

RESEARCH / ARAŞTIRMA

Daily Fluid Consumption, Type and Affecting Factors of Older Adults Living at Home and In Nursing Homes: A Descriptive-Comparative Cross-Sectional Study

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ABSTRACT

Objective: The aim of this study was to determine the daily amount, types and influencing factors of fluid consumption among older adults living at home and in nursing homes.

Material and Methods: This descriptive study was conducted with a total of 237 older adults between May 18, 2024, and August 10, 2024. Of these participants, 126 were living in their own homes and 111 were living in six different private and public nursing homes. Research ethics committee approval (16.05. 2024; decision no: 0254) and institutional permissions were obtained. Data were collected via face-to-face interviews using an individual information form, the fluid consumption characteristics form and the fluid consumption frequency form. The data were analyzed using the SPSS 25.0 statistical package.

Results: Daily fluid consumption differed significantly between older adults living in nursing homes and those living in their own homes. The types of fluids consumed most by older adults in both groups were water, black tea, soup and ayran. Reasons such as "difficulty accessing fluids" and "needing assistance with fluid intake" were significantly higher in nursing homes compared to those living in their own homes.

Conclusion: The types of fluids consumed by older adults living in nursing homes may depend more on the facilities provided by the institution rather than their personal preferences. When older adults cannot access their preferred fluids, their overall fluid intake tends to decrease. Consequently, it is recommended that older adults' fluid preferences be considered to ensure adequate fluid consumption.

Keywords: Older adults, fluid consumption, fluid amount, fluid type, nursing home.

Evde ve Huzurevinde Yaşayan Yaşlı Yetişkinlerin Günlük Sıvı Tüketimi, Türü Ve Etkileyen Faktörler: Tanımlayıcı-Karşılaştırmalı Kesitsel Bir Çalışma

ÖZET

Amaç: Bu çalışmanın amacı, evde ve huzurevlerinde yaşayan yaşlı bireylerin günlük sıvı tüketim miktarını, türünü ve etkileyen faktörleri belirlemektir.

Gereç ve Yöntem: Bu araştırma 18 Mayıs 2024 ve 10 Ağustos 2024 tarihleri arasında toplam 237 yaşlı birey üzerinde yürütülmüş tanımlayıcı bir çalışmadır. Bu yaşlı bireylerin 126'sı kendi evinde, 111'i ise 6 farklı özel ve kamu huzurevinde yaşamaktadır. Araştırma etik kurulundan (16.05.2024; karar no: 0254) ve kurum izinleri alınmıştır. Veriler, bireysel bilgi formu, sıvı tüketim özellikleri formu ve sıvı tüketim sıklığı formu kullanılarak yüz yüze görüşme yoluyla toplanmıştır. Veriler araştırmacı tarafından SPSS 25.00 paket programında analiz edilmiştir.

Bulgular: Huzurevlerinde ve kendi evlerinde yaşayan yaşlıların günlük sıvı tüketimleri anlamlı olarak farklıydı. Her iki gruptaki yaşlıların en çok tükettiği sıvı türleri su, siyah çay, çorba ve ayrandı. "Sıvıya erişimde zorluk" ve "sıvı alımında başkasının yardımına ihtiyaç duyma" gibi nedenler, huzurevlerinde kendi evlerinde yaşayanlara kıyasla anlamlı derecede daha yüksekti.

Sonuç: Huzurevlerinde yaşayan yaşlıların tükettiği sıvı türleri, kişisel tercihlerinden ziyade, kurumun olanaklarına bağlı olarak değişiklik gösterebilir. Yaşlılar tercih ettikleri sıvılara erişemediklerinde, genel sıvı alımları azalma eğilimindedir. Sonuç olarak, yeterli sıvı tüketimini sağlamak için yaşlıların sıvı tercihlerinin dikkate alınması önerilir.

Anahtar Kelimeler: Yaşlılar, sıvı tüketimi, sıvı miktarı, sıvı türü, huzurevi.

1. Introduction

Aging is a universal and progressive process characterized by physiological and functional changes that may increase vulnerability to health problems (1–3). Among these changes,

alterations in body water distribution, reduced thirst sensation, and impaired renal function make older adults particularly susceptible to dehydration (5, 23). Adequate hydration is essential for maintaining cognitive function, physical performance, thermoregulation, and overall health among older

Geliş Tarihi/Received: 29.09.2025, Kabul Tarihi/Accepted: 26.02.2026

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This study was presented as a summary oral presentation within the scope of the "3rd International 7th National Basic Nursing Care Congress" on 22-25 October 2024 in İzmir/Türkiye.

adults (5, 22, 33). However, older adults are at increased risk of insufficient fluid intake due to physiological, functional, cognitive, and environmental factors (2, 4, 12, 13).

As aging progresses, physiological reserves decline and regulatory mechanisms become less effective, which increases vulnerability to fluid imbalance. Dehydration is defined as a state of fluid deficit that occurs when fluid intake is insufficient to compensate for losses or when fluid losses exceed intake (4). In older adults, decreased thirst sensation, hormonal changes, chronic diseases requiring fluid restriction (e.g., heart or kidney failure), vomiting, diarrhoea, uncontrolled diabetes, burns, infections, trauma, and the use of diuretics or laxatives may contribute to dehydration (5).

Beyond physiological factors, behavioral determinants also play a significant role in hydration status. Many older adults deliberately limit fluid intake due to the fear of urinary incontinence. Previous studies have shown that older individuals avoid drinking fluids to reduce frequent urination and minimize the need to use the toilet (6, 7). As a result, dehydration may lead to serious complications such as weight loss, constipation, falls, delirium, drug toxicity, orthostatic and postprandial hypotension, delayed wound healing, renal failure, and infections (6).

Given these risks, ensuring adequate hydration in later life is a critical public health priority. To meet daily fluid requirements, older adults are generally recommended to consume at least 2000–2500 mL of fluid per day (approximately 8–10 glasses of water) or 35 mL per kilogram of body weight. According to the Turkish Dietary Guidelines (TÜBER), 71% of men and 62.8% of women aged 65 years and older consume less than 2000 mL of water daily (8). Studies conducted in different countries have reported that the prevalence of inadequate daily fluid intake among older adults ranges between 30% and 84% (4,9- 12). This wide variation may be attributed to differences in study design, measurement methods (self-report vs. direct monitoring), definitions of inadequate intake, sample characteristics (community-dwelling or institutionalized older adults), and cultural or environmental factors.

In addition to the quantity of fluid consumed, the type of beverage selected is also important for maintaining optimal hydration. TÜBER classify beverages into recommended daily options, such as water, milk, ayran, kefir, soups, and unsweetened fruit juice—and those that should be consumed occasionally, including sugary or highly caffeinated drinks (8). Although herbal teas can be beneficial, they may cause allergic reactions or interact with medications, while caffeinated drinks such as tea and coffee should be consumed in moderation due to potential cardiovascular effects (8, 10).

Tea is the most commonly consumed beverage in Turkey (29, 32). However, excessive consumption of tea or coffee in place of water may contribute to inadequate hydration due to their diuretic effects (33). Therefore, preventing dehydration requires not only increasing total fluid intake but also understanding beverage preferences and the contextual factors influencing fluid choices. Research indicates that older adults living in nursing homes tend to consume less fluid than those living in the community (4, 10, 12). Despite this, there is limited research directly comparing both the amount and types of fluids consumed across different living settings.

The aim of this study was to determine the daily amount, types and influencing factors of fluid consumption among older adults living at home and in nursing homes.

2. Material and Method

2.1. Research Type and Sample of the Research

This study was designed as a comparative descriptive study to determine the daily amount, types, and influencing factors of fluid consumption among older adults living in nursing homes and those living at home.

This research was conducted on a total of 237 older adults who visited the Family Medicine Polyclinic of a University Hospital in a city located in western Turkey between 18 May 2024 and 10 August 2024. 1 Of these participants, 126 were living in their own homes; 111 were living in six different private and public nursing homes. The sample size was calculated using G*Power software based on a small effect size (Cohen's $d = 0.30$), with an alpha level of 0.05 and a statistical power of 0.95. The minimum required sample size was determined as 176 participants. Considering potential data loss, the study was completed with 237 older adults. The inclusion criteria for the study included voluntary participation in the study voluntarily, being 65 years of age or older, having a mini mental test score of ≥ 25 , and having a score of 60 or higher on the Barthel Activities of Daily Living Index. Exclusion criteria for the study included having a chronic disease that would prevent them from drinking fluids (heart failure, kidney failure, difficulty swallowing, etc.), a concomitant neurological disease, the presence of a mental problem that would prevent cooperation in evaluations and/or applications and being illiterate.

To enhance the reliability of self-reported data, only older adults with adequate cognitive function were included in the study. Participants were required to have a Mini Mental Test (MMT) score of ≥ 25 .

2.2. Data Collection/ Instruments

Research data were collected using standardized and literature-based instruments to evaluate sociodemographic characteristics, fluid consumption habits, cognitive status, functional abilities, and nutritional status of older adults. The instruments used included the Individual Information Form, Fluid Consumption Characteristics Form, Fluid Consumption Frequency Form, Mini Mental Test (MMT), Barthel Activities of Daily Living Index, Instrumental Activities of Daily Living Index (IADLI), and the Mini Nutritional Assessment (MNA) Questionnaire.

Prior to the main study, a pilot study was conducted with 10 randomly selected older adults living in a nursing home to assess the clarity and comprehensibility of the forms. Based on participant feedback, necessary revisions were made to the forms.

2.2.1. The Individual Information Form

The Individual Information Form consisted of 18 items developed by the researchers based on relevant literature (1, 3, 4, 5). It was designed to collect demographic and health-related information,

including age, gender, marital status, educational level, the presence of chronic diseases, and medication use.

2.2.2. Fluid Consumption Characteristics Form

The Fluid Consumption Characteristics Form comprised seven items designed to evaluate the types and quantity of fluids consumed within a 24-hour period, individual preferences, peak consumption times, perceived adequacy of intake, and potential barriers to adequate fluid consumption. The form was developed in accordance with relevant literature (4, 13, 14).

2.2.3. Fluid Consumption Frequency Form

The Fluid Consumption Frequency Form was designed to evaluate the frequency and timing of fluid intake among older adults, with particular emphasis on the consumption patterns of different types of beverages (13, 14).

2.2.4. Mini Mental Test (MMT)

The Mini Mental Test (MMT) is a brief cognitive screening tool widely used in neuropsychiatric assessments. It was adapted and validated for the Turkish population by Güngen et al. (15). The MMT consists of 11 items evaluating orientation, registration, attention and calculation, recall, and language abilities, with a total score ranging from 0 to 30. Higher scores indicate better cognitive functioning, and a score below 24 is generally considered indicative of cognitive impairment (15).

2.2.5. Barthel Activities of Daily Living Index

The Barthel Activities of Daily Living Index, developed by Mahoney and Barthel and adapted for the Turkish population by Küçükdeveci et al., assesses basic daily activities such as feeding, hygiene, mobility, and continence. Scores range from 0 to 100, with higher scores indicating greater independence (16, 17).

2.2.6. Instrumental Activities of Daily Living Index (IADLI)

The Instrumental Activities of Daily Living Index evaluates more complex daily tasks, including telephone use, transportation, shopping, cooking, and financial management. Developed by Lawton and Brody, this scale categorizes individuals as dependent (0–8 points), semi-dependent (9–16 points), or independent (17–24 points) (18).

2.2.7. The Mini Nutritional Assessment (MNA) Questionnaire

The Mini Nutritional Assessment (MNA) questionnaire, developed by the University of Toulouse and validated in elderly populations, includes a screening and an evaluation section (19). Its Turkish validation was performed by Sarıkaya, showing a sensitivity of 92% and specificity of 86%. The screening section evaluates recent food intake, weight loss, mobility, psychological stress, and body mass index (BMI). Individuals scoring 0–7 are considered malnourished, 8–11 at risk of malnutrition, and 12–14 as having normal nutritional status. The evaluation section, applied to those scoring 11 or less on the screening section, consists of 12 questions. Total scores classify individuals as malnourished (<17), at risk of malnutrition (17–23.5), or having normal nutritional status (24–30) (20, 21).

2.3. Data Collection Procedure

Standardized procedures were followed throughout the data collection process to ensure methodological consistency and measurement reliability. To minimize potential observer bias, data were collected by a trained researcher who was not involved in the study design, data analysis, or interpretation of the findings. The data collector received standardized training regarding the study protocol and instruments prior to the initiation of data collection. All participants were assessed using the same structured forms and procedures.

2.3.1. Collection of Data from Older Adults Living in Nursing Homes

Data were collected from 111 older adults or their relatives (caregivers) living in six private and public nursing homes in a city in western Turkey through face-to-face interviews conducted by the same trained interviewer. The interviews lasted approximately 20–25 minutes.

To accurately assess the amount and type of fluids consumed, nurses and care personnel working in the nursing homes were provided with graduated measuring cups and standardized 24-hour fluid intake monitoring forms. They were instructed to document each participant's total fluid intake daily over a 15-day period. Clear written and verbal instructions were provided to ensure consistent recording practices.

The researchers visited the nursing homes daily for 15 consecutive days to monitor compliance, review fluid records, and address any recording inconsistencies. Daily fluid intake values were converted into milliliters and averaged across the 15-day monitoring period to enhance measurement stability and reduce day-to-day variability.

2.3.2. Collection of Data from Older Adults Living in Their Own Homes

Data were collected from 126 older adults or their close relatives (caregivers) who attended the Family Medicine Outpatient Clinic of a university hospital in western Turkey and lived at home. Face-to-face interviews were conducted by the same trained interviewer, and each interview lasted approximately 20–25 minutes.

To collect data on the amount and types of fluids consumed, participants were provided with graduated measuring cups and a standardized 24-hour fluid monitoring intake form. They were instructed to record all fluids consumed using glasses or bowls as measurement units. To ensure recording accuracy and consistency, detailed instructions were provided both verbally and in written.

The researchers contacted participants or their caregivers daily for 15 consecutive days to verify the recorded data and convert the reported quantities into milliliters. Additionally, home visits were conducted once a week to evaluate potential recording difficulties and provide guidance when necessary. As in the nursing home group, daily intake values were averaged across the 15-day monitoring period to improve reliability and reduce day-to-day variation.

2.4. Data Analysis

The data were analyzed using SPSS 20.0 software (IBM SPSS Statistics, IBM Corp., USA). Descriptive statistics were calculated for each variable. The differences and relationships between dependent and independent variables were examined using the chi-square test, Wilcoxon signed-rank test, independent samples t-test, and Spearman's rho correlation test. The correlation coefficient was evaluated as follows: ± 0.01 to ± 0.19 : no or negligible correlation; ± 0.20 to ± 0.29 : weak correlation; ± 0.30 to ± 0.39 : moderate correlation; ± 0.40 to ± 0.69 : strong correlation; ± 0.70 or higher: very strong correlation. A p-value of <0.05 was used for statistical significance.

2.5. Ethical Consideration

Scientific and universal ethical principles were followed in the conduct of the research. Before starting the research, written permission was obtained from the İzmir Kâtip Celebi University Non-Interventional Clinical Studies Ethics Committee and the institutions where the research would be conducted. The approval number was (16.05.2024; decision no: 0254). Older adults participating in the study were informed about the research and provided written informed consent. The Declaration of Helsinki was adhered to throughout the research. Research expenses and medical supplies were covered by the researchers and did not impose any financial burden on the participants or their institution.

3. Results

A total of 46.8% of the participants lived in nursing homes, whereas 53.2% resided in their own homes. The mean age of older adults living in nursing homes was 76.39 ± 7.93 years, compared to 70.75 ± 6.12 years among those living at home. Among residents of nursing homes, 72.1% were female, while the proportion of females among those living in their own homes was 60.3%. In terms of social security status, 15.3% of older adults living in nursing homes and 3.2% of those living at home lacked social security coverage. Regarding economic status, 19.8% of nursing home residents and 5.6% of those living at home reported having incomes lower than their expenses. Furthermore, 68.5% of older adults in nursing homes received assistance from a caregiver, compared to 16.7% of those living in their own homes (Table 1).

The mean Mini Mental Test (MMT) score was 26.67 ± 1.89 among older adults living in nursing homes and 27.60 ± 1.63 among those living at home, with a statistically significant difference between the groups ($W=11045.50$; $p<0.001$). Regarding functional status, the mean Barthel Activities of Daily Living Index (BADLI) score was 75.27 ± 20.23 in nursing home residents and 97.74 ± 4.54 in those living at home, indicating a significant difference ($W=7248.000$; $p<0.001$). Similarly, the mean Instrumental Activities of Daily Living Index (IADLI) score was 16.37 ± 4.97 among nursing home residents and 9.62 ± 2.19 among community-dwelling older adults. In terms of nutritional status, the mean Mini Nutritional Assessment (MNA) score was 16.33 ± 4.47 in nursing homes and 14.89 ± 3.52 among those living at home, with a statistically significant difference between the groups ($W=13745.000$; $p=0.014$) (Table 3).

The mean daily fluid intake was 1676.37 ± 573.58 mL among older adults living in nursing homes and 2207.20 ± 796.99 mL among

those living in their own homes. The five most frequently consumed fluid types in both groups were water, black tea, soup, ayran, and Turkish coffee. Water consumption was significantly higher among older adults living at home compared to those residing in nursing homes ($W=4584.500$; $p<0.001$). No significant difference was observed between the two groups in terms of black tea consumption ($W=6561.00$; $p=0.402$). Daily intake of ayran ($W=4982.000$; $p<0.001$), Turkish coffee ($W=4155.500$; $p<0.001$), herbal teas ($W=4929.00$; $p<0.001$), freshly squeezed fruit juices ($W=6021.00$; $p=0.003$), and whole milk ($W=5147.500$; $p<0.001$) was significantly higher among older adults living at home. Conversely, the consumption of soup ($W=5123.500$; $p<0.001$), fruit juices ($W=6189.500$; $p=0.019$), mineral water ($W=6426.000$; $p=0.002$), and semi-skimmed milk ($W=5985.000$; $p<0.001$) was significantly higher among nursing home residents (Table 4).

Among older adults who reported insufficient daily fluid intake, the most commonly cited reasons were forgetting to drink fluids (58.0%), not feeling the need to drink (45.0%), fear of urinary

Table 1. Distribution of individual variables among the older adults living in nursing homes and their own homes

Variables		Type of Older Adults Residence					
		Nursing Homes		Own Home		Total	
		n	%	n	%	n	%
Age range	65-74	47	42.3	91	72.2	138	58.2
	75-84	45	40.5	31	24.6	76	32.1
	85 and above	19	17.1	4	3.2	23	9.7
		Pearson Chi-Square $X^2=48.947$; $p=0.000$					
Gender	Female	80	72.1	76	60.3	156	65.8
	Male	31	27.9	50	39.7	81	34.2
		Pearson Chi-Square $X^2=3.625$; $p=0.057$					
Marital status	Married	27	24.3	88	69.8	115	48.5
	Single	84	75.7	38	30.2	122	51.5
		Pearson Chi-Square $X^2=48.947$; $p=0.000$					
Education status	Illiterate	6	5.4	7	5.6	13	5.5
	Literate	10	9.0	5	4.0	15	6.3
	Primary school graduate	26	23.4	34	27.0	60	25.3
	Middle school graduate	25	22.5	13	10.3	38	16.0
	High school graduate	30	27.0	27	21.4	57	24.1
	University graduate	14	12.6	40	31.7	54	22.8
		Pearson Chi-Square $X^2=18.400$; $p=0.002$					
Employment status	Employed	2	1.8	13	10.3	15	6.3
	Unemployed	109	98.2	113	89.7	222	93.7
		Fisher's Exact Test $X^2=8.136$; $p=0.006$					
Social security coverage	Yes	94	84.7	122	96.8	216	91.1
	No	17	15.3	4	3.2	21	8.9
		Fisher's Exact Test $X^2=11.352$; $p=0.001$					
Financial situation	Low income relative to expenses	22	19.8	7	5.6	29	12.2
	Moderate income relative to expenses	75	67.6	72	57.1	147	62.0
	High income relative to expenses	14	12.6	47	37.3	61	25.7
		Pearson Chi-Square $X^2=24.822$; $p=0.000$					
Availability of a caregiver	Yes	76	68.5	21	16.7	97	40.9
	No	35	31.5	105	83.3	140	59.1
		Pearson Chi-Square $X^2=65.499$; $p=0.000$					

incontinence (25.0%), and difficulty reaching fluids (19.3%). The proportions of older adults reporting difficulty reaching fluids, requiring assistance with fluid intake, experiencing pain during urination, and having difficulty swallowing fluids were significantly higher among nursing home residents compared to those living in their own homes ($p<0.05$) (Table 5).

Table 6 presents the distribution of older adults according to the situations or times at which they consume fluids. Overall, older adults most commonly reported drinking fluids when they felt thirsty and during, between, or after meals. The proportion of participants who reported drinking fluids when someone offered them a drink was 57.8%. The proportions of older adults consuming fluids during meals, between meals, and when offered a drink were significantly higher among those living in their own homes compared to nursing home residents ($p<0.05$). Conversely, the proportions of older adults consuming fluids after meals and before going to bed were significantly higher among nursing home residents ($p<0.05$).

4. Discussion

This study aimed to examine the daily amount and types of fluids consumed by older adults living at home and in nursing homes, and the factors influencing fluid intake. The findings demonstrated a significant difference in total daily fluid intake between the two groups. Older adults living in nursing homes consumed a mean of 1676.37 ± 573.58 mL per day, whereas those living at home consumed 2207.20 ± 796.99 mL per day, representing an average difference of approximately 530 mL. In addition, significant group differences were observed in cognitive status, functional independence, and nutritional status, which may partly explain variations in fluid intake patterns. The findings of this study showed that older adults' fluid intake varies depending on their living environment and is associated with several sociodemographic and health factors.

Adequate water intake is essential for maintaining hydration status and supporting overall health in older adults. Yet, older adults do not consume sufficient water. This may be due to a reduced sensation of thirst, fear of urinary incontinence, or difficulties in accessing drinking water (22, 23).

A study conducted in a nursing home in Izmir determined that 84.4% of older adults had insufficient fluid intake (24). In a study by Alptekin, the daily water consumption of older individuals was found to be 4.0 ± 2.1 glasses (25). In a study by Hoca and Türker examining 210 individuals aged 65 and over living in Cyprus, it was determined that 72.9% of individuals consumed less than 1500 mL of water (26). In a study by Muz et al., 77.1% of older adults living in nursing homes and 72.7% of older adults living at home consumed insufficient water (4). In a study conducted in England, dehydration was detected in 30% of older adults (10).

In another study conducted with older adults living in long-term care facilities in the United States and Canada, inadequate fluid intake was found in 79% of participants and the dehydration rate of older adults was reported to be 26.7% (9). In their study with 410 older individuals, Lesnik et al. concluded that thirst may become a chronic condition in older individuals and that older adults cared for in health institutions experience more thirst than those cared for at home (12).

Table 2. Distribution of variables related to chronic diseases or health problems among the older adults living in nursing homes and their own homes

Variables		Type of Older Adults Residence					
		Nursing Homes		Own Home		Total	
		n	%	n	%	n	%
Presence of chronic disease or health problems	Yes	84	75.7	95	75.4	179	75.5
	No	27	24.3	31	24.6	58	24.5
Pearson Chi-Square $X^2=0.002$; $p=0.960$							
Type of chronic disease or health problems							
Diabetes mellitus	Yes	34	30.6	34	27.0	68	28.7
	No	77	69.4	92	73.0	169	71.3
Pearson Chi-Square $X^2=0.384$; $p=0.536$							
Heart failure	Yes	2	1.8	4	3.2	6	2.5
	No	109	98.2	122	96.8	231	97.5
Fisher's Exact Test $X^2 = 0.462$; $p=0.403$							
Hypertension	Yes	45	40.5	45	35.7	90	38.0
	No	66	59.5	81	64.3	147	62.0
Pearson Chi-Square $X^2=0.584$; $p=0.445$							
Malignancy (Cancer)	Yes	1	0.9	5	4.0	6	2.5
	No	110	99.1	121	96.0	231	97.5
Fisher's Exact Test $X^2 = 2.485$; $p=0.134$							
Mental illness	Yes	15	13.5	3	2.4	18	7.6
	No	96	86.5	123	97.6	219	92.4
Fisher's Exact Test $X^2 = 11.120$; $p=0.001$							
Osteoporosis	Yes	19	17.1	5	4.0	24	10.1
	No	92	82.9	121	96.0	213	89.9
Fisher's Exact Test $X^2 = 11.718$; $p=0.001$							
Rheumatic diseases	Yes	21	18.9	11	8.7	32	13.5
	No	90	81.1	115	91.3	205	86.5
Fisher's Exact Test $X^2 = 5.284$; $p=0.022$							
Digestive Disorder	Yes	13	11.7	19	15.1	32	13.5
	No	98	88.3	97	84.9	205	86.5
Fisher's Exact Test $X^2 = 0.577$; $p=0.286$							
Urinary incontinence	Yes	33	29.7	6	4.8	39	16.5
	No	78	70.3	120	95.2	198	83.5
Fisher's Exact Test $X^2 = 28.605$; $p=0.000$							
Difficulty in Swallowing	Yes	8	7.2	3	2.4	11	4.6
	No	103	92.8	123	97.6	226	95.4
Fisher's Exact Test $X^2 = 3.181$; $p=0.073$							
Oral and Dental Problems	Yes	41	36.9	76	60.3	117	49.4
	No	70	63.1	50	39.7	120	50.6
Fisher's Exact Test $X^2 = 12.906$; $p=0.000$							
Medication usage status (quantity/day)	None	16	14.4	28	22.2	44	18.6
	One	8	7.2	25	19.8	33	13.9
	Two	17	15.3	23	18.3	40	16.9
	Three and above	70	63.1	50	39.7	120	50.6
Pearson Chi-Square $X^2=15.376$; $p=0.002$							

Table 3. Distribution of cognitive function, daily living activities, and nutritional status among the older adults living in nursing homes and their own homes

Type of liquid consumed	Type of Older Adults Residence				Statistical value	
	Nursing Homes		Own Home			
	Mean±SD*	Mean Rank **	Mean±SD *	Mean Rank	*t; sig.	**W; sig.
Mini-mental test score	26.67±1.89	99.51	27.60±1.63	136.17	4.063; 0.000	11045.500; 0.000
Bartel daily living activities index	75.27±20.23	65.30	97.74±4.54	166.31	11.452; 0.000	7248.000; 0.000
Instrumental activities of daily living index	16.37±4.97	166.07	9.62±2.19	77.53	13.233; 0.000	9769.000; 0.000
Mini nutritional assessment	16.33±4.47	130.25	14.89±3.52	109.09	2.738; 0.007	13745.000; 0.014

*Independent Sample T-Test
**Wilcoxon W

*Independent Sample T-Test, **Wilcoxon W

Klaus et al. examined 87 older adults and found that 19.5% of the participants consumed less than 500 mL, 37.9% consumed between 500 and 999, 17.2% consumed between 1000 and 1499 mL, 24.1% consumed between 1500 and 2000 mL, and 1.1% consumed 2000 or more of water (11). Similar to these studies, our study also showed that older adults living in nursing homes had significantly lower daily fluid intake than those living at home. This finding is consistent with previous research showing that older adults living in nursing homes are at higher risk of dehydration due to limited access to fluids and reduced individual choice. Environmental restrictions and institutional routines implemented in nursing homes may contribute to this difference.

The higher consumption of water, herbal tea, and freshly squeezed fruit juice among older adults living at home in our study may reflect personal preferences. Herbal teas are considered beneficial for their antioxidant properties and immune support (27, 28). In Turkish society, tea and coffee consumption is traditionally high. Onurlubaş et al. found that nearly half of participants consumed 0.5–1 kg of tea per month (29). Similarly, Kaya and Toker reported tea as the most consumed beverage, followed by coffee (30). Alptekin's study with 221 older adults showed that tea was the preferred drink after water (88.7%), and 84.2% noted that disliking the taste of water reduced intake (25). Yardımcı et al. also found tea was the first beverage of choice, with 4.72 ± 3.02 cups consumed daily (31). These findings align with ours and reflect cultural habits and the belief that tea meets fluid needs (32). However, black tea's diuretic effect may increase fluid loss and the risk of dehydration in older adults (33).

In our study, the increased consumption of soup and ayran among older adults living in nursing homes may be related to environmental conditions and easy accessibility of these fluids. Consuming nutritious fluids like soup and ayran may play an important role in meeting older adults' fluid needs (34). The impact of sociodemographic factors such as social security, education, and income on fluid intake is also among the notable findings of this study. Lower fluid intake variability among lower-income older adults may be an indicator of financial constraints that limit fluid intake. Older adults face additional barriers to fluid intake, such as decreased thirst, fear of urinary incontinence, and physical limitations (35). These factors are more prevalent among individuals living in nursing homes, highlighting the importance of creating supportive environments that encourage fluid intake.

Inadequate hydration is a common problem among older individuals globally. Studies from different regions show that rates of inadequate fluid intake among older adults range from 30% in the United Kingdom to 79% in North America (9, 10). These findings demonstrate the universality of the problem and the need for cross-cultural and regional approaches to improving hydration habits.

4.1. Limitation

The relatively small sample size constitutes a limitation of this study.

The absence of multivariate regression analysis to control for potential confounding variables such as age, cognitive status, chronic diseases, and functional independence may limit the strength of causal inferences.

Table 4. Distribution of types and quantities of fluids consumed by individuals among the older adults living in nursing homes and their own homes.

Type of fluid consumed	Type of Older Adults Residence		Test Statistic	
	Nursing Homes	Own Home		
	Mean $\pm$ SD *	Mean $\pm$ SD *	*t; sig.	**W; sig
Water	991.10 $\pm$ 44	1338.89 $\pm$ 61	5.010; 0.0	4584.500; 0.0
Black tea	313.71 $\pm$ 20	363.38 $\pm$ 28	1.557; 0.1	6561.000; 0.4
Herbal Teas	3.09 $\pm$ 16	45.03 $\pm$ 86	5.307; 0.0	4929.000; 0.0
Turkish coffee	26.15 $\pm$ 51	58.74 $\pm$ 56	4.644; 0.0	4155.500; 0.0
Filter coffee	12.29 $\pm$ 65	6.35 $\pm$ 56.21	0.743; 0.4	6729.000; 0.1
Instant coffee	8.27 $\pm$ 53	47.16 $\pm$ 105.45	3.638; 0.0	5310.000; 0.000
Whole milk	20.08 $\pm$ 66	38.09 $\pm$ 61.96	2.156; 0.032	5147.500; 0.000
Semi-skimmed milk	18.79 $\pm$ 55	0.00 $\pm$ 0.00	3.593; 0.000	5985.000; 0.000
Skim milk	0.26 $\pm$ 2.72	0.11 $\pm$ 1.27	0.533; 0.594	6985.000; 0.924
Lactose-free milk	5.92 $\pm$ 32.72	0.00 $\pm$ 0.00	1.907; 0.059	6678.000; 0.016
Flavored milk	4.38 $\pm$ 27.02	0.00 $\pm$ 0.00	1.706; 0.091	6678.000; 0.016
Ayran	46.59 $\pm$ 71.34	73.46 $\pm$ 81.01	2.694; 0.008	4982.000; 0.000
Soup	146.79 $\pm$ 107.88	107.48 $\pm$ 99.24	2.921; 0.004	5123.500; 0.000
Pure Kefir	6.18 $\pm$ 33.45	3.40 $\pm$ 21.26	0.772; 0.441	6958.500; 0.834
Fruit Kefir	2.57 $\pm$ 19.85	0.00 $\pm$ 0.00	1.366; 0.175	6804.000; 0.064
Fruit juices	21.37 $\pm$ 57.85	11.11 $\pm$ 34.66	1.628; 0.105	6189.500; 0.019
Freshly squeezed fruit juice	14.67 $\pm$ 97.68	16.21 $\pm$ 37.53	0.164; 0.870	6021.000; 0.003
Turkish fruit compote	5.02 $\pm$ 13.68	12.02 $\pm$ 49.47	1.523; 0.130	6774.500; 0.479
Vegetable juices	1.80 $\pm$ 10.92	1.59 $\pm$ 17.82	0.114; 0.910	6798.500; 0.138
Club soda	11.58 $\pm$ 40.29	43.08 $\pm$ 76.81	4.018; 0.000	5160.500; 0.138
Fruit-flavored soda	0.00 $\pm$ 0.00	7.26 $\pm$ 29.35	2.776; 0.006	6438.000; 0.002
Mineral water	7.79 $\pm$ 34.60	0.00 $\pm$ 0.00	2.362; 0.020	6426.000; 0.002
Fizzy drinks	5.92 $\pm$ 43.60	25.40 $\pm$ 84.54	2.266; 0.025	5695.000; 0.000
Boza	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	1.990; 0.000	6993.000; 1.000
Syrup-based drink	1.16 $\pm$ 6.14	0.00 $\pm$ 0.00	1.990; 0.049	6741.000; 0.032
Alcoholic beverages	2.32 $\pm$ 19.70	8.84 $\pm$ 73.93	-.953; 0.342	6951.000; 0.749
The total liquid consumed	1676.37 $\pm$ 573.58	2207.20 $\pm$ 796.999	-5.933; 0.000	4021.500; 0.000

*Independent Sample T-Test, **Wilcoxon W

Daily fluid intake was assessed using a 24-hour self-report method, which may introduce recall bias. However, to minimize this potential limitation, only participants with preserved cognitive function (MMT score ≥ 25) were included. Despite this precaution, some degree of reporting bias may remain.

Table 5. Distribution of reasons given by older adults living in nursing homes and their own homes who stated they did not consume enough daily fluid (n=176)

Variables		Type of Older Adults Residence					
		Nursing Homes		Own Home		Total	
		n	%	n	%	n	%
Difficulty reaching fluids	Yes	32	41.0	2	2.0	34	19.3
	No	46	59.0	96	98.0	142	80.7
Fisher's Exact Test $X^2=47.632$; $p=0.000$							
Forgetting to drink fluids	Yes	46	59.0	56	57.1	102	58.0
	No	32	41.0	42	42.9	74	42.0
Fisher's Exact Test $X^2=0.060$; $p=0.464$							
Dislike of drinking fluids	Yes	10	12.8	10	10.2	20	11.4
	No	68	87.2	88	89.8	156	88.6
Fisher's Exact Test $X^2=0.244$; $p=0.378$							
Dislike the taste of water	Yes	14	17.9	10	10.2	24	13.6
	No	64	82.1	88	89.8	152	86.4
Fisher's Exact Test $X^2=1.198$; $p=0.103$							
Needing someone else's help with fluid intake	Yes	18	23.1	0	0.0	18	10.2
	No	60	76.9	98	100.0	158	89.8
Fisher's Exact Test $X^2=31.905$; $p=0.000$							
Presence of fear of urinary incontinence	Yes	28	35.9	16	16.3	44	25.0
	No	50	64.1	82	83.7	132	75.0
Fisher's Exact Test $X^2=8.872$; $p=0.003$							
Pain while urinating	Yes	8	10.3	0	0.0	8	4.5
	No	70	89.7	98	100.0	168	95.5
Fisher's Exact Test $X^2=13.501$; $p=0.001$							
Difficulty swallowing fluids	Yes	8	10.3	2	2.0	10	5.7
	No	70	89.7	96	98.0	166	94.3
Fisher's Exact Test $X^2=5.666$; $p=0.022$							
Not feeling the need	Yes	30	38.5	50	50.1	80	45.5
	No	48	61.5	48	49.0	96	54.5
Pearson Chi-Square $X^2=2.763$; $p=0.096$							

5. Conclusion and Recommendations

This study revealed that the fluid intake patterns of older adults residing at home and in nursing homes differ according to environmental, sociodemographic, and health-related factors. The mean daily fluid intake of nursing home residents was below recommended levels, indicating a potential risk of inadequate hydration in this group.

Since hydration is fundamental to maintaining physiological stability and preventing adverse health outcomes, healthcare professionals and caregivers should prioritize adequate fluid intake among older adults.

In nursing homes, routine hydration monitoring should be incorporated into daily care plans. Nurses should conduct structured fluid intake assessments, document daily consumption using standardized monitoring forms, and identify residents at risk of dehydration based on factors such as cognitive status, functional dependency, and comorbid conditions.

More frequent monitoring is especially needed for residents in nursing homes. For residents with limited mobility or functional

impairment, scheduled fluid offering strategies (e.g., offering fluids every 1–2 hours) may be implemented as part of institutional care protocols.

Individualized advice on fluid types is recommended. Healthcare providers should develop personalized hydration plans based on the individual's medical conditions (e.g., heart failure, renal disease), medication use, swallowing ability, and beverage preferences. Dietitians and nurses can collaborate to determine appropriate fluid types and daily targets.

Furthermore, social support programs and training may increase awareness, encourage fluid consumption, and reduce the risk of dehydration. In community settings, family physicians and community nurses may provide hydration education during routine follow-up visits, and caregiver training programs can be organized to improve awareness of dehydration symptoms and prevention strategies.

Developing customized approaches based on health conditions and personal needs may improve the quality of life of older adults and increase fluid intake. Integrating hydration promotion strategies into both institutional care protocols and community-based primary care services may enhance the practical impact of these findings.

Table 6. Distribution of situations in which the older adults consume fluids by older adults living in nursing homes and their own homes

Variables		Type of Older Adults Residence					
		Nursing Homes		Own Home		Total	
		n	%	n	%	n	%
During meals	Yes	84	56.0	127	72.6	211	64.9
	No	66	44.0	48	27.4	114	35.1
Pearson Chi-Square $X^2=9.740$; $p=0.002$							
Between meals	Yes	78	52.0	148	84.6	226	69.5
	No	72	48.0	27	15.4	99	30.5
Pearson Chi-Square $X^2=40.452$; $p=0.000$							
After meals	Yes	73	48.7	62	35.4	135	41.5
	No	77	51.3	113	64.6	190	58.5
Pearson Chi-Square $X^2=5.829$; $p=0.016$							
When someone reminds me	Yes	76	50.7	26	14.9	102	31.4
	No	74	49.3	149	85.1	223	68.6
Pearson Chi-Square $X^2=48.096$; $p=0.000$							
When someone offers a drink	Yes	77	51.3	111	63.4	188	57.8
	No	73	48.7	64	36.6	137	42.2
Pearson Chi-Square $X^2=4.846$; $p=0.028$							
When I see fluid	Yes	44	29.3	35	20.0	79	24.3
	No	106	70.7	140	80.0	246	75.7
Pearson Chi-Square $X^2=3.824$; $p=0.051$							
When I feel thirsty	Yes	130	86.7	141	80.6	271	83.4
	No	20	13.3	34	19.2	54	16.6
Pearson Chi-Square $X^2=2.166$; $p=0.141$							
Before going to bed	Yes	34	22.7	17	9.7	51	15.7
	No	116	77.3	158	90.3	274	84.3
Pearson Chi-Square $X^2=10.242$; $p=0.001$							
I never think about it	Yes	1	0.7	0	0.0	1	0.3
	No	149	99.3	175	100.0	324	99.7
Fisher's Exact Test $X^2=1.550$; $p=0.279$							

6. Contribution to the Field

This work adds to the study of care for older adults, nursing, and public health by showing the role of place, who they are, and health related factors in fluid intake among older adults. By looking at individuals living at home and people in nursing homes, the study gives new ideas on how institutional routines,

easy access, and what they like shape hydration behaviors. These facts show why we need water plans made just for each person, help from caregivers, and steps at the policy level to prevent dehydration, make life better, and promote evidence-based practices. Plus, this work makes nursing better by giving proof to make tools for checking, plans for care, and teaching plans.

Acknowledgements

None.

Conflict of Interest

There is no conflict of interest with any person and/or institution.

Authorship Contribution

Concept: PC, BK; Design: PC; Supervision: PC; Funding Acquisition and Acquisition: PC, BK; Materials: PC, BK; Data Collection and/or Processing: PC, BK; Analysis/Interpretation: PC, AA; Literature Search: PC, BK; Manuscript Writing: PC; Critical Review: AA.

Funding

No budget support was received for the research.

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