

Original Article

Identification of the Training Needs of Health Care Professionals in Greece

Ioanna Tsantili, PhD

Economist, Economics Department, University of Pireaus, Greece. Adult Educator, Humanities Department, Hellenic Open University, Greece

Stamatina Hadjidema, PhD

Professor, Head of the Department of Economics, University of Pireaus, Greece

Petros Galanis, PhD

Assistant Professor, Department of Nursing, National and Kapodistrian University of Athens, Greece

Correspondence: Ioanna Tsantili, Economist, Economics Department, University of Pireaus, Greece, Adult Educator, Humanities Department, Hellenic Open University, Greece, email: ioannatsan@hotmail.com

Abstract

The increasing demand for continuing professional updating and development on health services has created the need to recognize the potentials of training needs. The present study aims to establish the occupational profiles and identify the training needs of the health care professionals employed both in the public and the private sector in Greece.

A psychometrically valid Greek version of the Training Needs Assessment questionnaire by Hennessy and Hicks has been used, which was administered to 453 participants. The training needs of the health care professionals were examined by using a series of unrelated t-tests and multivariate linear analysis.

Significant training needs were reported for all 30 items of the questionnaire and by all staff. The majority of the health care professionals believe that the organizational development should be a priority in contrast to training course. No significant differences were found between training needs and sex. Eight items were identified being important for the public sector's workers. The TNA tool could be considered reliable due to Cronbach's score of >0.6.

The results of this survey suggest that the health care professionals need further training. The study also highlights the importance of training for the workers in the public sector, especially in the domain of research/audit.

Keywords: Health care professionals, training needs analysis instrument, psychometrics, public and private sector, Greece

Introduction

Over the last decade, there have been significant changes and developments, both nationally and internationally, in health policy and provision. Rapid technological and medical advances, demand for high quality health care and decreasing resources is a rather difficult combination (Tyler & Hicks, 2001, Hicks & Tyler, 2002). In order to deliver this, the attention has been given to the role of education and on the training needs of health care professionals (Hicks & Hennessy, 2000, Hicks & Fide, 2003). The training needs data of the health care professionals can be used by managers in order to achieve a satisfactory level of continuing

education according to the needs of the staff (Hicks et al., 1996, Hicks & Hennessy, 2001). To accessing the participants' training needs, the current study adopted a highly psychometrically valid and reliable instrument, which has been developed along formal scientific principles (Hicks et al., 1996). By avoiding wish-lists, this tool yields reasonably honest responses and is based on the job role and current performance (Hicks & Hennessy, 1998, Hicks & Hennessy, 2001). The Training Needs Assessment (TNA) has been used in several English speaking countries, such as UK, USA and Australia (Hicks & Hennessy, 1997, Hennessy & Hicks, 1998, Carlis et al., 2010), in Indonesia for measuring

the training and development needs of nurses and midwives (Hennessy et al., 2006a, Hennessy et al., 2006b, Hennessy et al., 2006c) and recently in New Zealand to connect the training needs of nurses with continuing professional development (Holloway et al., 2018) and in Singapore to identify the educational needs of specialist nurses working with the ophthalmic patients (Aw & Drury, 2016). The instrument has been translated and validated in Greek by the Clinic of Family & Social Medicine at the University of Grete (Markaki et al., 2007), where has also been conducted a study for nursing staff in Grete (Markaki et al., 2009). However, Gould et al. (2004) in their literature review focused on empirical research based on 266 articles and they identified that only 23(8,6%) contained empirical findings with the majority of them taken place in the UK.

The aim of the current study is to identify and prioritize the training needs of health care professionals in Greece both in the public and the private sector, as well as fill the gap in the empirical research.

Methodology

Design: A questionnaire survey method has been adopted, by using a validated psychometrically training needs analysis instrument, developed by Professor Carolyn Hicks and Dr Deborah Hennessey at the University of Birmingham in United Kingdom in 1996 (Hicks et al., 1996, Holloway et al., 2018). The TNA Questionnaire was used by World Health Organization (WHO) aiming to identify and prioritize the training needs. With over 7000 health care professionals globally, remains unique in terms of validity and reliability, applied across different countries and culture (Hennessy & Hicks, 2011, Carlisle et al., 2010, Carlisle et al., 2012). The original questionnaire was translated by the Clinic of Social and Family Medicine at the University of Grete (Markaki et al., 2007) and it was distributed to health care professionals employed both in the public and the private sector in Greece between April and August of 2017.

Sample: Four hundred and fifty three (453) health professionals participated in this study. Out of these, 315 were female and 138 male, with 278 (61.4%) of them working in the public sector and 175 (38.6%) in the private sector. Among the participants, 89 were doctors, 109 paramedical staff (midwives, microbiologists, physiotherapists) and 255 nurses. A group of 61

nurses were University graduates having completed a 4 years course, another group of 142 nurses were Technological University graduates having also completed a 4 years course and the rest 52 nurses were High School graduates, as illustrated in Table 1.

Materials: The highly valid and reliable training needs analysis tool (Hicks et al., 1996) has been widely used to identify training needs in nurses and other health care professionals (Hicks et al., 1996, Hicks & Hennessy, 1997, Hennessy & Hicks, 1998). The translated and validated Greek version of (TNA) (Markaki et al., 2007) was used, comprised of 30 item spanning five super-ordinate categories : research/audit (3,6,7,9,15, 21,25,26,28) communication/ teamwork (1,5, 8,13,14,27), clinical tasks (10,12,17,18,22,24), administration (2,20,29), management/ supervisory task (4,11,16,19,23,30) (Hennessy and Hicks, 2001). All had to be rated four times on a 7-point scale (1= not all important -7= very important). The first rating (rating A) provided an index of how important the task is to the respondent's job and it provided an occupational profile. The second rating (rating B) provided an index of how well the task was currently being performed. The difference between Rating A and B demonstrated the degree of training needs (Hennessy et al., 2006). The third (rating C) and the last (rating D) ratings measure whether organizational changes or training courses could improve performance in each task.

Statistical analysis: The data were entered into an SPSS data base for analysis. The continuous variables were expressed as means and standard deviations. A series of unrelated t-tests were used to determine differences between two groups each time. Using the alpha coefficient of Cronbach, the internal reliability was tested. Level of significance was set at $p < 0.05$. Where was necessary, multivariate linear analysis was used at the level of 0.20 ($p < 0.20$).

Procedure: The questionnaire was distributed in four public and three private hospitals, having taken the permission of their administration. All 453 respondents were randomly selected and anonymously returned the questionnaires fully completed. The consent of the health care professionals was indicated by the individuals' willingness to complete and return the questionnaire.

Table 1. Demographic characteristics

Characteristic	N	%
Sex		
Female	315	69.5
Male	138	30,5
Age (years)		
18-35	188	41.5
36-45	166	36.6
46-55	70	15.5
56-65	25	5.5
>65	4	0.9
Employment sector		
Public sector	278	61.4
Private sector	175	38.6
Job position		
Doctors	89	19.6
Nurses graduated from University	61	13.5
Nurses graduated from Technological University	142	31.3
Nurses graduated from High school	52	11.5
Paramedical staff	109	24.1
Work experience (years)	12.8 ^a	8.6 ^b

a mean b standard deviation

Results

All 30 items of the training needs analysis questionnaire were tested for internal reliability by using the alpha coefficient of Cronbach. The five super-ordinate categories showed very high internal consistency (0.60-0.91) in all ratings (Hicks et al., 1996, Hicks & Tyler, 2002, Hennessy et al., 2006b, Markaki et al., 2007, Markaki et al., 2009, Carlisle et al., 2012), with the category of administration having the lowest price due to minimum number of items (Carlisle et al., 2012). It appeared, therefore, that the tool has significant internal reliability.

Training needs (whole sample): A comparison of the scores between the importance (rating A) and performance (rating B) reflects the degree of training needs. The bigger the difference score, the greater the training needs. In the case where a task gets a high rating on A but low rating on B, the training need is high and training should be the top priority. When the task is rated low on A and low on B, then the task could be considered for training, but as a lower priority. When the task is rated high on A and high on B there is no training need and, finally, when the task is rated low on A and high on B there is no training need

(Hennessy & Hicks, 2001). The size of the differences was conducted with a series of unrelated t-tests, as presented in Table 2. The results indicated that for the whole sample, with the exception of item 2 (doing paperwork and/or routine data inputting), demonstrated a significant training need at $p < 0.001$. This suggests that the respondents perceived themselves to have skill deficits in all the areas covered (Hennessy et al., 2006b).

Whole sample C-D: To establish whether the respondents consider organizational development (rating C) or training courses (rating D) would be more effective, a series of unrelated t-tests was conducted, as illustrated in Table 3. The bigger the score (C-D), the more valuable the respondents consider that the training needs would be better managed through organizational development than training courses (Hennessy & Hicks, 2001). Sixteen of the 30 tasks were perceived to be more important ($p < 0.05$). These results suggest that the respondents, accounted for 53.5%, consider the organizational development more significant than the training courses.

Table 3. Organizational changes/ training courses for whole sample

Superordinate categories	Mean C (s.d.)	Mean D(s.d.)	C - D (s.d.)	t	p
<i>Research/Audit</i>					
3.Critically evaluating with patients	5.01 (1.48)	5.22 (1.44)	-0.21 (0.79)	-5.71	<0.001
6.Interpreting your own research findings	5.17 (1.41)	5.27 (1.42)	-0.10 (0.78)	-2.75	0.006
7.Applying research results to your own practice	5.46 (1.23)	5.54 (1.23)	-0.08 (0.72)	-2.53	0.012
9.Identify viable research topics	5.04 (1.42)	5.11 (1.38)	-0.07 (0.71)	-2.25	0.025
15.Statistically analyzing your own data	5.02 (1.59)	5.12 (1.57)	-0.10 (0.78)	-2.75	0.006
21.Writing reports of your research studies	4.97 (1.61)	5.16 (1.58)	-0.19 (0.79)	-5.13	<0.001
25.Collecting and collating relevant research information	5.35 (1.32)	5.47 (1.32)	-0.11 (0.65)	-3.71	<0.001
26.Designing a research study	5.12 (1.52)	5.24 (1.48)	-0.12 (0.81)	-3.32	0.001
28.Accessing research resources (e.g. time, money, information, equipment)	5.57 (1.34)	5.51 (1.42)	0.57 (0,78)	1.55	0.122
<i>Communication/Teamwork</i>					
1.Establishing a relationship with patients	5.78 (1.16)	5.80 (1.24)	-0.02 (0.85)	-0.61	0.544
5.Getting on with your colleagues	5.78 (1.18)	5.77 (1.20)	0.01 (0.66)	0.42	0.673
8.Communicating with patients face-to-face	5.82 (1.26)	5.79 (1.31)	0.03 (0.94)	0.69	0.488
13.Providing feedback to colleagues	5.52 (1.21)	5.60 (1.18)	-0.07 (0.73)	-2.24	0.025
14.Giving information to patients and/or caregivers	5.63 (1.24)	5.69 (1.23)	-0.06 (0.71)	-1.97	0.049
27.Working as a member of a team	5.36 (1.45)	5.44 (1.42)	-0.08 (0.66)	-2.62	0.009
<i>Clinical tasks</i>					
10.Treating patients	5.90 (1.04)	5.89 (1.09)	0.01 (0.74)	0.32	0.752

12.Accessing relevant literature for your clinical work	5.58 (1.41)	5.60 (1.41)	-0.01 (0.80)	-0.41	0.683
17.Planning and organizing an individual patient's care	5.82 (1.14)	5.87 (1.17)	-0.04 (0.62)	-1.66	0.097
18.Evaluating patient's psychological and social needs	5.73 (1.26)	5.80 (1.25)	-0.07 (0.71)	-2.24	0.025
22.Undertaking health promotion studies	5.61 (1.21)	5.63 (1.26)	-0.02 (0.71)	-0.72	0.472
24.Assessing patient's clinical needs	5.75 (1.26)	5.83 (1.22)	-0.08 (0.72)	-2.38	0.017
Administration					
2.Doing paperwork and/or routine data inputting	5.50 (1.31)	5.38 (1.37)	0.12 (0.84)	3.07	0.002
20.Using technical equipment, including computers	5.96 (1.20)	5.98 (1.18)	-0.02 (0.71)	-0.73	0.466
29.Undertaking administrative activities	5.38 (1.57)	5.40 (1.59)	-0.01 (0.75)	-0.49	0.619
Management/supervisory task					
4.Applying your own performance	5.67 (1.04)	5.67 (1.12)	0.00 (0.73)	0.00	1.00
11.Introducing new ideas at work	5.75 (1.20)	5.79 (1.18)	-0.04 (0.76)	-1.04	0.297
16.Showing colleagues and /or students how to do things	5.74 (1.19)	5.85 (1.17)	-0.11 (0.65)	-3.51	<0.001
19.Organizing your own time effectively	5.92 (1.12)	5.80 (1.23)	0.12 (0.84)	3.02	0.003
23.Making do with limited resources	5.37 (1.29)	5.41 (1.28)	-0.03 (0.70)	-0.93	0.348
30.Personally coping with change in the health service	5.73 (1.25)	5.66 (1.29)	0.70 (0.80)	1.86	0.063

Table 4. Comparison of training needs by sex

Superordinate categories	Sex	Mean A-B (s.d.)	t	p
Research/Audit				
3.Critically evaluating with patients	Female	0.46 (1.15)	-0.10	0.92
	Male	0.47 (1.22)		
6.Interpreting your own research findings	Female	0.28 (0.99)	-1.74	0.082
	Male	0.47 (1.14)		
7.Applying research results to your own practice	Female	0.47 (0.98)	-0.49	0.62
	Male	0.53 (1.27)		
9.Identify viable research topics	Female	0.51 (1.15)	1.25	0.21
	Male	0.37 (1.14)		
15.Statistically analyzing your own data	Female	0.57 (1.23)	0.01	0.98
	Male	0.57 (1.41)		
21.Writing reports of your research studies	Female	0.58 (1.24)	-1.29	0.19
	Male	0.75 (1.44)		
25.Collecting and collating relevant research information	Female	0.56 (1.14)	-0.72	0.46
	Male	0.66 (1.43)		
26.Designing a research study	Female	0.72 (1.43)	-0.27	0.78
	Male	0.76 (1.62)		
28.Accessing research resources (e.g. time, money, information, equipment)	Female	0.81 (1.38)	-0.29	-0.04
	Male	0.85 (1.52)		
Communication/Teamwork				
1.Establishing a relationship with patients	Female	0.35 (0.86)	-0.78	0.43
	Male	0.42 (0.92)		
5.Getting on with your colleagues	Female	0.34 (0.97)	0.51	0.61
	Male	0.29 (0.74)		
8.Communicating with patients face-to-face	Female	0.25 (0.78)	-0.59	0.55
	Male	0.30 (0.90)		
13.Providing feedback to colleagues	Female	0.48 (1.07)	0.60	0.54
	Male	0.41 (1.05)		
14.Giving information to patients and/or caregivers	Female	0.40 (0.92)	0.64	0.52
	Male	0.34 (0.85)		
27.Working as a member of a team	Female	0.49 (1.13)	0.76	0.44
	Male	0.40 (1.15)		
Clinical tasks				
10.Treating patients	Female	0.31 (0.85)	0.87	0.38
	Male	0.24 (0.94)		
12.Accessing relevant literature for your clinical work	Female	0.66 (1.22)	-0.45	0.65
	Male	0.72 (1.33)		
17.Planning and organizing an individual patient's care	Female	0.52 (1.00)	0.83	0.40
	Male	0.43 (1.02)		
18.Evaluating patient's psychological and social needs	Female	0.46 (0.93)	-0.63	0.53

	Male	0.53 (1.04)		
22.Undertaking health promotion studies	Female	0.59 (1.04)	1.19	0.23
	Male	0.46 (1.20)		
24.Assessing patient's clinical needs	Female	0.52 (0.94)	1.17	0.24
	Male	0.41 (0.95)		
Administration				
2.Doing paperwork and/or routine data inputting	Female	-0.95 (0.99)	-0.66	0.51
	Male	-0.02 (1.28)		
20.Using technical equipment, including computers	Female	0.33 (0.92)	-0.07	0.94
	Male	0.33 (0.92)		
29.Undertaking administrative activities	Female	0.39 (1.13)	0.49	0.62
	Male	0.34 (1.04)		
Management/supervisory task				
4.Applying your own performance	Female	0.26 (0.89)	0.62	0.53
	Male	0.21 (0.85)		
11.Introducing new ideas at work	Female	0.56 (1.01)	0.12	0.90
	Male	0.54 (1.25)		
16.Showing colleagues and /or students how to do things	Female	0.44 (1.01)	0.43	0.66
	Male	0.39 (1.07)		
19.Organizing your own time effectively	Female	0.49 (1.13)	-1.84	0.06
	Male	0.73 (1.30)		
23.Making do with limited resources	Female	0.38 (1.11)	0.03	0.97
	Male	0.37 (1.12)		
30.Personally coping with change in the health service	Female	0.30 (0.93)	-0.15	0.87
	Male	0.32 (0.80)		

Table 5. Comparison of training needs by employment sector

Superordinate categories	Employment sector	Mean A-B (s.d.)	t	p
Research/Audit				
3.Critically evaluating with patients	Public	0.52 (1.17)	1.09	0.28
	Private	0.39 (1.17)		
6.Interpreting your own research findings	Public	0.45 (1.12)	2.93	<0.001
	Private	0.17 (0.88)		
7.Applying research results to your own practice	Public	0.56 (1.16)	1.65	0.09
	Private	0.56 (1.16)		
9.Identify viable research topics	Public	0.48 (1.16)	0.31	0.76
	Private	0.45 (1.12)		

15.Statistically analyzing your own data	Public Private	0.69 (1.33) 0.38 (1.19)	2.43	0.01
21.Writing reports of your research studies	Public Private	0.68 (1.32) 0.55 (1.27)	1.02	0.31
25.Collecting and collating relevant research information	Public Private	0.71 (1.31) 0.39 (1.09)	2.78	0.01
26.Designing a research study	Public Private	0.79 (1.49) 0.64 (1.47)	1.06	0.28
28.Accessing research resources (e.g. time, money, information, equipment)	Public Private	0.95 (1.54) 0.63 (1.20)	2.47	0.01
Communication/Teamwork				
1.Establishing a relationship with patients	Public Private	0.36 (0.96) 0.39 (0.75)	-0.35	0.72
5.Getting on with your colleagues	Public Private	0.34 (0.94) 0.30 (0.84)	0.44	0.65
8.Communicating with patients face-to-face	Public Private	0.28 (0.88) 0.23 (0.71)	0.70	0.48
13.Providing feedback to colleagues	Public Private	0.52 (1.16) 0.35 (0.90)	1.75	0.08
14.Giving information to patients and/or caregivers	Public Private	0.42 (0.97) 0.32 (0.80)	1.09	0.27
27.Working as a member of a team	Public Private	0.53 (1.16) 0.37 (1.09)	1.43	0.15
Clinical tasks				
10.Treating patients	Public Private	0.33 (0.90) 0.24 (0.84)	1.02	0.30
12.Accessing relevant literature for your clinical work	Public Private	0.81 (1.36) 0.48 (1.03)	2.86	0.32
17.Planning and organizing an individual patient's care	Public Private	0.57 (1.05) 0.37 (0.92)	2.13	0.03
18.Evaluating patient's psychological and social needs	Public Private	0.52 (1.00) 0.42 (0.67)	1.1	0.27
22.Undertaking health promotion studies	Public Private	0.64 (1.16) 0.41 (0.95)	2.25	0.02
24.Assessing patient's clinical needs	Public Private	0.52 (0.96) 0.44 (0.92)	0.93	0.35
Administration				
2.Doing paperwork and/or routine data inputting	Public Private	-0.11 (1.14) -0.01 (0.98)	-0.98	0.32

20.Using technical equipment, including computers	Public	0.42 (1.03)	2.49	0.01
	Private	0.20 (0.76)		
29.Undertaking administrative activities	Public	0.39 (1.13)	0.38	0.69
	Private	0.35 (1.06)		
Management/supervisory task				
4.Applying your own performance	Public	0.29 (0.98)	1.61	0.11
	Private	0.17 (0.69)		
11.Introducing new ideas at work	Public	0.63 (1.16)	1.95	0.05
	Private	0.43 (0.95)		
16.Showing colleagues and /or students how to do things	Public	0.48 (1.14)	1.34	0.18
	Private	0.35 (0.82)		
19.Organizing your own time effectively	Public	0.66 (1.27)	2.05	0.04
	Private	0.43 (1.02)		
23.Making do with limited resources	Public	0.42 (1.21)	1.14	0.25
	Private	0.31 (0.93)		
30.Personally coping with change in the health service	Public	0.31 (0.91)	0.01	0.99
	Private	0.31 (0.86)		

Table 6. Multivariate linear analysis in the employment sector

Dependent variable / Independent variable	b	95% confidence intervals	p
Interpreting your own research findings / public sector concerning private sector	0.30	0.11 – 0.50	0.003
Statistically analyzing your own data / public sector concerning private sector	0.30	0.06 - 0.55	0.015
Planning and organizing an individual patient's care / public sector concerning private sector	0.20	0.01 - 0.39	0.039
Using technical equipment, including computers / public sector concerning private sector	0.21	0.03 - 0.39	0.02
Undertaking health promotion studies / public sector concerning private sector	0.23	0.02 – 0.43	0.031
Assessing patients' clinical needs / public sector concerning private sector	0.16	0.03 – 0.34	0.049
Collecting and collating relevant research information/ public sector concerning private sector	0.33	0.14 - 0.65	0.002
Accessing research resources(e.g. time, money, information, equipment) / public sector vs private sector	0.32	0.05 - 0.59	0.02

Discussion

The aim of this study is to identify the training needs of the health care professionals in Greece. Most of the previous surveys have administered the psychometrical valid training needs instrument in nurses, family planning nurses, nurses practitioners and midwives (Hicks & Hennessy, 1997, Hennessy & Hicks, 1998, Hicks & Hennessy, 1999, Tyler & Hicks, 2001, Hicks & Tyler, 2002, Hicks & Fide, 2003, Hicks et al., 2006a, Hicks et al., 2006b, Hicks et al., 2006c, Markaki et al., 2009, Carlisle et al., 2010, Carlisle et al., 2012, Aw & Drury, 2016, Holloway et al., 2018). Nevertheless, some of them have distributed the questionnaire to doctors, clinical staff (including pharmacists, physiotherapists, social workers, etc) and non-clinical staff (including practice managers, technical staff and administrators) (Hicks & Hennessy, 1998, Hicks & Hennessy, 2000, Barratt & Fulop, 2016, Gaspard & Yang, 2016). Therefore, the distribution of the questionnaire was expanded to all health professionals. The results obtained from this survey will be discussed below.

To check the internal reliability of the TNA questionnaire, the alpha coefficient of Cronbach has been used. Various studies have adopted the same method (Hicks et al., 1996, Hicks & Tyler, 2002, Hicks et al., 2006a, Hicks et al., 2006b, Markaki et al., 2007, Carlisle et al., 2012).

Training needs (whole sample): The results from the comparison between importance and performance indicate that the health care professionals have highly significant training needs for almost all 30 items but one. This finding is also in congruence to the studies for non-specialist breast care nurses (Hicks & Fide, 2003) in two Indonesian studies of midwives (Hicks et al., 2006b) in health professionals, managers and technical staff (Barratt & Fulop, 2016) and in nurses (Hicks et al., 2006c). However, a study for Australian nurses demonstrates higher training needs in the domain of research and audit (Carlisle et al., 2012). As all tasks had high importance ratings, is almost impossible to prioritize the training needs (Hicks et al., 2006b). Consequently, all items express the necessity for further development of the educational programs. However, with restricted budgets is challenging to achieve high quality of the educational programs, as well as high quality

of the health care (Hicks & Hennessy, 2000, Hicks & Hennessy, 2001).

Whole sample (C-D): A comparison was made between the organizational development and the training course, in order to identify which is more effective to manage the training needs. The results demonstrate that in half of the total number of items, organization development is considered to be more valid. The majority of the important items are included on the first category of research/audit. This suggests that the respondents perceived the skill deficit in the domain of research very important and they think that the training need would be better managed through organizational development (Hicks & Hennessy, 1998, Hicks & Hennessy, 2000, Tyler & Hicks, 2001, Holloway et al. 2018). However, a study conducted by Hicks and Hennessy (1996), concerning the nurse practitioner, demonstrated that the organizational development was considered to be less useful in skill enhance than the training courses.

In the present study, all four ratings (A,B,C,D) were included, making it more complex for the health care professionals to complete. Opposed to previous international studies, the participants should answer two out of the four ratings, A and B, in order the completion be simpler and quicker (Hicks & Fide, 2003). Therefore, there is not recognizable standard for assessment, except for Markaki (2007), where the researchers tested the validity, the internal consistency and the reproducibility of all four items.

Training needs (by sex): The analysis of the training needs and sex suggests that the needs of female and male are generally similar. Similar results were found in the approach of Carlisle et al. (2010). The items in our research that considered being highly crucial for women was two ("Accessing research resources" and "Organizing your own time effectively"), however the groups of women were almost double in size of those of men and this possibly affected the results. Nevertheless, in a great number of studies the majority of the questionnaires were women (Hicks & Hennessy, 2001, Hicks & Tyler, 2002, Hennessy et al., 2006b, Hennessy et al., 2006c, Carlisle et al., 2012).

Training needs (by employment sector): Further analysis of the data, comparing the training needs of the private and the public sector, demonstrated eight differences, and these

were between the categories of research/audit (4 items) and clinical tasks (3 items). These items were significant higher for the health professionals in the public sector. Once more, a skill gap was observed in the domain of research, due to the fact that there is no link between research and clinical practice capacity (Hicks & Hennessy, 1998, Markaki et al., 2009). For instance, they could critically evaluate published research before the results were adopted into clinical practice (Hennessy & Hicks, 1998). It is also important not only supporting medical research of other health care professionals, but also developing their own, because without a high level of research skill they cannot be evaluated (Hicks & Hennessy, 1998, Hennessy & Hicks, 1998). However, none of the previous studies compared the two employment sectors, therefore no comparison is possible. Nevertheless, in the research of Barratt and Fulop (2016) that conducted in England in 20 separate organizations, that included teaching hospitals and district general hospitals, the domain of research was found to be the most important.

An implication of the questionnaire could be demonstrated to the health managers, by developing and organizing more suitable and specified courses, based exclusively to the health care professionals' needs (Hicks & Hennessy, 1997, Hicks & Hennessy, 2001, Hicks & Fide, 2003, Carlisle et al., 2012). Moreover, by identifying systematically the specific needs, by using this instrument, it might be beneficial due to the limited training budgets (Hicks et al., 1996, Hicks & Fide, 2003, Carlisle et al., 2012). More effective strategies for research and development could be a major step for developing a high-quality health care (Hicks et al., 1996).

Another implication of the tool could be established at national and international level. At a national level, the TNA tool is a valuable tool for the Greek health authorities to develop suitable and high quality programs for the health care professionals across Greece (Markaki et al., 2009). At an international level, it constitutes a study, the results of which could be compared with corresponding studies. It could be also useful for managers, health planners and researchers from EU countries (Markaki et al., 2007), as well as to the organizations because it maximizes their benefits (Carlisle et al., 2012).

The results of the present study were analyzed with unrelated t-test, Cronbach's alpha for

internal consistency, as well as multivariate linear analysis. Perhaps, further confirmatory analysis could be desirable.

Conclusion: The results of this survey indicated that the instrument has been reliable when adopted for use in health care professionals. They also demonstrated significant high difference in all 30 items among health care professionals and training needs. Moreover, the respondents considered the organizational development more important than the training courses. This study has also shown that the health care professionals working in the public sector have significant higher needs in the domain of research/audit. The findings of this survey are capable to offer empirical evidence and data, which could help education providers and service managers to develop the training needs of health care employment, being also part of the wider agenda in order to create structures for developing high-quality health care (Hennessy et al., 2006c).

References

- Aw A., Drury V. (2016). Identification of the educational needs and feasible educational needs and feasible educational modalities for specialist nurses working with ophthalmic patients in a tertiary eye centre in Singapore. *Proceedings of Singapore Healthcare*, 25(4): 215-221.
- Barratt H., Fulop N. (2016). Building capacity to use and undertake research in health organizations: a survey of training needs and priorities among staff. *BMJ Open*, 6.
- Carlisle J., Bhanugopan R. & Fish A. (2010). Training needs of Nurses in Australia: Review of current practices and future research agenda. Australian and New Zealand Academy of Management (ANZAM) Conference.
- Carlisle J., Bhanugopan R. & Fish A. (2012). Latent factor structures affecting the occupational profile construct of the training needs analysis scale. *The International Journal of Human Resource Management*, 23(20): 4319-4341.
- Gaspard J. & Yang C. (2016). Training needs assessment of health care professionals in a developing country: the example of Saint Lucia. *BMC Medical Education*, 16:112.
- Gould D., Kelly D., White I. & Chidgey J. (2004). Training needs analysis: A literature review and reappraisal. *International Journal of Nursing Studies*, 41: 471-486.
- Hennessy D. & Hicks C. (1998). A cross cultural tool to identify continuing education needs. *International Nursing Review*, 45: 109-114.
- Hennessy D. & Hicks C. (2001). Training needs analysis questionnaire and manual, University of

- Birmingham UK- Licensed to WHO for on-line use.
- Hennesy D., Hicks C., Hilan A. & Kawonal Y. (2006). The training and development needs of nurses in Indonesia: paper 3 of 3. *Human Resources for Health*, 4: 10.
- Hennesy D., Hicks C., Kawonal Y. & Hilan A. (2006). A methodology for assessing the professional development needs of nurses and midwives in Indonesia: paper 1 of 3. *Human Resources for Health*, 4: 8.
- Hennesy D., Hicks C. & Koesno H. (2006). The training and development needs of midwives in Indonesia: paper 2 of 3. *Human Resources for Health*, 4: 9.
- Hicks C. & Fide J. (2003). The educational needs of non-specialist breast care nurses. *Nurse Education Today*, 23(7): 509-521.
- Hicks C. & Hennesy D. (1997). The use of customized training needs analysis tool for nurse practitioner development. *Journal of Advanced Nursing*, 389-398.
- Hicks C. & Hennesy D. (1998). A triangulation approach to the identification of acute sector nurses' training needs for formal nurse practitioner status. *Journal of Advanced Nursing*, 27: 117-131.
- Hicks C. & Hennesy D. (1999). A task-based approach to defining the role of the nurse practitioner: the views of UK acute and primary sector nurses. *Journal of Advanced Nursing*, 29(3): 666-673.
- Hicks C. & Hennesy D. (2000). An alternative methodology for clinical skill-mix review: a pilot case study with a primary health care team. *Journal of Interprofessional Care*, 14(1): 59-74.
- Hicks C. & Hennesy D. (2001). An alternative technique for evaluating the effectiveness of continuing professional development courses for health care professionals: a pilot study with practice nurses. *Journal of Nursing Management*, 9: 39-49.
- Hicks C., Hennesy D. & Barwell F. (1996). Development of a psychometrically valid training needs analysis instrument for use with primary health care teams. *Health Services Management Research*, 9: 262-272.
- Hicks C. & Tyler C. (2002). Assessing the skills for family planning nurse prescribing: development of a psychometrically sound training needs analysis instrument. *Journal of Advanced nursing*, 37(6): 518-531.
- Holloway K., Arcus K. & Orsborn G. (2018). Training needs analysis –The essential first step for continuing professional development design . *Nurse Education in Practice*, 28: 7-12.
- Markaki A., Alegakis A., Antonakis N., Kalokerinou-Anagnostopoulou A. & Lionis C. (2009). Exploring training needs of nursing staff in rural Cretan primary care settings. *Applied Nursing Research*, 22: 138-143.
- Markaki A., Antonakis N., Hicks C. & Lionis C. (2007). Translating and validating a Training Needs Assessment tool into Greek. *BMC Health Service Research*, 7: 65.
- Tyler C. & Hicks C. (2001). The occupational profile and associated training needs of nurse prescriber: an empirical study of family planning nurses. *Journal of Advanced Nursing*, 35(5): 644-653.