# Determination of E-Health Literacy of Healthcare Employees and Health Tourism Employees<sup>a</sup>

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#### Determination of E-Health Literacy of Healthcare Employees and Health Tourism Employees

#### Abstract

**Background.** Healthcare professionals need to have the skills to read and comprehend the health informations in order to make effective health decision making. Considering the advanced level reached by current technologies, the importance regarding the term electronic health (e-Health) literacy emerges. In the case of healthcare professionals, e-Health literacy is important in terms of accessing accurate the health information and making use of it for the benefit of society.

**Aim.** The aim of the present work aimed to identify and comparatively analyse the e-Health literacy levels of healthcare workers along with health tourism workers.

**Method.** Within the scope of the study, 427 feedbacks were obtained from the questionnaires delivered to healthcare and health tourism business employees via remote access between March and May, 2024. The obtained datas were analysed by using the SPSS program.

**Findings.** A statistically meaningful statistical relationship was found among the e-Health literacy levels of the employees according to their status of working as a health worker or in a health tourism business. In the study, statistically important changes were found among the e-Health literacy scores of the employees in respect to their age groups, marital status and educational status.

**Conclusion.** As a consequence of the research, it was found that healthcare workers' e-Health literacy levels were higher than health tourism workers. In addition, it was concluded that older age groups, married people and those with postgraduate degrees had greater levels of e-Health literacy. It is thought that the study will be important for managers and employees in the sector as well as contributing to the literature since it is the first time the study has been applied on these samples.

*Keywords:* Health literacy, e-Health literacy, health tourism businesses, healthcare businesses.

Sağlık Çalışanları ve Sağlık Turizm Çalışanlarının E-Sağlık Okuryazarlığının Belirlenmesi

Öz

Arka plan. Sağlık alanında hizmet verenlerin sağlık hizmetleri ile ilgili etkili kararlar almaları için sağlık ile ilgili bilgileri okuma ve anlama yeteneklerine sahip olmaları gerekmektedir. Günümüz teknolojilerinin ilerlediği düzey dikkate alındığında da elektronik sağlık (e-Sağlık) okuryazarlığı kavramının önemi ortaya çıkmaktadır. Sağlık hizmeti verenler bağlamında e-Sağlık okuryazarlığı doğru sağlık bilgilerine erişebilmek ve bunları toplumun yararına kullanabilmek açısından önem arz etmektedir.

Amaç. Bu çalışmada amaç sağlık çalışanlarının ve sağlık turizmi çalışanlarının e-Sağlık okuryazarlık düzeylerini belirlemek ve karşılaştırmalı olarak analiz etmektir.

**Yöntem.** Çalışma kapsamında sağlık işletmesi ve sağlık turizmi işletmesi çalışanlarına 2024 yılında Mart ile Mayıs ayları arasında uzaktan erişim yoluyla ulaştırılan anketlerden 427 geri bildirim sağlanmıştır. Anket yoluyla ulaşılan veriler SPSS programı aracılığıyla analiz edilmiştir.

**Bulgular.** Çalışanların sağlık işletmesi ya da sağlık turizmi işletmesinde çalışma durumlarına göre e-Sağlık okuryazarlığı düzeyleri arasındaki farkın istatistiksel olarak anlamlı olduğu belirlenmiştir. Ayrıca çalışanların e-Sağlık okuryazarlığı düzeylerinin yaş grupları, medeni durumları ve eğitim durumlarında da istatiksel açıdan anlamlı farklılıklar olduğu görülmüştür.

**Sonuç.** Araştırmada sonuç olarak sağlık işletmesi çalışanlarının e-Sağlık okuryazarlık düzeylerinin sağlık turizmi çalışanlarından yüksek olduğu tespit edilmiştir. Ayrıca ileri yaş grubundakilerin, evlilerin ve lisansüstü eğitim alanların e-Sağlık okuryazarlık düzeyinin daha yüksek olduğu sonucuna varılmıştır. Çalışmanın bu örneklemler üzerinde ilk defa uygulanmasından dolayı literatür katkısının yanı sıra sektördeki yöneticiler ve çalışanlar için de önem arz edeceği düşünülmektedir.

Anahtar Kelimeler: Sağlık okuryazarlığı, e-Sağlık okuryazarlığı, sağlık turizmi işletmeleri, sağlık işletmeleri.

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# **1. Introduction**

In the last years, the notion of health literacy has received considerable attention, particularly in terms of the efforts to develop and implement interventions at different scales, to improve its measurement, and the role of populations and institutions (Lander et al., 2022). Health literacy is a basic life skills that we build and sustain our entire life. For this reason, health service providers should be conscious and friendly about health literacy. In this way, individuals in society will be able to get better health care (Ryan, 2014).

Electronic Health Literacy (E-Health Literacy) is a comparatively new framework which broadens conventional healthcare literacy studies towards internet-related health literacy and is important in enabling people to play an active role in making informed health choices (Castarlenas et al., 2021).

Health literacy is the ability to understand and comprehend health-related information in order to both improve and maintain one's health. For this reason, every adult should know the concept of health literacy. Thus, the person can follow all processes related to his/her health more easily and take better measures to improve his/her health. The importance level of this concept increases much more for the personnel working in the field of health. Because when people working in healthcare organizations are aware of their own health literacy resources, they can better understand how to meaningfully support the health literacy of the people they serve (Lander et al., 2022). In addition, health professionals with strong health literacy skills are essential for providing quality care. If health professionals themselves have health literacy needs, this may hinder their ability to support their patients. In this context, it is essential for health professionals to have knowledge about e-Health literacy as well as to be able to improve their health literacy and to understand and respond appropriately to the diversity of health literacy of societies in this age of intensive use of digital technologies. For this reason, developing technologies, global pandemics and new treatment methods have made the concept of e-Health even more important.

When studies are analyzed, it is seen that the notion of e-Health literacy is mostly investigated in terms of consumers. In this study, the research question investigates the degree of e-Health literacy of healthcare professionals. In this context, the aim regarding the e-Health literacy levels among healthcare workers and health tourism workers is to determine and comparatively analyse. In the following sections of the research, the concept of e-Health literacy is mentioned. Then, literature review, methodology and findings are discussed. Finally, conclusions and recommendations are shared in the light of the findings.

# 2. Conceptual Framework

# 2.1. Health Literacy

Health literacy means reading, understanding and acting on health information accordingly (Ryan, 2014). In health literacy, people should have not only the skills to acquire pertinent health knowledge, they should be also have the motive for doing this. Health literate people will be capable of understanding and collecting knowledge for which they are motivated. Health literacy also includes confidence and competence in the use of health knowledge. This can include activities that do not require any kind of reading or written work, such as questioning a doctor or understanding a public service announcement on radio or television. For a person to be considered health literate, he or she

must have basic social and information infrastructure. Must have basic writing, reading and problemsolving abilities, together the ability to find and use health iknowledge (Graham & Dutta, 2008).

Electronic health provides potential benefit to the health system by increasing the effectiveness of health care quality and reducing maintenance costs. It is considered necessary to have a good e-Health literacy level and improve health care provision and care quality, as well as to authorize caregivers and patients to control care decisions (Wubante et al., 2023). E-health literacy express to individuals' awareness of resources, opportunities, education and information in digital format regarding health problems occurring in their environment (Srinivasan, 2014). According to another definition, e-Health literacy includes health literacy-related abilities like the ability to actively process health information and make informed adjudications and the capability to navigate computers and the web (Graham & Dutta, 2008).

Unlike other different types of literacy, e-Health literacy combines various aspects of different literacy skills. At its centre are six basic literacies: traditional literacy, health literacy, information literacy, scientific literacy, media literacy and computer literacy. The relationship between these literacy skills and e-health literacy is shown in Figure 1. In this figure, the 'Lily Model' is used and the leaves (literacies) feed the female organ (e-Health literacy) and the female organ overlaps the leaves and connects them to each other (Norman & Skinner, 2006, s.1).

#### Figure 1

E-Health Literacy Lily Model



Source: Norman & Skinner (2006)

These six types of literacy in the Lily model work together to form the core skills needed to optimise the consumers' e-Health journey to the fullest. In the Lily Model, the six types of literacy are grouped into essentially two centre varieties: analytical (traditional, information, media) and contextual (scientific, computer, health). The analytical element includes skills that can be applied to a wide variety of knowledge bases regardless of subject or contrast, whereas the contrast-relevant element is based on rather situation-specific competences. For instance, analytical competences could be applied to shopping or term paper research as much as they could be applied to public healthcare.

In the context-specific skills, the area of application is contextualised within a particular problem or situation. Computer literacy therefore depends on the kind of computer being utilised, the operating system and the intended application. For example, science literacy can be applicable to issues in which relevant knowledge about research is being provided. However, both analytical and context-specific skills are necessary to exactly connect with electronic health sources (Norman & Skinner, 2006).

The profiles of the individual literacy categories are summarised in Table 1, together with examples of services available to people in need. These six types of skills show the difficulties of e-Health to people with low literacy in any field.

#### Table 1

Profile of Literac	v Skills Rela	ated to Health	n Practices
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	Intended purposes	Application areas			
Traditional Literacy and Numeracy	<ul> <li>Ability simply to read a simple language,</li> <li>Ease of comprehension of published matter in everyday encounters (e.g. signage on the street)</li> </ul>	<ul> <li>In some countries, there are national organizations that can provide free literacy services. Some examples include the following:</li> <li>Ministry of National Education General Directorate of Lifelong Learning (Turkey) (Ministry of National Education General Directorate of Lifelong Learning, n. d.).</li> <li>National Literacy Trust (United Kingdom) (National Literacy Trust, 2020).</li> <li>Daariz (Somali) (Miller, 2023).</li> </ul>			
	- Having a healthy and conscious analysis of all messages from the media and having a selective interpretation function	Media Literacy Education- Istanbul Business Institute İİENSTITU (Turkey) (Yılmazkol, n. d.).			
Media Literacy	<ul> <li>Onderstanding now media works, now it is organized and how it has meaning</li> <li>To be able to introduce the theory and</li> </ul>	AML; Media Literacy Association (Canada) (Association for Media Literacy-AML, n. d.).			
	<ul> <li>practice of media literacy teaching</li> <li>-Learning the theories and strategies</li> <li>necessary for successful media literacy</li> <li>training</li> </ul>	Online Professional English Network - English for Media Literacy for Educators (America) (Online Professional English Network, n. d.).			
	<ul> <li>Accessing, identifying, organizing, analyzing information</li> <li>Completing the research effectively</li> <li>Awareness of the services available</li> </ul>	Information Literacy Trainings - Koç University Suna Kıraç Library (Turkey) (Koç Üniversitesi Suna Kıraç Kütüphanesi, n. d.).			
Information Literacy	through the library, understanding the resources available, how the information is organized, and thus learning the best way to find it	The American Library Association has a web page within the scope of information literacy (American Library Association, n. d.).			
	- To enable separates to recognize when info is needed and to have the capability to effectively find, access and utilize the info required.	CILIP Institute of Licensed Librarians and Information Professionals (İngiltere) (CILIP Lisanslı Kütüphaneciler ve Bilgi Uzmanları Enstitüsü, 2020).			
Computer Literacy	- Familiarity with key computing vocabulary like keyboard, e-mail, mouse, etc.	Central Educational Institutions – Basic Computer Literacy Training Course (Turkey) (Central Educational Institutions, n. d.). Empire State University - Computer Literacy And Resources (New York) (Empire State University, n. d.).			

Profile of Literacy Skills Related to Health Practices (continued)

	Intended purposes	Application areas			
Science Literacy	-Individuals use scientific process skills while solving and deciding, understanding and interpreting the social- environment interaction and understanding the nature of science	Good Lessons Schools - Knowledge Science and Technology Literacy (Turkey) (Science and Technology Literacy, 2017). Royal Canadian Institute for Science - Science Literacy Workshop (Canada) (Are Facts Enough? The Power of Community - Science Literacy Workshop, 2023). Royal Society – Science Education (England) (Science Education, n. d.).			
Health Literacy	- Individuals should be able to have an opinion and make decisions on health- related issues; access relevant resources to protect and improve their health and develop their grade of life; and understand messages and information about health correctly	Institute Istanbul ISMEK - Basic Health Literacy (Institute Istanbul ISMEK, n. d.). Institute for Healthcare Advancement (IHA) - Health Literacy Specialist Certificate Program Package (United States) (Health Literacy Specialist Certificate Program Package, n. d.).			

Source: Adapted from the table in Norman & Skinner (2006)

As seen in Table 1, these six types of literacy are essential in all areas of e-Health. Because a person must have these literacy skills in order to benefit from e-Health literacy effectively.

According to research, the level of e-Health literacy is influenced and impacted by various factors. These factors are presented below in table 2.

#### Table 2

Factors affecting the degree of e-Health literacy

Factor	Result
Demographic characteristics	<ol> <li>A significant negative correlation was observed found to exist for age and e-Health literacy. Younger age was found to be associated with higher e-Health literacy (David et al., 2018).</li> <li>It was found that the grade of e-Health literacy among graduate students and those studying in medical departments was higher than students in other departments (Tsukahara et al., 2020).</li> <li>It has been defined that e-Health literacy is significantly related to age, educational status and place of residence internet usage frequency, which are socio-demographic variables, and younger, educated people living in the city use the internet more frequently (Shiferaw et al., 2020).</li> </ol>
Behavior	<ol> <li>Education level, self-perceived state of health, perceived health status, household wealth, and frequent internet usage have been set to have a substantial impact on e-Health literacy skills of consumers (Shiferaw et al., 2020). Factors such as the presence and signifance of online sources, manner and computer literacy were also found to be related to the degree of e-Health literacy (Shiferaw et al., 2020).</li> <li>It has been found that a positive attitude towards the Internet has an important role in the development of e-Health literacy competences (Rathnayake &amp; Senevirathna, 2019).</li> </ol>
Reason	<ol> <li>It has been determined that physical exercise, as well as age and education, has an important role on e-Health literacy. In this case, the factors influencing e-Health literacy are complex and interconnected (Xesfingi &amp; Vozikis, 2016).</li> <li>Factors related to e-Health literacy include internet talent, academic grade and perceptions of the utility and significance related with the internet (Tubaishat &amp; Habiballah, 2016).</li> </ol>

Source: Adapted from Wang et al. (2022)

In Table 2, e-Health is presented together with case studies in various forms. Table 3 demonstrates the intervention most commonly used intervention designs to improve e-Health literacy.

Improving e-Health Literacy Interventions

Method	Subject	Conclusion
Professional health site	<ol> <li>Assess the quality, availability, usability and effectiveness of a content, quality, usability and effectiveness of a web-oriented epilepsy training program (WEEP) for adolescents with epilepsy and their families (Güven et al., 2020).</li> <li>A computer-based (two website of the National Health Institutes) has been developed for a health literacy intervention for elderly adults (60-89) (Xie, 2011).</li> </ol>	Weep's content, quality and usability were found to be sufficient and efficacious in improving information, self-efficacy, attitudes and e-Health literacy of youth with epilepsy and parents (Güven et al., 2020). 2. The outcomes of the pretest and post- test were found to support the efficacy of the e- Health literacy intervention in various ways. Among these supports, it is said that there are positive factors such as the sites being both useful and helpful and providing support in learning how to use the information obtained in their own health services (Xie, 2011).
Education Video	<ol> <li>Assessing the effectiveness of a digital literacy among students enrolled on massive open online courses (MOOCs) on cancer genomics (Blakemore, 2020).</li> <li>An e-Health literacy intervention for older older adulthood was developed to produce empirical information on the potential effect of learning modalities and channels of knowledge delivery (Xie, 2011).</li> </ol>	<ol> <li>It has been determined how digital health literacy training activity can be successfully incorporated into a MOOC within healthcare and how online interventions improve digital health literacy (Blakemore, 2020).</li> <li>Time of measurement was found to have statistically highly statistically insignificant effects on e-Health literacy efficacy, on perceived usability of e-Health literacy capabilities, and on e-Health literacy skills (Xie, 2011).</li> </ol>
Health Mobile Terminal	<ol> <li>Use of Mobile Health Applications (Apps) for the development of health literacy for cancer patients (Kim et al., 2017).</li> <li>Understanding health knowledge acquisition through activity trackers (AT's) equipped with biometric sensors and ePortfolio integration to understand the physical activities of a group of students in a health science course (Sobko &amp; Brown, 2019).</li> </ol>	<ol> <li>Mobile health apps have been found to enhance interactive patient-health worker communication and provide features or functionalities that facilitate understanding of medical information, empowering underserved cancer outpatients and their carers (Kim et al., 2017).</li> <li>This integration has led to positive opinions about e-ports for learning and increases e-Health self-assessments (Sobko &amp; Brown, 2019).</li> </ol>

Source: Adapted from Wang et al. (2022)

There is no single 'best practice' method for literacy problems in healthcare. Improving this literacy is a duration that be essential coherent improvement and education over time between the patient-client, practitioners, educators, and community health organizations. It also requires constant attention and development. What is important is that the person has sufficient knowledge about a particular skill to be able to practice it at a level that helps achieve health goals (Norman & Skinner, 2006).

#### 2.2. Literature Review

In their study in 2024, Almeida et al. aimed to evaluate the grade of knowledge of Portuguese university students' e-Health literacy and its relationship with the search for information about COVID 19. In the study, participants filled out an online survey about demographic characteristics, e-Health Literacy Scale (e-HEALS), information, attitude and health. As a result of the research, it

was concluded that e-Health literacy is united with online information seeking and that not all university students have a good grade of health literacy despite having access to online information resources.

In their study, Genç et al. (2024) evaluated the e-Health literacy grade of Health Services Vocational School students and related factors. In this context, a cross-sectional study was conducted among 778 vocational school of health services students in Elazığ province between January-February 2019. The research data collection was carried out using the 'Personal Information Form' and 'e-Health Literacy Scale (e-HeALS)'. As a result of the study, the mean e-HEALS score of the participants was found to be above average. E-HEALS scores were found to be significantly higher in women, in those who receive formal education, with high monthly income and in the pre -university cities. It was also found that e-HEALS scores did not change according to age, body mass index, smoking status, chronic disease and physical activity level.

Ramezani and Sharifi (2024) intended to evaluate the e-mental health literacy levels of parent of preschool age children and to investigate relation of literacy levels with their knowledge about common psychological disorders and problems in their children. In the study, questionnaire survey data were gathered from 14 preschool children in Zanjan city and they were analyzed using exploratory descriptive and statistical techniques. Their parents filled out online mental health status questionnaires regarding their knowledge of common mental health conditions and disorders among preschool aged kids. The findings of the analysis revealed that parents' electronic mental health literacy was high, but their knowledge about their children's mental health disorders was lower. It was also found that those parents with high electronic mental health literacy were open to professional help and sought knowledge to solve their children's emotional and social behavioral issues.

Suluhan et al. (2023) aimed to examine the e-Health literacy levels of undergraduate students studying nursing at a university in Ankara during the Covid-19 pandemic. The period in which the research was carried out includes the date of 1 December 2020 and April 1, 2021. Introductory data form and e-Health literacy survey were used in the study. As a consequence of the study, it was determined that the e-Health literacy levels of the respondents were high.

Altay (2022) in his study intended to identify the e-Health literacy skills of health tourism management students. The study included 524 students from 7 different universities through an online survey. As a consequence of the findings of the research, demographic variables did not affect the level of e-Health literacy, and it was determined that the e-Health literacy level of those students who have a computer and can access the internet is high. In addition, it was determined that students' researching health-related knowledge on the web and using the e-nabiz application increased their e-Health literacy levels.

In their study, Jung et al. (2022) aimed to analyze the concept of e-Health literacy among older adults and determine its context in the field of nursing. 28 studies collected from various places were included in the study and active information search, two -way interactive communication and information usage/sharing features were categorized. As a result of the study, the concept of e-Health literacy in elderly adults has become clarified and it was determined that it provides a conceptual framework for nursing practices and research.

In 2021, Castarlenas et al. colleagues carried out a trial to investigate prevalence of internet use to search for online electronic research related to clinical pain, to determine the extent of e-Health

literacy capabilities in a sample of adults with chronic pain, and to determine the most influential factors. Assessments of Internet utilisation, e-Health literacy, pain intervention, depression, anxiety and pain-related self- efficacy were administered to 161 adults with chronic pain. As a result of the study, it was found that 70% patients actively utilised the internet to seek for medical knowledge about their health. While e-Health literacy skill level had no statistically significant relationship with participants' age or pain interaction, it had a significant negative relationship to both depression and anxiety. The results also show that selfefficacy fully explains the relation among e-Health literacy and depression, partially explains the relation with e-Health literacy and depression, and partly explains the association of anxiety and e-Health literacy.

In 2021, Özden aimed to determine the e-Health literacy levels and selected health behaviors of high school seniors. The study conducted is a quantitative study and the relevant questions were delivered to the participants via a survey. The dependent variable of the study was determined as e-Health literacy. As a result of the research, it was determined that the e-Health literacy levels of the participating students were low.

In their study, Riahi and Mousavi Chelak (2020) aimed to determine e-Health literacy among employees of state banks in Tehran. An electronic health literacy survey was used to collect data in the study. It was determined that the e-Health literacy of the employees examined in the study was above average and close to good.

In the year 2020, Wu et al. examined the association among patients' communicating with doctors and their e-Health literacy and healthy habits. Accordingly, five communication activities were identified in the study. These are; following doctors' social media posts, reading doctors' posts, responding to the posts of doctors, preferring (liking) their posts, and recommend physicians to patients. In this study, following doctors'accounts, responding to doctors' posts and recommending doctors to others were found to be significant. It was found that follow the posts of doctors, respond to the posts of doctors, prefer the posts of doctors and recommend physicians to others are positive correlates of consumers' e-Health literacy and healthy attitudes.

The main purpose of the study conducted by Tubaishat and Habiballah (2016) is to evaluate e-Health literacy among nursing majors in Jordan and to investigate the relevant factors related to e-Health literacy. In the current findings, it was determined that students perceived to have a medium degree of e-Health literacy, were knowledgeable about available available online health resources, and were aware of the ways to searching, finding, and using them.

#### 3. Methodology

It can be said that e-Health literacy is important for individuals to correctly evaluate alternatives both in receiving and applying treatment. The purpose of this study is to determine the e-Health literacy levels of healthcare facility and health tourism facility employees. In the study, answers are sought to the questions 'What is the e-Health literacy level of healthcare facility and health tourism facility employees?' 'Does the e-Health literacy level of healthcare facility and health tourism facility employees differ according to the personal characteristics of the employees?'

The universe of the research consists of health business and health tourism business employees. In social sciences, the acceptable number of samples in the uncertain universe is accepted as 384 (Ural & Kılıç, 2013). In this study, the number of samples was determined as 384 and convenience sampling

technique was applied. Within the within of the explorative, datum collection was provided by applying a questionnaire technique. The questionnaire application was prepared online and performed through remote access. In the first part of the survey, a voluntary participation form was created for the participants. 427 survey feedback was provided from the participants included in the research. The survey take shape of two parts and the first part of the question is included in the questions to determine personal characteristics. In the second part of the survey, the Turkish adaptation of the survey improved by Norman and Skinner (2006) to measure e-Health literacy was carried out within the content of the investigate. 'E-Heals is a measurement of e-Health literacy designed to measure the combined information, convenience and relative comfort and perceived abilities of consumers to locate, evaluate and apply electronic health information to address their health problems' (Norman and Skinner, 2006, p.1). The 'e-Health Literacy (e-HEALS) Scale' consisting of 8 items on a 5-point Likert scale was used in the study. The Turkish validity and reliability study of the scale was conducted by Coşkun and Bebiş. Data collection was carried out through an online survey application offered to participants between March and May, 2024.

During the analysis of the collected data, descriptive statistics was firstly applied. The skewness and kurtosis data were examined to define whether the data were observed to be normal distribution and for further analysis, and it was observed that the kurtosis (min: .127, max: .1377) and skewness (min: -1.424, max: -.824) values were between  $\pm 1.5$  levels. In line with the results obtained, the data showed normal distribution and parametric tests were continued. The Cronbach Alpha coefficient value of the e-Health literacy scale used in the study was determined as 0.94. Based on the data obtained, it can be said that the scale is reliable. In the hypothesis tests, independent group 'T-Test' is used in paired groups and 'One Way ANOVA' test is used in hypothesis tests for two or multiple groups.

# 3.1. Procedure

The research is confirmatory and was conducted using the survey method, which is one of the quantitative research methods. This study aims to contribute to the literature in terms of investigating the level of e-Health literacy on both healthcare professionals and employees of health tourism businesses that have health-protective, health-promoting and health-treating features. It is also important because it sheds light on whether the e-Health literacy levels of the employees of the two businesses vary according to their personal characteristics. For this research, the necessary approval was received by Tokat Gaziosmanpaşa University Social and Human Sciences Research Ethics Committee on 26.03.2024, session no 06, decision no 17.

# 4. Findings

#### Table 4

	Number (n)	Percentage (%)
Gender		
Woman	236	55.3
Man	191	44.7
Total	427	100
Age		
25 age and under	91	21.3
Between 26-35 age	145	34.0
Between 36-45 age	133	31.1
Between 46-55 age	39	9.1
56 age and above	19	4.4
Total	427	100
Marital Status		
Married	258	60.4
Single	169	39.6
Total	427	100
Education		
High School	102	23.9
Associate Degree	105	24.6
Bachelor's Degree	150	35.1
Postgraduate	70	16.4
Total	427	100
Worked Institution		
Health Enterprise	228	53.4
Health Tourism Business	199	46.6
Total	427	100

Personal Characteristics of Individuals Participating in the Research

When the distribution of health business and health tourism business employees included in the study was examined according to gender, it was determined that 55.3% (n = 236) of the 427 employees were women and 44.7% (n = 191) were men. When the distribution of employees by age groups is examined, it is seen that 21.3% (n = 91) are 25 years old and below, 34.0% (n = 145) are in the 26-35 age group, 34.1% (n = 133) are in the 36-45 age group, 9.1% (n = 39) are in the 46-55 age group and 4.4% (n = 19) are in the 56 and above age group.

It is determined statistically that most of the employees (60.4%; n = 258) are married and 39.6% (n = 169) are single. When the distribution of the employees with respect to their educational background is examined, it is seen that 23.9% (n = 102) have high school education, 24.6% (n = 105) have associate's degree, 35.1% (n = 150) have bachelor's degree and 16.4% (n = 70) have postgraduate education. When the employment status of the participants in a health enterprise or a health tourism enterprise was analyzed, it was found that 53.4% (n = 228) worked in a health enterprise and 46.6% (n = 199) worked in a health tourism enterprise.

Descriptive Statistics of the	Questions Asked to Individuals	Participating in the Research
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	Number (n)	Percentage (%)
Can you use the information on the internet		
when deciding on your health?		
Yes	268	62.8
No	159	37.2
Total	427	100
How important is it for you to access health		
resources on the Internet?		
Never not important	25	5.9
Not important	14	3.3
Neither important nor not important	54	12.6
Important	248	58.1
Very important	86	20.1
Total	427	100
How often do you use the internet to access		
Health Resources?		
Never	19	4.4
Rarely	51	11.9
Sometimes	124	29.0
Often	126	29.5
Always	107	25.1
Total	427	100

It was determined that a significant portion of the study participants (62.8%; n = 268) used information on the Internet when making decisions about their health, while 37.2% (n = 159) did not use information on the Internet during the decision phase. When the data regarding the matter of access to health sources on the internet directed to employees is examined, it is seen that the majority (78.2%; n = 334) find it important, 9.2% (n = 39) find it unimportant and 12.6% (n = 54) are undecided on the issue.

When the data regarding the frequency of participants' use of the internet to access health resources were examined, it was determined that 4.4% (n = 19) answered never, 11.9% (n = 51) rarely, 29.0% (n = 124) sometimes, 29.5% (n = 126) often and 25.1% (n = 107) always.

#### Table 6

Arithmetic Mean and Standard Deviation Values Regarding E-Health Literacy Scale Expressions

	Arithmetic	Standard
	Mean	Deviation
1. "I know how to find useful health resources on the Internet"	3.82	1.13
2. "I know how to use the internet to answer my health questions"	3.95	1.18
3. "I know which health resources are on the Internet"	3.90	1.11
4. "I know where to find useful health resources on the Internet"	3.89	1.16
5. "I know how to use the health information I found on the Internet to help me"	3.87	1.05
6. "I have the skills I need to evaluate the health resources I found on the Internet"	4.22	1.07
7. "I can distinguish the high quality of health resources on the Internet from the low quality"	4.15	1.02
8. "I trust myself to use information on the internet when making health decisions"	4.16	1.10
General Average	4.00	0.94

In general, it is seen that the data related to the level of participation in the expressions of health enterprises and health tourism enterprises on the e-Health literacy scale have high averages ( $\bar{x} = 4.00$ , SD = .94).

When the responses of the employees regarding the statements of the E-Health Literacy Scale are examined, the statements with the highest mean are; "I have the skills I need to evaluate the health resources I find on the Internet" ( $\bar{x} = 4.22$ ), "I am confident in using the information on the Internet when making health-related decisions" ( $\bar{x} = 4.16$ ) and "I can distinguish high quality health resources on the Internet from low quality ones" ( $\bar{x} = 4.15$ ). The statements with the lowest mean in the scale are "I know how to find useful health resources on the Internet" ( $\bar{x} = 3.82$ ) and "I know how to use the health information I find on the Internet to help me" ( $\bar{x} = 3.87$ ).

### Table 7

T-Test Results	Showing the	Differences	in Participants'	e-Health Literacy	Levels According	to Gender
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ait	able ups		netic an	dard ation	Leve Equali	evene's Test for ality of Variances			10	<u> </u>
Tr	Deper	Gro	Arithı Me	Stane Devia		F	Sig.	t	đf	51g.
Gender	E-Health Literacy	Woman Man	4.00 3.99	.81.65 1.0829	Equal Not equal	24.710	.000	.120 .117	425 345.885	.904

Not. n = 427, df: degrees of freedom, Sig.: Significant,

\* p < .05, \*\* p < .01, \*\*\* p < .001.

Table 7 includes the T-test results conducted to define whether the arithmetic mean of the answers to the e-Health literacy scale shows a statistically importance distinction according to the gender of the employees. The independent group T-test data showed that there was no significant differences in the e-Health literacy levels of the employees by gender variable (t = .117, p > .05). In other words, it is thought that the grade of e-Health literacy is not related to being male or female.

In Table 8, one-way variance analyze (ANOVA) conducted for determining whether the arithmetic mean of the e-Health literacy scale showed a statistically importance distinction according to the age groups of the employees showed a significant difference ( $F_{4-426} = 7.195$ ; p < .05). As a result of Levene's test, which was performed to define which age group caused the significant distinction detected after ANOVA, it was determined that the variances were not homogeneous for age groups (p>.05). Due to non-homogeneous variances, Tamhane's T2 Multiple Comparison Test was applied. According to Tamhane's T2 test results, it is seen that employees aged 56 and above (M = 4.70) have higher e-Health literacy levels than employees aged 25 and under (M = 3.70) and those aged 26-35 (M = 3.89). In addition, it is observed that employees aged 36-45 (M = 4.70) have higher e-Health literacy levels than employees aged 25 and under (M = 3.70). The findings obtained in general show that as the age progresses, the grade of e-Health literacy increases.

One-Way ANOVA Test Results Showing the Differences in Employees' E-Health Literacy Levels According to Age Variable

			Descriptiv	e Stati	stics			
			Age			n	Average	SD
E-Health Literacy		25 age and under 91			3.70	.63		
		Between 2	6-35		145	3.89	1.06	
			Between 3	6-45		133	4.18	.94
			Between 4	6-55		39	4.09	.91
			56 age and	l above	e	19	4.70	.50
	Variance	46	Sum	of	Averag	ge of	F	Sia
E Heelth	Source	aj	Squares		Square	es	Г	Sig.
E-Health	Intergroup	4	24.230		6.057			
Literacy	Within Groups	422	355.286		.842		7.195	$.000^{**}$
	Total	426	379.515					
Multiple Comp	arisons E-Health	Literacy	/ Tamhane's	T2 Te	st			
1 1							Average	
(I) Age		(	J) Age				Difference	Sig.
							(I-J)	-
			Between 26-3	35 age			19773	.491
25 age and und	er	]	Between 36-45 age			48930*	.001	
-		I	Between 46-55 age			39560	.163	
		4	56 age and above			-1.00340*	.000	
		2	25 age and ur	nder			.19773	.491
Between 26-35	age	I	Between 36-45 age			29157	.064	
		I	Between 46-55 age			19788	.754	
		4	56 age and above			80567*	.003	
		2	25 age and ur	nder			.48930*	.001
Between 36-45	age	I	Between 26-35 age			.29157	.064	
		I	Between 46-55 age			.09370	.981	
		4	56 age and at	ove			51410	.152
		2	25 age and ur	nder			.39560	.163
Between 46-55 age		I	Between 26-3	35 age			.19788	.754
		Between 36-45 age			09370	.981		
		4	56 age and at	ove			60779	.126
		2	25 age and ur	nder			1.00340*	.000
56 ago and she	20	1	Between 26-3	35 age			.80567*	.003
Jo age and abo	ve	I	Between 36-45 age			.51410	.152	
		1	Between 46-55 age			.60779	.126	
407 16 1.	CC 1 C' (	· · · ·	· F F V I					

*Not.* n = 427, *df*: degrees of freedom, *Sig.* Significant, F. F Value \* p < .05, \*\* p < .01, \*\*\* p < .001.

# Table 9

T-Test Results Showing the Differences in Participants' E-Health Literacy Levels According to Their Marital Status

ii t	ident	Groups	Arithmetic Mean	Standard Deviation	Levene's Test for Equality of Variances					
Tra	Depen Varia					F	Sig.	t	df	S1g.
Marital Status	E-Health Literacy	Married Single	4.11 3.83	.9538 .9050	Equal Not equal	.420	.517	3.046 3.079	425 372.492	.002**

Not. n = 427, df: degrees of freedom, Sig.: Significant,

\* p < .05, \*\* p < .01, \*\*\* p < .001.

A T-test has been done to determine whether the arithmetic mean of the e-Health literacy scale shows a statistically significant different based on the marital status of the employees. The independent group T-test revealed a highly meaningful differences between the e-Health literacy levels of the employees based on their marital status (t = 3.046, p < .05). In line with these results, it is possible to say that the e-Health literacy levels among married employees are higher than single employees.

#### Table 10

T-Test Results Showing the Differences in Participants' E-Health Literacy Levels According to Their Educational Status

			Descriptiv	e Stati	istics			
E-Health Literacy			Educational Status			п	Mean	SD
			High School			102	3.70	1.00
			Associate Degree			105	3.97	.77
			Bachelor's Degree 150			150	3.92	.94
			Postgraduate			70	4.61	.82
	Variance	<i>A</i> £	Sum	of	Average	e of	F	Sig
E Uaslth	Source	aj	Squares		Squares		Γ	Sig.
E-nealui	Intergroup	3	36.341		12.114			
Literacy	Within Groups	423	343.174		.811		14.932	$.000^{**}$
	Total	426	379.515					
Multiple Comparisons E-Health Literacy Tukey Test								
						Average		
(I) Education		(	(J) Education					Sig.
					(I-J)			
High School		A	Associate De	gree	26782	.143		
			Bachelor's D	egree	21711	.239		
			Postgraduate			91008*	.000	
Associate Deg		H	High School			.26782	.143	
Associate Degi		Bachelor's Degree					.05071	.971
		F	Postgraduate			64226*	.000	
Bachalor's Da	waa	H	ligh School				.21711	.239
Bachelor's Degree			Associate De	gree	05071	.971		
Pe			ostgraduate				69298*	.000
Postgraduata		H	High School			.91008*	.000	
i osigi aduale		A	Associate De	ssociate Degree			.64226*	.000
		E	Bachelor's D	egree	.69298*	.000		

Not. n = 427, df: degrees of freedom, Sig.: Significant, F.: F Value

\* p < .05, \*\* p < .01, \*\*\* p < .001.

In accordance with Table 10, it was determined that as a result of the one-way analyses of variation (ANOVA) conducted to find out whether the arithmetical average of the e-Health literacy scale showed a meaningful difference according to the educational levels of the employees ( $F_{3-426} = 14.932$ , p < .05). As a result of the Levene test performed to determine which education level the significant difference determined after ANOVA was caused by, it was determined that the variances were homogeneous for education levels (p < .05). Since the variances were homogeneous, Tukey Multiple Comparison Test was applied. According to the results of Tukey test, it is seen that employees with postgraduate education (M = 4.61) have higher e-Health literacy levels than employees with high school (M = 3.70), associate degree (M = 3.97) and undergraduate (M = 3.92) education. In the light of these findings, it is possible to say that a linear relationship exists between the increase in e-Health literacy level and educational level.

Tra	'arnah Grouj	ithme Mear	tandar eviatic	Levene's Test for Equality of Variances		t	df	Sig.	
Worked E-He	Health Enterpris alth Health	<sup>5e</sup> 4.25	.6961	Equal Not	38.821	.000	6.284	425	.000**

T-Test Results Showing the Difference of the E-Health Literacy Levels of the Participants According to the Institution in which They Work

*Not.* n = 427, *df*: degrees of freedom, *Sig*.: Significant, \* p < .05, \*\* p < .01, \*\*\* p < .001.

The results of the T-test is offered to reveal if there is a important distinction in the arithmetic mean of the e-Health literacy level scale according to the organization in which the employees work are presented in Table 11. The independent group T-test revealed that the difference between the e-Health literacy levels of the employees according to whether they work in a health enterprise or a health tourism enterprise (t = 6.105, p < .05) is statistically significant. In the light of these data, it is possible to say that the e-Health literacy literacy skills of employees working in a health enterprise are higher than those of employees working in a health tourism enterprise.

### Table 12

T-Test Results Showing the Differences in Participants' E-Health Literacy Levels According to Their Internet Usage Status in Health Decisions

uit	ndent able	sdr	Arithmetic Mean	Standard Deviation	Levene's Test for Equality of Variances					
Tra	Deper Varia	Grou				F	Sig.	t	df	Sig.
Internet Usage	E-Health Literacy	Yes No	4.11 3.80	.8289 1.0848	Equal Not equal	20.410	.000	3.411 3.189	425 267.429	.001**

*Not.* n = 427, *df*: degrees of freedom, *Sig.*: Significant, \* p < .05, \*\* p < .01, \*\*\* p < .001.

A T-test was performed to define if the mean arithmetic of the e-Health literacy scale showed a significant difference according to the internet usage status of the employees in health decisions. The difference between the e-Health literacy levels of the employees according to their internet use in health decisions (t = 3.189, p < .05) was found to be statistically important as a result of the independent group T-test. In the light of these data, it is possible to say that the e-Health literacy levels among employees who prefer to utilize the internet in health decisions are higher than those who do not prefer to utilize the internet in health decisions.

# 5. Conclusion

E-Health literacy abilities and competencies are significant in terms of accessing accurate healthrelated information, improving health, and playing a role in making appropriate health care decisions. In this study, it is purposed to determine and analyze the e-Health literacy levels of health employees and health tourism employees. In this context, the study seeks answers to two questions. The first of these; 'What is the level of e-Health literacy of health business and health tourism business employees?' as determined. Another; 'Does the e-Health literacy level of health business and health tourism business employees differ according to the personal characteristics of the employees?' is the question.

According to the data obtained from the research, it has been determined that the e-Health literacy levels of the employees in the health business are higher than the employees in the health tourism business. Our results are supported by the fact that with the spread of communication and information technology in the medical field, many health institutions and organizations have increasingly started to publish health information on the internet and the internet has become an indispensable resource for attribute health information (Alhodaib, 2022). In our findings, e-Health literacy levels of health tourism employees were found to be lower than those of health enterprise employees. However, in health tourism enterprises, many services such as health tourism, especially healthy nutrition, spa and sea water treatment for the purpose of treatment are provided. For this reason, it is one of the responsibilities of the employees to provide guests with information about these diseases and to help their treatment. In line with the data obtained, training and seminars can be given to health tourism employees to increase their e-Health literacy skills. Various activities and events can be carried out to support e-Health literacy in health tourism businesses. In addition, health literacy and e-Health literacy can be added to the course curriculum during the training periods of employees.

According to the results of the research, the grade of e-Health literacy was found to increase with increasing age. In general, it seems inevitable that there is a connection between e-Health literacy and use of technology. The greater an individuals use of technology, the greater the likelihood of developing the skills to use that technology as a tool (Norman & Skinner, 2006). In this context, given the current situation and the familiarity of young people with technology, their e-Health literacy levels are expected to be relatively better. Wang et al. (2022) find a significant correlation between age and e-Health literacy and find that older age is associated with higher e-Health literacy. Again, Shiferaw et al. (2020) found that young people use the internet more frequently in their study. However, on the basis of the findings of this study, the e-Health literacy levels of people aged 56 years and over were found to be higher. This result can be attributed to the fact that the participants have gained more experience.

In the light of the data obtained in the study, it is seen that married individuals have higher levels of e-Health literacy than single individuals. The institution of marriage adds the responsibility of thinking about the health of one's life partner as well as one's own life. If there are children in the family, this sense of responsibility increases even more. Since e-Health literacy is also created with a sense of responsibility, it is thought that married individuals have a higher level of e-Health literacy.

According to the results of the research, it is seen that the e-Health literacy levels of employees with postgraduate education are higher than those of employees with undergraduate, associate and high school education. In the light of these findings, it is possible to say that there is a linearity in the increase in the level of education and e-Health literacy level. These results are compatible with the results of Özden (2021), Tsukahara et al. (2020), Tubaishat and Habiballah (2016) and Shiferaw et al.

Research results show that the e-Health literacy levels of employees who prefer to usage the Internet for health decisions are higher than those of employees whose employees do prefer not to utilize the Internet for health decisions. E-Health literacy is characterized as either a factor or a function of personal skills and motivation to utilize the Internet for health purposes. According to the Integrative e-Health Utilisation Model (IMeHU), individuals who have low e-Health literacy are likely to be either lower motivated to use online for health information, have lower competence, or perceive themselves as less capable of using online for health information. In other words, individuals' incentives and skills to utilise sources of online healthcare knowledge are highly likely to affect their general levels of health and computer literacy. In this context, for example, people who use online health resources are likely to have higher e-Health literacy levels (Graham & Dutta, 2008). In the responses given to the scale statements in our study, it was determined that the participants were confident in evaluating data and information about health resources when using the internet and that they could distinguish the quality of the information. However, it was also determined that they did not have sufficient information on using the health resources they could access. It is also seen that the generality of the subscribers benefit from the information on the internet in the decision-making process about their health and find access to health resources on the internet important. When evaluated in this context, it is important that the content shared on the internet, especially by health experts, is accessible and safe. The accuracy of the information shared on web pages should be reviewed and their content should be suitable for the user. For example, after providing information about the disease, no medication recommendations should be made, and it should be stated that a doctor should definitely be consulted in case of various complications.

Considering the worldwide, the rapid development of internet technology has become the most significant resource to access information. Due to the variety, abundance and ease of access to health information sources available on the Internet, people are increasingly turning to the Internet instead of health information sources such as periodicals, newspapers or doctor's offices. In addition, the privacy of some diseases, difficulties in reaching expert personnel, researching different treatment methods after consulting a doctor, or wanting to research incomprehensible subjects in a way they understand, also lead people to internet sources. It is essential to have information about health literacy in order to be efficient. Because the health field has its own terminology. When examined within the scope of e-Health literacy, it is inevitable that users need some basic knowledge in order to find reliable information sources, analyze and evaluate the information found, and apply the information obtained in real-life contexts. Because using information technology for health requires e-Health literacy, that is, reading, using computers, searching for information, understanding health information, and connecting them. E-health literacy can be understood as a combination of various literacy or information that can be used in analyzing, accessing and evaluating online health information (Alhodaib, 2022; Kim vd. 2017; Wang, 2022; Yüksel, 2024).

Today, people learn most of the information they learn from information sources such as the media and the internet. They directly apply what they have learned without any research or believe the news they hear. In order to prevent this, people need to be inquisitive and research what they learn. Being able to have research information should be a feature that is basically instilled in people. For this reason, people should be given this characteristic from an early age, especially in schools. In particular, literacy knowledge and research methods, which are expected to be added to course curricula and may vary according to departments, should be given to students. In this way, people can reach the expected level of literacy related to their professions in the future. Especially when it comes to health, literacy becomes even more important. In general, people think that they can get any advice or information about health from any person working in a hospital. It is not very important whether the employee is a doctor, nurse, laborant, etc. In addition, the health service provided or to be provided can be offered to patients in different ways by different health professionals. For example, in the treatment process, at the point where the doctor says 'you should definitely have surgery!', another doctor may say 'there is no need for surgery, use these medications and come back in a month'. At this point, all health personnel working in hospitals are expected to have a good command of health literacy. Because health literacy can only be targeted, reasonable and meaningful when it is accurately predicted by relevant professionals. The same situation is also necessary in other businesses providing health-related services. This is because people come there either to improve or maintain their health or to be treated. Health tourism businesses are one of the sectors that serve people in this direction.

According to the result we obtained in our research, the e-Health literacy levels of health tourism employees were found to be lower than the staff working in health enterprises. The health tourism businesses surveyed were selected as hotels providing services such as spa, medical and thermal. In future studies, a research can be conducted by selecting employees of health tourism businesses that provide services in only one direction. At the same time, the research can be repeated in certain periods and improvements in the process can be monitored. Thus, the results to be obtained can become more efficient.

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