Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/sdj

Scientific article

Factors associated with faculty participation in research activities in dental schools

Allan Pau[a,*], Hanan Omar[a], Saad Khan[a], Ammar Jassim[b], Liang Lin Seow[a], Chooi Gait Toh[a]

[a]International Medical University, No. 126, Jln Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, Malaysia
[b]Missouri School of Dental and Oral Health, A T Still University, USA

ARTICLE INFO

Keywords:
Faculty development
Research and development
Research productivity

ABSTRACT

Background: To quantify participation in dental research activities in Malaysia, and investigate its association with socio-demographic and professional characteristics, and perceptions of research and development (R&D) culture.

Materials and methods: Dental academics in Malaysian dental schools were invited to complete a questionnaire by email and post. The survey comprised questions on research activities in the past 12 months, socio-demographic and professional characteristics, and the R&D Culture Index. Principal components factor analysis was carried out to confirm the factor structure of the R&D Culture Index. Chi-square test was used to identify association of research activities with R&D culture, and socio-demographic and professional characteristics. Binary logistic regression was carried to identify predicators of research activities.

Results: Of 256 potential participants contacted, 128 (50%) useable responses were returned. Three R&D Culture factors accounting for 57.4% of variance were extracted. More positive perception of R&D Support was associated with Malaysians (0.025) and those employed in Government schools (0.017). R&D Skills and Aptitude were associated with older respondents (0.050), PhD qualification (0.014) and more years in academia (0.014). R&D Intention was associated with any of the socio-demographic characteristics. Thirty (23.4%) respondents reported a peer-review research publication in the past 12 months, which was associated with having a PhD (OR 12.79, CI 1.28–127.96), after adjustment in regression analyses.

Discussion: Postgraduate research training should be encouraged to promote participation in research activities. R&D culture did not appear to impact on research productivity. Other factors such as individual attitudinal interests should be studied.

*Corresponding author.
E-mail addresses:
allan_pau@imu.edu.my (A. Pau), hanan_omar@imu.edu.my (H. Omar), saadkhan@um.edu.my (S. Khan), dr.moosawi@gmail.com (A. Jassim), lianglin_seow@imu.edu.my (L.L. Seow), chooigait_toh@imu.edu.my (C.G. Toh).

http://dx.doi.org/10.1016/j.sdj.2017.08.001
0377-5291/

Introduction

Building and strengthening research capacity is recommended by the WHO for effective control of diseases and the socioeconomic development of any given country [1]. As knowledge is a major vehicle for improving the health of the poor in particular, the WHO Oral Health Programme focuses on stimulating oral health research in the developed and developing world to reduce risk factors and the burden of oral diseases. Greater investment in research capacity building in developing countries has the greatest potential of securing dynamic knowledge systems [2,3] that can deliver better health and equity. To improve the health of populations globally, it has been argued that biomedical research should occur in both developed and developing countries [4]. However, the imbalance between developed and developing countries in terms of biomedical research is significant. For example, dental research productivity for Asia, in terms of number of documents per million inhabitants has been reported to be 1.25, compared to 12.02 for Europe and 24.72 for North America [5], although in some disciplines a reversal in trends is observed [6].

There has been considerable interest around the world to monitor and understand the research productivity of individual institutions [7], countries [8–10] and specialties [11,12]. Research has also focussed on identifying factors that promote and barriers that hinder research activity [13], and the dynamic interplay of individual and institutional characteristics, supplemented with effective leadership [7,14]. Perceptions of values held on research and development have also been proposed as determinants of research productivity [15], and a measure of Research and Development (R&D) Culture Index has been developed for this purpose [16]. Brodin, Bennett and Appleton et al. [17] concluded that research productivity depends on individuals trained and educated to conduct independent research, time to spend on research activities, appropriate space and equipment, an on-going and appropriate budget, and an appropriate climate that encourages and rewards research achievement.

Research in the context of the dental school has traditionally been focused on institutional/faculty accomplishments and generating new knowledge to benefit the profession. Dental schools are expected to act as a national resource for improving oral health through research and education. To fulfil their role, dental schools need to ensure research growth through adequate and appropriate human resources, scientists and clinicians training, infrastructure, costs and leadership [18]. Only recently have significant efforts been made to expand the overall research programming into the formal dental curriculum in order to provide students with a baseline exposure to the research and critical thinking processes, encourage evidence-based decision-making, and stimulate interest in academic/research careers [19]. Within the context of low dental research productivity in Asia [5], we aimed to quantify participation in dental research related activities in Malaysia, and investigate its association with socio-demographic and professional characteristics, and perceptions of R&D culture.

Materials and methods

The target population for this cross-sectional online and postal survey were dental academics employed in Malaysian dental schools. At the time of the survey there were 12 dental schools with at least one intake of undergraduate students. Consultation on the protocol was sought from the Dental Deans Caucus in May 2012. Four dental schools declined to participate in the survey. Applications were made to the deans of the remaining eight schools to obtain the names and email addresses of their faculty staff.

An online questionnaire survey was set up. The link to this survey was emailed to the participating deans for dissemination to their faculty. The email informed potential participants that the reason for the survey was to identify factors associated with research productivity, and any information volunteered would be treated confidentially. Participants were informed that completing the questionnaire was not compulsory and it required approximately ten minutes. Reminders were sent two and four weeks after the first email. To improve the response rate, a postal survey was next carried out. Eight weeks after the first email, all potential participants were sent a copy of the questionnaire together with a cover letter to their place of work. The cover letter informed participants of the purpose of the survey and advised them not to respond if they had done so through the online survey. A stamped addressed envelope was enclosed for responding.

The outcome variables were self-reporting of involvement in research related activity, being named on a research funding application, being an author of a peer reviewed research publication and presentation of a conference research paper in the past 12 months [20]. Independent variables included demographic (age, sex, nationality) and professionally related (highest postgraduate qualification, years in academia, funding of dental school of employment) factors. The R&D Culture Index [16] was used to measure participants' perception of personal and organizational development needs so as to inform strategy to advance faculty engagement in research. The R&D Culture Index consists of 16 items graded on a four-point Likert scale: Strongly Disagree/ Disagree/ Agree/ Strongly Agree. The items are worded such as to give a unidirectional response. Possible scores on the R&D Culture Index range from 16–64 with higher scores indicating a more positive perception of the organisation's R&D culture. Previous validation has demonstrated a Cronbach alpha coefficient of 0.92 indicating good internal consistency for the whole index.

Frequency distributions for items of the R&D Culture Index were calculated. Principal components factor analysis was carried out to confirm the factor structure of the R&D Culture Index. The scores for each factor were calculated and used to categorise respondents into those with less positive and more positive perception at the median scores. Socio-demographic and professionally-related characteristics were tested for association with perception of R&D culture in the factors generated, and also association with participation in research activities using the Chi-square test. We also assessed the