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RESEARCH ARTICLE

NURSES' INCENTIVES FOR PARTICIPATION IN CONTINUOUS PROFESSIONAL EDUCATION ACTIVITIES AND THEIR HEALTH INFORMATION LITERACY LEVELS AMID THE COVID-19 PANDEMIC

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Abstract

Background: Digital health information literacy is a prerequisite for Continuing Nursing Education (CNE). CNE has a positive impact on the improvement of healthcare quality as well as to healthcare personnel's knowledge and skills.

Aim: To investigate the incentives for participating in CNE activities the nurses from "Ippokrateio" General Hospital of Thessaloniki demonstrate. Also, the relation to their digital health literacy levels during the Covid-19 pandemic.

Materials and Methods: 120/130 employees of the hospital's nursing personnel (response rate: 92.3%) took part in the cross-sectional study from February to April 2021. The participants were asked to complete an anonymous, structured, closed-ended questionnaire, formulated by the Participation Reasons Scale and e-HEALS. Data analysis was performed with IBM SPSS 21.0

Results: Nurses were motivated mainly to receive CNE in order to improve their professional skills and provide better services to patients. Those with better digital health information literacy levels regarded highly all incentives' categories; professional skills improvement and better services provided to patients, (b) personal benefits gain and job security, (c) professional engagement and (d) learning and interacting with colleagues. Those of younger age considered more important to improve their professional skills and provide better services to patients, while those working under fixed-term contracts, professional engagement, personal benefit and job security. Nurses having children acknowledged as more important the personal benefit and job security incentives.

Conclusions: Nurses with higher digital health information literacy levels were keener in participating in CNE activities, as presented more motivated.

Keywords: Continuing nursing education, covid-19, digital health information education, information behavior, nurses' incentives for continuing nursing education.

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INTRODUCTION

Upgrading skills and acquiring up-to-date knowledge after receiving introductory training[1] is a basic prerequisite for improving employee performance and enhancing the quality of the healthcare services provided. Knowledge acquisition is achieved through Continuing Professional Education (CPE) and, in particular, Continuing Nursing Education. (CNE). WHO defined CNE in 2003 as education that health professionals voluntarily receive after the end of their vocational training or any additional advanced education, basic or specialized, which aims in improving knowledge implementation not limited to obtaining a new diploma or license to practice a profession[2]. CNE is achieved through guided training and self-education. Guided training is mandatory and divided into in-service and out-of-service, while self-education is activated through innate incentives and needs and shaped by the influence of external stimuli. It is characterized by trainee's autonomy, as he is not obliged by the state or his employment agency to participate in a CNE program. CNE information sources are scientific books and journals, conventions, discussions with experts and the internet[3-5]. Due to the huge volume of digital knowledge provided, almost 600.000 scientific articles are published every year in 80.000 scientific journals[6], prerequisite for self-education is the ability to seek, retrieve and make use of health-related information. This capability, known as Digital Health Information Literacy (DHIL)[7], describes the necessary skill that nurses need to develop to be in position to locate, understand, use, and evaluate information found on the internet, so that they make evidence-based professional decisions based on up-to-date scientific data, to provide upscaled healthcare services, for preventing and treating diseases[8]. From December 2019, more than 600 million Covid-19 cases have been identified and more than 6.5 million deaths were attributed to this newfound pulmonary disease worldwide [9]. Under these unprecedented circumstances that cast extraordinaire strains to all healthcare systems and burden gravely the healthcare personnel, CNE and DHIL seem preconditioning for the novel characteristics of the daily clinical practice.

AIM

To investigate the incentives for participating in CNE programs the nurses working in Thessaloniki's General Hospital "Ippokratio" demonstrate. Also, to assess their digital health information literacy levels. Finally, to explore their interrelations with their distinct demographic and occupational characteristics, if any.

METHODOLOGY

Survey context and questionnaire's internal consistency

To serve the study's purpose, a cross-sectional survey was designed, and a designated research tool developed. This cross-sectional survey was carried out from February to April 2021 in "Ippokratio" General Hospital of Thessaloniki, with the application of the research tool, a self-completed, closed-ended questionnaire, formulated by three distinct ones. The first facilitated collecting participants' demographic and occupational characteristics. The second was the Participation Reasons Scale (PRS)[10], consisting of 30 affirmations relevant to participation in continuing education programs, with the respondents indicating how important is to them each of the 30 statements via a 7-item Likert scale, ranging from "not significant" to "very important ". The 30 statements are categorized into 4 incentive constructs, with Cronbach's alpha internal consistency coefficient for all four of them ranging from 0.85 to 0.97. Hence, deeming it as appropriate for this study. The third is Norman and Skinner's[11] "e-HEALS" questionnaire investigating digital health information education, an 8-factor evaluation tool. Each factor is analyzed via a 5-item Likert scale ranging from "strongly agree" to "strongly disagree", developed to measure respondents' combined knowledge, comfort, and perceptions of finding, evaluating, and using electronic health information to solve health problems; designed to be widely used to support e-health in public health and clinical care.

Sampling

130 questionnaires were distributed among the various nursing departments of Thessaloniki's "Ippokratio" General Hospital, 120 of which were fully completed (92.3% response rate) by the nursing personnel currently working in them.

Ethics

Data provision was anonymous, voluntary and implicitly con-

ducted to accommodate the research needs. The PRS scale was applied following the granting of a special license by the team of researchers who had previously priorly translated the scale to Greek[10]; "E-heals" deployment does not require granting a license. Both the Scientific and the Administrative Boards of "Ippoklratio" had granted their respective permissions to conduct the survey prior to its commencement. All participants signed a consent form, after having been thoroughly informed about the purpose of the survey.

Statistical analysis

Descriptive statistics were applied for all variables, while the Kolmogorov-Smirnov test was deployed for normality testing. Students' t-test, Pearson's and Spearman's correlation coefficients were used to investigate the relations between variables. In case more than two independent variables presented with statistically significant relations at the level of 0.2 (p <0.2) multiple linear regression was applied. Regarding the multiple linear regression, the coefficients b, the corresponding 95% confidence intervals and the values p are reported. The bilateral level of statistical significance was set to 0.05. Data analysis was performed with IBMs Statistical Package for Social Sciences (SPSS) version 21.0

RESULTS

Table 1 summarizes sample's demographic and occupational characteristics. Most nurses were women (81.7%), aged between 30-49 (58.3%), not married (51.7%) or having children (56.7%). In addition, most nurses had a monthly net income of less than1000 euros (56.7%), a bachelor's degree from a Technological Institution (72.5%) and less than 14 years of service (59.1%). Table 2 portrays participants' answers to the CPE scale. From the statistical analysis, the most important incentives, in order of ranking, emerged as follows: Professional skills and services provided to patients improvement, personal benefits and job security, professional engagement, and, learning and interaction with colleagues (Table 3). Table 4 presents nurses' score on the DHIL scale. The average participants' score was 32.7 with the highest attributed to the dimensions "I know how to find useful sources of health information on the Internet", "I know how to use the Internet to answer questions about my health", "I have the necessary skills to evaluate the sources of health information I find on the Internet", "I can distinguish high-quality sources of health information from those that are low quality on the Internet" and "I feel confident when I use information from the Internet to make health decisions."

Following the implementation of bi-variable analysis between DHIL, incentives to improve professional skills and services provided to patients, professional engagement, learning and interaction with colleagues, and personal benefit and job security with the respective independent variables, statistically significant relations emerged at the level of 0.20 (p <0.20). For this reason, multivariate linear regression analysis was applied, the results of which are presented in Table 5. In particular, participants with higher DHIL levels considered all motivation categories important, while younger nurses considered as more important incentives to improve professional skills and services provided to patients. Nurses with fixed term working contracts considered the incentive of professional engagement as well as personal benefit and job security as more important, in contrast to those having children who acknowledged the incentive of personal benefit and job security as the more important one.

DISCUSSION

According to our findings, 21.7% of the participants was between 20-29 years of age, while 28.3% reported none to minimal previous work experience. Those findings are consistent with corresponding ones, according to which, during the pandemic, the health sector recruited newly nursing graduates and inexperienced nursing personnel[12]. It is worth mentioning that in 2019 in a survey conducted at the same hospital for investigating nurses' educational needs, solely 11.9%[13] of the nursing personnel was between 20 - 29 years of age.

Additionally, the recruitment of novel personnel for the NHS hospitals is reflected in nurses' educational level. High School and Technological Institutes' graduates comprised the 8.3% and 72.5% of the study sample correspondingly, while in a similar 2018 survey[14], they represented 34.04% and 44.85% of the participants respectively. The percentage of nurses holding an MSc remains almost unchanged, as from 14% in 2018[14] it was estimated 15.8% in our study.

The incentive for participating in CNE activities that was acknowledged as the most important in our study was professional skills and services provided to patients improvement. This finding, besides being in agreement with a significant number of relevant studies[15-19], disagrees with others[20-21]. Following in ranking were personal benefit and job security, with an average value of 5.6. This finding coincides with one of a relevant study where the corresponding value was 4.9[21]; however, contradictory ones have been reported[5, 22].

Professional engagement and learning and interacting with colleagues were acknowledged less, as they presented with a lower average value of 5.5. In accordance with a recent survey conducted in 6 NHS Australian hospitals[18], learning and interacting with colleagues emerged as the least significant incentive for nurses with an average value of 5.5. However, professional engagement has been noted in the literature as the second most important incentive group[5, 18], whereas learning and interacting with colleagues as the most important incentive to participate[17], depicting the second most important incentives' category to take part in CNE programs[16].

Furthermore, it has been repeatedly reported that the most empowering incentives for nurses were obtaining information about the developments in their field[15,16], enhancing their knowledge and skills[15], while improving their efficiency and skills in relation to caring to patients[15,17]. The former two incentives were as well recognized as the most important in our study, while the latter were equally regarded as strong incentives for participating in CNE activities.

Financial benefit has not been acknowledged as a determining factor for motivating nurses to participate in CNE activities not only in our study but also in similar ones[15,18]. Concerning maintaining or developing professional skills, those participating in our survey regarded as rather important maintaining them; an observation analogous to those of previous studies[8, 24].

The statistical analysis highlighted that the participants' statement with the lowest average value, as it was observed in studies before[8, 24], was their affirmation regarding feeling confident in using online information to make nursing decisions. However, from the multivariate linear regression analysis it was supported that nurses with better DHIL levels regarded all four incentives for participating in CNE activities as important. While the younger ones considered more important the improvement of their professional skills and services provided to patients, those working under fixed-term contracts, were motivated more by professional engagement, personal benefits, and job security. Personal benefit and job security were strong incentives for nurses having children.

As has been showed through research, the relation between DHIL and job security is highlighted by how those who acquire a higher DHIL level, improve their healthcare related behaviors not only towards to their colleagues, but also as healthcare employees themselves[25]. In addition, the relation between healthcare workers' DHIL capabilities and SARS-CoV-2 cognition rates strengthens its correlation to personal benefit. In our survey, nurses with higher DHIL levels considered as rather important the incentive to learn and interact with colleagues; health education has been associated with social skills development[25- 26], which consequently enhances interactions with colleagues.

Further statistical analysis of the data collected resulted in showing that nurses with more advanced DHIL skills regarded the incentives of professional engagement as important as well. Professional commitment is a concept that describes the inclusion of an individual in a working group not only in order to make a living but also for the satisfaction they derive from it[8, 27]. This is related to professional engagement through employee's participation in work activities beyond their duties.

In our study it was observed that nurses with better DHIL skills regarded highly of the incentive to improve their professional skills and the services they provide to patients. As better DHIL capabilities have been proved to enhance the incentive for skill development, it has been noted as well that pose a positive effect on patients' health[24]. Hence, improving DHIL skills has been linked to encouraging practicing evidence-based nursing, which casts a significant effect in improving both nurses' professional skills and the quality of services they provide to patients[8].

Finally, the incentive to improve their professional skills and the services they provide to patients' was acknowledged as the most important one from the younger nurses in the sample.

Similar findings have been documented in the relevant literature[23,28].

Limitations

The sample size consists the study's main limitation. Despite originally being planned to be comprised from 150 participants, the survey was conducted among 120 nurses of "Ippokratio". That was due to the exposure of multiple nurses to the novel coronavirus, that consequently, impeded them for taking part in the study. Hence, our findings cannot be generalized to the entirety of the Greek nurses population.

CONCLUSIONS

Amid the Covid-19 pandemic nurses have been facing multiple challenges while conducting their work. The heaviness of their workload, the lack of knowledge about managing a health crisis of this magnitude, the distress emerging from their work requirements are among the aggravating factors that affect healthcare services provision significantly nowadays. Under these circumstances, CNE is regarded as the means to ensure their psychological empowerment while strengthening their professionals capabilities[12.] Thus, it is proposed, to establish postgraduate programs that aim in catering to the needs of the younger nurses especially. At the same time, recording patient satisfaction of the health services provided should become another mechanism for targeted interventions for healthcare personnel's professional skills improvement.

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ANNEX

TABLE 1. Participants' demographic and occupational characteristics.

Characteristics	N	%
Sex		
Male	22	18.3
Female	98	81.7
Age (in years)		
20-29	26	21.7
30-39	34	28.3
40-49	36	30.0
>49	24	20.0
Marital Status		
Single	62	51.7
Married	52	43.3
Divorced	5	4.2
Widowed	1	0.8
Children		
0	68	56.7
1	16	13.3
2	28	23.3
3	6	5.0
4	2	1.7
Net monthly income (in Euros)		
Up to 1000	68	56.7
1000-1500	48	40.0
Over 1500	4	3.3
Educational level		
High School Graduate	10	8.3
Technological Institute Graduate	87	72.5
Bachelor's Degree	4	3.3
MSc	19	15.8
Years of experience		
0-4	34	28.3
5-9	16	13.3
10-14	21	17.5
15-19	11	9.2
20-24	13	10.8
>24	25	20.8
Working relationship		
Indefinite term	60	50.0
Fixed term	60	50.0

TABLE 2. CPE scales' descriptives.

Scale	Mean	Standard Deviation	Median	Minimum	Maximum	Cronbach's alpha
Upscaling of professional skills and services to patients	6.1	1.1	6.5	1	7	0.97
Professional engagement	5.5	1.3	5.8	1.1	7	0.95
Learning and interacting with col-leagues	5.5	1.3	5.7	1.7	7	0.93
Personal benefits and job security	5.6	1.3	6	1	7	0.85

TABLE 3. CPE scales' answers.

	Mean	Standard Deviation	Median	Minimum	Maximum
Better respond in practicing my profession through applying knowledge and skills most adequately	6.2	1.2	7	1	7
Equally exchange opinions with my colleagues.	5.5	1.4	6	1	7
Be more productive in my professional role	6.2	1.3	7	1	7
Be able to better fulfill patients' expectations	5.9	1.5	6	1	7
Maintain my current skills	5.7	1.4	6	1	7
To benefit for my family and friends.	6.0	1.4	7	1	7
To corelate my ideas with my colleagues' ideas.	5.5	1.5	6	1	7
To maintain my professional identity.	5.4	1.6	6	1	7
Respond more effectively to patients' needs.	5.9	1.4	7	1	7
To reevaluate my obligations concerning my profession.	5.2	1.8	5.5	1	7
Increase the likelihood for better financial gain.	5.4	1.6	6	1	7
Learn through interacting with other colleagues.	5.6	1.4	6	1	7
Develop leadership skills for my profession.	5.2	1.8	5.5	1	7
To increase my professional skills in my relationship with the patients.	6.2	1.2	7	1	7
Redefine my current professional duties	5.6	1.4	6	1	7
Develop new professional skills and knowledge.	6.4	1.1	7	1	7
Improve my professional practice.	6.1	1.3	7	1	7
Keep up with the new developments regarding my profession	6.3	1.2	7	1	7
Help me take better care of my patients.	6.0	1.3	6	1	7
Evaluate the profession's progress.	5.4	1.5	6	1	7
Become more competitive in my job.	6.2	1.3	7	1	7
Increase chances for professional growth.	5.7	1.6	6	1	7
To stimulate my thought through my colleagues thoughts.	5.3	1.7	6	1	7
Raise the status of my profession.	5.6	1.4	6	1	7
Improve the services I provide to citizens	6.0	1.4	7	1	7
To think about the limitations that derive from my role in my position of responsibility.	5.5	1.2	7	1	7
To develop the necessary skills for maintaining the quality of the service I provide.	6.2	1.2	7	1	7
To strengthen my staying in my position.	5.9	1.5	7	1	7
Maintaining the quality of the services I provide	6.2	1.3	7	1	7
To reassess the value of my professional duties	5.5	1.4	6	1	7

TABLE 4. Participants' answers regarding digital health information literacy.

	Mean	Standard Deviation	Median	Minimum	Maximum
I know which sources of information about heath exist online	4.1	0.9	4	1	5
I know where to find useful sources of information about health online	4.1	0.9	4	1	5
I know how to find useful sources of health information online	4.3	0.7	4	1	5
I know how to use the Internet to answer questions concerning my health.	4.3	0.7	4	1	5
I know how to use the information I find on the Internet to help myself.	4.3	0.7	4	1	5
I have the necessary skills to evaluate the sources of health information that I find on the Internet.	4.0	0.9	4	1	5
I can distinguish high quality health information sources from low quality internet sources.	4.0	1.0	4	1	5
I feel confident when I use information from the Internet to make health decisions.	3.7	1.0	4	1	5
How useful do you feel the internet is in helping you make health decisions?	3.6	1.0	4	1	5
How useful do you feel the internet is in helping you make patient care decisions?	4.4	0.7	5	2	5
How important is it for you to have access to online health-related sources?	3.7	1.0	4	1	5

TABLE 5. Multiple linear regressions' results.

Dependent Variable	Independent variable	Coefficient b	95% CI for b	P Value
Incentives regarding the improvement of professional skills and services to patients	Age	-0.2	-0.4 to -0.02	0.033
	Health information literacy	0.08	0.04 to 0.11	<0.001
Professional engagement incentives	Fixed term in relation to indefinite term	0.6	0.2 to 1.0	0.003
	Health information literacy	0.1	0.06 to 0.14	<0.001
Learning and interacting with colleagues incentives	Health information literacy	0.1	0.08 to 0.16	<0.001
Personal benefit and interacting with colleagues incentives	Health information literacy	0.1	0.06 to 0.14	<0.001
	Fixed term in relation to indefinite term	0.5	0.05 to 0.95	0.03
	Number of children	-0.2	-0.4 to -0.02	0.029