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Küçük Ölçekli İşletmelerde Mesleki Bir Riskin Analizi: Uygunsuz Su Tüketimi

Analysis of an Occupational Risk in Small Scale Enterprises: Inappropriate Water Consumption

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Özet

Amaç: Bu çalışmanın amacı Şanlıurfa mobilya sektöründe yer alan küçük ölçekli işletmelerde çalışanların içme suyu tüketim özelliklerinin değerlendirilmesi ve su tüketimi ile sosyodemografik, mesleki ve çevresel faktörlerin ilişkisini incelemektir. Bu sektör çalışanlarının içme suyu tüketimi özellikle sıcakta çalışma koşullarına göre yetersiz olup çalışan sağlığı açısından risk oluşturmaktadır. Küçük işletmeler için özellikle sıcak hava koşullarında var olan risklere karşı etkili, sade iş sağlığı uygulamaları önerilmelidir.

Yöntem: Araştırma kapsamında 319 çalışan ile cross sectional survey gerçekleştirilmiştir. İçme suyu tüketim özellikleri, hidrasyon konusunda bilgi edinme kaynakları, sosyodemografik ve mesleki özellikleri yapılandırılmış formlar ile sorgulanmıştır. İçme suyu alım özelliklerinin belirlenmesi için tanımlayıcı ve karşılaştırmalı analizler uygulanmıştır.

Bulgular: Katılımcıların gündelik içme suyu tüketim miktarı ortalaması 3.62 ± 2.23 litre olarak sıcak ortamlarda çalışanlar için önerilen miktarın altındadır. Terleyen katılımcıların (3.45 ± 1.44 litre), terlemeyen katılımcılara göre (3.45 ± 1.44 litre), içme suyu tüketiminin önemi konusunda doktor tarafından bilgilendirilmiş olan katılımcıların (4.03 ± 1.59 litre) bilgilendirilmemiş olanlara göre daha fazla (3.14 ± 1.32 litre); üçten fazla mola sayısına sahip katılımcıların (3.75 ± 1.53 litre) daha az sayıda mola sayısına sahip katılımcılardan (2.97 ± 1.38 litre) daha fazla miktarda içme suyu tükettiği gözlenmiştir. Sıcak havada bulunmalarına rağmen katılımcıların % 90 dan fazlasının içme suyu tüketiminin önemi konusunda bilgilendirilmediği tespit edilmiştir. Linear Regresyon modellemesinde içme suyu tüketim özellikleri, molada içme suyu tüketimi ve bilgi edinme kaynaklarının çeşidine bağlı olarak belirgin istatistiksel farklılıklar gözlenmiştir.

Sonuç: Araştırma katılımcıların yeterli içme suyu tüketim ortalamalarına sahip olmadıklarını ve (bilgimize göre) literatürde ilk kez bu sorunun çözümünde hekim bilgilendirmesinin önemini istatistiksel olarak ortaya koymuştur. Profesyonel sağlık çalışanları tarafından bilgi sunulması ve mola sayılarının yeterliliği çalışanların içme suyu tüketim özelliklerini geliştirebilir.

Anahtar Kelimeler: küçük işletmeler, içme suyu tüketimi, risk analizi, iş sağlığı

Jel Kodları: I1, I3, J1.

Abstract

Objective: In this study, it is aimed to assess the drinking water consumption characteristics of employees working in small-scale enterprises (SSEs) in the furniture sector in Şanlıurfa, Turkey, and to explore the relationship between water intake and sociodemographic, occupational, and environmental factors. The employees in this sector consume insufficient drinking water, especially those working in hot conditions, which poses a risk to their occupational health. SSEs, particularly those in hot climates, need simple and effective occupational health strategies to address occupational risks.

Methods: In this study, a cross-sectional survey was conducted involving 319 employees. Data on water consumption habits, sources of information regarding hydration, and sociodemographic and occupational characteristics were collected via a structured questionnaire. Descriptive and comparative analyses were performed to identify factors influencing water intake.

Results: Participants have a daily consumption average of 3.62 ± 2.23 liters of drinking water, below the recommended levels for those working in hot environments. Employees who sweat drink more water (3.45 ± 1.44 liters) than employees who do not (2.60 ± 1.14 liters). Participants who took advice from medical doctors for drinking water (4.03 ± 1.59 liters) consume significantly more water than those not (3.14 ± 1.32 liters). Employees with more than three breaks per day consumed more water (3.75 ± 1.53 liters) compared to those with fewer breaks (2.97 ± 1.38 liters). Despite the warm climate, 90% of the participants had no formal education on the importance of hydration. Water consumption timing, break consumption, and information sources significantly differ in the linear regression model.

Conclusion: The research revealed that the participants did not have sufficient drinking water consumption mean values, and the importance of physician information for this issue has been emphasized statistically for the first time in the literature (to our good knowledge). Information provided by medical professionals and access to adequate breaks can improve hydration habits.

Key Words: small-scale enterprises, drinking water consumption, risk analyses, occupational health
Jell Codes: I1, I3, J1.

Introduction

Small-scale enterprises (SSE) contribute significantly to the economy but face challenges in Occupational Health and Safety (OHS). In many countries, research, policies, and legislation regarding OHS are often designed with larger companies in mind (Hagqvist et al., 2020; Doğanay, 2022). SSEs are defined as enterprises with 1–9 employees (very small) and 10–49 employees (small-scale). It is particularly hard to implement and sustain a successful OHS model in SSEs (Mei et al., 2020). Since employees in SSEs often lack adequate information about their individual risk levels, they have a generally higher risk for occupational injuries and illnesses (Legg et al., 2015; Apaloo et al., 2022). Tailored, action-oriented, and low-cost approaches might be more effective in managing OHS in these enterprises (Legg et al., 2015).

Effective OHS solutions which are easy to implement are especially important for furniture manufacturing sectors, where employees face various physical, chemical, and biological hazards. These hazards include occupational accidents, diseases, and other risks associated with workplace environments (Aşkın & Öztürk, 2022; Asil, 2022). Most furniture sector enterprises in Turkey are SSEs, which face similarly high OHS

risks (Aksoy & Keskin, 2019). The notable risks in this sector are heat and humidity (Kayalıcı, 2020). It is known that adequate drinking water consumption is particularly important for employees working in hot environments since sweating is common too (Devi et al., 2023).

While some studies, such as Beşenk (2022), have explored water consumption patterns in some professions, the furniture sector has not been examined thoroughly. Dehydration, resulting from inadequate fluid intake, is a critical concern in occupational health. Factors such as lack of awareness, insufficient break times, or limited access to clean water can contribute to inadequate fluid intake (Orysiak et al, 2023). Research suggests that frequent breaks can increase water consumption (Walden et al., 2018). Seasonal changes, cultural and sociodemographic factors, and ease of access to fresh water also influence drinking water habits. The optimal amount of water consumption varies by age, gender, physical characteristics, activity levels, and workplace and environmental conditions (Casado et al., 2015; Jequier & Constant, 2010; Üner & Yılmaz, 2020).

Research highlights the importance of managing fluid intake in the workplace and the risks of dehydration (Jacklist et al., 2016; Walden et al., 2018; Popkin et al., 2010). Dehydration compromises occupational safety by increasing the risk of accidents and presents a manageable challenge. Preventing dehydration is a cost-effective and sustainable measure that can be implemented in all workplaces (Kenefick & Sawka, 2007). Some studies also indicate that exposure to high workplace temperatures increases the risk of acute kidney injury and other kidney diseases through dehydration (Chapman et al., 2020; Üner & Yılmaz, 2020; Jayesekara et al., 2019). Adequate hydration should be a priority in occupational health, as dehydration may diminish thermal comfort (Lei et al,2023). Previous research shows that inadequate fluid intake among workers can lead to occupational injuries, illnesses, and reduced productivity (TÜBER 2022; Adan 2012; Grandjean & Grandjean 2007). Dehydration impairs decision-making, reduces cognitive function, and raises the risks of accidents, ultimately increasing operational costs and compromising safety (Kenefick & Sawka 2007; Zhang et al., 2019). Occupational Health and Safety (OHS) management must address these risks, particularly in SSEs where accidents are more frequent than in larger enterprises. Risk assessments, employee training, and effective OHS measures are critical for preventing dehydration-related accidents (Tejamaya et al. 2021).

Between 1929 and 2022, Şanlıurfa experienced maximum annual temperatures as high as 46.8°C (MGM, link). Therefore, SSEs in Şanlıurfa's manufacturing sector face heightened dehydration risks due to the region's climate, work conditions, and the inadequacy of OHS systems.

Materials and Methods

This cross-sectional descriptive study was conducted between August 7–11, 2023, in Şanlıurfa. The target population consisted of 400 SSE employees of the Şanlıurfa Carpenters and Furniture Makers Chamber. A total of 319 participants agreed to take part in the study. After applying exclusion criteria, data from 276 employees were analyzed. The research aimed to assess the relationship between drinking water consumption and various sociodemographic and occupational variables among employees working in SSEs. The questionnaire was developed by the researchers due to the literature and had 3 sections: The first section included questions on socio-demographic and health-related variables as age, gender, marital status, education level, occupation, height, weight, smoking habits, chronic illness history, and drug use; the second section included questions on occupational-related variables, the third section included questions on drinking water consumption amount and habits of participants. It was pretested on 10 individuals out of the target population. Data were collected through face-to-face interviews conducted at the participants' workplaces. Statistical analysis was performed using IBM SPSS Statistics 23. Inclusion criteria: Employment in the specified section during the research period and willingness to participate. Exclusion criteria: Extreme values for daily drinking water consumption values and unanswered daily water consumption amounts. The type of drinking water consumed was asked

as glass, bottle, water dispenser, tap, water tanker, and other sources. For analysis, these were grouped into: tap, closed water (e.g., bottle or dispenser), tanker, other + tap, and other + no tap (others: some different drinking sources; others +tap: these different sources and tap combined; other +no tap: only the other sources) Participants were asked to report their daily water intake in terms of the number of glasses, with each glass standardized to 200 ml. The sources of information on the importance of drinking water consumption were recorded with multiple response options: mass media, internet/social media, medical professionals, friends, or no information. Due to the unclear normality limits in the data, as indicated by normality tests, skewness, kurtosis, and histogram analysis, both parametric and non-parametric tests were used depending on the specific variable. A linear regression model was applied for independent variables those caused significant differences in the mean value of daily drinking water consumption amounts. The linear regression model table was presented as supplementary material and the variables those have a significant difference in drinking water amounts due to the model are presented in Table 4.

Ethics approval for the research was obtained from the Harran University Clinical Research Ethics Committee on June 19, 2023 (Approval No.: HRÜ/23.11.10).

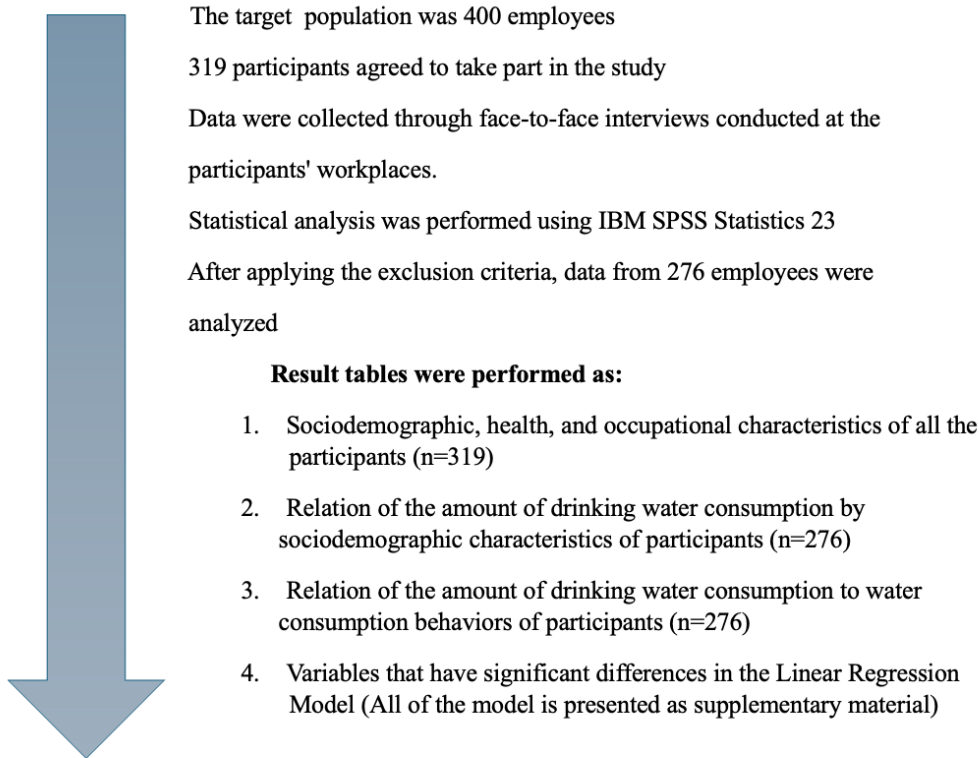


Figure 1. Flow diagram of the research.

Results

This study reached 319 individuals employed in the furniture sector, with ages ranging from 13 to 65 years, and a mean age of 34.91 ± 11.42 years. The majority (96.9%) were male, involving 20 participants under 18 years old. Over half of the workers had completed primary or secondary education, and 56.7% were married. Regarding breaks, 82 participants (25.7%) reported taking less than 3 breaks per day, 130 participants (40.8%) took 3 breaks, and 80 participants (25.1%) had more than 3 breaks, while 3 participants (0.9%) reported no breaks at all (Table 1).

Table 1: Sociodemographic, health, and occupational characteristics of all the participants

Sociodemographic	n	%	Health	n	%
Gender			Chronic disease		
Male	309	96,9	Yes	29	9,1
Female	8	2,5	No	280	87,8
Missing	2	0,6	Missing	10	3,1
Age groups			BMI		
13-17	20	6,3	25-29,9	8	2,9
18-25	59	18,5	25-29,9	8	2,9
26-40	86	27,0	30-34,9	82	29,7
41-65	107	33,5	35-39,9	160	58,0
Missing	47	14,7	Missing	9	3,3
Marital status			Drug use		
Married	181	56,7	Yes	9	2,8
Single	106	33,2	No	301	94,4
Missing	32	10,0	Missing	10	2,8
Education			Disability		
Primary school	51	16,0	Yes	8	96,9
Secondary school	136	42,6	No	309	0,6
High/Vocational school	98	30,7	Missing	2	-
University/Postgraduate	28	8,8	Smoking		
Missing	6	1,9	Yes	157	49,2
Break numbers			No	162	50,7
<3	85	26,6	Missing	-	-
3	130	40,8	Occupation		
>3	80	25,1	Furniture manufacturer	156	48,9
Others	4	1,3	Carpenter	62	19,4
Missing	20	6,3	Side branches	51	19,1
Employee numbers			Tradesman	22	6,9
2-9	287	90	Secretary	2	0,6
10-20	21	6,6	Missing	16	5,0
Missing	11	3,4	Total		
Total	319	100		319	100

Tap water was the most common drinking water source, used by 144 participants (45.14%) alone and in combination with other drinking water sources by 127 participants (39.81%); therefore, 271 participants (84.95%) drank tap water. Most participants (n=264, 82.8%) drank water when they felt thirsty. Only 54 workers (16.9%) had received information on water consumption from medical doctors, while the majority (n=147, 46.08%) reported receiving information from other sources, and 22 participants (6.89%) had no information. Additionally, 90% (n=287) of the workers had no formal education about the importance of water consumption (Table 2).

Table 2. Relation of the amount of drinking water consumption by sociodemographic characteristics of participants (n=276)

	n	%	MIN(I)	MAX(I)	Mean (I)	Median(I)	Sd.	p
Gender								0,03
Male	269	97,5	0,4	8,0	3,3	3,0	1,4	
Female	6	2,2	1,4	4,0	2,6	2,0	0,9	
Age groups								0,369
13-17	13-17	18	1,2	5,8	2,9	3,0	1,3	
18-25	18-25	47	1,2	6,0	3,4	3,4	1,3	
26-40	26-40	77	0,8	8,0	3,2	3,0	1,6	
41-65	41-65	100	1,0	8,0	3,4	3,0	1,1	
Marital status								0,022
Married	162	58,7	0,6	8,0	3,4	3,0	1,3	
Single	93	33,7	0,4	6,0	3,05	3,0	1,3	
Education								0,064
Primary school	48	17,4	0,6	8,0	3,7	4,0	1,3	
Secondary school	115	41,7	1,0	8,0	3,4	3,0	1,3	
High/Vocational school	86	31,2	0,8	8,0	3,0	3,0	1,4	
University/Postgraduate	24	8,7	1,0	6,0	3,2	3,0	1,4	
Illness								0,14
No	249	90,2	0,8	8,0	3,2	3,0	1,3	
Yes	21	7,6	0,4	8,0	4,0	4,0	2,0	
BMI								0,004
25-29,9	8	2,9	1,4	5,8	3,2	2,8	1,8	
30-34,9	82	29,7	0,6	8,0	2,9	2,4	1,5	35-35,9 p=0,021
35-39,9	160	58,0	0,4	8,0	3,4	3,0	1,3	
40-50	17	6,2	1,4	6,0	4,0	4,0	1,4	30-34,9 p=0,013
Drug use								0,032
No	264	95,7	0,6	8,0	3,3	3,0	1,4	
Yes	6	2,2	0,4	6,0	3,1	2,5	2,3	
Disability								0,01
No	271	98,2	0,4	8,0	3,3	3,0	1,4	
Yes	5	1,8	1,0	8,0	4,4	4,0	2,7	
Smoking								0,006
No	140	50,7	0,4	8,0	3,0	3,0	1,3	
Yes	136	49,3	0,6	8,0	3,5	3,4	1,4	
Occupation								0,619
Furniture manufacturer	138	50,0	0,4	8,0	3,3	3,0	1,3	
Carpenter	59	21,4	1,0	8,0	3,2	3,0	1,4	
Side branches	51	18,5	0,6	8,0	3,5	3,0	1,6	
Tradesman	21	7,6	0,8	6,0	3,2	3,2	1,3	
Secretary	2	0,7	2,0	2,4	2,2	2,2	2,8	
Employee number								0,48
2-9	262	94,9	0,4	8,0	3,3	3,0	1,4	
10-20	14	5,1	1,6	6,0	3,0	3,0	1,2	
Number of breaks*								0,001
<3	75	27,2	1,0	8,0	2,97	2,6	1,38	>3 <0,01
3	122	44,2	0,6	8,0	3,35	3,0	1,39	
>3	67	24,3	0,4	8,0	3,75	3,8	1,53	
Others	6	2,2	1,0	8,0	2,5	2,2	1,3	

The minimum reported daily water consumption was 0.4 liters, and the maximum was 16 liters, with a mean of 3.62 ± 2.23 liters. Most workers drank water during work ($n=242$, 75.9%), during breaks ($n=270$, 84.6%), and at meals ($n=292$, 91.5%) (data not shown in table).

The results of daily water consumption amounts have significant differences across various groups. Male participants consumed more water on average (3.35 ± 1.43 liters) than females (2.26 ± 0.99 liters) ($p=0.03$). Participants who had more than 3 breaks consumed more water (3.75 ± 1.53 liters) compared to those with fewer than 3 breaks (2.97 ± 1.38 liters) ($p=0.001$). Those who drank water during breaks consumed significantly more (3.48 ± 1.42 liters) than those who didn't (2.28 ± 1.11 liters) ($p=0.001$). Participants who drank water at home consumed more (3.49 ± 1.45 liters) than those who did not (2.58 ± 1.09 liters) ($p<0.001$). Employees who reported sweating drank more water (3.45 ± 1.44 liters) than those who did not (2.60 ± 1.14 liters) ($p=0.001$). Additionally, those who received information from a medical doctor had a higher average water intake (4.03 ± 1.59 liters) compared to others (3.14 ± 1.32 liters) ($p=0.001$) (Table 3).

Table 3. Relation of the amount of drinking water consumption by the water consumption behaviors of participants (n=276)

	n	%	MIN(l)	MAX(l)	Mean (l)	Median(l)	Sd.	p
Water source								0,264
Tap	122	44,2	1,0	8,0	3,2	3,0	1,4	
Combined	123	44,6	0,6	8,0	3,3	3,0	1,4	
Bottled water	22	8,0	0,4	5,4	2,9	2,7	1,4	
Tanker	5	1,8	3,0	4,4	3,7	3,6	0,5	
Others	4	1,4	3,8	5,6	4,6	4,5	0,8	
Water consumption behavior*								0,025
When I remember	241	87,3	0,6	8,0	3,2	3,0	1,4	Mobile r. 0,02
Planned	20	7,2	0,4	8,0	3,6	3,9	1,6	
Mobile reminder**	5	1,8	3,6	5,8	4,9	5,6	1,0	
Feeling thirsty time								0,09
Morning-noon	62	22,5	0,4	8,0	3,2	3,0	1,6	
Afternoon	122	44,2	1,0	6,0	3,1	3,0	1,3	
Out of work	5	1,8	0,6	5,8	2,7	2,0	2,1	
Always	87	31,5	0,8	8,0	3,6	3,4	1,4	
Water consumed at breaks								<0,001
Yes	239	86,6	1,0	8,0	3,4	3,0	1,4	
No	37	13,4	0,4	5,6	2,2	2,0	1,1	
Water consumed at meal								0,52
Yes	262	94,9	0,6	8,0	3,3	3,0	1,3	
No	14	5,1	0,4	8,0	3,0	2,4	2,1	
Water consumption while working								0,02
Yes	214	77,5	0,4	8,0	3,4	3,0	1,4	
No	61	22,1	0,8	6,0	2,9	2,4	1,2	
Water consumption at home								<0,001
Yes	224	81,2	0,4	8,0	3,4	3,3	1,4	
No	47	17,0	0,8	6,0	2,5	2,0	1,0	
Public information source								<0,001
All of them	19	6,9	0,6	8,0	3,9	3,0	2,1	M med 0,01
Mass media	30	10,9	1,4	6,0	2,6	2,4	1,0	Doctor 0,001
Doctor	28	10,1	1,4	6,0	4,0	4,1	1,1	Int. sm <0,001
Others without a doctor	140	50,7	1,0	8,0	3,3	3,0	1,3	Int sm 0,01
Internet social media	18	6,5	0,8	6,0	2,2	2,0	1,1	All of 0,002
Friend	6	2,2	1,0	4,6	3,0	3,0	1,2	
No information	21	7,6	1,6	5,0	3,0	3,0	1,0	
Information from a doctor								<0,001
Yes	47	17,0	0,6	8,0	4,0	4,0	1,5	
No	215	77,9	0,8	8,0	3,1	3,0	1,3	

* The difference is between when I remember and mobile reminder groups $p=0,030$ due to the posthoc test.

** Mobile app

Although the results above have been observed due to the binary analysis, variables which have significant differences in the linear regression model are: Water consumption time, water consumption at breaks, and being informed by a doctor about the importance of drinking water consumption (Table 4 and supplementary material).

Table 4. Variables that have significant differences in the linear regression model (All of the model is presented as supplementary material)

Adjusted R² =0,197 Anova = 0,000^b F= 3,372

Model	B	Std. Error	Sig.	95,0% Confidence Interval for B	
				Lower Bound	Upper Bound
Constant	4473,392	1643,768	0,007	1231,121	7715,662
Water consumption when remembers	-1966,042	989,285	0,048	-3917,370	-14,714
Planned water consumption	-1840,950	1100,346	0,096	-4011,340	329,440
Water consumption at break	694,532	311,181	0,027	80,740	1308,324
Information has been taken from the doctor	831,683	406,744	0,042	29,396	1633,970

Discussion

Small-scale enterprises (SSEs) are vital for the social and economic development of all nations, playing a key role in both national and regional economies (Manesha 2020; Vinberg 2020). Additionally, SSEs and self-employed workplaces have the potential to reduce social and gender inequities while implementing solutions for environmental challenges (Vinberg 2020). However, they face numerous challenges in terms of survival, particularly regarding occupational health and safety (OHS). OHS strategies for SSEs need to be simple, cost-effective, and easy to implement. Given the difficulties in reaching these enterprises with standard interventions, OHS improvement models must be both practical and impactful. Observation is one of the important factors that has a significant role in modern management systems of OHS (Farantos & Dounias 2024). It helps to realize problems and to be proactive to prevent undesirable results.

Dehydration is one of the significant risk factors for occupational health and safety, especially in sectors involving physical labor and exposure to hot environments. However, to our knowledge, no prior risk analysis has specifically focused on dehydration among workers in small-scale enterprises (SSEs). The solution to dehydration is relatively simple: drink the necessary amount of water and beverages at appropriate intervals. Although the importance of hydration for health is well-established (Kenefick & Sawka 2007; Adan 2012; Ueno et al., 2018; Ioannau et al., 2021), limited research has examined this issue within the context of occupational health (Yıldız & Çoşkun 2019; Maughan et al., 2015). In extremely high conditions, water intake needs can be as high as 10-12 liters per day (Maughan et al., 2015). High temperatures, humidity, air movement, and heat radiation are occupational health hazards (Kjellstrom et al., 2016). Adequate hydration is critical for thermoregulation among workers (Williams et al., 2019), particularly in physically demanding or heat-exposed jobs (Kenefick & Sawka 2007). The recommendation of the European Food Safety Authority (EFSA) is 2 liters for adult women and 2.5 liters for men, depending on their physical activity and environmental conditions, for the daily water intake amount (Aranceta-Bartrina et al., 2016). In the case of SSE workers, who often face harsh conditions, additional factors such as occupational demands and workplace environment should be considered when determining water intake requirements. Individual characteristics, including age, gender, and physical activity levels, also contribute to variations in water consumption (Casado et al., 2015; Ünler & Yılmaz 2020). New studies should consider these factors in tandem with adaptive behaviors, as emphasized by Williams et al. (2019).

The data obtained from this study present insight into the hydration practices of employees in small-scale furniture enterprises in Şanlıurfa, a region with a hot and humid climate, especially during the summer months. As excessive sweating can suppress the body's thirst response, employees should be encouraged to hydrate regularly rather than waiting until they feel thirsty (TUBER 2022). Although in this study, those who reported sweating consumed more water (3.45 ± 1.44 L) than those who did not (2.60 ± 1.14 L), unfortunately, levels remain below recommended amounts ($p = 0.001$). The average daily water consumption was 3.32 ± 1.44 L, ranging from 0.4 L to 8.0 L, which is also below the recommended levels for physically demanding jobs in hot environments (Kenefick & Sawka 2007; Kjellstrom et al., 2017; Pryor et al., 2023). Knowledge alone is insufficient to understand the importance of hydration; the defined information that is adapted to daily life should be provided (Judge et al., 2021). A notable finding of our study is the impact of medical professionals as a source of information. The group that was informed exclusively by a doctor had a mean intake of 4.07 ± 1.13 liters, those who received information from both doctors and other sources consumed an average of 3.97 ± 2.13 liters, and this situation is one of the factors that has a statistical difference in the linear regression model, also (Tables 3 and 4). In contrast, participants informed by non-medical sources had a lower mean consumption of 3.39 ± 1.37 liters. Unfortunately, only 10.0% of participants cited medical doctors, and 6.9% mentioned a combination of medical doctors and others as the source of information (Table 2). In a study by Kaner et al. (2018), while some participants were aware of the adequate daily water consumption amount, others required additional information and expressed that reminders would be helpful. In the present study, water consumption was highest among participants who were informed by medical doctors. Taş et al. (2020) suggested that medical faculties should include more instruction on the importance of hydration. Since heat exposure and dehydration are significant occupational health risks (Kjellstrom et al., 2017), occupational physicians should be especially proactive in educating workers on proper hydration practices.

Most participants (83.1%) reported that they drink water only when they feel thirsty; however, for optimal occupational health, it is recommended to consume water on a schedule, not merely in response to thirst (OSHA 2014; Pyrori et al. 2023). Only 6.9% of participants consumed water in a planned manner, and just 1.7% used mobile reminder applications. Those with mobile reminder apps had the highest average daily water consumption (4.92 ± 1.03 liters), while participants who relied on thirst cues consumed the least (3.25 ± 1.41 liters) ($p = 0.014$). The drinking water consumption amounts of mobile reminder users showed a statistical difference in the linear regression model, as well (Tables 3 and 4). The relationship between water consumption and work breaks is also notable in this study. Participants who took more than three breaks per day drank more water (3.75 ± 1.53 L) than those with fewer breaks (2.97 ± 1.38 L). Additionally, workers who drank water during breaks consumed more overall (3.48 ± 1.42 L) than those who did not (2.28 ± 1.11 L) (Table 3), highlighting the role of break schedules in promoting proper hydration (Walden et al., 2018). In the linear regression model, there is a statistical difference in the amount of water consumed between participants who drink water during break time and those who do not, but no difference due to the number of breaks. Therefore, the important point is to provide water for employees during break times. Regarding water source preferences, 42.1% of participants primarily drank tap water, while 42.4% consumed both tap and bottled water. These preferences were influenced by factors such as age, education, and income, as well as the perceived reliability of the water supply (Patel et al., 2020).

This study is one of the first ones that examined the daily drinking water amount among SSE employees and highlights the importance of dehydration for occupational health. The limits of the study are having a small sample size and self-reported data, which limit to generalization of the findings. The other limitation of the study is that participants were asked to estimate their water consumption by the number of glasses, which may not be entirely accurate.

Conclusion and Recommendations: Occupational health is a shared responsibility between employers, employees, and occupational physicians. In SSEs, it is challenging to implement sustainable OHS systems, but simple, low-cost strategies can mitigate dehydration risks. Ensuring access to safe drinking water, educating workers on hydration, and monitoring workplace conditions are essential. Providing breaks and drinking water is an economical and simple proactive approach that increases productivity and prevents accidents. Especially, occupational physicians should inform employees about the importance of hydration. Further studies are needed to compare hydration practices in SSEs with those in larger enterprises. Adopting legislative directives on drinking water quality in workplaces, as recommended by Hecq et al. (2016), should also be a priority.

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Kaynakça

- Adan, A. (2012). Cognitive performance and dehydration. *Journal of the American College of Nutrition*. : 31(2): 71-78.
- Aksoy, E., & Keskin, H. (2019). Mobilya endüstrisinde iş sağlığı ve güvenliği ile ilgili risk değerlendirmesi: Begonya mobilya imalat işletmesi örneği. *Mobilya ve Ahşap Malzeme Araştırmaları Dergisi*, 2(1), 46-60.
- Apaloo, S., Dzah Bright, C. A., & Consult, B. B. (2022). The effect of risk management practices on performance of small and medium scale enterprises. *Enterprise Risk Management*, 7(1), 1-16.
- Aranceta-Bartrina J, Gil Â, Ascensión M, Caermen PR, Lluís SM and Gregorio VM. (2016). Conclusions of the II International and IV Spanish Hydration Congress. Toledo, Spain, 2nd-4th *Nutricion hospitalaria*. 33:1-3.
- Asil, H. (2022). Ahşap ve mobilya sektöründe iş kazası faktörlerinin ve iş kazası olasılık fonksiyonlarının belirlenmesi: Çorum örneği. *Yüksek Lisans Tezi. Hitit Üniversitesi*.
- Aşkın, A, and Öztürk ÖF. (2022). Mobilya sektörü çalışanlarında iş kazası ve meslek hastalıklarının incelenmesi üzerine bir araştırma. *Bartın Orman Fakültesi Dergisi*.24(2): 351-364.
- Beşenk B. Kapadokya Üniversitesi Lisansüstü Eğitim, Öğretim ve Araştırma Enstitüsü Dil ve Konuşma Terapisi Anabilim Dalı Profesyonel Ses Kullanıcılarının Demografik Bilgiler ve Ses Handikap Endeksiyle Ses Farkındalıklarının Değerlendirilmesi. (2022). *Yüksek Lisans Tezi Nevşehir*.
- Casado, Á, Ramos, P, Rodríguez, J, Moreno, N, & Gil, P. (2015). Types and characteristics of drinking water for hydration in the elderly. *Critical reviews in food science and nutrition*. 55(12):1633-1641
- Chapman CL, Johnson BD, Vargas NT, Hostler D, Parker MD, and Schlader ZJ. (2020). Both hyperthermia and dehydration during physical work in the heat contribute to the risk of acute kidney injury. *Journal of Applied Physiology*. 128(4):715-728.
- Devi, F. A., Setyaningsih, Y., & Widjasena, B. (2023). Relationship Between Physical Workload, Work Fatigue, and Drinking Water Consumption to Work Productivity of Brickmakers. *Disease Prevention and Public Health Journal*, 17(1), 93-99.
- Doğanay, B. (2022). İş güvenliği uzmanlarının perspektifinden kobilerde iş sağlığı ve güvenliği uygulamaları (Doctoral dissertation, Bursa Uludağ University (Turkey)).
- Farantos, G., & Dounias, G. (2023). Key Performance Indicators in Occupational Health and Safety of Hospitals: A systematic review with meta-analysis.
- Grandjean AC, Grandjean NR. (2007) . Dehydration and cognitive performance. *Journal of the American College of Nutrition*. 26(sup5), 549S-554S.
- Hagqvist, E., Vinberg, S., Toivanen, S., Hagström, M., Granqvist, S., & Landstad, B. J. (2020). Falling outside the system: Occupational safety and health inspectors' experiences of micro-enterprises in Sweden. *Safety Science*, 125, 104631.
- Hecq, P., Hulsmann, A., Hauchman, F. S., McLain, J. L., & Schmitz, F. (2006). Drinking water regulations. *Analytical Methods for Drinking Water: Advances in Sampling and Analysis*.
- Ioannou, L. G., Mantzios, K., Tsoutsoubi, L., Nintou, E., Vliora, M., Gkiata, P., ... & Flouris, A. D. (2021). Occupational heat stress: multi-country observations and interventions. *International journal of environmental research and public health*, 18(12), 6303.
- Jacklitsch BL, Williams WJ, Musolin K, Coca A, Kim JH, and Turner N. (2016). Occupational exposure to heat and hot environments: revised criteria
- Jayasekara, KB, Kulasooriya PN, Wijayasiri KN, Rajapakse ED, Dulshika DS, Bandara P, and Albert SM. (2019). Relevance of heat stress and dehydration to chronic kidney disease (CKDu).
- Jequier E, Constant F. (2010). Water as an essential nutrient: the physiological basis of hydration. *Eur J Clin Nutr*. 64(2):115–123.
- Judge, L. W., Bellar, D. M., Popp, J. K., Craig, B. W., Schoeff, M. A., Hoover, D. L., ... & Al-Nawaiseh, A. M. (2021). Hydration to maximize performance and recovery: Knowledge, attitudes, and behaviors among collegiate track and field throwers. *Journal of human kinetics*, 79, 111.
- Kaner G, Genç HU, Dinçer SB, Erdoğan D, and Coşkun, A. (2018). GROW a smart bottle that uses its surface as an ambient display to motivate daily water intake. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems*. April: (pp. 1-6).
- Kayalica Ç. Mobilya Sanayisindeki Riskler ve Alınan Önlemler. (2020). *Yüksek Lisans Tezi. İstanbul Rumeli Üniversitesi Lisansüstü Eğitim Enstitüsü*.
- Kenefick, R. W., & Sawka, M. N. (2007). Hydration at the work site. *Journal of the American College of Nutrition*, 26(sup5), 597S-603S.

- Kjellstrom T, Briggs D, Freyberg C, Lemke B, Otto M, and Hyatt O. (2016). Heat, human performance, and occupational health: a key issue for the assessment of global climate change impacts. *Annual review of public health*. 37: 97-112.
- Kjellstrom T, Lemke B, & Otto M. (2017). Climate conditions, workplace heat, and occupational health in South-East Asia in the context of climate change. *WHO South-East Asia journal of public health*. 6(2): 15-21.
- Legg, S. J., Olsen, K. B., Laird, I. S., & Hasle, P. (2015). Managing safety in small and medium enterprises. *Safety Science*, 71, 189-196.
- Lei, T. H., Lan, L., & Wang, F. (2023). Indoor thermal comfort research using human participants: Guidelines and a checklist for experimental design. *Journal of Thermal Biology*, 113, 103506.
- Maneesha, V. (2020). Small scale enterprises and their contribution to economic growth. *International Journal of Social Science and Economic Research*, 5(12), 3913-3920.
- Maughan, RJ, Watson P, and Shirreffs SM. (2015). Implications of active lifestyles and environmental factors for water needs and consequences of failure to meet those needs. *Nutrition reviews*. 73(suppl_2): 130-140.
- Mei, Q., Wang, Q., Liu, S., Zhou, Q., & Zhang, J. (2020). Effects of organizational safety on employees' proactivity safety behaviors and occupational health and safety management systems in Chinese high-risk small-scale enterprises. *International Journal of Occupational Safety and Ergonomics*, 26(1), 101-111. <https://mgm.gov.tr/veridegerlendirme/il-ve-ilcelistatistik.aspx?k=A&m=SANLIURFA> (son erişim 08.05.2025)
- Mizelle, E, Larson KL, Bolin LP, Kearney GD. (2022). Fluid Intake and Hydration Status Among North Carolina Farmworkers: A Mixed Methods Study. *Workplace Health & Safety*. 70(12): 532-541
- Orysiak, J., Młynarczyk, M., & Tomaszewski, P. (2023). Fluid intake at work in foresters working in different thermal conditions. *Scientific Reports*, 13(1), 15870.
- OSHA. OSHA Fact Sheet, Protecting Workers from the Effects of Heat, DTSEM FS-3743 08/2014
- Patel AI, Hecht CE, Cradock A, Edwards MA, and Ritchie LD. (2020). Drinking water in the United States: implications of water safety, access, and consumption. *Annual Review of Nutrition*. 40: 345-373.
- Popkin BM, D' Anci KE, and Rosenberg IH. (2010). Water, hydration, and health. *Nutrition reviews*. 68(8): 439-458.
- Pryor RR, Larson JR, Vandermark LW, Johnson BD, and Schlader ZJ. (2023). Water consumption patterns impact hydration markers in males working according to the National Institute for Occupational Safety and Health recommendations. *Journal of Occupational and Environmental Hygiene*, (just-accepted), 20(9) 414-425.
- Taş, A., Kahveci, P. B., & Kiraz, E. D. E. (2020). Bir tıp fakültesinde klinik öncesi eğitim alan öğrencilerin içme kullanma suyu tercihleri ve nedenleri. *Türk Hijyen ve Deneysel Biyoloji Dergisi*, 77(EK-4), 179-186.
- Tejamaya, M., Puspoprodojo, W., Susetyo, H., & Modjo, R. (2021). An analysis of pivotal factors in the implementation of occupational health and safety management systems in micro, small and medium enterprises (MSMEs): Literature review. *Gaceta Sanitaria*, 35, S348-S359.
- TÜBER, Türkiye Beslenme Rehberi. T.C. Sağlık Bakanlığı. Yayın No: 1031, 2022.
- Ueno, S., Sakakibara, Y., Hisanaga, N., Oka, T., & Yamaguchi-Sekino, S. (2018). Heat strain and hydration of Japanese construction workers during work in summer. *Annals of work exposures and health*, 62(5), 571-582
- Üner MH, Yılmaz İ. (2020). İşçi beslenmesi, iş kazaları ve üretkenlik ilişkisinin incelenmesi. *Haliç Üniversitesi Sağlık Bilimleri Dergisi*. 2020:3(3):169-179.
- Vinberg, S. (2020). Occupational safety and health challenges in small-scale enterprises. *Industrial health*, 58(4), 303-305.
- Walden M, Mayländer S, and Kaeding TS. (2018). Drinking Patterns and Fluid Intake in the Settings Workplace and University: A Systematic Review. *J Nutr Health Sci*. 2018:5(4):410.
- Williams AW, John DS, Paul C, Joseph GA, and Jose GCL. (2019). Building vulnerability in a changing climate: indoor temperature exposures and health outcomes in older adults living in public housing during an extreme heat event in Cambridge, MA. *International Journal of Environmental Research and Public Health*. 16(13): 2373
- Yıldız, M., & Coşkun, A. (2019, June). Wwall: A Public Water Dispenser System to Motivate Regular Water Intake in the Office Environment. In *Companion Publication of the 2019 on Designing Interactive Systems Conference 2019 Companion*. 2019, June: (pp. 347-352).
- Zhang N, Du SM, Zhang JF, and Ma GS. (2019). Effects of dehydration and rehydration on cognitive performance and mood among male college students in Cangzhou, China: a self-controlled trial. *International journal of environmental research and public health*. 16(11):1891.