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POTABLE WATER PREFERENCES OF THE EMPLOYEES WORKING IN TOKAT PUBLIC HEALTH DIRECTORATE AND THE IMPACTING FACTORS

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ABSTRACT

Objective
The objective of our study was to examine potable water preferred by the staff employed within the Tokat Public Health Directorate Province Center (central building) as well as the factors which generated this preference.

Material and Methods
A total of 127 personnel are employed with Tokat Public Health Directorate Province Center out of which 108 (85%) have been accessed.. In the statistical analysis, numbers (n), percentage were used for descriptive data, Chi-square test was used to compare the data obtained by counting. Statistical significance level was accepted as $p < 0.05$.

Results
The average age of the respondents in our study was 39.1±8.0 and 41.7% were male and 58.3% were female. It has been determined that 31.5% of the respondents consumed packaged water, 47.2% preferred tap water, 19.4% consumed water treated with a purifier while 1.9% consumed water collected from the village fountain as potable water. 96.8% of those who reported that they preferred packaged water for potable water indicated that they had been influenced by the contents (mineral, PH value…), 26.3% said that they preferred the water because the producer was a local company, 23.4% were impressed with easy availability, 11.7% said they had been influenced by peer recommendations and orientation whereas 26.4% reported that they were impressed with the way the water was stored.

Conclusion
The employees of Tokat Public Health Directorate's Province Center trust and prefer to use tap water as drinking water. Respondents' knowledge of packaged water is not sufficient and instruction is needed in this regard.

Key words: Potable water, preference, packaged water, knowledge

INTRODUCTION AND OBJECTIVE

Every human being has the right to access safe and available water. The need for water has started to increase in the world and in our country in parallel with the increase in population, industrialization and urbanization (1,2). Therefore the need for potable and clean water has also increased. Water that does not contain chemical substances which are harmful for health and miniscule organisms which cause sickness and contains minerals which are necessary for life is defined as healthy and clean water. (3). In our country the criteria for clean and usable water are ensured with the 'Regulation for Water for Human Consumption' and the criteria for packaged water is defined by 'Regulation regarding Natural Mineral Waters' (4,5). The access rate to reliable water in our country has increased over the years. Both press reports and negative experiences about tap water have forced people to choose different water sources. After packaged water production started, water advertisements and negative experiences with tap water has led consumers to prefer this production and the consumption of packed water has started to increase (3).
Public Health Directorates have been established with a health transition program. Public Health Directorates carry out preventive health services as well as primary health care services. The objective of our study was to examine potable water preferred by the staff employed by Tokat Public Health Directorate Province Center (central building) as well as the factors which generated this preference.

MATERIAL AND METHOD

A total of 127 personnel are employed with Tokat Public Health Directorate Province Center. In our descriptive type study 108 (85%) respondents were reached due to annual leave and secondment in other organizations. A questionnaire prepared in the context of literature containing 25 questions affecting the preferences for potable drinking water and socio-demographic data was implemented. The data collection for our study took place during 1-15 December 2016. Verbal consent was obtained from the respondents during the implementation of the questionnaire. In the statistical analysis, numbers (n), percentage were used for descriptive data, Chi-square test was used to compare the data obtained by counting SPSS 18 program was used for statistical analysis. Statistical significance level was accepted as $p < 0.05$.

RESULTS

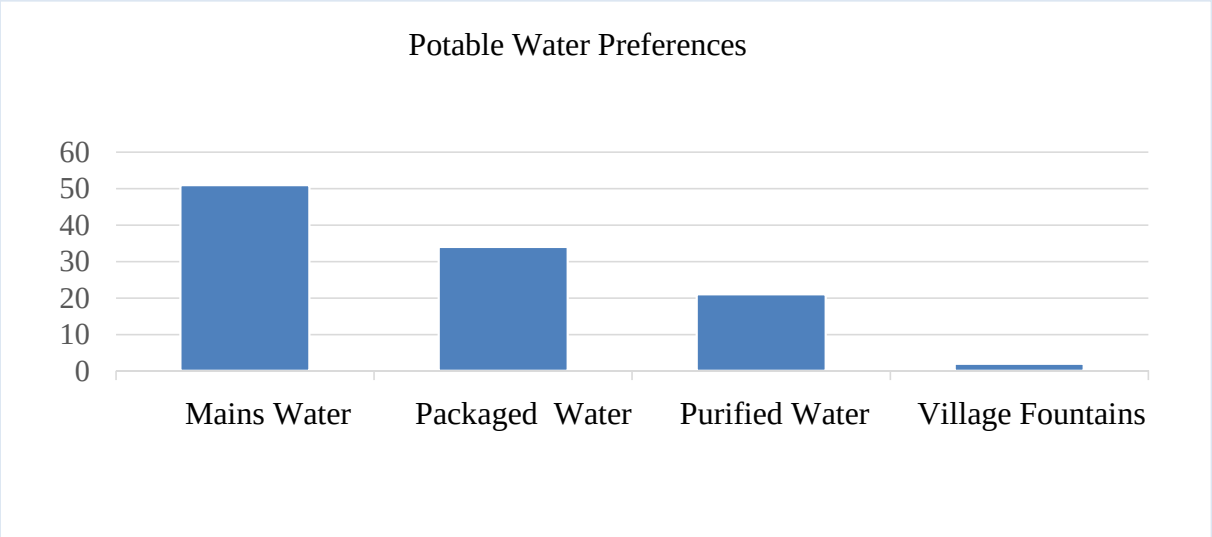
The average age of the respondents in our study was 39.1±8.0 and 41.7% were male and 58.3% were female. 3.7% of the respondents were primary school graduates, 3.7% were secondary school graduates, 18.5% were high school graduates, 34.3% had associate degrees, 34.3% were university graduates and 5.5% had graduate and doctoral education. 6.5% of the respondents were physicians, 54.6% were nurses/midwives/ health officers and 38.9% were other staff members (medical secretary, psychologist, engineer, child development specialists, dietician, technician, etc. ...) 5.6% of the respondents earned 1300 TL or less, 46.3% earned 1301-3000 TL and 48.1% earned more than 3000 TL as salaries (Table 1). 96.3% of the respondents were residing in Tokat province center and 29.6% of the families were composed of 2 adults and 2 children. 73.1% of the respondents think that the region our country is located in is threatened with water shortage.

Table 1. Socio-demographic Characteristics of Health Personnel

		n	%
Gender	Male	45	41,7
	Female	63	58,3
Education level	High school and less	28	25,9
	Associate Degree	37	34,3
	University	37	34,3
	Post Graduate/ Doctorate	6	5,5
Profession	Specialist Doctor/ Doctor	7	6,5
	Midwife/Nurse	59	54,6
	Other*	52	38,9
Income level	3000 TL and less	56	51,9
	3000 TL plus	52	48,1

*Medical secretary, psychologist, engineer, child development specialists, dietician, technician etc.

There are 4 companies in our province that manufactured packaged water and 43.5% of the respondents were aware of these companies. When the respondents were asked what was required for safe water, 79.6% replied that water which had been analyzed for chemical and bacteriological characteristics and produced clean results is clean. It has been determined that 31.5% of the respondents consumed packaged water, 47.2% preferred tap water, 19.4% consumed water treated with a purifier while 1.9% consumed water collected from the village fountain as potable water (Graphic 1).



Graphic 1. Potable Water Preferences of Health Personnel

88.9% used tap water for domestic purposes. 85.2% of the respondents were aware that packaged water must be kept away from substances such as chemicals, detergents, cleaning materials while 75% were aware that all packaged water was not natural spring water and 49.1% knew that the use by date of water is one year after its production date, 87% knew that packaged water must be kept in a cool, dark and dry place, 46.3% were aware that packaged water carried a symbol which indicated that it is potable water and 25.9% said that this symbol is visible from a visibility distance. 77.8% reported that they read the label on the water package before selecting a water package. In response to the question about the negative aspects which might be manifested when storage conditions of packaged water is inappropriate 42.6% of the respondents gave correct answers. In response to the question how to distinguish that bottled water was safe and clean (a multiple choice question) 76.8% said that the bottle cap had to be designed in such a way that it cannot be opened without tearing or breaking the cap, 78.8% replied that the water had to be clear and not murky without a greenish tint, 78.8% said that the label had to fresh and the form of the bottle undistorted. 62% of the same respondents were unaware that packaged water producers needed to obtain permission from the Ministry of Health for packaged water production. 96.8% of those who reported that they preferred packaged water for potable water indicated that they had been influenced by the content (mineral, PH value…), 26.3% said that they preferred the water because the producer was a local company, 2.9% had been affected by television and internet advertising, 23.4% were impressed with easy availability, 11.6% said they liked the esthetic packaging, 11.7% said they had been influenced by peer recommendations and orientation whereas 26.4% reported that they were impressed with the way the water was stored. In response to the question whether poor analysis results manifested by previous inspections of bottled water had had an impact on the water preference of the respondents, 63% said that they did not use bottled water so they had not been affected, 31.5% said that they had been using bottled water but had given up after the emergence of negative aspects, 4.6% claimed that they had not been affected and continued to use bottled water. 76.5% of those who had given up using bottled water used packaged water and indicated a preference for maximum 5 liter packages, 8.8% used tap water, 11.8% consumed water from a purifier while 2.9% consumed water from the village fountains which they believed to be clean. It was determined that 73.1% of the respondents had encountered enterprise selling water under inappropriate conditions and that they had failed to remonstrate in any way.

No significant statistical difference was found when the potable water consumption preferences of respondents who were doctors-assistant staff or according to gender, income of 3000 TL and under or over and others were compared ($p>0.05$). A significant statistical difference was observed in the potable water consumption preferences of those whose educational status was high school and less/high school graduate plus ($p<0.05$) (Table 2).

Table 2. Factors Affecting Packaged Water Consumption of Health Staff as Drinking Water

		Potable water preference (Packaged Water)				
		Uses		Does not use		
		n	%	n	%	p
Gender	Male	32	43,2	13	38,2	0,779
	Female	42	56,8	21	61,8	
Education level	High school and less	25	33,8	3	8,8	**0,012**
	High school plus	49	66,2	31	91,2	
Income level	3000 TL and less	42	56,8	14	41,2	0,194
	3000 TL plus	32	43,2	20	58,8	
Total		74	100	34	100	

DISCUSSION

47.2% of the staff with Tokat Public Health Directorate Province Center preferred tap water while almost one third preferred packaged water as drinking water. In a study carried out in Silivri, the percentage of packaged water use was 87% which is higher than the rate in our study (6). A study carried out in Erzurum by Uzundumlu et al. revealed that the rate of bottled water used by the respondents was 21.52% while the rate of used tap water was 44.92%. The usage rate for mains water is similar to the rate in our study whereas there are differences in the supply of potable water from alternative sources (7). We think that half of the staff employed with the directorate prefer the mains water because of the low pollution rate in the tap water in the province center. According to a Turkey Nutrition and Health Study carried out in 2010 the rate of packaged water used as potable water was 28.5% while the usage rate for tap water was 63,3% (8). The results indicate a higher preference for mains water compared to our study. According to the Water Consumption Awareness Study carried out in Istanbul the packaged water consumption rate has been determined as 81.5%. The respondents explained the reason for the high rate was the taste of mains water, its bad smell and pollution (9). It has been determined that the consumers of packaged water are mainly influenced by the contents of the water (mineral, PH value…), being a local company and the way the water is stored whereas the study carried out by Yao indicated that consumers of packaged were mostly influenced by advertising (10). A study carried out in Edirne revealed that preference for packaged water was mainly affected by the contents of the water (mineral, PH value…) which is commensurate with our results (11). In our opinion the respondents paid attention to the contents of the packaged water because they are employees in a health organization. Only 4.6% of those who used bottled water were unaffected by unfavorable news about bottled water in the press while a majority chose to go to a different source or switched to a packaged water type. Only 49.1% of the respondents were aware that the use by date of packaged water was one year after the production date, 46.3% were aware that packaged water was marked with a symbol which indicated that it is potable and 25.9% knew that this symbol is visible from a visibility distance, in response to the question about what negative aspects may be generated when packaged water is kept in inappropriate storage conditions, 42.6% of the respondents answered correctly while 62% were unaware that permission had to be obtained from the Ministry of Health for the

production of packaged water which indicates that there is a need to update the knowledge of the respondents and that instruction is required to be informed better about the subject.
No significant statistical difference was found when the potable water consumption preferences of respondents who were doctors-assistant health staff and others, gender, income of 3000 TL and under or over and others were compared ($p>0.05$). A significant statistical difference was observed in the potable water consumption preferences of those whose educational status was high school and less/high school graduate plus ($p<0.05$). Similarly to the study carried out by Durga et al., our study indicated that gender did not have an impact on the consumption of packaged water, however a high income increased the preference for packaged water (12). In a study conducted by Quansah et al., it has been determined that gender does not affect a preference for packaged water which coincides with the results of our study (13).
Despite the advertisements and campaigns encouraging the use of packaged water, the employees of Tokat Public Health Directorate's Province Center trust and prefer to use tap water as drinking water. Respondents' knowledge of packaged water is not sufficient and instruction is needed in this regard.

Conflict of interest

The authors declare that there is no conflict of interest

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