



# BMJ Open Organisational commitment, job satisfaction and intention to leave among physicians in the public health sector of Cyprus: a cross-sectional survey

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## ABSTRACT

**Objectives** Organisational commitment, job satisfaction and intention to leave constitute important characteristics of health professionals' employment status. Our study aimed at investigating the level of organisational commitment, job satisfaction in association with intention to leave among physicians.

**Design** A cross-sectional study.

**Setting** A survey was conducted using self-administered questionnaires (the Organizational Commitment Questionnaire and the Job Satisfaction Survey) among all physicians working in the public health sector of Cyprus (October 2016–January 2017).

**Participants** Out of 690 physicians working in the public health sector who received an invitation to participate, 511 completed the survey and 9 were excluded. Therefore, 502 physicians were included in the final analysis (response rate 73%). A total of 188 cases were excluded because they were undetermined with respect to their intention to leave and a total of 75 cases were excluded from the regression analysis due to missing values on at least one variable or due to having values considered as outliers. Therefore, a total of 239 physicians (120 men and 119 women) were included in the current analysis.

**Primary and secondary outcome measures** Physicians' intention to leave.

**Results** A considerably large percentage of physicians (72.8%) working in the public hospitals and healthcare centres of Cyprus reported their intention to leave their job. Moreover, the majority of employees in public hospitals (78.4%) intended to leave their job, while only 21.6% of employees in health centres reported an intention to leave ( $p < 0.001$ ). The study also confirmed that organisational commitment and job satisfaction were negatively correlated with intention to leave. In addition, the results of this study demonstrate that certain demographics also influence physicians' intention to leave including age, gender and medical specialisation.

**Conclusions** Certain physicians' demographics, organisational commitment and job satisfaction constitute important parameters influencing physicians' intention to leave their job.

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This is the first study conducted in Cyprus focusing on the level of organisational commitment and intention to leave among physicians in the public health sector of Cyprus.
- ⇒ Physicians' job satisfaction, as an important characteristic of health professionals' employment status, has been evaluated in the current study.
- ⇒ Evaluating physicians' demographics and examining organisational commitment and job satisfaction facilitate a contemporary approach to address health professionals' intention to leave their job in the public healthcare system.
- ⇒ Our study provides further understanding of the factors influencing physicians' intention to leave in the public hospitals and healthcare centres of Cyprus.
- ⇒ There are obviously several other factors in addition to organisational commitment, job satisfaction and certain demographics that may explain physicians' intention to leave their job not addressed in the current study.

## INTRODUCTION

Health professionals in general and physicians in particular are considered to be the cornerstone of healthcare systems. Nowadays, healthcare organisations worldwide are facing worrying staff shortages and difficulties in managing human resources.<sup>1</sup> Health professionals' commitment to their organisation/ employer along with employees' job satisfaction is seen as one of the most defining factors of organisational effectiveness.<sup>2</sup> Employees in healthcare institutions confront many challenges on a daily basis, resulting in job dissatisfaction, which has been linked to stress,<sup>3–5</sup> medical errors, intention to leave,<sup>6 7</sup> reduction in quality of care, increased medical care costs, reduced patient compliance with

medical advice and professional burnout.<sup>8–10</sup> Furthermore, quality of work life, such as workload, working hours and work–life balance, may also positively affect organisational commitment and negatively impact on professionals' intention to leave.<sup>11</sup> Considering the importance of quality of work, it is crucial for doctors to be able to 'have a voice' regarding their professional duties and experience, a feeling of being respected and valued within an organisation.<sup>12</sup>

Organisational commitment is defined as the level of identification that employees feel within their organisation in which they work, which determines their level of commitment and inversely affects their intention to leave their job.<sup>13</sup> Organisational commitment consists of three dimensions: (a) affective commitment, which is the emotional connection to the organisation; (b) continuance commitment, which is the perceived costs related to exit from the organisation; and (c) normative commitment, which is the moral duty to stay in the organisation.<sup>14 15</sup> The association between commitment and intention to leave has been examined during the past decades and a strong reverse correlation between the two constructs has been identified.<sup>16–19</sup> Organisational commitment is one of the main factors that affects intention to leave.<sup>20</sup> In addition, organisational commitment is related to withdrawal cognition, which consists of a reduced intention of effort, reduced job involvement, sabotage and intention to resign,<sup>21</sup> as well as a continuing unjustified job absenteeism.<sup>19</sup> The organisational commitment is also influenced by work–life quality,<sup>12</sup> whereas satisfied employees are more likely to stay and work in their organisation.<sup>22</sup>

Furthermore, job satisfaction is also an important construct in relation to intention to leave. For example, Aljaberi *et al* investigated the relationships among perceived service quality, satisfaction and behavioural intention of healthcare services among international students in Kuala Lumpur, Malaysia. They found that perceived service quality has a positive significant direct impact on student satisfaction, which has a significant direct effect on their behavioural intention, while their behavioural intention was influenced by perceived service quality positively and indirectly.<sup>23</sup> In our effort to interpret and investigate the meaning of job satisfaction, as well as the way it functions among employees and how it affects their behaviour and attitude towards their job, copious theories relating to job satisfaction were reviewed.<sup>24</sup> The definition of job satisfaction adopted in our study is the one specified by Spector, who associates job satisfaction with the positive affective orientation towards employment by an organisation, while job dissatisfaction is associated with corresponding negative feelings.<sup>25</sup> This same definition considers job satisfaction as the overall emotional reaction of people to their job.

By better understanding the above relationships, public health policymakers could intervene with appropriate incentives that will positively affect employees' job satisfaction among health professionals.<sup>26</sup> In the past

couple of years, the Cyprus government implemented a general healthcare system under the Law of 2001 (N.89 (I)/2001).<sup>27</sup> The aim of the new healthcare plan was to offer citizens a comprehensive access to healthcare services through a functional, efficient and financially sustainable system, and at the same time solve chronic problems in the delivery of healthcare in Cyprus. One of the main reformations of the system was the transformation of public hospitals into autonomous organisations in order to operate according to their own budget and organisational planning.

The aim of this study was to investigate the level of organisational commitment (affective, continuance and normative commitment), and job satisfaction in association with physicians' intention to leave from public hospitals and healthcare centres in Cyprus, as well as explore the potential association of the above constructs with physicians' demographics and other characteristics. Understanding the factors influencing physicians' intention to leave their organisation and examining organisational commitment and job satisfaction are crucial for improving the working conditions and constitute an important administrative approach to confront health professionals' intention to leave their job and to better retain the healthcare workforce.

## MATERIALS AND METHODS

### Study design and setting

Based on the above study objective, a cross-sectional study using a quantitative survey with self-administered questionnaires was adopted concerning organisational commitment, job satisfaction and intention to leave among physicians in the public health sector of Cyprus. The study involved all physicians from the five main public hospitals, one from each geographical district (Nicosia, Limassol, Larnaca, Paphos and Famagusta General Hospital); the main paediatric hospital of the island (Makarios III Hospital, which is located in Nicosia); two rural hospitals (Polis Chrysochous and Kyperounta Hospital); 43 public healthcare centres (urban and rural); Nicosia, Limassol and Larnaca Old Hospital Healthcare Centre; the headquarters of the medical and public health services, as well as the administration offices of the Ministry of Health in Cyprus. The self-administered questionnaires were distributed and collected between October 2016 and January 2017. The study approach was based on two standardised instruments: the Organizational Commitment Questionnaire (OCQ) and the Job Satisfaction Survey (JSS).

### Participants

Study participants included all physicians who worked in the public healthcare sector of Cyprus (census) in September 2016. The number of all physicians who worked in the public healthcare sector of Cyprus was calculated based on the number of physicians reported by the directors of public hospitals and healthcare centres

in September 2016. These included all physicians from the five main public hospitals, one from each geographical district; the main paediatric hospital of the island; two rural hospitals; 43 public healthcare centres (urban and rural); the three Old Hospital Health Centres; the headquarters of the medical and public health services, as well as the administration offices of the Ministry of Health in Cyprus. Certain inclusion criteria were applied for the final study sample, namely: being physicians, working in public healthcare sector of Cyprus for more than 6 months, having a permanent job position or working based on a contract.

### Study size

Out of 690 physicians working in the public sector in September 2016 who received an invitation to participate, 511 completed the survey and 9 were excluded because the 2 of them were not completed at all and the remaining 7 appeared to be completed by medical residents instead of their responsible medical specialists. Therefore, 502 physicians were included in our study. Those who were undetermined with respect to their intention to leave ( $n=188$ ) were excluded from further analyses regarding the current assessment. A total of 75 cases were excluded from the regression analysis due to missing values on at least one variable or due to having values considered as outliers. Therefore, a total of 239 physicians who responded 'yes' or 'no' with respect to their intention to leave their job were included in the current analysis.

### Questionnaires

The self-administered questionnaires consisted of four sections. The first section was used to collect physicians' demographic characteristics such as age, gender, job position, educational level, work tenure, etc. The second section consisted of the OCQ designed by Meyer and Allen,<sup>28 29</sup> which is among the most widespread used measurement tools for organisational commitment assessment.<sup>30 31</sup> It includes a scale of 24 questions, the answers of which are given through a 7-point Likert-type scale, with 1 corresponding to 'strongly disagree' and 7 corresponding to 'strongly agree'.<sup>32</sup> Each component of organisational commitment is estimated by the average of the sum of eight correlated statements. The measurement scale is particularly reliable, provided that studies have shown a Cronbach's alpha of 0.87 for affective commitment, 0.75 for continuance commitment and 0.79 for normative commitment.<sup>28</sup> A double reverse translation was used, and an adaptation by a team of specialised health professionals for the Cypriot population was applied in order to adjust the questionnaire to the cultural context.

The third section consisted of the JSS questionnaire developed by Spector.<sup>33</sup> JSS is a 36-item, 9-facet scale to assess employee attitudes about the several aspects of their job. The nine facets include payment, promotion opportunities, fringe benefits, contingent rewards, recognition, operating procedures, relationships with coworkers, interest in the nature of work and communication within

the organisation. Each facet is assessed with four items, and a total score is computed from all items. A summated rating scale format is used, with six choices per item ranging from 1 'strongly disagree' to 6 'strongly agree'. Some of the questions are negatively marked; therefore, after reversing the score, the result of each questionnaire is calculated based on the average of all answers, which are subsequently added and divided by the number of equivalent questions. The nine subscales are associated with each other with moderate to good internal coherence with a score ranging between 0.60 and 0.91 for the total scale regarding reliability. The JSS scale was translated to Greek with a double reverse translation method and was adapted by a team of specialised health professionals for the Cypriot population. The questionnaire was used following permission from the author, which was kindly provided.

The fourth section focused on the evaluation of intention to leave. The following multiple-choice item was used to measure intention to leave: 'If you had the opportunity within the next year, would you leave your job because you are not satisfied of the benefits or the work environment?' Responses included: 'yes', 'no' or 'I am not sure'.

### Pilot study

A pilot study to assess the survey tools was conducted in July 2016, where 15 questionnaires were distributed to corresponding physicians of the public health sector of Cyprus. All physicians were members of the Cyprus Medical Association and came from all hierarchical ranks of medical officers in the public sector of the Ministry of Health. During this process, we were able to modify the questionnaires according to the respondents' feedback. For example, we removed a question on the medical specialisation of health professionals in order to avoid concerns of potential identification of respondents.

### Data collection and management

The data collection took place between October 2016 and January 2017. The questionnaires were distributed to physicians working in health centres by post. In addition, each physician was informed via phone by the main researcher regarding the survey. An envelope was included so that participants could seal the questionnaires to strictly protect anonymity and confidentiality. An informational leaflet was also included describing who was performing the study, the title and purpose of the study and the required completion time of the questionnaires. Participation was voluntary. A consent form was also enclosed. A healthcare professional from each centre was assigned to collect the consent forms along with the questionnaires in sealed envelopes. Both files were placed in a separate sealed box, in each health centre. The questionnaires in the hospitals were given by the main researcher to all physicians. Responses were collected by a professional in each particular hospital who was assigned to collect both the questionnaires and the consent forms in a separate sealed box. The questionnaires were kept

locked and only the main researcher had access to the questionnaires.

### Statistical analysis

Qualitative variables are reported as numbers (percentages). For the quantitative variables, mean and SD were calculated. For the scales of organisational commitment and job satisfaction used in the statistical analysis, the normality tests were performed using the Kolmogorov-Smirnov test. Qualitative variables were compared using the  $X^2$  test and quantitative variables were compared by Student's t-test or Mann-Whitney test. Categorical and continuous demographic characteristics of physicians as affected by the intention to leave were evaluated using t-independent samples tests or Mann-Whitney. In addition, the association of organisational commitment and job satisfaction relative to intention to leave was assessed using t-independent samples tests or Mann-Whitney tests. The number of missing values was very small, and no method was used to handle them. No sensitivity analysis was performed. Logistic regression was used to explore the impact of demographic characteristics and the scales of organisational commitment and job satisfaction on

physicians' intention to leave their work including appropriate adjustment for confounding. Statistical significance was set at 5%. All analyses were conducted using SPSS V.25.0.

### Patient and public involvement

This cross-sectional study was designed and conducted without patient or public involvement.

## RESULTS

### Demographics

Out of 690 physicians working in the public sector who received an invitation to participate, 511 completed the survey and 9 were excluded because the 2 of them were not completed at all and the remaining 7 appeared to be completed by medical residents instead of their responsible medical specialists. Therefore, 502 physicians (200 men and 302 women) were included in our study (response rate 73%). Those who were undetermined with respect to their intention to leave (n=188) were excluded from further analyses regarding the current assessment. A total of 75 cases were excluded from the regression

**Table 1** Categorical and continuous demographic characteristics of physicians relative to intention to leave

Physicians' demographics		Total		Intention to leave n (%)		P value		
		n	Mean (SD)	Yes	No			
Gender	Female	119 (49.8)		74 (43.3)	45 (66.2)	0.001*		
	Male	120 (50.2)		97 (56.7)	23 (33.8)			
Family status	Live alone	42 (18.2)		32 (19.2)	10 (15.6)	0.533*		
	I do not live alone	189 (81.8)		135 (80.8)	54 (84.4)			
Children	Yes	192 (82.1)		132 (79.0)	60 (89.6)	0.058*		
	No	42 (17.9)		35 (21.0)	7 (10.4)			
Workplace	Public hospitals	174 (72.8)		134 (78.4)	40 (58.8)	0.002*		
	Health centres	65 (27.2)		37 (21.6)	28 (41.2)			
Job position	Internal medicine	196 (82.0)		131 (76.6)	65 (95.6)	<0.001*		
	Surgical	43 (18.0)		40 (23.4)	3 (4.4)			
Master's degree	Yes	115 (50.9)		92 (57.9)	23 (34.3)	0.001*		
	No	111 (49.1)		67 (42.1)	44 (65.7)			
PhD	Yes	48 (21.3)		35 (22.2)	13 (19.4)	0.645*		
	No	177 (78.7)		123 (77.8)	54 (80.6)			
Tenure	Yes	133 (57.3)		86 (52.4)	47 (69.1)	0.019*		
	No	99 (42.7)		78 (47.6)	21 (30.9)			
Contract	Yes	100 (42.9)		78 (47.3)	22 (32.4)	0.036*		
	No	133 (57.1)		87 (52.7)	46 (67.6)			
		<b>n</b>	<b>Mean (SD)</b>	<b>n</b>	<b>Mean (SD)</b>	<b>n</b>	<b>Mean (SD)</b>	
Age		239	47.9 (9.2)	171	46.1 (8.8)	68	52.6 (8.5)	<0.001†
Years of experience in public health sector		224	12.9 (8.6)	158	11.4 (7.8)	66	16.3 (9.5)	<0.001†
Years of experience in private sector		199	4.2 (5.7)	140	3.5 (4.9)	59	5.9 (7)	0.064†

\*T-test.

†Mann-Whitney test.

analysis due to missing values on at least one variable or due to having values considered as outliers. Therefore, a total of 239 physicians who responded 'yes' or 'no' with respect to their intention to leave their job were included in the current analysis. Due to missing data, numbers in [table 1](#) may not add up to 239 for some variables. Half of the 239 physicians were women (n=119, 49.8%) and half of them were men (n=120, 50.2%). The mean age of the participants was 47.9 years (SD=9.2), while the mean year of experience in the public sector was 12.9 years (SD=8.6) and in private sector was 4.2 years (SD=5.7), respectively.

In [table 1](#), we also demonstrate how certain demographics influence physicians' intention to leave. Male physicians have a higher intention to leave compared with women (p=0.001). Moreover, physicians in public hospitals appeared to have higher intention to leave in comparison with those working in healthcare centres, while at the same time intention to leave was higher among surgeons and those who had a master's degree (p=0.001). In addition, it was found that intention to leave was higher for those who did not have job tenure (contract-based job, p=0.036). Finally, we found that younger physicians and those who had fewer years of experience in the public sector had a higher intention to leave. Intention to leave was not statistically significantly associated with family status, having children, having a PhD or having worked previously in the private sector.

In [table 2](#), we present the level of organisational commitment and job satisfaction in association with physicians' intention to leave. Organisational commitment was calculated based on the evaluation of affective commitment, continuance and normative commitment with mean scores of 4.06, 4.19 and 3.69, respectively. The total average scores were calculated using the 1–7 Likert-type scale, where 1 was the lowest and 7 the highest value. The mean score for total satisfaction was 2.99, calculated from the values of 1–6, where 1 was the lowest and 6 the highest value of the scale. Out of 239 study participants included in the current analysis, 174 (72.8%) stated that they intended to leave their job. In [table 2](#), we also present the level of organisational commitment, job satisfaction and intention to leave of doctors by workplace. It was found that the scores of continuance commitment, pay, fringe benefits, nature of work and coworkers were higher for those who work in healthcare centres and the difference was statistically significant (Mann-Whitney test of independence). Moreover, the majority of employees in public hospitals (78.4%) intended to leave their job, while only 21.6% of employees in health centres reported an intention to leave (p<0.001).

In [table 3](#), we provide the descriptive statistics including the mean and SD of the scales of the two questionnaires relative to intention to leave. It was found that organisational commitment scores in all three dimensions—*affective, continuance and normative*—were higher for those

**Table 2** The level of organisational commitment, job satisfaction and intention to leave by workplace

	Total	Public hospitals	Health centres	P value
Organisational commitment, mean (SD)				
Affective commitment	4.06 (1.39)	4.05 (1.36)	4.08 (1.46)	0.857*
Continuance commitment	4.19 (1.53)	4 (1.53)	4.69 (1.43)	0.029*
Normative commitment	3.69 (1.1)	3.64 (1.08)	3.82 (1.16)	0.359†
Job satisfaction, mean (SD)				
Pay	2.00 (0.95)	1.90 (0.88)	2.26 (1.10)	0.031†
Promotion	2.09 (0.94)	2.05 (0.89)	2.19 (1.06)	0.574†
Supervision	4.29 (1.26)	4.37 (1.23)	4.10 (1.33)	0.159†
Fringe benefits	1.90 (0.85)	1.83 (0.81)	2.08 (0.93)	0.021†
Contingent rewards	2.34 (1.03)	2.29 (0.95)	2.48 (1.23)	0.421†
Operating conditions	2.20 (0.79)	2.21 (0.78)	2.18 (0.80)	0.976†
Coworkers	4.15 (1.04)	4.07 (1.03)	4.38 (1.03)	0.021†
Nature of work	4.78 (0.84)	4.72 (0.83)	4.95 (0.86)	0.035†
Communication	3.13 (1.08)	3.17 (1.08)	3.02 (1.09)	0.378†
Total satisfaction	2.99 (0.58)	2.95 (0.52)	3.07 (0.72)	0.231*
Intention to leave, n (%)				
Yes	174 (72.8)	134 (78.4)	37 (21.6)	<0.001‡
No	65 (21.2)	40 (58.8)	28 (41.2)	
*T-test.				
†Mann-Whitney test.				
‡X <sup>2</sup> test.				

**Table 3** Association of organisational commitment and job satisfaction relative to intention to leave

Scales	Physicians' intention to leave		P value
	Yes Mean (SD)	No Mean (SD)	
Organisational commitment			
Affective commitment	3.62 (1.29)	5.15 (0.94)	<0.001*
Continuance commitment	3.91 (1.51)	4.88 (1.35)	<0.001†
Normative commitment	3.35 (0.99)	4.55 (0.87)	<0.001*
Job satisfaction			
Pay	1.78 (0.83)	2.54 (1.02)	<0.001†
Promotion	1.90 (0.83)	2.56 (1.05)	<0.001†
Supervision	4.16 (1.28)	4.64 (1.16)	0.054†
Fringe benefits	1.73 (0.73)	2.31 (0.98)	<0.001†
Contingent rewards	2.13 (0.95)	2.86 (1.06)	<0.001†
Operating conditions	2.10 (0.78)	2.47 (0.75)	<0.001†
Coworkers	4.01 (1.05)	4.51 (0.93)	<0.001†
Nature of work	4.6 (0.84)	5.24 (0.66)	<0.001†
Communication	2.92 (0.98)	3.65 (1.16)	<0.001†
Total satisfaction	2.81 (0.48)	3.42 (0.59)	<0.001*

\*T-test.  
†Mann-Whitney test.

who did not report any intention to leave, compared with those who intended to leave. The association between organisational commitment and intention to leave was statistically significant (<0.001). In addition, scores from all of the facets of job satisfaction—pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, coworkers, nature of work and communication—were higher for those who did not intend to leave their job, compared with those who reported an intention to leave. The association of all facets of job satisfaction except supervision, as well as the association of total satisfaction with intention to leave, was also statistically significant.

Finally, a logistic regression model was used to evaluate the impact of physicians' demographics, organisational commitment and job satisfaction on physicians' intention to leave from the public health sector (table 4). We included statistically significant independent variables as predictors of intention to leave (age, gender, job position, affective, continuance and normative commitment and total satisfaction). A total of 75 cases were excluded from the regression analysis due to missing values on at least one variable or due to having values considered as outliers. The overall model was statistically significant when compared with the null model ( $X^2(7)=181.162$ ,  $p<0.001$ ), and explained 76.2% of the variation of

**Table 4** Multivariable logistic regression model on physicians' intention to leave

Independent variables	B	SE	Wald	Df	Exp(B) OR	95% CI for Exp(B)–OR		P value
						Lower	Upper	
Age*	-0.117	0.033	12.302	1	0.890	0.833	0.950	0.000
Gender†	-1.615	0.551	8.579	1	0.199	0.068	0.586	0.003
Job position‡	-2.971	0.955	9.673	1	0.051	0.008	0.333	0.002
Affective commitment*	-0.578	0.260	4.936	1	0.561	0.337	0.934	0.026
Continuance commitment*	-0.422	0.210	4.045	1	0.656	0.434	0.989	0.044
Normative commitment*	-1.845	0.387	22.771	1	0.158	0.074	0.337	0.000
Total satisfaction*	-3.354	0.671	24.966	1	0.035	0.009	0.130	0.000

\*Continuous variable.

†'Male' was set as the reference category.

‡'Surgeons' was set as the reference category.

B, regression coefficient; Exp(B), exponential of regression coefficient B.

intention to leave (Nagelkerke  $R^2$ ) while correctly predicted 89.5% of cases. Women were 68% less likely to leave their organisation than men, and physicians working in internal medicine were 98% less likely to leave their organisation than surgeons. Finally, increasing age, higher affective commitment, continuance commitment, normative commitment and higher total satisfaction were also associated with a decreased likelihood of leaving the organisation. In summary, age, female gender, specialty in internal medicine, affective commitment, continuance commitment, normative commitment and total satisfaction were inversely associated with physicians' intention to leave. The greater inverse relationship was found between job position, affective commitment and total satisfaction in association with intention to leave.

In order to perform a sensitivity analysis, we rerun the regression model presented in table 4 by including the physicians who were undetermined with respect to their intention to leave their work (added 168 more participants who had fully completed questionnaires). The overall model was statistically significant when compared with the null model ( $X^2(7)=196.840$ ,  $p<0.001$ ), and explained 54.3% of the variation of intention to leave (Nagelkerke  $R^2$ ) while correctly predicted 78.4% of cases. In general, comparing the results from table 4 with the sensitivity analysis described above, we did not identify any important differences except for the demographic variables of 'age' and 'job position'. We noted that both the direction as well as the magnitude of the association were similar in all three dimensions of organisational commitment (affective, continuance and normative). Therefore, we concluded that those physicians undetermined with respect to their intention to leave were closer to those who intended to stay in their positions with respect to organisational commitment.

Furthermore, it is interesting to report that, compared with the data collection period of study implementation, we have found that currently, there are about 60 doctor vacant positions in the public health sector of Cyprus.

It is reasonable to assume a strong positive relationship between the three commitment measures and the nine

satisfaction measures. Thus, at this point, we included a correlation matrix testing for collinearity. Collinearity was checked using the variance inflation factor statistic, whose values were within the acceptable range. The correlation matrix for age, the three commitment measures and the nine satisfaction measures, although statistically significant, were of a negligible degree (table 5).

## DISCUSSION

This is the first study conducted in Cyprus focusing on the level of organisational commitment and intention to leave among physicians in the public health sector of Cyprus. In summary, we investigated physicians' demographics, the level of organisational commitment (affective, continuance and normative), and job satisfaction in association with intention to leave among physicians working in public hospitals and healthcare centres of Cyprus. A considerably large percentage of physicians (72.8%) working in the public hospitals and healthcare centres of Cyprus reported their intention to leave their job. The study also confirmed that organisational commitment and job satisfaction were negatively correlated with intention to leave. In addition, the results of this study demonstrate that certain demographics also influence physicians' intention to leave including age, gender and medical specialisation.

Intention to leave was reported by a large percentage of physicians (72.8%) from public hospitals and health centres of Cyprus, while total job satisfaction was also low among those intended to leave their job (mean=2.99) (table 2). Our analysis of ratings related to the intention to leave is much different than those found in the international literature. In an integrative literature review, the reported percentage of physicians with intention to leave varied from 3.2% to 53.7% across the 17 studies from five countries<sup>34</sup> as compared with the high percentage of our study (72.8%). Adverse working conditions that may be seen in public hospitals could prevail among those and the complaints that are expressed from time to time by physicians may constitute reasons for their intention to

**Table 5** Correlation matrix for age, the organisational commitment and the job satisfaction

	Age	Affective commitment	Continuance commitment	Normative commitment
Pay	0.163*	0.263**	0.031	0.194**
Promotion	0.078	0.257**	0.076	0.242**
Supervision	-0.067	0.227**	-0.074	-0.021
Fringe benefits	0.135*	0.219**	0.055	0.139*
Contingent rewards	0.017	0.261**	-0.022	0.138*
Operating conditions	-0.035	0.098	0.017	0.093
Coworkers	0.058	0.246**	0.086	-0.014
Nature of work	0.107	0.359**	0.141*	0.210**
Communication	0.057	0.351**	-0.008	0.098

\* $<0.05$ , \*\* $<0.001$ .



leave and their decreased job satisfaction. Furthermore, we believe that one of the main reasons for the high intention to leave in our study relates to the imminent introduction of a national healthcare system during the period of the study. Due to the provisions of the new national healthcare system, a large number of physicians working in public hospitals and healthcare centres were offered strong incentives to leave the public health sector.

Intention to leave was also found to be inversely associated with organisational commitment and job satisfaction. Doctors who did not intend to leave their job showed higher organisational commitment in all three dimensions and higher job satisfaction in all nine facets, compared with those who reported an intention to leave (table 3). Given the above observations, physicians who do not intend to leave their job feel morally and emotionally obligated to continue their service in the organisation and at the same time appear satisfied with their work. This finding, of an inverse relationship between organisation commitment and job satisfaction in association with intention to leave, has been documented by numerous studies.<sup>35–37</sup> The international literature has shown that job ‘dissatisfaction’ is a major cause of absenteeism and turnover among healthcare employees and affects employees’ organisational commitment and the quality of healthcare services.<sup>38</sup> Sibbald *et al* showed that job satisfaction predicts intention to leave direct patient care among general practitioners in England,<sup>39</sup> while Han *et al* showed that intention to leave predicts actually leaving. Consequently, job satisfaction is expected to predict actual leaving.<sup>40</sup> Their findings, however, suggest that this is only partly true. Although higher levels of job ‘dissatisfaction’ were associated with an increased likelihood of leaving, higher levels of job ‘satisfaction’ did not prevent leaving.<sup>40</sup>

Male physicians have a higher intention to leave than female doctors (table 1). As a consequence of the position that women hold in the Cypriot society as well as the duties they assume outside of work, in combination with the permanent salary they receive in the public health sector, women appear more ‘obliged’ to stay at work. Female physicians may need to stay in the organisation because they are worried about future employment and the social position they may lose. A UK study found that female physicians were more likely than their male colleagues to intend to remain in the National Health Service, a study which reported findings compatible with our results.<sup>41</sup>

‘Continuance commitment’, ‘pay’, ‘fringe benefits’, ‘nature of work’ and ‘coworkers’ are also subconstructs with higher scores for those who work in health centres compared with public hospitals (table 3). Physicians in health centres work on a more regular schedule, examine patients by appointment and receive a fixed monthly salary. The majority of doctors working in health centres are specialised in primary care medicine and the public health sector represented an adequately paid position with lower levels of occupational stress than the private

sector prior to the introduction of the national healthcare system ‘GESY’. For these reasons, workers in health centres were less likely to leave from their organisation (tables 1 and 2) and exhibit higher continuance commitment (table 2). As expected, physicians in public hospitals, which have various medical specialties, have a higher intention to leave than the doctors in health centres, because they may have more employment options (tables 1 and 2).

Regarding job position, those who work in the surgical sector have higher intention to leave than those who work in internal medicine or primary care (table 1). Zhang *et al* showed that paediatricians were those most likely to have a higher intention to leave their hospital or to change careers.<sup>42</sup> Per wider literature, career change is predicted strongly by higher levels of education (master’s degree or higher).<sup>43</sup> In our study, doctors who hold a master’s degree have a higher intention to leave (table 1). This finding may be associated with higher academic qualifications that allow for more employment options and better benefits. The intention to leave was also higher among contract-based employees, an expected finding due to the lower benefits and uncertainty compared with permanent employees (table 1). Although both have the same responsibilities, nevertheless the salary, the leave of absence and the sick leave are some examples in which contract-based employees have a disadvantage. We also found that younger physicians are more likely to leave their organisation (table 1), while in the international literature, intention to leave is shown to have an inverted U-shape relationship when associated with age. The proportions of physicians changing hospitals and making a career change are higher in the middle-age group than in the younger or older groups.<sup>42</sup>

### Limitations

There are some limitations in our study that are worth mentioning. Although the response rate in our study was high (n=502, 73%), we had to exclude a large number of respondents due to indetermination with respect to their intention to leave (n=188) and missing values on at least one variable (n=75). Therefore, a total of 239 physicians who responded ‘yes’ or ‘no’ with respect to their intention to leave their job were included in the current analysis. The study would benefit from some kind of missing values analysis checking how representative are the respondents for the population. Unfortunately, we were not able to assess potential differences between respondents and non-respondents because the survey was anonymous and we were not able to follow up on non-respondents. Although we do not have information on non-respondents, we have no reason to believe that there are any discriminative differences between those who chose to participate and those who did not. Finally, there are obviously several other factors in addition to organisational commitment, job satisfaction and certain demographics that may explain physicians’ leaving intentions, such as for instance leadership style, daily workload,



psychosocial factors in the workplace, etc. Unfortunately, our data did not contain information that allowed us to investigate the above aspects. Also, while intention to leave often reflects the level of frustration of the participants, it is unclear how many of them would eventually leave.

### Recommendations and suggestions for future research

Healthcare workers' turnover intention is a major problem facing not only the health industry in Cyprus but also many healthcare systems globally. In addressing the important issue of human resources for hospitals and healthcare centres during this period of crisis,<sup>6, 44</sup> essential steps should be taken into consideration, such as improving motivation and performance in order to retain health professionals and attract additional others.<sup>6</sup> Due to the length of time needed to train new physicians, it is important to retain existing ones in order to avoid shortages and serious public consequences.<sup>45</sup> As suggested by Martinussen *et al*, a professional-supportive leadership style may have a positive influence on retention of physicians in public hospitals.<sup>46</sup> Baird *et al* suggested that adequate facilities, such as latest technology, up-to-date equipment and adequate staff resources, have an integral role in enhancing physicians' organisational commitment and hospital performance.<sup>47</sup> Moreover, in view of the health workforce shortages, Kroezen *et al* highlight the need to develop effective recruitment and retention (R&R) strategies for health workers.<sup>48</sup>

Based on our study, we recommend providing effective regulations to retain the healthcare staff. However, we believe that such a procedure should be accompanied with comprehensive reforms such as improving working conditions and reducing the workload. We suggest that healthcare management should recognise and reward doctors who stay longer. We also suggest the establishment of supervisor support programmes and employee assistance programmes and the improvement of professional hospital administration. Administrators could provide career ladders, communication, and training programmes to make hospital and clinic environment more attractive.<sup>45</sup> Some of the R&R interventions identified in the literature that could be applied to our healthcare system include: attracting young people to healthcare, providing training, education and research opportunities for a life-long career, providing good working environments through professional autonomy and worker participation, making the hospital workplace more attractive by improving family-friendly practices and providing supportive working environments for the ageing workforce.<sup>48</sup> The above recommended actions may help to improve the retention of doctors working in public hospitals.

### Conclusions

In conclusion, making significant modifications and introducing structural changes in the medical services as well as developing successful health policies, and encouraging

involvement and securing physicians' agreement and alignment with job modifications could increase physicians' retention.<sup>49</sup> Our findings highlight the need for coordinated efforts to lower the levels of physicians' intention to leave their job and limit the number of physicians actually leaving direct patient care.<sup>34</sup> The current research supports that understanding those factors and influencing physicians' intention to leave their organisation is crucial for improving the working conditions in the public hospitals and health centres of Cyprus.

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