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Determining the Hydration Knowledge Level, Attitudes and Behaviors of Athletes In Different Sport Events

Farklı Branşlardaki Sporcuların Hidrasyon Bilgi Düzeyi ile Tutum ve Davranışlarının Belirlenmesi

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Abstract: This research aimed to examine the hydration knowledge level, attitudes and behaviors of athletes in different sport events. A total of 553 athletes, 123 (22.2%) females and 430 (77.8%) males, were included in the research conducted with the screening model. The data was obtained by using the "Personal Information Form" and the "Hydration Knowledge, Attitude and Behavior Survey". T-test for independent groups and one-way analysis of variance were used in the analysis of data. When the research findings were examined, it was determined that there were statistically significant differences in athletes' attitudes and behavior according to gender, attitude according to sport type, knowledge and behavior according to age groups, knowledge, attitude and behavior according to sports age, and knowledge and behavior according to their educational status. As a result, it was determined that the athletes' general knowledge scores were at a high level, while their attitude and behavior scores were at a medium level.

Keywords: Sport, Athlete, hydration, knowledge, attitude, behavior.

Özet: *Bu araştırmada; farklı branşlardaki sporcuların hidrasyon bilgi düzeyi, tutum ve davranışların incelenmesi amaçlanmıştır. Tarama modeli ile gerçekleştirilen araştırmaya kota örnekleme yöntemiyle seçilen 123'ü (% 22,2) kadın, 430'u (%77,8) erkek toplam 553 sporcu dahil edilmiştir. Veriler, "Kişisel Bilgi Formu" ve "Hidrasyon Bilgi, Tutum ve Davranış Anketi" kullanılarak elde edilmiştir. Verilerin analizinde, bağımsız gruplar için t-testi ve tek yönlü varyans analizi kullanılmıştır. Araştırma bulguları incelendiğinde, sporcuların cinsiyete göre tutum ve davranışta; spor türüne göre tutumda; yaş gruplarına göre bilgi ve davranışta; spor yaşına göre bilgi, tutum ve davranışta; eğitim durumlarına göre bilgi ve davranışta istatistiksel olarak anlamlı farklılıklar olduğu tespit edilmiştir. Sonuç olarak sporcuların genel olarak bilgi puanlarının yüksek düzeyde, tutum ve davranış puanlarının ise orta düzeyde olduğu tespit edilmiştir.*

Anahtar Kelimeler: *Spor, sporcu, hidrasyon, bilgi, tutum, davranış.*

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INTRODUCTION

It can be defined as a hierarchy of needs that includes certain weights of many complicated factors such as increase in performance in sports, physical, social and psychological development of the athlete (1), intake of necessary nutrients for the needed energy (2). In this table, which can be described as the athlete performance pyramid, water/liquid serves as an important keystone in the formation of high performance (3). Water, which is an indispensable substance for living things (4), is stated to be between 42% and 80% of an adult human's body weight (5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23). The human organism meets its water needs in the form of nutrients, drinks and metabolism (9, 21). While the negative effects that may occur as a result of the lack of nutrients other than water can take weeks, months or even years, human survival in the absence of water is limited to a few days (24). If the amount of water lost from the organism reaches 10%, it means danger to life, and if this amount reaches 20%, it may cause a process that will result in death (18, 19, 20, 21, 22). The balance created by the amount of water in the body is important for human life. Changes in the water balance in the organism may be caused by physical activity, the temperature of the athlete's environment, and diseases (diarrhea, etc.). The excretion of water in the body occurs in four ways: kidneys, lungs, intestines and skin (25). Water exists in a state of motion in the body. Since it is taken in by various mechanisms and excreted by various mechanisms, this situation changes in a cycle similar to the water cycle in the world. In this cyclic state of water, the liquid state density of the internal environment in the organism is defined as hydration (26). Individuals who do sports need to pay attention to this situation, that is, their hydration status, in the process of increasing performance. If there is a problem with the amount of fluid required for the organism, this will negatively affect sports performance. The condition that occurs due to loss of water in the body is defined as dehydration (27). In other words, having enough fluid for the body to fully perform its physiological functions is defined as hydration, having more body fluids than the required level depending on fluid intake is defined as hyperhydration, and being less than the required level is defined as hypohydration (28). Dehydration, which causes athlete performance to decrease, can also cause heat illnesses and injuries (29). Even a small amount of fluid lost negatively affects the athlete's performance (23). It is very important for athletes to control the amount of fluid their bodies require and keep the fluid at those levels for their performance. One of the factors that will affect an individual's performance is knowledge. Information will provide the individual with the opportunity to provide a road map on how to manage this process. Information cannot carry out this task alone, but it undertakes a task by ensuring certain factors come together. One of the duties of knowledge is to create environments that will increase the athlete's performance. The environments that will be created will affect the individual's attitude positively or negatively and, as a natural result, will also affect his performance. Another building block in terms of performance is attitude. Attitude "expresses the individual's reaction tendency towards any phenomenon or object in his environment" (30). According to the Turkish Language Association [TLA], attitude is defined as "the way taken, attitude, behavior" (31). Knowing what an individual's attitude is towards an object or stimulus will enable us to predict what that individual's behavior will be towards the relevant stimulus (32). Attitudes are affective factors that shape people's behavior (33). They affect the direction and severity of a person's behavior (34). For this reason, the impact of a person's attitudes on performance should not be ignored. Behavior is defined as "the totality of the organism's reactions to stimuli" (35). In other words, it can be

interpreted as the visible form of attitudes. Knowledge, attitudes and behaviors affect the athlete's performance. For this reason, the individual's knowledge about hydration, which is so effective on athlete performance, will be a complementary element that will be effective in the attitude process, and attitude will be an effective complementary element in the behavior process. In this context, the current research aimed to examine the hydration knowledge level, attitudes and behaviors of athletes in Different sport events.

METHODS

Research Model: This research consists of a screening model as it aims to determine the current situation of athletes in Different sport events regarding their hydration knowledge level, attitudes and behaviors. “Screening models are research approaches that aim to describe a past or present situation as it exists” (36). The hydration knowledge level, attitudes and behaviors of athletes in different sports branches were examined descriptively in this research.

Purpose of the research: The current research aimed to examine the hydration knowledge level, attitudes and behaviors of athletes in Different sport events.

Population and Sample of the Research: The population of this research consists of individuals who do active sports in the provinces of Adıyaman, Antalya, Bartın, Bursa, Çanakkale, Çorum, Elazığ, Gaziantep, Giresun, Kırıkkale, İstanbul, İzmir, Muş and Sakarya. In sample selection, different sampling techniques, which are frequently used in social sciences to minimize sampling errors, were used. In this technique, data was collected on the population corresponding to the largest universe for $\alpha = 0.05$ (37). The "quota sampling" method was taken into account when including the sample. Based on this information, a total of 553 athletes, 123 (22.2%) females and 430 (77.8%) males, selected by quota sampling method, participated in the research.

Table 1. Distribution of participants according to gender

Gender	**n**	**%**
Female	123	22,2
Male	430	77,8
Sport Type	**n**	**%**
Team Sport	272	49,2
Individual Sport	281	50,8
Total	**553**	**100**

When Table 1 is examined, a total of 553 athletes were included in the study, 123 (22.2%) of whom were female and 430 (77.8%) of whom were male. It was also found that 49.2% (n=272) of the participants practiced team sports, while 50% (n=281) practiced individual sports.

Data Collection Tools: Within the scope of the research, the "Personal Information Form" prepared by the researcher and the "Hydration Knowledge, Attitude and Behavior Questionnaire" developed by Nichols, Jonnalagadda, Rosenbloom and Trinkaus (38) and revised by Trammel (39) were used. Detailed information about measurement tools is presented below.

Personal Information Form: To determine the demographic characteristics of athletes, gender, age, educational status, etc. "Personal Information Form" was used to access the information.

Hydration Knowledge, Attitude and Behavior Questionnaire: The "Hydration Knowledge, Attitude and Behavior Questionnaire" developed by Nichols, Jonnalagadda, Rosenbloom and Trinkaus (38) and revised by Trammel (39) was used in the research. During the process of translating the survey into Turkish, no new expressions were added to the survey, two expressions were removed from the original survey and the original of the survey was completely adhered to. A two-stage study was carried out in translating the survey into Turkish. In the first stage, the survey was translated from its original language, English, into Turkish and from Turkish back into English by experts in the fields of Turkish and English. The form, translated into Turkish, was checked by a consultant, three field experts, a statistics expert, two experts working in the field of English linguistics, three Turkish teachers and an international journal editor. Necessary final arrangements were made in line with the recommendations of the experts, and the final version of the survey was reviewed and prepared by a Turkish language expert, consultant and researcher. In the second stage, an effort was made to check the understandability of the ready-made survey by the participants. The prepared survey was applied to the pre-participation group of 70 people and it was observed that the survey did not have any problems in being understood by the participants and was easily answered. The survey consists of three sections measuring Knowledge, Attitude and Behavior. The reliability values of the sections were found to be .62 for the knowledge section, .76 for the attitude section, and .60 for the behavior section, respectively.

Knowledge Section: The knowledge section consists of 20 questions measuring hydration knowledge and the questions are answered as true or false. In the knowledge section, each correct answer was given 1 point, and each incorrect answer was given 0 points. The highest score to be obtained from this section is 20 and the lowest score is 0. It is understood that as the score obtained in this section increases, the person's hydration knowledge increases. The reliability of the data obtained was calculated with KR-20 (Kuder Richardson-20) and the KR-20 reliability coefficient of this section was found to be .62.

Attitude Section: The attitude section is a 5-point Likert type, consisting of 20 questions measuring hydration attitude. Survey items are scored as "strongly agree" (5 points), "agree" (4 points), "undecided" (3 points), "disagree" (2 points), "strongly disagree" (1 point). It is understood that as the score obtained in this section increases, the person's hydration attitude also increases. The reliability of the data obtained was calculated with Cronbach Alpha and the Cronbach Alpha value reliability coefficient was found to be .76.

Behavior Section: The behavior section consists of 18 questions measuring hydration behavior and the questions are answered yes or no. In the behavior section, 1 point was given for each correct answer and 0 point was given for each wrong answer. The highest score that can be obtained from this section is 18 and the lowest score is 0. It is understood

that as the score in this section increases, the hydration behavior of the person increases. The reliability of the data obtained was calculated with KR-20 (Kuder Richardson-20) and the KR-20 reliability coefficient of this section was found to be .60.

Data Collection: Necessary permissions were obtained by the researcher from the authors who developed the survey and from Sakarya University Ethics Committee [E.13934] to apply the survey to athletes. The prepared survey form includes all necessary steps regarding the participation of athletes under the age of 18 in the survey, for athletes aged 18 and over, the processes related to them were completed "informed volunteer participation consent form" by the athletes who volunteered to participate in line with the ethical principles for both groups (families of athletes under 18 years of age), without the permission of the coach or family, and the survey forms were given to the athletes. The data from the entire sample group was collected by the researcher.

Analysis of Data: The surveys collected from the athletes were checked one by one and transferred to the electronic environment in order to prevent possible errors and make them ready for analysis. 600 data were collected from the athletes in the sample, but 47 questionnaires with systematic coding errors, incomplete and incorrectly filled out questionnaires were removed from the study and 553 questionnaires were evaluated. The statistical analyzes used in the research were carried out through the SPSS 21 statistical package program. Whether the data met the prerequisites of parametric tests was checked with Skewness and Kurtosis values, and all values were found to be within ± 2 values. It can be stated that these values are suitable for normal distribution (40). In evaluating the data, statistical frequency, percentage distribution, arithmetic mean, standard deviation; Among parametric tests, t-test for independent groups, one-way analysis of variance (ANOVA) and LSD multiple comparison tests were used to determine the source of the difference between groups. To determine the reliability of the survey, KR-20 and Cronbach Alpha internal consistency coefficients were calculated.

RESULTS

Table 2. Descriptive results of athletes' hydration knowledge level, attitude and behavior scores

General	**n**	X	Sd.	**%**
Knowledge	553	14,45	2,94	72,25
Attitude	553	67,61	10,21	67,61
Behavior	553	10,09	2,67	56,05
Female	n	X	Sd.	%
Knowledge	123	14,26	2,82	71,3
Attitude	123	64,94	10,58	64,94
Behavior	123	9,47	2,94	52,61
Male	n	X	Sd.	%
Knowledge	430	14,51	2,98	72,55
Attitude	430	68,36	9,99	68,36
Behavior	430	10,27	2,56	57,05

Table 2 shows the average, standard deviation and converted percentage values of the athletes' knowledge, attitude and behavior scores. Another measurement tool used to determine success is yes/no, true/false tests. Considering that it would be more understandable in evaluating the results of the study, the grading system used to evaluate the success level was preferred. The score ranges used to determine success levels have been converted into a 100-point grading system and are evaluated accordingly as: Low (0-44), Medium (45-69) and High (70-100), respectively (41). It can be said that the attitude and behavior scores of the general, male and female categories are at a medium level, and the knowledge scores are at a high level.

Table 3. Comparison results of athletes' hydration knowledge level, attitude and behavior scores according to gender

	Gender	n	$\bar{X}$	SD.	t	p
Knowledge	Female	123	14,26	2,81	,85	,39
	Male	430	14,51	2,97		
Attitude	Female	123	64,94	10,58	3,31	,00*
	Male	430	68,36	9,98		
Behavior	Female	123	9,47	10,58	2,97	,00*
	Male	430	10,27	9,98		

* p < ,05

As a result of the "independent groups t-test" in Table 3, it was determined that the attitude and behavior scores of the athletes differed significantly according to gender (p < .05). It was found that the mean scores of male athletes in attitude and behavior were significantly higher. On the other hand, it was determined that there was no significant difference in knowledge levels (p>.05).

Table 4. Comparison results of athletes' hydration knowledge level, attitude and behavior scores according to the type of sport they do

	Sport Type	n	$\bar{X}$	SD.	t	p
Knowledge	Team Sport	272	14,60	2,94	1,13	,25
	Individual Sport	281	14,32	2,93		
Attitude	Team Sport	272	68,48	10,23	1,98	,04*
	Individual Sport	281	66,76	10,14		
Behavior	Team Sport	272	10,22	10,23	1,08	,28
	Individual Sport	281	9,97	10,14		

* p < ,05

As a result of the "independent groups t-test" in Table 4, it was determined that the attitude scores of the athletes differed significantly according to the type of sports they were interested in (p < .05). It was found that the scores of athletes playing team sports were significantly higher in attitude. On the other hand, it was determined that there was no significant difference in the athletes' knowledge and behavior scores (p>.05).

Table 5. Comparison results of athletes' knowledge, attitude and behavior scores according to age groups

	Groups	n	$\bar{X}$	SD.	F	P	Variation
Knowledge	15-17[a]	187	13,69	3,24	4,61	,00*	b,c,d,e,f>a
	18-20[b]	94	15,31	2,88			
	21-23[c]	83	14,68	2,74			
	24-26[d]	46	14,71	2,96			
	27-29[e]	51	14,74	2,51			
	30- plus[f]	92	14,64	2,37			
Attitude	15-17[a]	187	68,16	12,26	1,80	,11	
	18-20[b]	94	69,25	8,36			
	21-23[c]	83	67,55	11,07			
	24-26[d]	46	68,41	7,62			
	27-29[e]	51	65,62	8,99			
	30- plus[f]	92	65,54	7,71			
Behavior	15-17[a]	187	9,52	2,49	3,42	,00*	b,c,d>a
	18-20[b]	94	10,54	2,59			
	21-23[c]	83	10,46	3,01			
	24-26[d]	46	10,89	2,60			
	27-29[e]	51	10,05	2,83			
	30- plus[f]	92	10,09	2,52			

* p < ,05

As a result of "one-way analysis of variance (ANOVA)" in Table 5, it was determined that the athletes' knowledge level and behavior scores differed significantly according to age groups (p <.05). According to the results of the post hoc (LSD) test conducted to determine the source of the difference, knowledge scores were higher in the 15-17 age group and 18-20, 21-23, 24-26, 27-29 age group; A significant difference was found between those aged 30 and over in favor of those aged 18-20, 21-23, 24-26, 27-29, and those aged 30 and over. A significant difference was found in behavior scores between the 15-17 age group and the 18-20, 21-23, 24-26 age group in favor of the 18-20, 21-23, 24-26 age group.

Table 6. Comparison results of athletes' knowledge, attitude and behavior scores according to sports age groups

	Groups	n	$\bar{X}$	Sd.	F	P	Variation
Knowledge	1-3[a]	73	13,34	3,17	3,91	,00*	b,d,e,f>a d>c
	4-6[b]	121	14,43	2,91			
	7-9[c]	110	14,17	3,32			
	10-12[d]	122	15,06	2,51			
	13-15[e]	49	14,51	2,91			
	15- plus[f]	78	14,96	2,51			
Attitude	1-3[a]	73	70,63	10,26	2,48	,03*	a>b,c,f
	4-6[b]	121	67,12	11,01			
	7-9[c]	110	66,11	11,89			
	10-12[d]	122	68,54	9,13			
	13-15[e]	49	68,02	9,14			
	15- plus[f]	78	65,91	7,72			
Behavior	1-3[a]	73	9,69	2,52	3,17	,00*	d,e,>a d>a,c e>a,b,c,f
	4-6[b]	121	9,82	2,77			
	7-9[c]	110	9,75	2,81			
	10-12[d]	122	10,47	2,29			
	13-15[e]	49	11,20	2,99			
	15- plus[f]	78	10,10	2,57			

* p < ,05

As a result of "one-way analysis of variance (ANOVA)" in Table 6, it was determined that the athletes' knowledge, attitude and behavior scores differed significantly according to sports age groups (p <.05). According to the results of the

post hoc (LSD) test conducted to determine the source of the difference, knowledge scores ranged from 1-3 to 4-6, 10-12, 13-15, 15 and above, and 4-6, 10-12, 13-15, 15 sports ages. and above in favor of sports age; A significant difference was found between 7-9 and 10-12 sports ages in favor of the 10-12 sports age. A significant difference was found in attitude scores between the sports ages of 1-3, 4-6, 7-9 and 15 and over, in favor of the sports ages of 4-6, 7-9 and 15 and over. In terms of behavior scores, scores range from 1-3 to 10-12, 13-15 sports ages in favor of 10-12, 13-15 sports ages; Between 10-12 and 1-3, 7-9 sports ages in favor of 10-12 sports ages; A significant difference was found between the sports ages of 13-15 and 1-3, 4-6, 7-9, 15 and above, in favor of the 13-15 sports age.

Table 7. Comparison results of athletes' knowledge, attitude and behavior scores according to their educational status

	Educational Status	n	$\bar{X}$	Sd.	F	p	Variation
Knowledge	Non-Graduate[a]	11	13,09	3,91	3,45	,00*	e>a,b,c,d f>a,b,d
	Secondary Schooll[b]	20	13,40	2,90			
	High School[c]	274	14,23	3,22			
	Associate Degree[d]	43	13,88	3,00			
	Undergraduate[e]	169	15,02	2,32			
	Postgraduate[f]	36	15,22	2,29			
Attitude	Non-Graduate[a]	11	51,09	10,28	,42	,83	
	Secondary School[b]	20	49,65	13,79			
	High School[c]	274	52,41	11,04			
	Associate Degree[d]	43	51,81	9,60			
	Undergraduate[e]	169	52,85	8,87			
	Postgraduate[f]	36	52,63	8,07			
Behavior	Non-Graduate[a]	11	9,90	2,07	4,18	,00*	e,f>c
	Secondary School[b]	20	10,05	2,87			
	High School[c]	274	9,63	2,49			
	Associate Degree[d]	43	10,09	3,41			
	Undergraduate[e]	169	10,68	2,68			
	Postgraduate[f]	36	10,97	2,33			

* p < ,05

As a result of the "one-way analysis of variance (ANOVA)" in Table 7, it was determined that the athletes' knowledge and behavior scores differed significantly according to their educational status (p <.05). According to the post hoc (LSD) test results for the source of the difference, there is a difference in knowledge scores between athletes who have undergraduate education and athletes who have not graduated, secondary school, high school and associate degree, in favor of those who have undergraduate education; A significant difference was found between athletes who received postgraduate education and those who did not graduate, who received secondary school and associate degree education, in favor of those who received postgraduate education. In terms of behavior scores, a significant difference was detected between athletes with postgraduate and undergraduate education and athletes with high school education, in favor of those with postgraduate and undergraduate education.

DISCUSSION AND CONCLUSIONS

According to social-cognitive behavior change theories such as the theory of planned behavior, an individual's attitude towards a behavior partially affects his intention to perform the behavior, and this intention is related to the behavior (cited in 42). Therefore, if the issue of hydration, which has an important place in terms of athlete performance, can be supported with knowledge, attitudes and behaviors, it is expected to have a positive impact on athlete performance. In terms of managing these processes, knowledge, attitude and behavior processes must be managed correctly.

According to the results of the research, it has been determined that in the general total of knowledge, attitude and behavior scores, as a result of the scores the athletes received from the survey, their knowledge scores (72.25%) were at a good (high) level, while their attitude (67.61%) and behavior (56.05%) scores were at a medium level. Likewise, according to gender variables, it has been determined that male-female knowledge scores (71.3-72.55%) are at good levels, while attitude (64.94-68.36%) and behavior (52.61-57.05%) scores are at medium levels. While these results are similar to the results made by Trammell (39), Karslı (43) and Nichols, Jonnalagadda, Rosenbloom and Trinkaus (38), they differ from those of Esa, Saad, Phing & Karppaya (29). According to the knowledge, attitude and behavior scores of males and females, the difference with the knowledge and behavior part of the study conducted by Esa, Saad, Phing & Karppaya (29) is similar to the attitude part. When the research results were examined, it was determined that knowledge and attitudes did not turn into behavior both in general and by gender. Considering that the most obvious result of the athletes' hydration indicator is behavior, it can be said that the participants experienced dehydration problems. It should not be thought that having nutritional knowledge will always affect the individual's behavioral changes (38). The results of the research conducted by Chapman, Toma, Tuveson, and Jacob (44) are also parallel.

In the current study, it was determined that the difference in knowledge scores of the participants according to the gender variable was not significant, but male's scores were

significantly higher in attitude and behavior scores. When the literature was examined, similarities were found with studies conducted at the level of knowledge (29, 38, 39, 45, 46, 47), and behavior (48). On the other hand, studies conducted at the level of knowledge (49), attitude (29, 38, 39, 45, 46, 47, 48, 49), and behavior (29, 38, 39, 47, 49) differ from the results of current research. In this study, it is thought that the reason why the difference in knowledge level according to the gender variable is not significant is that male and female athletes are informed in the same way about liquid intake and consumption by camps, training levels, and coaches. The reason why male's scores are significantly higher in attitude scores is explained by biological deterministic models and hormonal effects (50). Male's areas of interest are mostly adventure, machinery and science, and they are competitive and enterprising. Females, on the other hand, do housework, art, etc. It has been determined that they are related to professions and are more emotional, aesthetically sensitive and more serious about moral norms (cited in 50). This situation can be interpreted as a difference as it may cause male's adventurous and assertive behavior to be reflected in their attitudes. The reason why male's behavioral scores are significantly higher compared to the gender variable is that males show more water drinking behavior, in other words, they use more energy than females in the same exercise during physical activity processes. As a result, male's sweat losses are higher than female's (19). For this reason, it is thought that it will cause males to turn to water drinking behavior. In addition, as a result of the study conducted by Özen, Bibiloni, Pons, & Tur (51), it was determined that males had higher fluid consumption in all age groups, which supports the research findings.

It was determined that the difference in knowledge and behavior scores of the participants according to the sport type variable was not significant, but in attitude scores, team sports scores were significantly higher. As a result of the study conducted by Esa, Saad, Phing & Karppaya (29), a difference was found at the level of knowledge and attitude, but a similarity was found at the level of behavior. In addition, when studies on nutrition knowledge levels, which are thought to serve the same purpose, are examined, it is stated that individual athletes are more knowledgeable than team athletes in terms of their knowledge levels (52). This result does not coincide with the current research finding. People's attitudes towards hydration can help or hinder hydration. Information for hydration is likely important to some extent, as hydration needs to vary depending on conditions (e.g., in the heat, post-exercise) (53). Some athletes may consider thirst as the best indicator of dehydration (54). If there is an athlete among the team athletes with this idea, the attitudes of the other athletes of the team can affect this situation in a changing process. On the other hand, this is not valid for individual athletes. When the fluid requirements of athletes are considered, the fluid requirements of athletes involved in team sports are evaluated as a team rather than individually. It can be interpreted that this social structure brought about by being a team causes the attitude towards liquid consumption to be high. As a matter of fact, fluid consumption is important in team sports, as in all sports branches (55). The fact that the difference is not significant at the level of behavior in both team sports and individual sports is thought to be due to the fact that these processes are coordinated from coaches to athletes at the point of fluid consumption and they behave accordingly, and team athletes are considered individually in fluid consumption and the same protocol applied to individual athletes is applied to team athletes.

It was determined that the difference in knowledge and behavior scores of the participants according to the age variable was significant. It is similar to the results in the knowledge, attitude and behavior scores of the study conducted by Esa, Saad, Phing & Karppaya (29). In addition, there is a similarity with the attitude scores of the study conducted by Donkor, Nyavor, Seibu, & Ahorsey (47), but there are differences with the knowledge and behavior scores. Additionally, as a result of the study conducted by Yeargin, Casa, Judelson, McDermott, Ganio, Lee, & Maresh (56), it was stated that there was no significant difference between the knowledge levels of young and adult athletes according to age. Athletes between the ages of 18-20 have the highest average knowledge score. It can be thought that the reason for this is their ambition to earn and their desire to gain knowledge during their adolescence. It points out that athletes, coaches and experts over the age of seventeen are aware of their nutritional knowledge and benefit from them sufficiently (57). In terms of attitude scores, it was determined that the mean scores up to the age of 27 were relatively higher than those after the age of 27. Among the reasons for the relatively decrease in attitude scores after the age of 27, it can be interpreted that the athletes' attitudes may have decreased due to the adaptation of osmo-receptors to thirst.

When comparing the knowledge, attitude and behavior of the athletes participating in the research according to their sports age, the knowledge, attitude and behavior scores of the athletes differ significantly according to their sports age. The study conducted by Song, Yan, Zhao, Chen, Deng, Zhu, & Ma (45) found that the results were similar to the knowledge scores and different from the attitude scores. It was determined that the highest average score in knowledge scores was in the 10-12 age group, the highest average score in attitude scores was in the 1-3 age group, and the highest average score in behavior scores was in the 13-15 age group. The fact that the 1-3 age group has the highest attitude scores can be considered as the reason for this: the discipline, sense of winning, perseverance, etc. brought by the first years of sportsmanship. When the research findings were examined, it was determined that after a while, there were decreases in attitude scores, although they varied from year to year. This situation can be interpreted as attitudes turning into behavior. It was determined that behavior scores increased in the same age group. It was observed that the behavior scores reached the highest level and decreased after a while, which can be interpreted as the reason for this being that the behaviors have now become habits. When the level of knowledge is examined, it can be interpreted that it increases over the years, supporting the level of behavior, and becomes a behavior and habit after a while. Among the reasons why behavioral scores are low in young athletes is that the renal regulatory mechanisms of young adults are adequately handling mild fluid imbalances to maintain exercise performance (58). Therefore, it can be thought that

behavior scores were low at the beginning. When the athletes' knowledge, attitude and behavior scores are examined according to their sports age, it can be concluded that the average scores are relatively similar with increasing sports age experience.

When comparing the knowledge, attitudes and behaviors of the athletes participating in the current study according to their educational status, a significant difference was found in the athletes' knowledge and behavior scores according to their educational status. There was no difference in attitude scores according to educational status. This result is similar to the knowledge and attitude scores of the study conducted by Esa et al. (29), but differs from the behavior scores. It was determined that the highest score in the average knowledge scores belonged to the undergraduate and postgraduate participants, the knowledge scores of the participants increased up to the associate degree level, the increase decreased there, and then the knowledge scores increased again at the undergraduate and postgraduate level. It is thought that the reason for this is due to the characteristics of athletes receiving associate degree education. Additionally, when the behavioral scores of the participants are examined, it is seen that the highest behavioral scores belong to undergraduate and graduate participants. As a result, it was determined that the athletes' general knowledge scores were at a high level, while their attitude and behavior scores were at a medium level.

Maintaining fluid homeostasis is vital for athletic performance and thermoregulation in youth and adults (59). Moreover, studies have shown that even lower levels of dehydration (~1%) cause negative changes in athletic performance (60, 61). For this reason, it will be important to create protocols to inform athletes about their hydration processes, taking into account the dimensions of knowledge, attitude and behavior, and to rearrange them through applications, taking into account today's technologies, and make them available to athletes. In addition, the reason why athletes become dehydrated is due to their inability to regain the lost fluid. The current research has revealed negativities in the fluid intake behavior of athletes. It is thought that contributions to the literature can be made by conducting studies on what precautions can be taken against athletes exhibiting negative behavior. In addition, with developing technology, managing daily processes, including pre-competition/training, competition/training process and post-competition/training processes, by using fluid consumption reminders on smart watches and phones, can contribute to the solution.

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GENİŞLETİLMİŞ ÖZET

Araştırmanın Amacı

Bu araştırmada; farklı branşlardaki sporcuların hidrasyon bilgi düzeyi, tutum ve davranışların incelenmesi amaçlanmıştır

Araştırma Problemleri

Sporcuların hidrasyon bilgi düzeyi, tutum ve davranış düzeyleri nasıldır?

Sporcuların hidrasyon bilgi düzeyi, tutum ve davranış puanları cinsiyete gore farklılık göstermekte midir?

Sporcuların hidrasyon bilgi düzeyi, tutum ve davranış puanları spor türüne gore farklılık göstermekte midir?

Sporcuların hidrasyon bilgi düzeyi, tutum ve davranış puanları yaş gruplarına gore farklılık göstermekte midir?

Sporcuların hidrasyon bilgi düzeyi, tutum ve davranış puanları spor yaşına gore farklılık göstermekte midir?

Sporcuların hidrasyon bilgi düzeyi, tutum ve davranış puanları eğitim durumlarına gore farklılık göstermekte midir?

Literatur Araştırması

Sporda performansın artışı sporcunun fiziksel, sosyal ve psikolojik gelişimi (1), ihtiyaç duyulan enerji için gerekli besinlerin alınması (2) gibi komplike olan birçok faktörün belirli ağırlıkları ile yer aldığı ihtiyaç hiyerarşisi olarak tanımlanabilir. Sporcu performans piramidi olarak ifade edilebilecek bu tabloda su/sıvı yüksek performans oluşumu noktasında önemli bir kilit taşı görevi üstlenmektedir (3). İnsan organizması besinler, içecekler ve metabolizma şeklinde su ihtiyacını karşılamaktadır (9, 21). Spor yapan bireylerde performansın artırılması sürecinde bu duruma yani hidrasyon durumuna dikkat etmesi gerekmektedir. Eğer organizma için gerekli sıvı miktarında noktasında sorun yaşanır ise bu durum spor performansını olumsuz yönde etkileyecektir. Vücutta su kaybı veya su kaybı ile oluşan durum ise dehidratasyon şeklinde tanımlanmaktadır (27). Kaybedilen çok az miktarda sıvı dahi sporcunun performansını olumsuz yönde etkiler (23). Performans açısından diğer bir yapı taşı ise tutumdur. Tutum; "bireyin çevresindeki herhangi bir olgu veya nesneye ilişkin sahip olduğu tepki eğilimini ifade eder" (30). Tutumlar, kişilerin davranışlarını şekillendiren duyuşsal etmenlerdir (33). Davranış ise "*organizmanın uyaranlar karşısındaki tepkilerinin bütünü*" (35) şeklinde tanımlanmıştır. Yani tutumların görülür şekli olarak yorumlanabilir. Bilgi, tutum ve davranışlar sporcunun performansına etki etmektedir. Bu nedenle sporcu performansı üzerinde bu denli etkili olan hidrasyon hakkında bireyin bilgi sahibi olması tutum sürecinde, tutum ise davranış sürecinde etkili olacak bir tamamlayıcı unsur olacaktır. Bu çerçevede mevcut araştırmada, farklı branşlardaki sporcuların hidrasyon bilgi düzeyi, tutum ve davranışların incelenmesi amaçlanmıştır.

Yöntem

Araştırma Modeli

Bu araştırma, farklı branşlardaki sporcuların hidrasyon bilgi düzeyi, tutum ve davranışları belirmeye yönelik mevcut

durumu tespit etmeyi hedefleyen bir araştırma olması sebebiyle taramaya yönelik bir modelden oluşmaktadır.

Araştırmanın Evren ve Örneklemi

Bu araştırmanın evrenini Adıyaman, Antalya, Bartın, Bursa, Çanakkale, Çorum, Elâzığ, Gaziantep, Giresun, Kırıkkale, İstanbul, İzmir, Muş, Sakarya illerinde aktif spor yapan bireyler oluşturmaktadır. Örneklem seçiminde ise sosyal bilimlerde örnekleme hatalarını en aza indirgemek için sıklıkla kullanılan farklı örneklem alma tekniğine gidilmiştir. Söz konusu teknikte α= 0,05 için (Yazıcıoğlu ve Erdoğan, 2004) en büyük evrene karşılık gelen popülasyonun üzerinde veri toplanmıştır. Örneklemin dahil edilmesinde ise "kota örnekleme" yöntemi dikkate alınmıştır. Bu bilgilerden hareketle araştırmada kota örnekleme yöntemiyle seçilen 123'ü (% 22,2) kadın, 430'u ise (%77,8) erkek toplam 553 sporcu araştırmaya katılım göstermiştir.

Veri Toplama Araçları

Araştırma kapsamında araştırmacı tarafından hazırlanan "Kişisel Bilgi Formu" ve Nichols, Jonnalagadda, Rosenbloom ve Trinkaus (2005) tarafından geliştirilen, Trammel (2007) tarafından revize edilen "Hidrasyon Bilgi, Tutum ve Davranış Anketi" kullanılmıştır.

Verilerin Toplanması

Araştırmacı tarafından anketi geliştiren yazarlardan ve Sakarya Üniversitesi Etik Kurulu'ndan [E.13934] anketin sporculara uygulanabilmesi için gerekli izinler alınmıştır. Hazırlanan anket formu 18 yaş altı sporcuların ankete katılım süreci ile ilgili gerekli olan tüm işlem basamakları, 18 yaş ve üzeri sporcular için de antrenör veya aile izni olmaksızın kendileriyle ilgili süreçler her iki grup için etik ilkeler doğrultusunda katılıma gönüllü olan sporculara (18 yaşından küçük sporcuların ailelerine) "bilgilendirilmiş gönüllü katılım onam formu" doldurtulmuş ve anket formları sporculara verilmiştir. Bütün örneklem grubundaki veriler araştırmacı tarafından toplanmıştır.

Verilerin Analizi

Verilerin değerlendirilmesinde istatiksel olarak; frekans, yüzdelik dağılım, aritmetik ortalama, standart sapma; parametrik testlerden bağımsız gruplar için t-testi, tek yönlü varyans analizi (ANOVA) ve gruplar arasında farkın kaynağını belirlemek için ise LSD çoklu karşılaştırma testleri kullanılmıştır. Anketin güvenirliklerini belirlemek için de KR-20 ve Cronbach Alpha iç tutarlık katsayıları hesaplanmıştır.

Sonuç ve Değerlendirme

Araştırma bulguları incelendiğinde, sporcuların cinsiyete göre tutum ve davranışta; spor türüne göre tutumda; yaş gruplarına göre bilgi ve davranışta; spor yaşına göre bilgi, tutum ve davranışta; eğitim durumlarına göre bilgi ve davranışta istatistiksel olarak anlamlı farklılıklar olduğu tespit edilmiştir. Sonuç olarak sporcuların genel olarak bilgi puanlarının yüksek düzeyde, tutum ve davranış puanlarının ise orta düzeyde olduğu tespit edilmiştir.