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ORIGINAL ARTICLE

Factors associated with Taiwan anesthesiologists' intention to leave anesthesia practice



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KEYWORDS

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workload

Background/purpose: Anesthesiologists in Taiwan had the heaviest workload compared with other Taiwanese specialists. In a previous study, anesthesia-related mortality was >12 times the rate reported in the USA, UK, and Japan. Nine percent of Taiwanese anesthesiologists left their jobs to work as general practitioners in clinics. This study aims to assess the current working conditions of anesthesiologists in Taiwan and their satisfaction with their occupation, and to identify the factors associated with the intentions of anesthesiologists in Taiwan to leave anesthesia practice.

Methods: A self-reported questionnaire was completed by 474 attending anesthesiologists in Taiwan. The Chi-square test was used for categorical variables and the *t* test for continuous variables. Multivariate logistic regression was conducted to identify the factors significantly associated with the willingness of anesthesiologists to continue in anesthesiology.

Results: The sample anesthesiologists worked 59.9 hours/week, however a reasonable length of time to work is 49.6 hours/week. They simultaneously covered four operating rooms daily, but three rooms is considered reasonable. Surprisingly, 54.9% of them expressed their

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unwillingness to practice clinical anesthesia. Those anesthesiologists dissatisfied with their overall working conditions had a substantially increased odds ratio (6.96) of deterring continuing to practice in anesthesia. Furthermore, an inability to take care of the family and a low salary significantly decreased the willingness to practice in anesthesia (odds ratio: 0.42 and 0.38, respectively).

Conclusion: Unfavorable working conditions were considered to lower the satisfaction of anesthesiologists in Taiwan. In particular, an inability to take care of the family and a low salary were major factors in deterring anesthesiologists in Taiwan from continuing in anesthesia.

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Introduction

Anesthesiology is a specialty which needs intense care and physical contact with patients in the perioperative period. A previous study on the quality of anesthesia in Taiwan was assessed by analyzing anesthesia-related mortality and its related factors over an 11 year period; it was noted that anesthesia-related mortality in Taiwan was 12/100,000 population. This did not significantly decline and was >12 times the rate reported in the USA, UK, and Japan.^{1–5} The anesthesia workforce has also been discussed for years.^{6,7} From a survey conducted in 2005, we found that Taiwanese anesthesiologists worked 55.1 hours/week, which ranked as the top among other Taiwanese specialists.⁸ In addition, the findings by Dai et al showed that the ratio of anesthesiologists to nurse anesthetists was 1:3~5 in Taiwan.⁹ The seemingly higher workload of anesthesiologists has been a concern which has been frequently raised and is considered to be a very important factor affecting the quality of anesthesia care.¹⁰

In 2001, Eisenberg et al¹¹ and Sainfort et al¹² were concerned that unhealthy work environments could seriously affect physicians and ultimately their patients. Jones and colleagues¹³ noted a link between occupational stress and malpractice suits and DeVoe et al¹⁴ reported that dissatisfied physicians had greater difficulty in caring for patients.

Regarding the architecture of a job, pay, working conditions, and working hours also play a significant role.¹⁵ When working in the operating rooms, imaging scanning rooms, trauma rooms, and intensive care units, anesthesiologists were frequently confronted with critical situations, severe illness, and death, and had to operate high-tech equipment. Therefore, anesthesiology has been recognized as a stressful specialty. In previous studies, long working hours, night call demand, and fatigue have also been identified as contributing to work-associated stress among anesthesiologists.^{16,17} In addition to their clinical workload, some anesthesiologists have teaching and administrative obligations, or conduct research for personal promotion. Conflicting demands are considered as a risk factor for overwork.¹⁸ Suffering in this working environment might lead to job dissatisfaction and a career impediment.^{19,20} According to the Taiwan Society of Anesthesiologists, 9% registered anesthesiologists in Taiwan had left their jobs and were working as general practitioners in clinics in 2010.

Therefore, the aim of this national survey, which was supported by the Ministry of Health and Welfare, was to

assess the current working conditions of anesthesiologists in Taiwan, to reveal a reasonable workload from their perspective, to evaluate satisfaction with current working conditions, and to find out factors associated with their intention of discontinuing the practice of anesthesia.

Methods

A self-reported questionnaire was developed and administered to all attending anesthesiologists working in tertiary hospitals and secondary hospitals in 2010, based on the 2010 Member Directory of the Taiwan Society of Anesthesiologists. The questionnaire was reviewed for its content validity by an expert panel composed of three anesthesiologists, one surgeon, and one public health professor.

After obtaining permission from the Taiwan Society of Anesthesiologists in June 2011, all 912 eligible anesthesiologists were included in the mailing list. After excluding 87 current primary practitioners and 48 retirees, 777 members were selected as the target study population. Following evaluation of the reliability and validity of the self-reported questionnaires by test-retest and the content validity index, the study protocol was reviewed and approved by the Institutional Review Board (IRB) of Taipei Veteran General Hospital (VGH IRB Approval NO: 2011-05-0151C). The self-administered questionnaire was then sent to all 777 anesthesiologists by mail in June 2011; also enclosed were an explanation of the research purposes, a written consent form, and a pre-stamped envelope for returning the completed questionnaire along with the consent form.

The requested information included demographic background, working conditions, satisfaction with working conditions, likelihood of having a different anesthesia reimbursement system, having assistance from a nurse anesthetist, willingness to continue the practice of anesthesia, and work-associated factors. The demographic background included sex, age (30–39 years, 40–50 years, and ≥50 years), marital status, level of education (MD, Master's and PhD), years of anesthesia experience (<5, 5–9, 10–19, and ≥20), major professional activity (clinical anesthesia or nonclinical anesthesia identified by 50% of working time in clinical or non-clinical setting), and hospital accreditation level (tertiary hospital: medical center, secondary hospital A: regional hospitals, and secondary hospital B: district hospitals). According to the rules and regulations of the Ministry of Health and Welfare in Taiwan, the level of a hospital is classified as tertiary hospital (>500 acute beds and 25 different disciplines, a high level of

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