

Preregistration programme for medical practice: a survey of Cypriot trainees (2000 and 2002)

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البرنامج السابق للتسجيل في الممارسة الطبية: مسح للمتدربين القبارصة في عامي 2000 و 2002
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الخلاصة: تبين هذه الورقة البحثية مواقف المتخرجين من الكليات الطبية المشتركة في البرنامج التدريبي السابق للتسجيل في قبرص. وقد تم دراسة عينتين مستقلتين، كانت أولاهما في عام 2000 وشملت 34 متدرباً، وكانت الثانية في عام 2002 وشملت 45 متدرباً. ولقد أجاب المتدربون عن 45 بنداً خاصاً بالمواقف تبعاً لسلم ليكارت ذي الدرجات الخمس، وشملت هذه المواقف ثلاث مجالات هي: ضغط العمل، والقضايا الخاصة بالبيئة التعليمية وأنماط الحياة. وسُجّل وسطى العينة بالنسبة إلى كل بند في العامين المذكورين وأجري تحليل للفوارق التي وجدت بينها. وكان للمتدربين بصورة عامة، موقف محايد أو مائل قليلاً إلى السلبية تجاه البرنامج في كلتا الدراستين، ولم يحدث سوى تغيير طفيف في المواقف على مدى العامين.

ABSTRACT This paper reports the attitudes of medical school graduates participating in the preregistration training programme in Cyprus. There were 2 independent samples, one in the year 2000 of 34 trainees and one in 2002 of 45 trainees. The trainees responded to 45 statements of attitude on a 5-point Likert scale covering 3 areas: workload, educational environment and lifestyle issues. The sample means for each statement were reported in both years and differences between the 2 years were analysed. In general, the trainees had an overall neutral to negative attitude towards the programme in both years and there was little change over the 2 years.

Programme de pré-admission à l'exercice de la pratique médicale : enquête sur les stagiaires chypriotes (2000 et 2002)

RÉSUMÉ Cet article rend compte de l'attitude de diplômés des écoles de médecine participant au programme de formation au titre de la pré-admission à l'exercice de la pratique médicale à Chypre. L'étude repose sur deux échantillons distincts : le premier compte 34 stagiaires pour l'année 2000 et le second 45 stagiaires pour l'année 2002. Les stagiaires ont servi 45 items d'attitude sur une échelle de Lickert en 5 points couvrant trois domaines : la charge de travail, l'environnement pédagogique et le mode de vie. Pour chaque item, les moyennes de l'échantillon ont été rapportées pour les deux années et les différences entre les deux années ont été analysées. En règle générale, les stagiaires avaient une attitude neutre à négative à l'égard du programme pour les deux années, attitude qui n'a guère évolué entre les deux années considérées.

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Introduction

The preregistration programme is the only medical education programme in Cyprus that falls under the authority of the Ministry of Health. Since Cyprus has no medical schools of its own, it relies on other countries for the undergraduate training of its physicians. Thus, upon graduation from medical schools abroad, citizens of Cyprus who wish to earn their medical licence and practise medicine in Cyprus as general practitioners must undergo a 12-month preregistration training course in one of the 4 general hospitals in the cities of Nicosia, Limassol, Larnaca and Paphos. This training encompasses a 6-month rotation in internal medicine and a 6-month rotation in surgery. Trainees have the option to attend an extra 1-month elective rotation on whatever the trainee may be interested in on a voluntary basis. Since there is no licensing examination, this 12-month training period serves as the only quality assessment and assurance mechanism that the trainees are competent to practise medicine upon completion of the programme. It is thus useful to look at the programme critically and examine whether it fulfils its stated purpose.

This questionnaire survey represents the first attempt to examine the perceptions of the preregistration trainees in all general hospitals of Cyprus with regards to workload, educational environment and lifestyle. Indirectly the survey serves as an evaluation of the preregistration programme as a whole. The survey was initially conducted in October 2000 and was repeated with a different sample in November 2002.

Methods

The questionnaire used in this study is a modification of a 60-item instrument developed by Bellini et al., [1] which represents,

according to the developers, an instrument that is "generic and thus exportable to other programs in need of such a tool" [1]. The instrument was translated into Greek and some questions were modified, added or dropped to reflect the realities of the programme in Cyprus.

The questionnaire was divided into 3 parts. Each part was devoted to a particular factor of analysis. In the first part that covered the first 15 statements, the response of the trainees towards their workload was examined. The second factor measured the response of the trainees towards the educational environment and included 21 statements. The third factor measured the response of the trainees towards their lifestyle and included 11 statements in the 2000 version of the questionnaire and 9 statements for the 2002 version. The 2 statements were dropped because of non-response by the trainees in the first year; they asked if the trainees moonlighted to make ends meet or moonlighted for additional income. The rest of the 45 statements remained the same for the questionnaire used in October 2000 and 2 years later in November 2002.

For the year 2000, 34 questionnaires were distributed to preregistration trainees, which represented the total enrolment in the programme, with a response rate of 91% (31 trainees responded). For the year 2002, the response rate was 100% (all 45 trainees responded). The questionnaires were anonymous and enclosed in unmarked envelopes and were distributed by 2 of the authors to the general hospitals of Cyprus in Nicosia, Limassol, Larnaca and Paphos. The trainees received the questionnaires when they signed up for work. A covering letter explained the purpose of the questionnaire and assured anonymity. In each hospital, the completed questionnaires were placed in a box to further assure anonymity of the respondents; they were later collected

by the authors. Because the trainees enter the 12-month programme individually, the participants in our survey were at different stages of progression through the programme.

The objectives of the statistical analysis were (a) to evaluate the response of the trainees as positive, negative or neutral towards the 45 statements in the questionnaire, separately in the 2 years and (b) to observe any changes in the attitudes of the trainees from the year 2000 to the year 2002 towards their training. It should be noted that different trainees responded to the questionnaire in each year, therefore the 2 samples were independent.

In the questionnaires, a 5-point Likert scale was used varying from (1) absolute agreement with the statement to (5) absolute disagreement; (3) was considered neutral. The sample means were obtained for each of the 45 statements. Since the responses were on a 5-point Likert scale, the response variables in each question were assumed to be continuous. The sample means for each of the 45 statements for the years 2000 and 2002 were computed, \bar{x}_1 and \bar{x}_2 respectively.

For the classification of the trainee attitudes towards each statement in 2000 and 2002, descriptive statistics were used. Specifically, the sample mean for each statement was computed and reported. A sample mean of more than 4 was considered as heavily leaning towards disagreement, while a sample mean of less than 2 was considered as heavily leaning towards agreement with the specific statement.

As far as the second objective is concerned, the null hypothesis $H_0: \mu_1 = \mu_2$ versus the alternative $H_1: \mu_1 \neq \mu_2$ were considered. The Levene pre-test for the equality of the 2 variances indicated if the above hypotheses should be tested under the assumption of equal or unequal variances. In all 45 tests,

the assumption of equal variances was not rejected. This favours the use of independent sample *t*-test as it is more powerful under this assumption. The result for each test was observed in terms of the *P*-value and was reported as non-significant and the null hypothesis should not be rejected if *P* was ≥ 0.05 , or statistically significant at the 1% level if *P* was < 0.01 , or statistically significant at the 5% level if $0.01 \geq P < 0.05$. If the null hypothesis was rejected, either at the 1% or the 5% level, for any of the statements, then the sign of the test statistic revealed the direction of change. Specifically, if the sign of the test statistic was negative then there had been a significant move towards disagreement with the specific statement in the period from 2000 to 2002; if the sign of the test statistic was positive then there had been a significant move towards agreement with the specific statement in the same period.

Results

The results of the 45 hypothesis tests $H_0: \mu_1 = \mu_2$ versus $H_1: \mu_1 \neq \mu_2$ are presented in Tables 1, 2 and 3, where μ_1 is the population mean attitude towards each statement for the year 2000 and μ_2 for the year 2002.

The sample mean scores (\bar{x}) for the 45 statements in 2000 and 2002 are presented in Tables 4, 5 and 6, where the first column refers to the statement and the second column reports the sample mean score (\bar{x}).

Workload

There were no significant changes between 2000 and 2002 with regards to workload, apart from a more negative opinion in 2002 relating to the lack of easy access to medical records.

From Table 1, we observe a change of attitude from 2000 to 2002 concerning

Table 1 Independent sample *t*-test for the difference in workload from 2000 to 2002

Statement	$\bar{X}_1 - \bar{X}_2$	P	t
1. The average number of admissions on call is too high.	-0.15	0.485	0.70
2. The workload on the ward is too heavy.	0.13	0.596	0.53
3. I spend too much time in drawing blood.	-0.02	0.940	0.08
4. I spend too much time trying to access test results.	-0.02	0.937	0.08
5. I spend too much time ordering tests.	0.37	0.180	1.35
6. I spend too much time in clinics.	-0.04	0.860	0.18
7. Medical records are generally available for the patients I evaluate.	-0.61	0.030*	2.11
8. I have too many patients in my clinic.	0.00	0.997	0.00
9. I see too many patients during a given clinic session.	-0.13	0.593	0.54
10. The computer system used in this hospital meets the demands of care.	0.13	0.630	0.48
11. Over the last year, I have had too many ward rotations.	0.00	0.995	0.01
12. Over the last year, I have had too many ICU rotations.	-0.07	0.840	0.20
13. Over the last year, I have had too many ER rotations.	-0.05	0.873	0.16
14. The amount of time to recover between ward call days is adequate.	-0.09	0.753	0.32
15. I spend more time in the outpatient setting than the inpatient setting.	0.00	0.905	0.02

$\bar{X}_1 - \bar{X}_2$ = difference in means.

ICU = intensive care unit.

ER = emergency room.

*Statistically significant at the 5% level.

statement 7 which is reported at the 5% level of significance. The test statistic is negative therefore the change from 2000 to 2002 is towards disagreement. Specifically, looking at Table 4 the sample mean has increased from 2.68 to 3.29. For statements 1, 2 and 3, there was no change in attitudes from 2000 to 2002, which are weighted towards agreement. For statements 11 and 15 there was no change in attitudes from 2000 to 2002, which are weighted towards disagreement.

Preregistration trainees considered their workload as heavy with a high number of admissions while on call, and a heavy workload in the wards. They also thought

that they perform inappropriate tasks, such as spending an excessive amount of time drawing blood, which are tasks usually reserved for auxiliary staff. Their rotations in the wards are limited giving them a narrow scope for exposure to patient cases, and most of their time is spent on the wards than in outpatient settings. Medical records are generally not available to them for the patients they evaluate, which is further complicated by the absence of a central automated medical records system. According to the trainees, the computing facilities in the hospitals do not meet the demands for patient care.

Table 2 Independent sample t-test for the difference in educational environment from 2000 to 2002

Statement	$\bar{x}_1 - \bar{x}_2$	P	t
16. I get useful feedback from my colleagues on the wards.	-0.20	0.503	0.67
17. I get useful feedback from faculty on the wards.	-0.45	0.123	1.56
18. I learn a lot on my ward rotations.	-0.54	0.038*	2.11
19. I learn a lot on my ICU rotations.	-0.86	0.001**	3.41
20. I learn a lot on my ER rotations.	-0.40	0.140	1.49
21. I have enough supervision on my ward rotations.	-0.45	0.089	1.72
22. I have enough supervision on my ICU rotations.	-0.44	0.092	1.71
23. I have enough supervision on my ER rotations.	-0.42	0.133	1.52
24. I have a lot of responsibility for the patients in my ward.	-0.14	0.612	0.51
25. I have a lot of responsibility for the patients in the ICU.	-0.35	0.195	1.31
26. There is a discussion of the cases during the ward rotation.	-0.19	0.337	0.97
27. The diagnoses represented in my continuity clinic are diverse.	-0.23	0.367	0.91
28. The trainers contribute to my learning in the wards.	-0.27	0.370	0.90
29. My colleagues contribute to my learning on the wards.	-0.30	0.160	1.42
30. I have a lot of responsibility for patients in the outpatient setting.	-0.08	0.736	0.34
31. I follow the progress of patients from outpatient to inpatient setting.	-0.45	0.146	1.47
32. I have access to a computer terminal in my work environment.	-0.74	0.014*	2.52
33. I have access to the internet in my work environment.	-0.70	0.013*	2.56
34. The training programme (organization, objectives, content) is clear from the beginning.	-0.26	0.263	1.13
35. Library facilities are adequate.	-0.20	0.481	0.71
36. I have the opportunity to access the library during working hours.	0.07	0.818	0.23

$\bar{x}_1 - \bar{x}_2$ = difference in means.

ICU = intensive care unit.

ER = emergency room.

*Statistically significant at the 5% level; **statistically significant at the 1% level.

Educational environment

As far as the educational environment factor is concerned (Table 2) we observe a change in statement 19 at the 1% level of significance and a change in statements 18, 32 and

33 at the 5% level. All 4 test statistics are negative; therefore the change from 2000 to 2002 is towards disagreement. Specifically, looking at Table 5 the sample mean has increased from 2.58 to 3.13 for statement

Table 3 Independent sample *t*-test for the difference in lifestyle issues from 2000 to 2002

Statement	$\bar{x}_1 - \bar{x}_2$	P	t
37. The amount of leisure time I have is adequate.	0.09	0.719	0.36
38. The amount of time I have to read medical literature is adequate.	-0.05	0.860	0.18
39. The personal support I receive from family and friends is adequate.	0.13	0.414	0.82
40. The personal support I receive from my colleagues is adequate.	-0.06	0.789	0.27
41. My benefits package is adequate.	-0.05	0.677	0.42
42. There is colleague solidarity in my clinic.	0.23	0.306	1.03
43. Sexual harassment is a problem at this institution.	0.69	0.006**	2.85
44. The on-call facilities are adequate.	-0.22	0.393	0.86
45. The amount of sleep I get while on call is adequate.	-0.54	0.024*	2.30

$\bar{x}_1 - \bar{x}_2$ = difference in means.

*Statistically significant at the 5% level; **statistically significant at the 1% level.

Table 4 Sample means for workload in the years 2000 and 2002

Statement	\bar{x}_1 (2000)	\bar{x}_2 (2002)
1. The average number of admissions on call is too high.	2.58	2.73
2. The workload on the ward is too heavy.	2.52	2.38
3. I spend too much time in drawing blood.	1.71-	1.73-
4. I spend too much time trying to access test results.	2.94	2.96
5. I spend too much time ordering tests.	3.16	2.79
6. I spend too much time in clinics.	2.00	2.04
7. Medical records are generally available for the patients I evaluate.	2.68	3.29
8. I have too many patients in my clinic.	2.35	2.35
9. I see too many patients during a given clinic session.	2.45	2.58
10. The computer system used in this hospital meets demands of care.	3.77	3.65
11. Over the last year, I have had too many ward rotations.	4.29+	4.29+
12. Over the last year, I have had too many ICU rotations.	3.23	3.29
13. Over the last year, I have had too many ER rotations.	3.10	3.15
14. The amount of time to recover between ward call days is adequate.	3.77	3.69
15. I spend more time in the outpatient setting than the inpatient setting.	4.13+	4.13+

ICU = intensive care unit.

ER = emergency room.

- indicates a significant leaning towards agreement with the statement.

+ indicates a significant leaning towards disagreement with the statement.

Table 5 Sample means for educational environment in the years 2000 and 2002

Statement	\bar{x}_1 (2000)	\bar{x}_2 (2002)
16. I get useful feedback from my colleagues on the wards.	2.74	2.94
17. I get useful feedback from the faculty on the wards.	3.03	3.48
18. I learn a lot on my ward rotations.	2.58	3.13
19. I learn a lot on my ICU rotations.	2.58	3.44
20. I learn a lot on my ER rotations.	2.29	2.69
21. I have enough supervision on my ward rotations.	2.90	3.35
22. I have enough supervision on my ICU rotations.	3.16	3.60
23. I have enough supervision on my ER rotations.	2.87	3.29
24. I have a lot of responsibility for the patients on my ward.	3.06	3.21
25. I have a lot of responsibility for the patients in the ICU.	3.19	3.54
26. There is a discussion of the cases during the ward rotation.	2.84	3.13
27. The diagnoses represented in my continuity clinic are diverse.	2.58	2.81
28. The trainers contribute to my learning in the wards.	3.13	3.40
29. My colleagues contribute to my learning on the wards.	3.00	3.38
30. I have a lot of responsibility for patients in the outpatient setting.	4.00+	4.08+
31. I follow the progress of patients from outpatient to inpatient setting.	3.39	3.83
32. I have access to a computer terminal in my work environment.	3.39	4.13+
33. I have access to the Internet in my work environment.	3.68	4.38+
34. The training programme (organization, objectives, content) is clear from the beginning.	4.03+	4.29+
35. Library facilities are adequate.	3.48	3.69
36. I have the opportunity to access the library during working hours.	3.45	3.38

- indicates a significant leaning towards agreement with the statement.

+ indicates a significant leaning towards disagreement with the statement.

18, from 2.58 to 3.44 for statement 19, from 3.39 to 4.13 for statement 32, and from 3.68 to 4.38 for statement 33.

The result that stands out here is the significantly negative attitude towards the statement, "the training programme is clear from the beginning" (statement 34) in both

years. This shows that the trainees enter the programme in confusion as to what it is expected from them as well as what they expect from their training. Although not statistically significant, there is a worse attitude toward this statement in 2002 than in 2000. In both years, the trainees felt they

Table 6 Sample means for lifestyle issues in the years 2000 and 2002

Statement	\bar{x}_1 (2000)	\bar{x}_2 (2002)
37. The amount of leisure time I have is adequate.	3.68	3.58
38. The amount of time I have to read medical literature is adequate.	3.87	3.92
39. The personal support I receive from family and friends is adequate.	1.55-	1.42-
40. The personal support I receive from my colleagues is adequate.	2.13	2.19
41. My benefits package is adequate.	4.68+	4.73+
42. There is colleague solidarity in my clinic.	2.48	2.25
43. Sexual harassment is a problem at this institution.	4.48+	3.79
44. The on-call facilities are adequate.	3.74	3.96
45. The amount of sleep I get while on call is adequate.	3.77	4.31+

- indicates a significant leaning towards agreement with the statement.

+ indicates a significant leaning towards disagreement with the statement.

had less responsibility than they expected to have for their patients in the outpatient setting (statement 30).

Access to a computer and to the Internet shows statistically significant change toward non-availability from 2000 to 2002 (statements 32 and 33). This may be explained by the increase in demand for computer access and improved computer knowledge by the more recent medical school graduates.

The attitude toward learning in ward and intensive care unit (ICU) rotations (statement 19) is statistically worse from 2000 to 2002, although the average score is still in the neutral area in both years. It is unclear whether this change in attitude is due to the small sample sizes or if there has been a significant decrease in ward and ICU rotations in trainees over this period.

Lifestyle

In the lifestyle issues factor (Table 3) statement 43 reveals a significant change in the period at the 1% level and statement 45 at

the 5% level. The test statistic for statement 43 is positive, therefore the change from 2000 to 2002 is towards agreement, while the test statistic for statement 45 is negative and the change from 2000 to 2002 is towards disagreement. From Table 6 the sample mean for statement 43 has decreased from 4.48 to 3.79, while the sample mean for statement 45 has increased from 3.77 to 4.31.

The trainees are not satisfied with their benefits package (statement 41). However, they are satisfied with the support they receive from their family and friends (statement 39). This attitude is strong and steady in both periods of the study.

There is an increased dissatisfaction with the amount of sleep the trainees get in 2002 while on-call. Also, although in both years the trainees disagree with the presence of sexual harassment at their place of work, there is a significant shift toward agreement in 2002, which warrants further examination by the hospitals.

Discussion

The preregistration year in Cyprus serves as a capstone educational programme for citizens of the Republic of Cyprus who graduate from medical schools abroad and wish to obtain the medical licence and practice medicine. Since Cyprus has no medical schools of its own, this programme ideally should also serve to establish common core standards and to address issues in disparity in skills, knowledge and attitudes of the trainees who come from varied training backgrounds [2,3]. According to Calman [4], the preregistration year should have 3 main objectives: the acquisition of knowledge of common medical conditions, emergencies and rehabilitation; the acquisition of diagnostic, clinical and decision-making skills; and the development of caring, ethical and learning attitudes.

The results from this survey indicate that most of the attitudes of trainees towards the preregistration program in 2000 and 2002

are neutral. However, the not so few statements that suggest a statistically significant dissatisfaction indicate that the training programme has its problems as it lacks clearly stated objectives. There is lack of coordination and there are no common and objective instruments to evaluate the competencies of the trainees. Evaluation is based on the assessment of clinical supervisors. It is interesting to note that there is no record of a trainee having failed this programme until the year 2002.

Despite the relatively small samples in both years of the study, there seems to be a consistency in the results with minor changes over time, in most cases showing a worsening situation. Since this training programme leads towards the licence to practise medicine in Cyprus, the results of this survey should prompt the Ministry of Health to pay attention to this programme so that it becomes relevant to the trainees and also serves as a quality assurance and assessment mechanism.

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