who lived on the state or municipal assistance only carboy water ($p<0.001$). This study suggests that the biggest factor that positively affected the drinking water preference was the packaging of the water. However, the drinking rates of mains water and spring water were quite low. Convincing the authorities to make the mains water drinkable is of great importance in terms of overcoming the public's distrust of mains water.

Keywords: water consumption; drinking water; consumer preference; water usage purposes

INTRODUCTION

Water is one of the most valuable resources necessary for all living things to survive and is an indispensable element (Borlu et al. 2017, UNESCO 2021). This resource, called "blue gold", has an important health, social and cultural value in the heart of human communities (UNESCO, 2021). Water allows all organs in our body to live in a humid environment, keeps body temperature balanced by moisturizing all tissues, activates the body's metabolism, ensures that the blood pressure is kept in balance, is an indispensable element for the functioning of the entire digestive system; prevents constipation, ensures that waste and toxic substances are thrown out of the body (Wenger 1972; Mentes 2006 Jéquier et al. 2010). Although it decreases with age (75% to 50% from infancy to old age), approximately 60% of an adult's body weight is water (Mentes 2006).

Access to clean water and sanitation is an indispensable rule for hygiene. This main rule is guaranteed by the laws of each country and by the joint resolutions of the United Nations (Sustainable Development Goals 2019, Spicer et al. 2020). At the "International Conference on Primary Health Care" held in Alma-Ata in the year 1978, removing the obstacles to accessing clean and potable water and ensuring access to water was one of the important agenda items (Declaration of Alma-Ata 1978). At the Millennium Development Goals Summit in September 2010, an ambitious action plan was developed by world leaders; under the title of "Ensuring environmental sustainability" (Goal 7), it was aimed to halve the proportion of people without permanent access to safe drinking water by 2015 (UNDP 2015a). Within the scope of Clean Water Sanitation (Goal 6), which is one of the goals of the Sustainable Development Goals, which came into force in 2016 after the Millennium Development Goals; Global plans were established to ensure safe and accessible clean drinking water for all by 2030 (UNDP 2015b). However, according to the WHO in

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2019 report, it has been reported approximately 829.000 people die each year from diarrhea, which is a preventable disease due to unsafe drinking water, sanitation, and hand hygiene (WHO 2019).

Water resources in our world are scarce for 8 billion people. As the population grows, millions of people who are already dying or dying of thirst will not be able to escape this future. While non-human beings would succumb to their fate and prefer death when they could not find water, it seems that people would prefer to kill their fellow humans in the near future in order to live when they are without water.

Despite the availability of mains water among the improved usable water resources and the increasing access to mains water, the demand for packaged water has been increasing in recent years (Geerts et al. 2020). As a result of this, bottled water consumption has reached the level of insanity by allowing plastic pollution and indirectly causing drought and water scarcity (Free et al. 2014). Because when compared to tap water, producing packaged water causes much more energy release, cost and pollution (Gleick & Cooley 2009). Considering that bottled water production has reached 100 billion gallons, although it varies between countries, the gravity of the event is obvious (Rodwan 2017).

For drinking water purposes in our country; packaged water including carboy water, tap water/mains water, boiled tap water, spring water, well water, purified water, and stream water are used. 98% of the households in our country have access to an improved drinking water source (TNSA 2018). Turkish Statistical Institute (TSI) in 2020 reported that 98.8% of the total population (98.7% of the municipal population and 99.3% of the village population), is served by drinking and utility water networks (TSI 2020). However, since human beings have full confidence in closed and unopened products in terms of hygiene and the absence of contamination, their consumption is incomparably higher than in other drinkable waters.

The lack of supervision of local governments plays a major role in this. Not paying attention to infrastructures, not renewing the infrastructure in a timely manner, the increase in infectious intestinal infections such as typhoid fever as a result of the mixing of sewage wastes with tap water in some parts of our country, and the lack of good taste and appearance of tap water also prevent people from consuming tap water. People who do not trust the hygiene and quality of tap water provided by the municipality may turn to alternatives such as carboy, packaged water, and spring water (Uzundumlu et al. 2020). In this study, it was aimed to determine the drinking water preferences of people who applied to a family health center according to their sociodemographic characteristics and to discuss the reasons for their preference for these preferences.

METHODS

Setting

Eskisehir is a semi-rural province situated in the western part of Turkey, with a population of about 850,000. The socio-economical level of the city is average compared to other cities of the country. There are significant disparities in the socio-economic characteristics between the quarters of the city. It includes three universities; and also has a cosmopolitan structure with refugees from Iran, Iraq, Afghanistan, Ukraine, and Syria. The neighborhood where the study was conducted has a middle-income group. This study was conducted with patients registered to Family Physician Dr. Unal Ayrancı in a family health center called Kurtulus. At the time of the study, the total number of patients registered in the family medicine unit was 3998. The number of patients aged 18 and over was 3178.

The study time, type and purpose

This study is a cross-sectional type study, which was conducted to determine the drinking water habits according to the sociodemographic characteristics of men and women aged 18 and over who applied to a family health center located in a city called Eskisehir in the northwest of Turkey between April 01 and May 31, 2022.

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The questionnaire

"Kalabak" water, which belongs to Eskisehir province, where only the study is carried out in Turkey, is brought to the houses of thousands of people in the form of a carboy every day by pick-up trucks called SAKA. Kalabak water is a drinking water that is identified with Eskişehir and brought to the city in 1936 thanks to the founder of the country, Atatürk. Thanks to the special siren, those who want to get water go out to the street to get water with empty carboy bottles. Since this was a special situation in the place where the study was conducted, although it was packaged in the questionnaire, carboy water was included differently from packaged water. The questionnaire used in this survey was created taking into account the drinking characteristics of the place where the study was conducted. The data of the study were collected by a survey form, which was formed as a result of the review of the literature (Ward et al. 2009; Durduran et al. 2017; Yigit et al. 2021), the compilation of similar studies, and the clinical observations and experiences of the researcher. The questionnaire consisted of 25 questions in total, 6 questions consisting of demographic information of the patients, and 19 questions to determine the drinking water usage preferences and reasons. While preparing the questionnaire, attention was paid to preparing the questions in a way that would reach the targeted information. While giving the questionnaire form to the participants, the purpose of the study was explained in a short explanation; and demonstrated how to answer questions. So that the survey would not tire the participants, sociodemographic questions were placed at the beginning of the survey form, and special opinion questions were placed at the end. The questionnaire, consisting of 25 questions in Turkish, was divided into two broad sections: sociodemographic characteristics, and drinking water habits. The questionnaire was then pretested on a sample of 32 participants from the same quarter of the city. Alpha coefficients for reliability and internal consistency of the questions were found to be 0.791 about drinking water habits. Then the completed questionnaires were checked for consistency and completeness.

The sample size of the study

The sample number was determined as 331 among 3178 people over the age of 18, male and female, registered to the family medicine unit of the Family Health Center, using the Epi Info program, bottle water usage prevalence in the city (40%), with a 5% error in the 95% confidence interval.

Procedures

Çalışma zamanı boyunca 18 ve üzerindeki her bir bireye çalışmanın amacı anlatılarak çalışmada yer almak isteyip istemedikleri soruldu (n=512). Çalışmaya katılmayı kabul edenlerden (n=432) bilgilendirilmiş sözlü onay alındıktan sonra anket formunu doldurmaları istendi. Araştırıcılar katılımcı tarafından anlaşılmayan yerlerde yardımcı oldular. Cahiller ve okur yazarların anketi doldurmalarının zor olduğu göz önüne alınarak araştırıcılar anket sorularını bu katılımcılara yüz yüze tek tek okuyarak verilen cevapları ankete formuna işaretlediler. Boş yerler katılımcılara tekrar verilerek anketi tamamlamaları istendi. Katılımcıların gelirlerinin ne olduğunu rakamsal olarak açıklamak istemeyecekleri göz önüne alınarak kendilerine göre gelir seviyelerini işaretlemeleri istendi. All subjects (432/512, 84.4%) were told that participation in the investigation was strictly voluntary and were told that the data collected would not be used for anything except the research aim. Those who agreed to participate were given the questionnaire to complete. The duration for completing the questionnaire was between 10-15 minutes per subject. The principal investigator met weekly with the data collectors to ensure the quality of data collected.

The inclusion criteria were as follows: volunteering to participate in the study, having the ability to understand Turkish, being 18 years or older, and not having a physical/mental/psychological disorder that would prevent participation and/or interview.

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Limitations of the Research

The research was conducted in one of the provinces of Turkey where the socio-economic situation is the best. Eskişehir is a province with a good financial situation when compared to other provinces. Conducting the study here may hinder the generalization of our results.

Kalabak water, which is the local and national water drink of Eskisehir even in packaging, is delivered to everyone's streets with sirens every morning, in a sense, it is brought to people's homes with the help of apartment officials. This situation may have paved the way for more carboy drinking.

The large population of research, and the fact that it is not possible to reach everyone in terms of time and money, may not allow the results to be applied to the general population. For this reason, it was tried to increase the power of the study by reaching 101 more participants than the minimum number of samples.

Legal ethical consent

Ethical permission for the study was obtained prior to collecting data, by contacting and receiving approval from the appropriate management authority (Bilecik University Ethics Comittee), the health directorship of the city involved. Participants were assured of the confidentiality of their responses and provided informed verbal consent

Statistical analyses

The statistical package for social sciences (SPSS) version 20.0 (Chicago, IL, USA) was used to enter and analyze the data on a personal computer. Obtained data were evaluated by frequency and percentages ratios, Chi-square (x2), and t tests. The measure for statistical significance was established a priori as $p < 0.05$.

RESULTS

The mean age (± SD) of all the respondents was 48.03 ± 15.86 (20-75, n = 432). This figure was significantly lower in women [45.59 ± 14.82 (20-75, n = 241)] for the women than in men [51.11 ± (26-70, n = 191)], ($x2=3252.49$, $df=1$, $p=0.000$). More respondents were female (55.8) and married (55.8%), were in the middle and older age group (83.6%), had had attained the level of primary education or above (86.2%). Most participants had a household income level (94.4%), and were homeowners (66.4%). The characteristics of the participants are presented in Table 1.

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Table 1. The respondents' sociodemographic characteristics.

	Number (n=432)	Percentage (100.0%)
Gender		
Male	191	44.2
Female	241	55.8
Age		
18-30	71	16.4
31-45	144	33.3
46-64	96	22.2
≥65	121	28.1
Marital status		
Single	119	27.5
Married	241	55.8
Widowed/divorced/seperated	72	17.7
Educational levels		
Ignorant-literate	121	28.0
Primary-Secondary	120	27.8
High school	95	22.0
Higher education	96	22.2
Family's total income level		
None or state/municipal assistance	24	5.6
Low	145	33.6
Average	216	50.0
High	47	10.9
Situation at home		
Homeowner	287	66.4
Tenant	145	33.6

Considering the drinking water habits of the participants by age groups; it was determined that, compared to other age groups, the 31-45 age group had drunk more bottled water ($p<0.01$), the 46-64 age group had drunk more packaged water ($p>0.05$), the 31-45 age group had consumed more spring water ($p<0.001$).), and those aged 65 and over had drunk more purified water ($p<0.001$). Considering the drinking water habits of the participants according to their gender; it was determined that women had drunk more bottled water and tap water ($p>0.05$ and $p<0.001$, respectively), whereas men had drunk more packaged water, purified and spring water ($p>0.05$, each one). Considering the drinking water habits of the participants according to their marital status; It was determined that married people had drunk more demijohn and tap water ($p<0.001$, each one), whereas divorced/widows had drank more packaged and purified water ($p<0.001$, each one). Considering the drinking water habits of the participants according to their educational status; illiterate/literate people drink bottled water and bottled water at the lowest rate compared to other education levels ($p<0.001$, per one), primary-secondary school graduates drink tap water at the highest rate ($p<0.001$), illiterate/literate people drink purified water at the highest rate It was determined that they drank ($p<0.001$). Considering the drinking water habits of the participants according to their income; it was determined that those who have no income/people who live on a state or municipal assistance had drunk only carboy water at the highest rate and had not drunk any other water ($p<0.001$). It was determined that those with the highest income had drunk more carboy and purified water ($p<0.001$, per one), whereas those with low income had drunk more packaged, spring, and tap water ($p<0.001$, per one). More detailed data are presented in Table 2.

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Table 2. Drinking water habits of the participants according to their sociodemographic characteristics.

	Drinking demijohn water n(%)			Drinking bottled water n(%)			Drinking spring water n(%)			Drinking tap water n(%)			Drinking purified water n(%)		
Sosyo-demographic characteristics	**Yes 383(88.7)**	**No 49(11.3)**	**Total 432(100)**	**Yes 263(60.9)**	**No 169(39.1)**	**Total 432(100)**	**Yes 97(22.5)**	**No 335(77.5)**	**Total 432(100)**	**Yes 48(11.1)**	**No 384(88.9)**	**Total 432(100)**	**Yes 72(16.7)**	**No 360(83.3)**	**Total 432(100)**
Age	x^2=17.5, df=3, p=0.001			x^2=6.4, df=3, p=0.09			x^2=31.02, df=3, p=0.000			x^2=46.3, df=3, p=0.000			x^2=34.09, df=3, p=0.000		
18-30	71(86.6)	11(13.4)	82(19.0)	48(58.5)	34(41.5)	82(19.0)	5(6.1)	77(93.9)	82(19.0)	0(0.0)	82(20.1)	82(19.0)	7(8.5)	75(91.5)	82(19.0)
31-45	145(94.8)	8(5.2)	153(35.4)	96(62.7)	57(37.3)	153(35.4)	52(34.0)	101(66.0)	153(35.4)	24(15.7)	129(84.3)	153(35.4)	28(18.3)	125(81.7)	153(35.4)
46-64	97(90.7)	10(9.3)	107(24.8)	73(68.2)	34(31.8)	107(24.8)	29(27.1)	78(72.9)	107(24.8)	0(0.0)	107(26.2)	107(24.8)	6(5.6)	101(94.4)	107(24.8)
≥65	70(77.8)	20(22.2)	90(20.8)	46(51.1)	44(48.9)	90(20.8)	11(12.2)	79(87.8)	90(20.8)	0(0.0)	90(22.1)	90(20.8)	31(34.4)	59(65.6)	90(20.8)
Gender	x^2=0.51, df=1, p=0.476			x^2=0.292, df=1, p=0.589			x^2=1.41, df=1, p=0.235			x^2=32.06, df=1, p=0.000			x^2=1.41, df=1, p=0.235		
Female	216(89.6)	25(10.9)	241(55.8)	144(59.8)	97(40.2)	241(55.8)	49(20.3)	192(79.7)	241(55.8)	24(12.6)	167(87.4)	241(55.8)	0(0.0)	241(100)	241(55.8)
Male	167(87.4)	24(12.6)	191(44.2)	119(62.3)	72(37.7)	191(44.2)	48(25.1)	143(74.9)	191(44.2)	24(5.6)	408(94.4)	191(44.2)	72(37.7)	119(62.3)	191(44.2)
Marital status	x^2=50.07, df=2, p=0.000			x^2=30.903, df=2, p=0.000			x^2=29.71, df=2, p=0.000			x^2=20.114, df=2, p=0.000			x^2=40.033, df=2, p=0.000		
Married	216(89.6)	25(10.4)	241(55.8)	73(30.3)	168(69.7)	241(55.8)	73(30.3)	168(69.7)	241(55.8)	24(10.0)	217(90.0)	241(55.8)	48(19.9)	193(80.1)	241(55.8)
Single	119(31.1)	0(0.0)	119(27.5)	48(40.3)	71(59.7)	119(27.5)	24(20.2)	95(79.8)	119(27.5)	0(0.0)	119(100)	119(27.5)	0(0.0)	119(100)	119(27.5)
Divorced/widowed	48(66.7)	24(33.3)	72(16.7)	48(66.7)	24(33.3)	72(16.7)	0(0.0)	72(100)	72(16.7)	0(0.0)	72(100)	72(16.7)	24(33.3)	48(66.7)	72(16.7)
Educational status	x^2=142.056, df=3, p=0.000			x^2=53.71, df=3, p=0.000			x^2=1.43, df=3, p=0.699			x^2=66.071, df=3, p=0.000			x^2=85.26, df=3, p=0.000		
Ignorant/literate	72(59.5)	49(40.5)	121(28.0)	48(39.7)	73(60.3)	121(28.0)	25(20.7)	96(79.3)	121(28.0)	0(0.0)	121(100)	121(28.0)	48(39.7)	73(60.3)	121(28.0)
Primary-intermediate	120(100)	0(0.0)	120(27.8)	96(80.0)	24(20.0)	120(27.8)	24(20.0)	96(80.0)	120(27.8)	24(20.0)	96(80.0)	120(27.8)	24(20.0)	96(80.0)	120(27.8)
High school	95(100)	0(0.0)	95(22.0)	71(74.7)	24(25.3)	95(22.0)	24(25.3)	71(74.7)	95(22.0)	0(0.0)	95(100)	95(22.0)	0(0.0)	95(100)	95(22.0)
University	96(100)	0(0.0)	96(22.2)	48(50.0)	48(50.0)	96(22.2)	24(25.0)	72(75.0)	96(22.2)	0(0.0)	96(100)	96(22.2)	0(0.0)	96(100)	96(22.2)
Income	x^2=73.42, df=3, p=0.000			x^2=246.39, df=3, p=0.000			x^2=68.66, df=3, p=0.000			x^2=102.48, df=3, p=0.000			x^2=73.42, df=3, p=0.000		
High school	23(48.9)	24(51.1)	47(4.7)	23(48.9)	24(51.1)	47(4.7)	0(0.0)	47(100)	47(4.7)	0(0.0)	47(100)	47(4.7)	24(51.1)	23(48.9)	47(4.7)
Average	432(47.4)	0(0.0)	432(42.8)	240(55.6)	192(44.4)	432(42.8)	96(22.2)	336(77.8)	432(42.8)	0(0.0)	432(100)	432(42.8)	48(11.1)	384(88.9)	432(42.8)
low	72(16.6)	363(83.4)	435(43.1)	360(82.8)	75(17.2)	435(43.1)	147(33.8)	288(66.2)	435(43.1)	72(16.6)	363(83.4)	435(43.1)	72(16.6)	363(83.4)	435(43.1)
None/state or municipality	96(100)	0(0.0)	96(9.5)	0(0.0)	96(100)	96(9.5)	0(0.0)	96(100)	96(9.5)	0(0.0)	96(100)	96(9.5)	0(0.0)	96(100)	96(9.5)
Total	527(52.2)	483(47.8)	1010(100)*	623(61.7)	387(38.3)	1010(100)*	243(24.1)	767(75.9)	1010(100)*	72(7.1)	938(92.9)	1010(100)*	144(14.3)	866(85.7)	1010(100)*

* Marking more than 1.

100% of those who drank carboy water stated that they had drunk carboy water because it was "clean and safe", followed by "easy access" with 87.5%.

Similarly, a great majority (90.9%) of those who drunk packaged water stated that they had prefer packaged water because it was “easily accessible”, followed by " clean and safe " with 81.7%. 100% of spring water drinkers stated that “the cost is affordable” as the reason for drinking spring water, followed by “good taste”

A very large proportion (91.7%) of those who had drunk tap water stated that the reason for drinking tap water was “affordability”. 100% of those who drink the purified water stated that the reasons for drinking the purified water were "easy access" and "the cost is affordable".

Considering the reasons for not drinking; the majority of those who do not drink demijohns (71.4%) stated "inability to access easily" as the reason for not drinking demijohns, this rate was followed by "inexpensive cost" with 51.1%. The vast majority (97.1%) of those who had not drunk packaged water stated that the reason for not drinking the packaged water was “the cost is not affordable”. The vast majority (78.2%) of those who had not drunk spring water stated "inability to access easily" as the reason for not drinking

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spring water. A great majority (87.5%) of those who do not drink tap water stated that they do not drink tap water as “not clean and safe”. This was followed by "not liking the smell" with a rate of 63.1%. A great majority (87.5%) of those who had not drunk tap water stated that they had not drunk tap water as “not clean and safe”. This was followed by "not liking the smell" with a rate of 63.1%. More detailed data are given in Table 3.

Table 3. Reasons for the participants to drink and not drink water.

	Drinking demijohn water (n=383)	**Drinking bottled water (n=263)**	**Drinking spring water (n=97)**	**Drinking tap water (n=48)**	**Drinking purified water (n=72)**
Reasons for drinking			x^2=447.98, df=16, p=0.000		
Easy access	335(87.5)	239(90.9)	24(24.7)	24(50.0)	72(100.0)
Being clean and reliable	383(100.0)	215(81.7)	24(24.7)	20(41.7)	44(61.1)
Good taste	311(81.2)	24(9.1)	73(75.3)	21(43.7)	45(62.5)
Affordable cost	311(81.2)	20(7.6)	97(100)	44(91.7)	72(100.0)
Not being odor	240(62.7)	44(16.7)	73(75.3)	23(47.9)	31(43.1)
	Those not drinking carboy water (n=49)	**Those not drinking bottled water (n=169)**	**Those not drinking spring water (n=335)**	**Those not drinking tap water (n=384)**	**Those not drinking purified water (n=360)**
Reasons for not drinking			x^2=1159.44, df=16, p=0.000		
Not being easy to reach	35(71.4)	102(60.4)	262(78.2)	48(12.5)	72(20.0)
Not being clean and reliable	6(12.2)	22(13.1)	168(50.1)	336(87.5)	192(53.3)
Not having taste good	6(12.2)	87(51.5)	95(28.4)	191(49.7)	159(44.2)
Inappropriate cost	25(51.1)	164(97.1)	41(12.2)	18(4.7)	0(0.0)
Not having smell good	6(12.2)	21(12.4)	72(21.5)	242(63.1)	181(50.3)

100.0% of those who had used tap water for non-drinking purposes stated that they had used tap water for brushing teeth, taking a shower and cleaning after toilet. However, 100.0% of the participants stated that they had not used demijohn/packaged water for non-drinking purposes, such as brushing teeth, taking a shower or cleaning after toilet. The proportion of those who had used tap water and carboy/packaged water for making tea/coffee other than drinking was equal (50%, each one). Whereas, 67% of those using tap water for non-drinking purposes had used tap water for cooking, while this rate was only 34.3% for those using demijohn/packaged water for non-drinking purposes ($p<0.001$). Detailed data are given in Table 4.

Table 4. Reasons for non-drinking use of tap water and carboy/packaged water.

	Reasons for using tap water for non-drinking purposes n(%)=432(100.0)	**Reasons for using carboy/packaged water for non-drinking purposes n(%)=432(100.0)**
Reasons		x^2=694.85, df=4, p=0.000
Making tea/coffee	216(50.0)	216(50.0)
Cooking food	284(65.7)	148(34.3)
Brushing teeth	432(100.0)	0(100.0)
Having a shower	432(100.0)	0(100.0)
Washing the breech area after toilet	432(100.0)	0(100.0)

When asked what needs to be done to make tap water safe; A large majority of the participants stated that they had not drunk tap water (384/432, 88.9%).

As a result of this rate, 100% of the participants stated that “tap water is not currently safe”, 62.3% (269/432) said that “tap water should be clean and taste good”, 96.5% (417/432) stated that “tap water should be proven to be safe by the authorities”, and 67.6% (292/432) of them stated that “there should be an incentive for the use of tap water in TV and social media”. When the participants (n=383) using demijohn water were asked whether they had cleaned the demijohn pump and apparatus; it was determined that 27 people had never used it (7.1%), 72 people had cleaned it once a week (18.8%), 143 people had cleaned it once a month (37.3%), 48 people had cleaned it once a year (12.5), and 93 people had never cleaned it and had thrown it away when it was broken down (24.3%).

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DISCUSSION

In the literature review, no study was found that examined the drinking water usage preferences in the study place, Eskisehir. With this study, it was aimed to close this gap. In the world and in our country, especially in large settlements, the need for drinking water is mostly met with packaged water. Eskişehir, the province where our study was conducted, is already at the forefront of this packaged water. Because it is engraved in the memories as the local and national beverage of the city. People see “Kalabak” water, which is a kind of water sold in carboy packages, not as packaged water, but directly as mains water. That's why calabash water called “kalabak” is widely used. In the province where the study was conducted, mains water is used only for general needs such as brushing teeth, taking a shower, washing dishes, and laundry. Tap water is not preferred for eating and drinking.

As can be seen in our study results, although the rates are low, people have turned to different drinking water sources for many personal reasons such as the price of water and the difficulty of transportation. Doria in her study examining how tap water and packaged water are perceived by consumers determined that the reason for the increase in packaged water, which is more expensive than tap water, was mainly due to taste and health risk concerns (Doria 2006). Quansah et al. 2015 highlighted that advertising and news about bottled water is an important factor for consumers in Ghana (Quansah et al. 2015).

Among the participants participating in our study, the first preferred water (87.5%) was carboy water. In our city, the carboy pump is also used as an integral part of the carboy.

Although the participants stated that the water they trusted the most was carboy, it is useful to be careful in this regard; it has been shown that there are chemical and microbiological changes in the very reliable carboy water, as a result of not keeping the expired carboys and carboys in suitable cold environments and leaving the SAKA carboys carrying the carboys in the sun. Again, not cleaning the carboy pumps periodically is also of great importance in increasing the contamination (Demirci et al. 2007). As a matter of fact, when the participants (n=383) who used carboy water in our study were asked whether they cleaned the carboy pump and apparatus; 48 people stated that they had cleaned it once a year (12.5%), 93 people stated that they had never cleaned it and discarded it when it broke (24.3%). Considering that the rate of those who change only once a year and never change (36.8%) is almost 40% (38.8%), this is a number that cannot be underestimated. This result was compatible with Tas et al.’ study result; in this study, 31% of the participants stated that they had never changed the carboy pump (Tas et al. 2020). It is a contradiction that the participants both turn to carboy water because it is clean and reliable; and that they do not show the necessary hygienic importance to the carboy pump and apparatus, which is a source of contamination. The phrase "to be filled with hail while escaping from the rain", which is used very often in our country, is a good example of this.

Participants in our study, 100.0% of those who had used tap water other than drinking, stated that they had used tap water for brushing teeth, taking a shower, and washing the breech area after the toilet. Again, half of the participants stated that they had used tap water for making tea/coffee, and 65.7% for cooking. The fact that 100% of the participants used tap water for brushing teeth, taking a shower, and after the toilet is the instinct to prevent mains water from entering the body through the digestive system. Because the possibility of mains water causing digestive system diseases is a common concern in society. The fact that half or more of the participants used the mains water for tea/coffee and meals is also based on the knowledge that the mains water is free from microbes during boiling, and therefore, the purification of the water by boiling the water may have increased the confidence in the water.

In our study, it was determined that those with the highest income had drunk more carboy water ($p<0.001$). This result was found to be compatible with the result of a study conducted in Suriname, which showed that those with higher incomes had consumed more packaged water (Durga 2010). In this study by Durga, it was understood that the

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biggest factor was quality and brand (Durga 2010). These results show that those who are in good financial standing give importance to quality and brand and do not compromise on these in order to be healthy. Moreover, hygiene problems arose in the past in this market, which became an unregulated and unregulated sector in human memory. In addition to waters with high nitrate content and causing infectious diseases, waters containing heavy metals are also easily sold in the market (Doria 2006). Therefore, drinking brand water such as "Carboy" in our working area has gained importance.

In our study, the rate of drinking tap water (11.1%) was quite low compared to packaged water (88.7% for carboys and 60.9% for packaged water). This result showed similarity to another study conducted in our country; in this study conducted in 2020 by Tas et al., only 16% of the participants reported that they had used tap water as drinking water (Tas et al. 2020). However, these rates were much higher (between 70% and 90%) in developed countries such as Canada and Sweden (Westrell et al. 2006, Roche et al. 2012, Daley et al. 2014). Pintar et al. in their study conducted in Ontario Canada in 2019, this rate was more than half (51%) (Pintar et al. 2019). These values show that the importance given to network water has increased in direct proportion to the development level of societies.

Our results revealed distrust of drinking tap water if it is to be used for drinking purposes; 100% of our respondents said "tap water is currently unsafe", and over 60% (62.3%) "tap water should be clean and taste good", and almost 100% (96.5%) tap water needs to be proven safe by authorities". These answers given by the participants clearly reveal what the authorities should do. In addition, the definition of packaged natural springs or packaged natural mineral waters as water that is under the control of the Ministry of Health, packaged without changing its natural structure from the source, containing various minerals beneficial to health, and offered for consumption under extremely hygienic conditions has also caused people to turn to packaged waters (Tumer et al. 2011). The fact that our state attaches special importance to packaged water has further increased the tendency towards packaged waters; the regulation of the Ministry of Health on the "Production, Packaging and Sale of Natural Resource Mineral and Drinking Water and Medical Waters" published in the Official Gazette dated October 18, 1997, and numbered 23144 has paved the way for many companies to invest in the sector. Seeing this aspect of the market, the companies exaggerated the business and turned to the sale of water in recycled 19-liter polycarbonate carboys, which are marketed by dealers with the method of delivery to homes and offices (Tosun, 2005). Another reason for the low consumption of tap water may be that some studies in our country proved that some of the mains water is not suitable for consumption chemically or microbiologically, and this result may have caused people to be afraid of tap water (Tuluk et al. 2017, Elal Mus & Cetinkaya 2017).

In our study, the majority (87.5%) of those who did not drink tap water stated that the reason for not drinking tap water was "not being clean and safe". This was followed by "disliking the smell" with a rate of 63.1%. In a study on consumer behavior and awareness of water use in our country, the rate of thinking that the mains water is dirty was found to be as high as 70% (Ciner 2017). These results show that the mains water is not trusted. On the other hand, our participants stated that they were ready to consume tap water in a sense; 96.5% of our participants stated that if the reliability of tap water is proven by the authorities, 67.6% of them stated that it is possible if there is an incentive for the use of tap water on TV and social media. For this reason, state and government officials should deal with this issue away from commercial concerns, make confidence-building actions to increase the use of mains water, and share it with users.

In our study, it was determined that those with the highest income had drunk more purified water, and those with low income had drunk more packaged, spring, and tap water ($p<0.001$, per one). According to the research conducted by Tosun 2005, one of the reasons for this may be the high nitrate rate in some packaged water, which is far from inspection, even if it is packaged, the detection of infectious disease-causing organisms, and the detection of heavy metals in it, which may have pushed people to establish their own purification systems (Tosun 2005). One reason why the purification system is used

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only by the wealthy may be; since these systems are generally expensive systems imported from abroad, only those who have money have access to these treatment systems. It is clear that the reason for the increase in the use of purified water, which is more expensive than tap water, is mainly due to taste and health risk concerns (Doria 2006).

Considering the drinking water habits of the participants according to their gender; it was determined that women had drunk more tap water compared to men ($p<0.001$, respectively).

Although there is no explanation for this in the literature, an explanation for this may be that women in Turkey may have turned to tap water when there is no packaged water due to the fact that they are not sufficiently engaged in business life and therefore stay at home all the time.

In our study, the participants suggested the clean, safe, and taste of the water as the reason for consuming more of their preferred water. Similar results were found in another study conducted in another province of our country; in this study, the participants stated hygiene and taste as the most preferred reason (Uzundumlu et al. 2016, Tokay et al. 2020). Our and other studies show that the drinkability of water determines its safety, hygiene, and taste.

CONCLUSION

Despite the dangers of plastic in the world and in our country, the use of packaged water has increased and seems to increase gradually. In this increase, it does not seem like due importance will be given to mains water, since local governments do not pay due attention to the infrastructure of mains water, and instead of spending the municipality's resources on invisible infrastructure, they allocate more attention to flowers, festivals, concerts, street decorations, soup kitchens and competitions that voters will like more. However, mains water is of vital importance as it will minimize the use of environmentally friendly plastic wastes. People have been compelled to categorize fresh water as drinking water or potable water; They have been prevented from considering using water, which they think is not clean and safe, as a risk factor for taking a shower, brushing teeth, and washing the breech area after toilet.

This study once again reveals that, even if the province where the study is conducted has a special situation such as KALABAK water, it is a necessity to bring all water to the houses through the mains in order not to cause non-environmentally friendly wastes. It is clear that there is a need for awareness and training programs that will increase the public's water consumption awareness in order to force the municipalities in this respect.

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