Original Article

Investigation of the Information-Seeking Behavior, E-health Information Literacy, and the Professional Quality of Life among Doctors and Nurses in Pediatric Hospitals

Eleni Meintani, MSc
General Hospital "Elena Venizelou", Athens, Greece

Angeliki Flokou, MSc, PhD
Academic Tutor, Postgraduate Program - Health Care Management, School of Social Sciences, Hellenic Open University, Patra, Greece
Department of Archives, Library Science and Museology, Ionian University, Corfu, Greece

Panagiotis Theodorou, MSc, PhD
Academic Tutor, Postgraduate Program - Health Care Management, School of Social Sciences, Hellenic Open University, Patra, Greece
Department of Archives, Library Science and Museology, Ionian University, Corfu, Greece

Petros Kostagiolas, PhD
Professor, Department of Archives, Library Science and Museology, Ionian University, Corfu, Greece

Correspondence: Theodorou Panagiotis, Academic Tutor, Postgraduate Program - Health Care Management, School of Social Sciences, Hellenic Open University, Patra, Greece e-mail: panostheodor@yahoo.gr

Background: In today's era of rapid technological developments and increasing demands in healthcare, enhancing the digital skills of medical and nursing staff is becoming crucial.
Objective: To investigate the levels of information seeking behavior, professional quality of life and e-health information literacy of medical and nursing staff in pediatric hospitals and their associations with demographic and professional characteristics.
Methodology: The study was conducted in the period April-June 2024 and the sample consisted of 333/460 doctors and nurses (response rate: 72.4%) from three public pediatric hospitals in Attica, of all educational levels with a minimum of one month's work experience. Data were collected through a four-module weighted questionnaire which included demographic and professional characteristics, information seeking behavior, professional quality of life (ProQOL) and e-health information literacy (eHEALS) of the participants
Results: The medical and nursing staff reported moderate levels of professional quality of life while regarding the information seeking behavior of the sample, the main motives for seeking information were updating knowledge, clinical issues, medical guidelines/protocols and lifelong education, with the internet as the dominant source of information and lack of time as the main obstacle. E-health information literacy was rated as moderate to high, but with low confidence in the reliability of online information and was positively associated with compassion satisfaction and negatively associated with burnout and secondary traumatic stress. Meanwhile, compassion satisfaction was positively associated with increased age, increased years of employment in the organization and better e-health information literacy. Burnout was negatively related to increased age, higher educational level and better e-health informatics literacy, while secondary post-traumatic stress was negatively related to specialty (nurses) and positively related to better e-health informatics literacy.
Conclusions: Information seeking behavior and e-health information literacy emerge as critical factors in the professional quality of life of doctors and nurses. Enhancing digital skills helps reduce burnout and secondary post-traumatic stress, and enhances compassion satisfaction.

Keywords: information seeking behavior, professional quality of life, e-health information literacy, pediatric hospitals, compassion satisfaction, burnout, secondary post-traumatic stress

Introduction

The level of care provided to patients directly depends on the professional well-being of doctors and nurses and especially in the context of pediatric hospitals, where the demands and emotional challenges are high, the professional quality of life (QoL) of health professionals can have a decisive influence on the care provided. Professional quality of life is a multidimensional concept related to performance, job satisfaction and mental health of health professionals and continues to be a subject of research due to its interaction with critical aspects of health workers' professional and personal lives (Hsu & Kernohan, 2006).

Modern studies confirm its importance, as it is associated with reduced stress, increased job satisfaction and higher levels of mental resilience (Dall'Ora et al, 2015; Zahednezhad et al, 2021; Almalki et al, 2012). The dimensions of professional quality of life include compassion satisfaction, burnout and secondary post-traumatic stress, and high professional quality of life is achieved when health professionals experience increased compassion satisfaction while experiencing low levels of burnout and secondary post-traumatic stress (Sansó et al, 2020).

However, the challenges of modern health systems, such as staff shortages, increased work pressure and inadequate administrative support, negatively affect professional quality of life and quality of care, making it imperative to develop strategies to improve working conditions (Jackson et al, 2007; Blais & Hayes, 2011; Gilles et al, 2025). In this context, health literacy empowers health professionals by enhancing their knowledge and skills while shielding them against burnout and increasing their resilience (Parnell & Agris, 2025). E-health information literacy is emerging as a determinant of nurses' professional competence and quality of life. A recent study (Zhao et al., 2024) showed that higher levels of digital literacy were associated with reduced stress due to information overload and enhancement of key professional skills.

In the same vein, a study of nurses in Korea confirmed that enhancing digital health literacy can contribute not only to improving the health of the nurses themselves, but also to improving the quality of care (Gartrell et al., 2020). At the same time, the need to design and implement educational interventions to empower nurses' self-efficacy in searching, evaluating and utilizing online health information was highlighted. Therefore, information seeking behavior can play a key role in improving the professional quality of life, contributing both to the sustainability of the healthcare system and to the well-being of employees, while the investigation of the factors that influence it and its enhancement through targeted information strategies is a key prerequisite for the development of an effective and humane healthcare system.

The World Health Organization (WHO/Europe) points out that strengthening digital health literacy is a key prerequisite for addressing the personal and psychological barriers that hinder the acceptance and use of new technologies by health professionals. The provision of educational programs tailored to the individual needs and skills of health professionals, combined with ongoing technical support, can enhance their effectiveness and reduce reservations towards the use of digital media (WHO, 2023).

Aim: The aim of this study was to investigate the levels of information seeking behavior, professional quality of life and e-health information literacy of medical and nursing staff in pediatric hospitals, and their associations with key demographic and professional characteristics.

Materials and Methods

Study Population: The present research is a cross-sectional, study which was implemented by convenience sampling and the use of an appropriate questionnaire. The questionnaire consists of four parts, where the first part is about demographic and professional data of the participants, the second part consists of the ProQOL scale to assess professional quality of life, the third part includes questions about the information seeking behavior of the sample and the fourth part includes a questionnaire to record e-health information literacy.

The survey was conducted from April to June 2024 and the research proposal was approved by the Academic Program Committee of the Postgraduate Program Health Care Management (DMY) at the Hellenic Open University (December 1, 2023) and by the Scientific Committees of the participating hospitals

Research Tool: The Professional Quality of Life Scale (ProQOL) (Stamm, 2009), which has been translated and updated in Greek (Vourda, 2010), was used to assess the three main dimensions of professional quality of life (compassion satisfaction, burnout and secondary post-traumatic stress). This scale includes 30 questions and reflects the frequency with which doctors and nurses experienced specific events in the last 30 days and how these events affected their quality of life. Participants were asked to rate the frequency of occurrence of specific events on a Likert-type scale of 1 to 5, where 1 corresponds to "never" and 5 to "very often". The questionnaire on the informational seeking behavior of the sample was based on Wilson's model (Wilson, 2015), which has been used in various studies in Greece, while the final training was based on questionnaires used in studies investigating the informational seeking behaviour of Greek medical and nursing staff (Persakis et al, 2015; Doulgeri et al,, 2023; Kostagiolas et al, 2014; Kostagiolas et al, 2018). More specifically, the study questionnaire includes 13 questions that explore the participants' information needs, 14 questions about the information sources used by doctors and nurses and 8 questions that examine potential barriers to information seeking. To assess the level of e-health information literacy, the eHealth Literacy Scale (e-HEALS) was used in order to evaluate users' perceptions about use of information technology on health issues (Norman & Skinner, 2006) and includes 8 questions using a 5-point Likert scale, with options ranging from 1 (=strongly disagree) to 5 (=strongly agree).

Study Design The study population was the medical and nursing staff of all levels of education of the three Public Pediatric Hospitals of Attica, who worked at least 1 month in the hospital. In total, 460 questionnaires were distributed and 333 were returned fully completed (response rate 72.4%)

Ethical Issues: The survey was conducted from April to June 2024 and the research proposal was approved by the Academic Program Committee of the Postgraduate Program Health Care Management (DMY) at the Hellenic Open University (December 1, 2023) and by the Scientific Committees of the participating hospitals

The study complied with national and international guidelines on ethics and ethics in research, as well as with relevant European and national legislation on personal data protection (EU Regulation 2016/679 - GDPR, Law 4624/2019). All participants received written informed consent and signed a consent form, with assurances of anonymity and confidentiality. Participation was completely voluntary and there was no form of pressure.

Statistical Analysis: Data analysis was performed using the statistical program IBM SPSS Statistics (Statistical Package for Social Sciences) v 26.0. The normality of the distribution of quantitative variables was tested using the Kolmogorov-Smirnov criterion. Mean and standard deviation (SD) were used to describe variables with normal distribution, while for those with non-normal distribution, median and interquartile range were additionally calculated. Absolute (N) and relative (%) frequencies were applied to describe the qualitative variables. Spearman's correlation coefficient (rho) was applied to test the relationship between two quantitative variables. The nonparametric Mann Whitney test was used to compare quantitative variables, with a non-normal distribution, between two groups, while the nonparametric Kruskal-Wallis test was used between more than two groups. Linear regression analysis was used to identify independent factors associated with the dimensions of the professional quality of life and e-health literacy scales. The analysis yielded the dependence coefficients (b) and their standard errors (SE). In cases where the distribution of the dependent variable was not normal, the logarithmic transformation of the dependent variable was applied to the regression. The bilateral level of statistical significance was set at 0.05.

Results

Participants' demographic and professional characteristics are summarized in Table 1. Regarding the dimensions of professional quality of life, doctors and nurses showed moderate levels in all three dimensions of the ProQOL scale (compassion satisfaction, burnout, secondary post-traumatic stress). The Cronbach's α reliability coefficient for all scales was greater than 0.75, indicating acceptable reliability (satisfactory internal consistency of measures) (Table 2). Regarding the Professional Quality of Work Life Levels for each dimension, 76.3% of the participants showed moderate levels of compassion satisfaction, 80.8% moderate levels of burnout and 65.8% moderate levels of secondary post-traumatic stress (Table 3). In terms of the information needs, Table 4 shows how often participants looked for related information on various professional topics. The highest percentages were related to "knowledge update/new skills." Specifically, 64.8% said they searched for this information "very often," and that number rose to 88.7% when those who answered "often" were included. This figure indicates that participants rank professional development as their top priority. Similarly, information about clinical topics and official guidelines was also frequently sought, 48.2% and 51.1%, respectively, said "very often." When combined with those who replied "often", 82.2% often looked for clinical content and 78.8% for official guidelines, indicating that reliable clinical information is a priority for participants in their everyday work. On the other hand, only one out of five participants searched "very often" for administrative topics (19.2%) or alternative/experimental therapies (22.3%). In terms of source usage, the findings in Table 5 show that participants most frequently relied on search engines (e.g., Google), with an overall score of 48.0% plus 26.3%, totaling 74.3% for the two highest frequency categories "very often" and "often", and a median score of 5, indicating that traditional internet searching retains the leading role in everyday information-seeking. In contrast, hospital libraries were the least used source, with 50.9% reporting "never" and a median of 1, indicating that traditional institutional resources are considered somewhat obsolete.

According to Table 6, the biggest barrier to information seeking was lack of time, rated as "extremely important" by 45.9% of participants and having the highest median score of 4. Cost issues (e.g., journal subscriptions) were also a major obstacle, with 32.3% selecting the highest rating. In contrast, lack of familiarity with computers or search methods was rated lower, both with a median score of 2, indicating these were considered less significant barriers overall. E-health information literacy was assessed with a mean score of 31.2 (SD=5.9 points), median 32, minimum 8 and maximum 40 with higher scores indicating greater ability of individuals to search for, understand and use health-related information from digital sources. The Cronbach's α reliability coefficient for the scale was 0.9, indicating high internal consistency (acceptable reliability >0.7). The mean values indicate that the participants' level of e-health information literacy ranged from moderate to high. However, the sentence "I feel confident when using online information to make decisions about my work" received a relatively low score, suggesting a lack of confidence in using online information to make professional decisions (Table 7).

In addition, the analysis revealed a significant association between the scale of e-health information literacy and dimensions of professional quality of life. Specifically, higher e-health information literacy was associated with increased compassion satisfaction, reduced burnout, and lower levels of secondary posttraumatic stress (Table 8). Multivariate linear regressions were performed to identify factors independently associated with the dimensions of professional quality of life, with the dependent variables being the scores on these dimensions and the independent variables comprising the participants' demographic and occupational data, as well as the e-health information literacy scale. The results of the analysis showed that compassion satisfaction was influenced by age, hospital experience, and e-health information literacy. Participants aged 30–39 reported lower levels of compassion satisfaction than those aged 18–

29 (b = –0.038, p = 0.013). In contrast, individuals with higher e-health information literacy reported greater compassion satisfaction (b = 0.003, p < 0.001). Similarly, those with 2–5 years (b = 0.044, p = 0.003) and 5–15 years (b = 0.052, p = 0.003) of work experience had higher scores than their peers with 0–2 years of service.

Burnout was also linked to several factors. Participants over the age of 50 showed lower burnout scores compared to the youngest age group (b = –0.060, p = 0.029), while those with a PhD reported less burnout than high school graduates (b = –0.070, p = 0.012). A higher e-health information literacy score was similarly associated with reduced burnout (b = –0.004, p < 0.001). For secondary post-traumatic stress, significant differences emerged by occupation. Nurses reported more severe symptoms than physicians (b = 0.045, p = 0.038), while, once again, higher e-health information literacy appeared to be protective (b = –0.004, p < 0.001).

A separate multivariate linear regression was performed to explore which demographic and occupational variables were independently associated with e-health information literacy. Among the factors examined, only monthly income showed a statistically significant relationship. Participants earning more than 1,500€ per month scored higher on the e-health information literacy scale than those earning 1,000€ or less (b = 0.046, p = 0.048).

In addition, three composite scores—representing information needs, information sources, and perceived barriers to information seeking—were calculated by averaging the relevant items. These scores were then correlated with the e-health information literacy scale. The analysis revealed that greater information needs (ρ = 0.17, p = 0.002) and more frequent use of information sources (ρ = 0.19, p = 0.001) were positively associated with higher levels of digital health literacy. Conversely, stronger perceived barriers were associated with lower e-health literacy (ρ = –0.35, p < 0.001), suggesting that structural or cognitive obstacles may hinder digital engagement (Table 9).

Table 1. Sample's demographics

Characteristics	N	%
Sex		
Male	85	25.5
Female	248	74.5
Age (in years)		
20-29	52	15.6
30-39	103	30.9
40-49	97	29.1
50-59	78	23.4
60+	3	0.9
Marital status		
Single	132	39.6
Married/living with someone for years/partnership agreement	169	50.8
Divorced/separated	27	8.1
Widowed	5	1.5
Number of children		
0	150	45
1	58	17.4

2	94	28.2
3	22	6.6
4+	9	2.7
Educational level		
PhD holder	26	7.8
MSc holder	132	39.6
University graduate	66	19.8
Technological Institute graduate	72	21.6
High school graduate	37	11.1
Monthly income (in euro)		
<800	5	1.5
801-1000	70	21
1001-1500	162	48.6
1501-2000	57	17.1
2001-2500	22	6.6
>2500	17	5.1
Specialization		
Physician	120	36
Nurse	213	64
Years of service in a related hospital		
0-2	58	17.4
2-5	77	23.1
5-15	88	26.4
15-25	68	20.4
>25	42	12.6

Table 2: Reliability coefficients of the dimensions of the Professional Quality of Life Questionnaire

Dimension	Min	Max	Mean (SD)	Mdn (IQR)	Cronbach's a
Compassion satisfaction	18	49	35.6 (6.5)	36 (31 - 40)	0.87
Burnout	12	40	27.8 (5.7)	38 (24 – 31)	0.76
Secondary traumatic stress	11	41	25.4 (6.5)	32 (28 – 35)	0.83

Table 3: Levels of Professional quality of life for each dimension

Dimension	Level	N	%
Compassion satisfaction	Low (≤22)	10	3.0
	Medium (23-41)	254	76.3
	High (≥42)	69	20.7
Burnout	Low (≤22)	64	19.2
	Medium (23-41)	269	80.8
	High (≥42)	0	-
Secondary post-traumatic stress	Low (≤22)	114	34.2
	Medium (23-41)	219	65.8
	High (≥42)	0	-

Table 4. Frequency of seeking information to meet information needs

1 =Never, 2=Rare, 3 =Sometimes, 4=Often, 5 =Very often

No. item	All	1	2	3	4	5	Mdn
1. Knowledge update / new skills.	N=330	4	5	28	79	**214**	5
	(%)	(1.2)	(1.5)	(8.5)	(23.9)	(64.8)	
2. Public administration (legislation, circulars, etc.).	N=326	13	33	78	**113**	89	4
	(%)	(4.0)	(10.1)	(23.9)	(34.7)	(27.3)	
3. Service status , changes etc).	N=329	10	15	67	112	**125**	4
	(%)	(3.0)	(4.6)	(20.4)	(34.0)	(38.0)	
4. Insurance - labour	N=328	9	33	69	103	**114**	4
	(%)	(2.7)	(10.1)	(21.0)	(31.4)	(34.8)	
5. Lifelong education	N=330	3	11	56	95	**165**	4.5
	(%)	(0.9)	(3.3)	(17.0)	(28.8)	(50.0)	
6. Research activities	N=328	10	28	77	83	**130**	4
	(%)	(3.0)	(8.5)	(23.5)	(25.3)	(39.6)	
7. Medical guidelines/protocols	N=325	3	23	43	90	**166**	5
	(%)	(0.9)	(7.1)	(13.2)	(27.7)	(51.1)	
8. Clinical issues	N=326	2	11	45	111	**157**	4
	(%)	(0.6)	(3.4)	(13.8)	(34.0)	(48.2)	
9. Teaching / training of colleagues	N=328	12	14	51	110	**141**	4
	(%)	(3.7)	(4.3)	(15.5)	(33.5)	(43.0)	
10. Educational material for patients/instructions	N=324	3	18	62	93	**148**	4
	(%)	(0.9)	(5.6)	(19.1)	(28.7)	(45.7)	
11. Administrative issues	N=323	26	63	83	**89**	62	3
	(%)	(8.0)	(19.5)	(25.7)	(27.6)	(19.2)	
12. Prescription drugs	N=320	17	37	**98**	93	75	4

	(%)	(5.3)	(11.6)	(30.6)	(29.1)	(23.4)	
13. Alternative therapies / Experimental therapies-drugs	N=319	35	48	**92**	73	71	3
	(%)	(11.0)	(15.0)	(28.8)	(22.9)	(22.3)	

Note. Participants reported how often they sought information about each topic related to their information needs using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often). Values represent the frequency and percentage of responses for each Likert point. Percentages may not total 100% due to rounding. Bolded cells indicate the Likert scale point (column) with the highest frequency of responses — the mode — for each item.

Table 5. Frequency of Information Source Usage

No. Item	1 =Never, 2=Rare, 3 =Sometimes, 4=Often, 5 =Very often						
	All	**1**	**2**	**3**	**4**	**5**	**Mdn**
1. Medical staff	N=324	5	39	65	100	**115**	4
	(%)	(1.5)	(12.0)	(20.1)	(30.9)	(35.5)	
2. Nursing staff	N=327	16	50	73	84	**104**	4
	(%)	(4.9)	(15.3)	(22.3)	(25.7)	(31.8)	
3. Hospital library	N=322	**164**	66	48	25	19	1
	(%)	(50.9)	(20.5)	(14.9)	(7.8)	(5.9)	
4. Personal library	N=324	58	51	**82**	73	60	3
	(%)	(17.9)	(15.7)	(25.3)	(22.5)	(18.5)	
5. Printed medical manuals and books	N=331	25	46	78	**95**	87	4
	(%)	(7.6)	(13.9)	(23.6)	(28.7)	(26.3)	
6. Conferences/ seminars/	N=330	24	53	65	**95**	93	4
	(%)	(7.3)	(16.1)	(19.7)	(28.8)	(28.2)	
7. Scientific journals	N=325	44	74	57	68	**82**	3
	(%)	(13.5)	(22.8)	(17.5)	(20.9)	(25.2)	
8. Mass media (e.g., TV, radio, press).	N=331	**105**	68	59	53	46	2
	(%)	(31.7)	(20.5)	(17.8)	(16.0)	(13.9)	
9. Internet - Search engines (e.g., Google)	N=331	17	25	43	87	**159**	4
	(%)	(5.1)	(7.6)	(13.0)	(26.3)	(48.0)	
10. Electronic scientific journals	N=325	27	45	65	82	**106**	4
	(%)	(8.3)	(13.8)	(20.0)	(25.2)	(32.6)	
11. Websites of governmental bodies	N=326	26	63	**91**	68	78	3
	(%)	(8.0)	(19.3)	(27.9)	(20.9)	(23.9)	
12. Social media (e.g., Facebook, blogs)	N=330	**138**	70	52	34	36	2
	(%)	(41.8)	(21.2)	(15.8)	(10.3)	(10.9)	
13. Scientific medical websites (e.g., PubMed)	N=325	23	33	53	56	**160**	4
	(%)	(7.1)	(10.2)	(16.3)	(17.2)	(49.2)	
14. Medical/Nursing associations	N=329	66	**74**	62	72	55	3
	(%)	(20.1)	(22.5)	(18.8)	(21.9)	(16.7)	
15. Companies' websites	N=329	101	**108**	60	34	26	2
	(%)	(30.7)	(32.8)	(18.2)	(10.3)	(7.9)	

Note. Participants reported how often they use the listed information sources to address their information needs, using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often). Values represent the frequency and percentage of responses for each Likert point. Percentages may not total 100% due to rounding. Bolded cells indicate the Likert scale point (column) with the highest frequency of responses — the mode — for each item.

Table 6. Importance of Barriers to Information Seeking

No. Item		1=Not at all important, 2=Slightly important, 3=Moderately important, 4=Very important, 5=Extremely important					
	All	**1**	**2**	**3**	**4**	**5**	**Mdn**
1. Lack of time	N=333	19	18	63	80	**153**	4
	(%)	(5.7)	(5.4)	(18.9)	(24.0)	(45.9)	
2. Cost (subscriptions to journals or medical information bases)	N=331	21	24	81	98	**107**	4
	(%)	(6.3)	(7.3)	(24.5)	(29.6)	(32.3)	
3. Lack of familiarity with computers	N=329	**149**	49	56	46	29	2
	(%)	(45.3)	(14.9)	(17.0)	(14.0)	(8.8)	
4. Lack of organized sources of information (e.g., library)	N=326	60	64	68	65	**69**	3
	(%)	(18.4)	(19.6)	(20.9)	(19.9)	(21.2)	
5. Difficulty understanding information in a foreign language	N=331	**114**	57	59	58	43	2
	(%)	(34.4)	(17.2)	(17.8)	(17.5)	(13.0)	
6. Large amount of disorganised electronic information	N=330	44	50	88	**107**	41	3
	(%)	(13.3)	(15.2)	(26.7)	(32.4)	(12.4)	
7. Lack of familiarity with ways of searching for information	N=330	**110**	56	73	60	31	2
	(%)	(33.3)	(17.0)	(22.1)	(18.2)	(9.4)	
8. Invalid information on the Internet (lack of trust)	N=328	52	55	**87**	76	58	3
	(%)	(15.9)	(16.8)	(26.5)	(23.2)	(17.7)	

Note. Participants reported how often they use the listed information sources to address their information needs, using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often). Values represent the frequency and percentage of responses for each Likert point. Percentages may not total 100% due to rounding. Bolded cells indicate the Likert scale point (column) with the highest frequency of responses — the mode — for each item

Table 7. E-health information literacy of the sample (N=333) (Cronbach's a: 0.90)

Item		1=I disagree, 2=Rather disagree., 3=Neither agree nor disagree, 4=Rather agree, 5=Agree				
	All	**1**	**2**	**3**	**4**	**5**
I know what information resources regarding my job are available on the Internet.	N	21	26	62	**137**	87
	(%)	(6.3)	(7.8)	(18.6)	**(41.1)**	(26.1)
I know where to find helpful information resources on the Internet	N	8	18	59	**143**	105
	(%)	(2.4)	(5.4)	(17.7)	**(42.9)**	(31.5)
I know how to find helpful information resources on the Internet	N	5	15	46	**148**	119
	(%)	(1.5)	(4.5)	(13.8)	**(44.4)**	(35.7)
	N	5	19	51	**135**	123

I know how to use the Internet to answer questions regarding my job	(%)	(1.5)	(5.7)	(15.3)	**(40.5)**	(36.9)
I know how to use the information I find on the Internet to help me	N	4	8	49	**159**	113
	(%)	(1.2)	(2.4)	(14.7)	**(47.7)**	(33.9)
I have the skills I need to evaluate the information resources I find on the Internet.	N	6	21	77	**138**	91
	(%)	(1.8)	(6.3)	(23.1)	**(41.4)**	(27.3)
I can distinguish between high-quality and low-quality information resources related to my job on the Internet.	N	7	18	66	**153**	89
	(%)	(2.1)	(5.4)	(19.8)	**(45.9)**	(26.7)
I feel confident in using information from the Internet to make decisions regarding my job.	N	20	39	103	**106**	65
	(%)	(6)	(11.7)	(30.9)	**(31.8)**	(19.5)

Note. Participants reported using a 5-point Likert scale (1=I disagree, 2=Rather disagree, 3=Neither agree nor disagree, 4=Rather agree, 5=Agree). Values represent the frequency and percentage of responses for each Likert point. Percentages may not total 100% due to rounding. Bolded cells indicate the Likert scale point (column) with the highest frequency of responses — the mode — for each item.

Table 8: Associations between dimensions of professional quality of life and e-health information literacy

Dimension		E-health information literacy scale
Compassion satisfaction	*rho*	0.17
	p	**0.002**
Burnout	*rho*	-0.24
	p	**<0.001**
Secondary post-traumatic stress	*rho*	-0.2
	p	**<0.001**

Table 9: Associations between digital health information literacy and dimensions of information seeking behavior

		Information needs	Information sources	Barriers to information
E-health information literacy scale	*rho*	0.17	0.19	-0.35
	p	**0.002**	**0.001**	**<0.001**

Discussion

According to our findings, participants demonstrated moderate professional quality of life. Comparison with previous studies using the ProQOL scale shows heterogeneity of results. Indicatively, a study with pediatric nurses (Balakhdar & Alharbi, 2023) recorded moderate levels of compassion satisfaction and secondary post-traumatic stress but low levels of burnout, while another study (Berger et al., 2015) reported high rates of burnout and secondary post-traumatic stress and low levels of compassion satisfaction, suggesting

the influence of context and working conditions on levels of professional fatigue which may have a substantial impact on nurses' mental health and the quality of service provided. In addition, in a more recent study (Zhong et al., 2024), pediatric nurses showed simultaneously high levels of compassion satisfaction, burnout and secondary post-traumatic stress, which may have an impact on both nurses' mental health and quality of service provided. However, in similar studies, levels of compassion satisfaction, burnout and secondary post-traumatic stress in medical and nursing staff were also moderate (Platis et al, 2023; Ayed et al, 2024; Maddigan et al, 2023; Xie et al, 2021).

Regarding information needs, the majority of the sample seeks information mainly in order to update and explore their existing knowledge. Next, clinical topics, medical guidelines, protocols and lifelong learning are followed by comparable ratings. It has been reported that professional quality of life and burnout prevention in pediatric nurses are enhanced through access to educational programs, up-to-date medical literature, counseling and appropriate care resources, among others (Balakhdar & Alharbi, 2023). These findings are consistent with previous Greek (Doulgeri et al, 2023; Intas et a, 2013) and international studies (Kouame & Hendren, 2022; Daeia et al, 2020) while information needs related to prescription drugs, alternative and experimental treatments, and administrative issues were considered less important (Argyri et al, 2014).

In terms of information sources, the internet emerged as the most widespread source, followed by scientific medical websites, medical and nursing staff, and electronic journals. The widespread use of the internet and online medical information is confirmed by other research data, suggesting the increasing familiarity of health professionals with digital search for scientific knowledge (Podichetty et al., 2005. Social media, company websites and the hospital library are at the bottom of the list. Similar findings have been recorded in other related studies (Persakis et al, 2015; Kostagiolas et al, 2015; Platis et al, 2023), where the internet, scientific databases and digital journals emerge as the main sources of physicians and nurses, while in other studies, the internet (Kouame & Hendren, 2022; Alving et al, 2018; Zhou et al, 2020) and colleagues (Doulgeri et al, 2023; Intas et al, 2017; Farokhzadian et al, 2015) were dominant sources (Doulgeri et al, 2023; Intas et al, 2017; Farokhzadian et al, 2015). The limited use of hospital libraries, as highlighted in this study, is also a common finding in a number of Greek and international studies (Platis et al, 2023; Doulgeri et al,, 2023; Diekema et al, 2019; March et al, 2020) which may be attributed to the ease of access and immediacy of digital media.

At the same time, the most important difficulty in searching for information was the lack of time available. This was followed by the cost of accessing scientific databases and journals, and thirdly, the problem of managing the large volume of disorganized electronic information. The findings on lack of time are in line with a number of previous studies, both Greek (Doulgeri et al, 2023; Argyri et al, 2014; Kostagiolas et al, 2014) and international (Diekema et al, 2019; Gilmour et al, 2012; Kumaran & Chipanshi, 2015). Furthermore, the cost of access, as highlighted in several studies (Intas et al, 2017; Nalle et al, 2010), contributes to an uneven access field, creating a two-tiered health professional workforce, excluding a significant proportion of health professionals from ongoing scientific information (Nalle et al, 2010).

In addition, the majority of participants showed a moderate to high level of e-health information literacy, a finding that is confirmed by recent studies (Doulgeri et al, 2023; Isazadeh et al, 2019), while in similar Greek and international studies, the level is characterized as moderate (Yoğurtcu et al, 2022; Platis et al, 2022; Kritsotakis et al, 2021; Şayık & Uçan, 2022; Shiferaw & Mehari, 2019). At the same time, similar findings are also recorded in studies of nursing students (Rathnayake & Senevirathna, 2019; Tubaishat & Habiballah, 2016), where moderate levels of e-health information literacy are also found. However, low scores were recorded on the statement "I feel confident when using information from the internet for professional decision

making", reflecting a lack of confidence in online resources, a finding that has been reported in other relevant Greek studies (Kritsotakis et al, 2021; Aidonoudis et al, 2023; Gkountara et al, 2023).

An important finding of the study is the positive correlation between e-health information literacy and professional quality of life. Specifically, increased ability to search and use digital information was associated with higher compassion satisfaction and reduced levels of burnout and secondary post-traumatic stress, and these findings are consistent with international literature (Kritsotakis et al., 2021).

In the same vein, Rahdar et al.'s (2020) study of health information management staff in hospitals in Iran showed a significant negative association between burnout and e-health literacy. The results showed that health literacy is associated with both the frequency and severity of burnout. Specifically, for every one point increase in health literacy score, the incidence of burnout decreased by 0.88 points. These findings support the protective effect of health literacy and reinforce its value as a factor in preventing burnout.

In addition, age, years of employment in the organization and e-health literacy emerged as determinants of compassion satisfaction, whereas burnout was respectively influenced by age, education level and e-health literacy. More specifically, increased years of experience and higher levels of e-health information literacy were associated with increased compassion satisfaction while older age was associated with decreased compassion satisfaction, a finding that is in agreement with previous studies (Rayani et al., 2024). Similarly, older age (Marchand et al., 2018), higher educational level (Theodorou et al., 2023; Duarte et al., 2020) and increased digital competence (Rahdar et al., 2020) appeared to be protective against burnout.

Secondary post-traumatic stress appeared to be influenced by specialty and e- health literacy as nurses reported higher levels of secondary post-traumatic stress compared to physicians, while better digital literacy was associated with reduced secondary post-traumatic stress. Another related study (Alharbi & Alkhamshi, 2024) correlated secondary post-traumatic stress with occupational factors such as seniority and length of employment, findings that were not confirmed by the data of the present study.

Finally, the only variable found to have a statistically significant effect on e-health information literacy was income. Specifically, higher income was associated with a higher level of digital literacy, a finding confirmed by international literature and attributed to increased access to digital tools and educational resources (Jung et al, 2022; Cetin & Gumus, 2023; Alipour & Payandeh, 2022). However, age, professional status, salary and years of experience have been found to be significantly correlated with e-health information literacy (Shiferaw & Mehari, 2019).

Limitations: Despite the important findings of this research, there are some limitations that need to be taken into account. Conducting the study exclusively in three public pediatric hospitals in Attica may limit the generalizability of the results to other geographical areas and different healthcare settings, such as private or regional hospitals, which may have different organizational culture and working conditions. The lengthy questionnaire was considered by some participants to be time-consuming, which may have affected the accuracy and completeness of responses, and the exclusion of incompletely completed questionnaires may have introduced bias.

Additional limitations relate to the data collection process. Delays in approvals from hospital scientific boards limited the time frame of the study, and high workload and lack of health staff may have affected the participation rate and representativeness of the sample.

Conclusions: This study highlights the significant impact of information seeking behavior and e-health information literacy on the professional quality of life of medical and nursing staff. Enhanced skills in searching, evaluating and utilizing digital health information contribute to higher levels of compassion satisfaction and lower levels of burnout and secondary post-traumatic stress.

Access to reliable and organized scientific information is a critical factor for improving professional life, highlighting the need for investment in technological infrastructure, modern digital tools and continuous training of medical and nursing staff in information skills. At the same time, rational management of working time and enhanced administrative support can reduce barriers to information seeking and facilitate informed clinical decision-making. In conclusion, the integration of targeted strategies that enhance e-health information literacy and information-seeking behavior is a foundation for improving the professional quality of life of doctors and nurses and contributes substantially to the sustainability and efficiency of health systems.

References

Aidonoudis V, Theodorou P, Niotaki I, Psomiadi ME, Platis C (2023). Incentives for participation in continuous professional education and health information literacy of the nursing personnel of a Greek public hospital during the SARS-CoV 2 pandemic. Health and Research Journal, 9(3), 120-130

Alharbi MF, Alkhamshi AM (2024). Assessing the professional quality of life in the context of pediatric care. PeerJ, 12, e17120

Alipour J, Payandeh A (2022). Assessing the level of digital health literacy among healthcare workers of teaching hospitals in the southeast of Iran. Inform Med Unlocked, 29, 100868

Almalki MJ, FitzGerald G, Clark M (2012). The relationship between quality of work life and turnover intention of primary health care nurses in Saudi Arabia. BMC Health Serv Res, 12, 314.

Alving BE, Christensen JB, Thrysøe L (2018). Hospital nurses' information retrieval behaviours in relation to evidence based nursing: a literature review. Health Inf Libr J, 35(1), 3-23

Argyri P, Kostagiolas P, Diomidous M (2014). A survey on information seeking behaviour of nurses at a private hospital in Greece. Stud Health Technol Inform, 202, 127-130.

Ayed A, Abu Ejheisheh M, Aqtam I, Batran A, Farajallah M (2024). The Relationship between Professional Quality of Life and Work Environment Among Nurses in Intensive Care Units. Inquiry, 61, 469580241297974.

Balakhdar KO, Alharbi MF (2023). A Study of Professional Quality of Life and Environmental Factors among Pediatric Registered Nurses. J Nurs Manag, 2023, 5511932

Berger J, Polivka B, Smoot EA (2015), Owens H. Compassion Fatigue in Pediatric Nurses. J Pediatr Nurs, 30(6), e11-7.

Blais K, Hayes JS. Professional Nursing Practice: Concepts and Perspectives. 7th Edition. Pearson, 2011.

Cetin M, Gumus R (2023). Research into the relationship between digital health literacy and healthy lifestyle behaviors: an intergenerational comparison. Frontiers in public health, 11, 1259412.

Chen YP, Tsai JM, Lu MH, Lin LM, Lu CH, Wang KK (2018). The influence of personality traits and socio-demographic characteristics on paediatric nurses' compassion satisfaction and fatigue. J Adv Nurs, 74(5), 1180-1188.

Daeia A, Soleymanib MR, Ashrafi-rizib H,*, Zargham-Boroujenic A, Kelishadi R (2020). Clinical information seeking behavior of physicians: A systematic review. International Journal of Medical informatics. 139, 104144.

Dall'Ora C, Griffiths P, Ball J, Simon M, Aiken LH (2015). Association of 12 h shifts and nurses' job satisfaction, burnout and intention to leave: findings from a cross-sectional study of 12 European countries. BMJ Open, 5(9), e008331.

Diekema A, Hopkins B, Patterson B, Schvaneveldt N (2019). Using Information Practices of Nurses to Reform Information Literacy Instruction in Baccalaureate Nursing Programs. Evid Based Libr Inf Pract, 14, 72-102.

Doulgeri P , Kostagiolas P, Platis C, Theodorou P, (2023). Investigation of the information health literacy and information behavior of ICU nurses during the COVID-19 pandemic. Hellenic Journal of Nursing, 62(4), 64-74.

Duarte I, Teixeira A, Castro L, Marina S, Ribeiro C et al (2020) Burnout among Portuguese healthcare workers during the COVID-19 pandemic. BMC Public Health, 20, 1–10

Farokhzadian J, Khajouei R, Ahmadian L (2015). Information seeking and retrieval skills of nurses: Nurses readiness for evidence based practice in hospitals of a medical university in Iran. Int J Med Inform, 84(8), 570-577.

Gartrell K, Han K, Trinkoff A, Cho H (2020). Three-factor structure of the eHealth Literacy Scale and its relationship with nurses' health-promoting behaviours and performance quality. J Adv Nurs, 76(10), 2522-2530.

Gilles I, Le Saux C, Zuercher E, Jubin J, Roth L, Bachmann AO, Peytremann-Bridevaux I (2025). Work experiences of healthcare professionals in a shortage context: analysis of open-ended comments in a Swiss cohort (SCOHPICA). BMC Health Serv Res, 25(1), 520.

Gilmour JA, Huntington A, Broadbent R, Strong A, Hawkins M (2012). Nurses' use of online health information in medical wards. J Adv Nurs,68(6), 1349-1358.

Gkountara A, Theodorou P, Platis C (2023). Health information literacy and the training needs of nursing staff in a public hospital during the COVID-19 pandemic. Archives of Hellenic Medicine, 40(1), 50-60

Hsu MY, Kernohan G (2006). Dimensions of hospital nurses' quality of working life. J Adv Nurs, 54(1), 120-31.

Intas G, Kostagiolas P, Niakas D (2013). Nurses' Information-Seeking Behavior. Hellenic Journal of Nursing, 52, 147-158 .

Intas G, Kostagiolas P, Zavras D, Chalari E, Stergiannis P, Toylia G, et al (2017). Information-Seeking Behavior of Greek Nursing Students: A Questionnaire Study. Comput Inform Nurs, 35(2), 109-114.

Isazadeh M, Asadi Z, Badiani E, Taghizadeh M (2020). Electronic Health Literacy Level in Nurses Working at Selected Military Hospitals in Tehran in 2019. Ann Mil Health Sci Res, 17(4), e99377

Jackson R, Baird W, Davis-Reynolds L, Smith C, Blackburn S, Allsebrook J (2007). The information requirements and information-seeking behaviours of health and social care professionals providing care to children with health care needs: a pilot study. Health Inf and Libr J, 24(2), 95-102.

Jung SO, Son YH, Choi E (2022). E-health literacy in older adults: an evolutionary concept analysis. BMC Med Inf Dec Mak, 22(1), 28.

Kostagiolas P, Korfiatis N, Kourouthanasis P, Alexias G (2014). Work-related factors influencing doctors search behaviors and trust toward medical information resources. Int J Inf Manage, 34(2), 80-8.

Kostagiolas P, Martzoukou K, George I, Niakas D (2014). How nurses behave online? Nurses' online information needs and internet seeking behaviour. Proceedings of the Second International Conference on Advances in Social Science, Management and Human Behaviour, 192-199

Kostagiolas PA, Kourouthanassis PE, Martzoukou K, Korfiatis N, Niakas D (2018). Information seeking behavioural paths of physicians for diabetes mellitus care: a qualitative comparative analysis of information needs, sources, and barriers. Health Syst(Basingstoke, England), 7(1), 13-28.

Kouame G, Hendren S (2022). Library tools at the nurses' station: exploring information-seeking behaviors and needs of nurses in a war veterans nursing home. J Med Libr Assoc, 110(2), 159-65.

Kritsotakis G, Andreadaki E, Linardakis M, Manomenidis G, Bellali T, Kostagiolas P (2021). Nurses' ehealth literacy and associations with the nursing practice environment. Int Nurs Rev, 68(3), 365-71.

Kumaran M, Chipanshi M (2015). Exploring the Information-Seeking Behaviour of Internationally Educated Nurses (IENs) in Saskatchewan. J Can Health Libr Assoc, 36, 45-53.

Maddigan J, Brennan M, McNaughton K, White G, Snow N (2023). The Prevalence and Predictors of Compassion Satisfaction, Burnout and Secondary Traumatic Stress in Registered Nurses in an Eastern Canadian Province: A Cross-Sectional Study. Canadian Journal of Nursing Research, 55(4), 425-436.

March M, Vaikosen H, Akporoghene E (2020). Information Needs and Seeking Behaviour of Nurses at Rivers State University Teaching Hospital (RSUTH), Port-Harcourt. Inf Impact J Inf and Knowl Manag, 11, 63-74.

Marchand A, Blanc M-E, Beauregard N (2018). Do age and gender contribute to workers' burnout symptoms?, *Occupational Medicine*, 68(6), 405-411

Milanti A, Chan DNS, Parut AA, So WKW (2023). Determinants and outcomes of eHealth literacy in healthy adults: A systematic review. PloS one, 18(10), e0291229.

Nalle MA, Wyatt TH, Myers CR (2010). Continuing education needs of nurses in a voluntary continuing nursing education state. J Contin Educ Nurs, 41(3):107-15; quiz 16-17.

Nivette A, Ribeaud D, Murray A, Steinhoff A, Bechtiger L, Hepp U, et al (2021). Non-compliance with COVID-19-related public health measures among young adults in Switzerland: Insights from a longitudinal cohort study. Soc Sci Med, 268, 113370.

Norman CD, Skinner HA (2006). eHEALS: The eHealth Literacy Scale. J Med Internet Res, 8(4), e27.

Parnell TA, Agris J (2020). Health Literacy: An Essential Element of Health Care Professionalism and Resilience. Stud Health Technol Inform, 269, 65-71.

Persakis E, Kostagiolas P, Alexias G, Niakas D (2015). The information seeking behavior and information needs of doctors working in a Greek military hospital. Archives of Hellenic Medicine, 32, 66-76.

Platis C, Arvanitidis T, Psomiadi ME, Theodorou P (2023). Interdisciplinary collaboration and communication among doctors and nurses in ICUs during the COVID-19 pandemic and their importance in professional life quality improvement. Advances in Experimental Medicine and Biology, 1425, 331-343.

Platis C, Mollas N, Psomiadi ME, Theodorou P (2022). Investigation of digital health information literacy and the relationship between burnout and job satisfaction of health professionals in three public hospitals during Covid-19 pandemic. International Journal of Latest Research in Humanities and Social Science, 5(5), 89-99

Platis C, Passia A, Theodorou P, Psomiadi ME, Niakas D (2023). Demographic and occupational characteristics of healthcare professionals and the utilization of information sources about COVID-19. Archives of Hellenic Medicine, 40(6), 808-816

Podichetty VK, Booher J, Whitfield M, Biscup RS (2006). Assessment of internet use and effects

among healthcare professionals: a cross sectional survey. Postgrad Med J, 82(966), 274-9.

Rahdar S, Khajouei R ,Mirzaee M. (2020). Determining the effect of electronic health literacy on job burnout in the staff of health information managementJournal of Advanced Pharmacy Education & Research, 10(S1), 92-97

Rahdar S, Khajouei R, Mirzaee M (2020). Determining the effect of electronic health literacy on job burnout in the staff of health information management. J Adv Pharm Edu Res, 10(S1), 92-97.

Rathnayake S, Senevirathna A (2019). Self-reported eHealth literacy skills among nursing students in Sri Lanka: A cross-sectional study. Nurse Educ Today, 78, 50-56.

Rayani A, Hannan J, Alreshidi S, Aboshaiqah A, Alodhailah A, Hakamy E (2024). Compassion Satisfaction, Burnout, and Secondary Traumatic Stress among Saudi Nurses at Medical City: A Cross-Sectional Study. Healthcare (Basel), 12(8), 847.

Sansó N, Galiana L, Oliver A, Tomás-Salvá M, Vidal-Blanco G (2020). Predicting Professional Quality of Life and Life Satisfaction in Spanish Nurses: A Cross-Sectional Study. Int J Environ Res Public Health, 17(12), 4366

Şayık D, Uçan A (2022). Anxiety and e-health literacy levels, and associated factors in health care workers involved in the treatment and care of covid-19 patients. Eskişehir Türk Dünyası Halk Sağlığı Derg, 7(2), 340-350.

Shiferaw KB, Mehari EA (2019). Internet use and eHealth literacy among health-care professionals in a resource limited setting: a cross-sectional survey. Adv Med Educ Pract, 10, 563-570.

Stamm BH (2010) The concise ProQOL manual, 2nd edn. Pocatello, ID: ProQOL.org

Theodorou P, Georgantoni M, Psomiadi ME, Platis C, Bellali T (2023). Job satisfaction and burnout levels of the human resources of a public oncology hospital during the COVID-19 pandemic. Advances in Experimental Medicine and Biology, 1425, 345-352.

Tubaishat A, Habiballah L (2016). eHealth literacy among undergraduate nursing students. Nurse Educ Today, 42, 47-52.

Vurda, A. (2010). Investigation of the quality of professional life of employees in the field of special education. - A pilot study. Postgraduate Thesis. University of Macedonia. Thessaloniki

WHO (2023). Digital health literacy key to overcoming barriers for health workers, WHO study says. https://www.who.int/europe/news/item/18-09-2023-digital-health-literacy-key-to-overcoming-barriers-for-health-workers--who-study-says

Wilson T (2000). Human Information Behavior. Informing Sci, 3, 49-55.

Xie W., Chen L., Feng F., Okoli C., Tang P., Zeng L., Jin M., Zhang Y., Wang J. (2021). The prevalence of compassion satisfaction and compassion fatigue among nurses: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 120, 103973.

Yoğurtcu H, Ozturk Haney M (2022). The relationship between e-health literacy and health-promoting behaviors of Turkish hospital nurses. Global Health Promot, 29(4), 54-62.

Zahednezhad H, Zareiyan A, Zargar Balaye Jame S (2021). Relationship between quality of work-life, resilience and burnout among nursing professionals during COVID-19 pandemic in Iran: A cross-sectional study. Belitung Nurs J, 7(6), 508-515.

Zhao BY, Chen MR, Lin R, Yan YJ, Li H (2024). Influence of information anxiety on core competency of registered nurses: mediating effect of digital health literacy. BMC Nurs, 23(1), 626.

Zhong Y, Li SF, Mo BR, Liao QH, Luo WX, Zhu SN, Sun LL (2024). Compassion fatigue and it influencing factors among pediatric nurses: a cross-sectional survey. BMC Psychol 12(1), 711

Zhou H, Zhang J, Su J (2020). Internet access, usage and trust among medical professionals in China: A web-based survey. Int J Nurs Sci, 7(Suppl 1), S38-s45