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WEB PAPER

A survey on financial support and research achievement of medical education research units in China

SHI-HAO WEN[1], WEI-MIN REN[1], LI QU[1], YUE WANG[1], JAN D. CARLINE[2] & GUO-EN FANG[1]

[1]Second Military Medical University, People's Republic of China, [2]University of Washington School of Medicine, USA

Abstract

Aim: To investigate the current situation of financial support and research achievement of medical education research units in China.

Methods: A total of 46 individuals in 46 medical schools completed a questionnaire including information about affiliation of the unit, financial support, published articles and achievement awards of the units.

Result: Of the 46 schools, 24 had independent medical education research units, 36 had financial support, and 30 had research funding. The mean number of published articles was 2.53 per staff. The mean number of achievement awards was 3.80 per unit. There was a significant difference in funding and published articles between independent medical education research units and other types of units; and in published articles and achievement awards between the units with funding and without funding.

Conclusion: The financial support from the school was the main source of medical education research units in China. More attention should be paid to the development of medical education research units, to their ability to produce high quality research and support the improvement of medical care in China.

Introduction

Medical education research units play an important role in medical education reform (Wolf et al. 2004). In the process of improving China's health care system, more attention has been paid to medical education. The Western model of establishing medical education research and development units as a means to improve health professions' training was introduced to China (Huang 1992). In 1978, the first medical education research unit was established in China's Shanghai First Medical University, followed by additional research units in other medical schools (Lam et al. 2006). However, medical education research has not substantially influenced policies and practices like that of developed countries (Majumder 2004), in part, due to the status of medical education research. Few studies have focused on the financial support and research output of medical education units in China. Through this study, we hope the readers will gain the awareness of this situation in China. This study was part of a larger survey on medical education research units in China, part of which was reported in another article (Liu et al. 2010).

Practice points

- The institutional status of medical education research units in China is related to research productivity and quality: independent medical education research units are more productive and have higher quality outcomes than other types of units.
- Effective medical education research units provide teaching, service, and administrative support as well as conduct research.
- The research ability of medical education research units in China needs to be improved to have more impact on medical education.

Methods

Subjects

In the latter half of 2008, individuals from medical schools, knowledgeable about medical education affairs, were contacted to determine if there was professional staff or faculty engaged in medical education research. We were able to identify informants in 75 schools. Of the 75 schools contacted, 55 were identified as having professional staff who engaged in medical education research. The individuals included staff in the Dean's office, the director of independent medical education research units, and professional staff engaged in medical education research. Many of these later staff members were housed in an institute for higher education in the larger university outside of the school of medicine with general institutional responsibility for educational improvement and evaluation. A questionnaire was sent to these individuals by e-mail. Forty-six responded and completed the

Correspondence: G.-E. Fang, Training Department, Second Military Medical University, 800 Xiangyin Road, Shanghai, 200433, People's Republic of China. Tel: 86 21 81870201; fax: 86 21 81870327; email: smmuwsh@sina.com

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questionnaire effectively. The response rate was 83.6% of those medical schools identified as having professional medical education researchers. Although all medical schools in China are not included in this data set, many medical schools, primarily the smaller schools, do not have units or individuals undertaking medical education research. This study was approved by the Biological and Medical Ethics Committee, Second Military Medical University.

Instrument

The questionnaire included the affiliation of the medical education research units (independent medical education research unit within the school of medicine; affiliated to the institute for higher education of the parent university; affiliated to the Dean's office; having staff who engaged in medical education research, but without a special unit/office), the sources of the financial support (support from school for teaching, administration and research; funding from other sources in China outside of school; funding from sources abroad), quantity of published articles (included in Chinese and international journals and conferences), quantity of research achievement awards (awards given to the high-quality research achievement by the university, provincial government, or national government), and attention from leaders (including university presidents and school deans).

Data analysis

Descriptive statistical analysis was used to analyze the affiliation of the medical education research units, the source of financial support, and quantity of published articles and achievement awards. The Mann–Whitney test was applied to analyze the difference in published articles and achievement awards between independent medical education research units and other units; and in published articles and achievement awards between the units with and without funding. A chi-squared test was used to analyze the difference in funding between independent medical education research units and other units. All data were analyzed with the SPSS 17 statistical analysis software package.

Results

The affiliation

Twenty-four (52.2%) of the 46 medical schools had independent medical education research units, 3 (6.5%) were affiliated with the institute for higher education, and 15 (32.6%) were affiliated with the Dean's office. Four schools (8.7%) had staff engaged in medical education research activities, but no unit.

Financial support

In this study, financial support refers to funds for special activities such as research or teaching, beyond basic support for salaries. Thirty-six (85.7%) of the 46 units had financial support: all the independent medical education research units (24) and units affiliated with the institute for higher education (3); seven of the units affiliated with the Dean's office, and two having staff engaged in medical education research, but without a specified medical education unit. The sources of financial support included funds from the school, other sources in China outside school (such as national government or collaboration with other schools) and sources abroad.

Of the 36 units having financial support, all received support from the school. Twenty-three (63.9%) received more than half of their financial support from the school, especially the independent medical education research units (62.5%, 15/24) and the units affiliated with the Dean's office (85.7%, 6/7). In the past five years, most units that received school funding experienced increased funds (33.3%, 12/36) or had steady funding (58.3%, 21/36). Only a few units experienced a decrease in these funds (8.3%, 3/36). The proportion of financial support from school in the total financial support for these units changed in similar fashion: increased for 11 of the 36 units (30.6%), or stayed the same for 19 units (52.8%). Only a few units had decreased (16.7%, 6/36). We also asked how much attention was paid to the unit by the school's leaders. Thirty of the 46 (65.2%) units believed that they did not get enough attention from leaders.

Of the 36 units that received school funding, 30 (83.3%, 30/36) units received specific funding for research from the school (Table 1). Only 11 (36.7%, 11/30) got financial support mainly for research.

All financial support from other sources outside school was for research. Fifteen units received research funding from other sources in China outside of their school; nine were independent medical education research units, three were affiliated to the institute for higher education, two were affiliated to the Dean's office, and one represented a staff member engaged in medical education research but not part of a specified unit. Six units received research funding from sources abroad; five were independent medical research units; and one was affiliated with the institute for higher education. Thirty-two units received research funding; 21 were independent medical education research units, two were affiliated with the institute for higher education, seven were affiliated with the Dean's office, two represented staff members who engaged in medical education research but not part of a specified unit. There was a significant difference in funding between the independent units and other units ($\chi^2 = 7.62$,

Table 1. Proportion of research funding in the total financial support from school.

Unit	≤50%	>50%	Total
Independent medical education research units	12	8	20
Unit affiliated with the institute for higher education	1	1	2
Units affiliated with the Dean's office	5	1	6
Have staff engaged in medical education research, but without unit	1	1	2
Total	19	11	30

$p < 0.01$), with independent units more likely to get research funding.

Published articles

Articles were identified as being published in the order of their perceived importance: presented at an international conference and or published in international journals, published in a Chinese core journal, and published in any other Chinese journal. A core journal is one considered important by its discipline. The mean number of published articles in the last 3 years was 2.5 per person (first author or correspondence author). Independent medical education research units in the recent 3 years had a mean of 18.7 articles (6.1 in a core journal) per unit; the units affiliated with the institute for higher education had 25.3 articles (7.5 in core journal); the units affiliated with the Dean's office had 7.4 articles (1.73 in a core journal). Staff who engaged in medical education research but without a unit had 3.7 (two in a core journal). Ten of the 11 units that published more than 20 articles were independent medical education research units, and one was affiliated with the institute for higher education. Four of the 5 units that published more than 10 articles in a core journals were independent medical education research units, the other was a unit affiliated with the institute for higher education. Ten of the 13 units that published articles in international conference proceedings were independent medical education research units, one was a unit affiliated with the institute for higher education, and two were affiliated with the Dean's office. Three of the four units that published articles in foreign journals were independent medical education research units, the other unit was affiliated with the institute for higher education.

The median number of published articles of the units with funding was 15; the units without funding totaled four; a significant difference between these two types of units ($z = -2.4$, $p < 0.05$). The median number of higher quality articles (published in core journals and international journals and conferences) of the units with funding was eight; the units without funding was 0.5; a significant difference between these two types of units ($z = -4.1$, $p < 0.000$). The median number of published articles of independent medical research units was 16; all other units was 3.5; a significant difference between these two types of units ($z = -3.39$, $p < 0.001$). The median number of higher quality articles of the independent medical research units was 9, and for all other units one; a significant difference between these two types of units ($z = -4.06$, $p < 0.000$).

Achievement awards

The mean number of achievement awards received in the last 3 years from provincial, national governments, or universities were 3.8. The mean number of achievement awards of independent medical education research units was 4.2 (1.2 provincial-level, 2.3 university-level; 4 of these units won national achievement awards); 3.7 for units affiliated with the institute for higher education (2 provincial-level, 1 university-level; 1 of these units won a national achievement award); 3.5 for units affiliated with the Dean's office 3.53 (1.5 provincial-level, 1.9 university-level; 1 of these units won a national achievement award on its core journal); and 2.5 for those having staff who engaged in medical education research but without unit (0.2 provincial-level, 2.2 university-level).

The median number of achievement awards of the units with funding was 3.5; the units without funding 1.5; a significant difference between these two types of units ($z = -2.44$, $p = 0.01$). The median number of achievement awards of the independent medical research units was 9; the other units 3; no significant difference between these two types of units ($z = -1.08$, $p = 0.28$).

Discussion

The financial support for medical education research in China's units comes from government funding agencies, the university, or hospital and medical school funding (Davis et al. 2005). Most medical education research units in China received financial support mainly from their school, especially the units affiliated with the Dean's office. These units received more support for administrative services to the school. However, these units received little funding from other sources outside of the school. All the independent medical education research units received financial support from school, with more than half receiving most of their financial support from the school. These units received financial support from the school for teaching and administration as well as research purposes. The units affiliated with the institute for higher education received most of the financial support from funding outside of the school rather than from within the school. These units had no independent financing for teaching and administration as they were attached to the institute for higher education itself. The institutes for higher education had faculty and staff who conducted research related to other schools within the university. Funding for teaching and administration is distributed to the institute and cannot be identified with related individual schools while research funding from outside sources is identified with specific schools. On occasion, medical education researchers in an institute may receive funds in order to participate in research that was awarded to other members of the institute who focus on schools other than medicine. The focus of these medical education researchers may become fractured and result in decreased of productivity as specifically medical education researchers.

Most of the medical education research units receiving financial support from school either increased or stayed the same, suggesting that the school provided consistent support for these units. However, the purchasing power actually decreased for those schools without increased support due to inflation as reflected in the Consumer Price Index.

Of the 10 units without financial support, 8 were units affiliated with the Dean's office; while the other 2 had staff who engaged in medical education research, but without a unit. The former had no independent finance and no teaching or research function, and the latter just helped the related administration office do some administrative work.

The independent medical research units were more likely to receive more financial support, but the units affiliated with

the Dean's office and those having staff engaged in medical education research without a defined unit were not. Our study suggested that having more activities in the school might help the medical education research units receive more financial support from the school. However, the mission of the medical education research units in China was too narrow, as reported in an earlier paper from this study (Liu et al. 2010).

More independent medical education research units and units affiliated with the institute for higher education received research funding from sources outside school, especially from abroad, than other units, this may suggest that these units had better research ability. However, only 15 units received research funding from sources outside school and only 6 from sources abroad.

The independent medical education research units and units affiliated with the institute for higher education published more articles than the other units. The independent medical education research units won more achievement awards than other units. This suggests that the independent medical education research units achieved higher quality work. However, the mean number of published articles in the last 3 years was 2.5 per person in these units. This is low for a researcher in a university. The quantity of national achievement awards was low, and only a few units won a national achievement award. Few articles were published in international journals or conferences. This suggests that the output of the medical education research units in China has not meet expectations for scholarly productivity in medical schools. One reason for this was that the professional staff could not acquire funding for conference attendance or to publish articles in those journals (Majumder 2004). At the same time, it suggests that medical education research units in China need to improve their research ability. The emphasis should be on strengthening and elevating the quality of medical education research (Gao et al. 1999).

An increase in funding support might promote high-quality medical education research (Reed et al. 2007). Our study also showed a significant correlation between the quantity of higher quality articles and achievement awards and research funding. Most researchers believed that increased funding would lead to improved quality of medical education research (Reed et al. 2005). However, the medical education units in most medical schools lacked funding and sources, and grants available to conduct medical education research were minimal (Majumder 2004; Davis et al. 2005). The financial support from the school was the main resource of the medical education research units in China. If medical education research units received more attention from school leaders, they might receive more financial support. However, more than half of the units believed that they did not get enough attention. Most schools provided the majority of financial support solely for teaching and administration purposes rather than for research.

Both the schools and the medical education research units need to make an effort to solve these problems. The medical education research units should expand their functions within the schools, for example administrative activity related to education, to increase their impact on medical education. The authors of this article belong in an independent unit, which received most of its support for research activities. In 2007, we took on a number of administrative activities for the school and consequently received additional financial support from school and were able to add three faculty members and increase our research achievements which were, in part, related to our new responsibilities in the school such as the evaluation of teaching and investigations of outcomes of faculty development.

By improving the quality and quantity of research outputs, medical education research units may receive more attention and funding they need from university and school leaders. The success of independent medical education units and the work of individuals in institutes for higher education should lead presidents and deans to consider improving the status of medical education researchers in their schools and increase their involvement with medical education activities.

Limitation of the study

This study is limited in that we were not able to obtain the absolute monetary value of the financial support of the units as most units were reluctant to divulge that information. We only received the proportion of each type of financial support. This may lessen the strength of our argument that independent medical education research units were more likely to get funding.

Conclusion

The financial support from the school was the main source of medical education research units in China. The independent medical education research units were more likely to receive higher levels of financial support and produce higher quality research. However, the number of these units which have the capability of doing more and higher quality work and are more able to attract outside resources, is small. More independent medical education research units should be established in China, and assistance provided to them to increase their ability to conduct quality research and positively influence medical education in China.

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Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

Notes on contributors

SHI-HAO WEN, PhD, is an assistant professor in medical education, associate chair of Department of Medical Education, Second Military Medical University, China. He is the director of teaching evaluation and involved with faculty development of the university.

WEI-MIN REN, LLM, is an assistant professor in Department of Medical Education, Second Military Medical University, China.

LI QU, Bachelor of Public Health, is a lecturer in Department of Medical Education, Second Military Medical University, China.

YUE WANG, PhD, is a professor and chair of Department of Medical Education, Second Military Medical University, China. He is involved with faculty development of the university and manages the reform of the program.

JAN D. CARLINE, PhD, is a professor in Department of Medical Education and Biomedical informatics and director of program evaluation for the School of Medicine. Dr Carline has been involved with faculty development in China around issues of evaluation.

GUO-EN FANG, MD, is a professor in Surgery, Dean of Education of Second Military Medical University, China. He is in charge of educational administration of the university.

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