
Migrant dentists in Australia:
a qualitative-quantitative study

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the degree of Doctor of Philosophy

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“The moment you know
Who you really are,
All the secrets of the world
Will be an open book
To you.”

~Sri Chinmoy~

PREFACE

The idea for this Ph.D. project on migrant dentists in Australia began in mid-2010. I had then completed an Australian Government Department of Foreign Affairs and Trade Fellowship on ethical issues related to the migration of dentists across the Commonwealth of Nations. During this period, I was also involved in dental labour force work in the Australian Research Centre for Population Oral Health (ARCPOH) and had gained some knowledge in the design and conduct of surveys. A Ph.D. on the migration of dentists seemed a logical pathway to develop my research skills, and sustain my interests in health policy, health services and global organisations. I was hopeful that dentist migration research will intersect these three broad interests.

Little did I realise at the start of my Ph.D. that I will have the patience to write nine gruelling articles. These articles were based on a qualitative-quantitative study conducted during my Ph.D. candidature in the University of Adelaide. Three research articles were based on the qualitative study and four research articles based on the quantitative study (national survey).

- Original research article 1 (published; qualitative) explored the factors that motivated dentists to migrate to Australia.
- Original research article 2 (published; qualitative) provided insights into the cultural adaptation process of migrant dentists in Australia.
- Original research article 2 (published; qualitative) examined the experiences of migrant dentists on the qualifying examination process in Australia.
- Original research article 4 (published) provided a better understanding of the characteristics and practice profiles of migrant dentists in Australia.

- Original research article 5 (accepted) assessed the level of job satisfaction of migrant dentists in Australia.
- Original research articles 6 (submitted) and 7 (publication style) developed a scale to measure the migration and settlement experiences of migrant dentists, and later assessed the variation of dentist experiences by characteristics.

Two further articles (a commentary article and an opinion article) that contributed towards the development of, or tackled issues arising from, the original research work was also written during the Ph.D. candidature.

- The commentary article (submitted) provided a global overview of the dentist migration issue and contributed to the rationale and development of the study.
- The opinion article (published) based on the learnings from the study, provided a framework to address the challenges associated with the international migration of dentists.

Overall, the last five years has been a life changing experience. First, it was demanding to organise and conduct the fieldwork (for both the qualitative and quantitative studies). I had travelled to five states/territories in Australia, visiting migrant dentists for interviews in many locations. In 2010, all state dental boards were abolished, and a national dental registration scheme came into practice. As new players and organisations emerged, we found it harder to conduct a national survey. Second, it was personally challenging to maintain a work-life balance. I am grateful to my colleagues in ARCPOH, for motivating me towards completion of this Ph.D. I expect that the work contained in this thesis will make a small contribution to the global community, and stimulate further research in the issue of migration of dentists, and health professionals.

ABSTRACT

Dentists from over 120 countries migrate to Australia. Migrants constitute a significant proportion of the Australian dental workforce, and it is estimated that one in four practising dentists is a migrant dentist (qualified from an overseas institution). The purpose of this thesis (by publication) is to provide a better understanding on the migration and settlement experiences of migrant dentists in Australia. The thesis utilises both qualitative and quantitative methods to address the purpose.

The qualitative study included in-depth interviews of 49 migrant dentists (from 22 countries) conducted between July and December 2011. Semi-structured interviews elicited the narration of participants' life stories over time. The analysis mainly supported two superordinate themes: global interconnectedness (explaining the reasons for dentist migration to Australia) and the newness-struggle-success continuum (describing the cultural adaptation process of migrant dentists in Australia). Further, participation in the qualifying examination process appeared to influence the settlement experience of migrant dentists.

The quantitative study included a national survey of all migrant dentists in Australia (n=1977), conducted between January and May 2013. Migrant dentists were asked to complete a self-administered questionnaire. A broad range of data including demographic, migration and residence characteristics, practice profiles, job satisfaction and life story experience were collected. A total of 1022 participants (response rate 54.5%) were classifiable into three mutually exclusive migrant dentist groups: direct recognition (n=491); examination pathway (n=411); and alternative pathway (n=120). The direct recognition group were mainly from high-income countries and had their qualifications directly recognised for practice in Australia.

The examination pathway group included migrants having successfully completed the three-stage qualifying examination process. All other migrant dentists were classified into the alternative pathway group (including students, academics, specialists and special registration candidates). Overall, 41.8% of migrants were female. More than half of the examination pathway group (54.1%) were from lower-middle income countries. A majority of the examination pathway group migrants (65.0%) were under 45 years of age, and a larger proportion (12.4%) worked in the most disadvantaged areas in Australia compared with other groups. In general, migrant dentists reported high levels of job satisfaction in Australia. However, dentists who migrated through the examination pathway had a lower probability of being satisfied with the area and type of practice (OR=0.71; 0.51 – 0.98), compared with the direct recognition group. Based on migrant dentists' life story experience, there was a greater appreciation of the Australian way of life if migrants had lived at least ten years in Australia (OR=1.97; 1.27-3.05). Migrants through the examination pathway (OR=9.32; 3.51-24.72) and alternative pathway (OR=7.38; 2.04-26.73) also showed greater challenges associated with home country systems when compared with the direct recognition group.

The work contained within the thesis provided evidence to suggest that migrant dentists from developing countries face greater challenges both in their country of origin and in Australia. This thesis offers suggestions towards targeted policies for migrants facing settlement issues in Australia. A further recommendation is to adopt a more inclusive approach and greater consensus for an international agenda to address challenges posed by dentist migration.

Number of words: 498/500 words

DECLARATION

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission for any other degree or diploma in any university or other tertiary institution without prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint award of this degree.

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Madhan Balasubramanian

Dated: 26 Aug 2015

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I extend my gratitude to Dr Keith Watkins and to Mr Sergio Chrisopoulos for assisting me in key phases of this thesis work.

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2. NHMRC's Centers for Research Excellence in Dental Health Services Research PhD Supporting Scholarship - Jan 2014 to Jun 2014

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The last few years have been a period of serious change in my personal and professional circumstances. I thank God for the love that keeps me alive.

Further acknowledgements are included in each article written for this thesis by publication.

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PUBLICATIONS ARISING FROM THE THESIS

Peer-review journal articles

1. Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The ‘global interconnectedness’ of dentist migration: a qualitative study of the life-stories of international dental graduates in Australia. *Health Policy and Planning*. Oxford University Press; 2015. 30: 442-450. doi: 10.1093/heapol/czu032.
2. Balasubramanian M, Brennan DS, Spencer AJ, Watkins K, Short SD. Overseas-qualified dentists’ experiences and perceptions of the Australian Dental Council assessment and examination process: the importance of support structures. *Australian Health Review*. 2014 Sep: 38(4): 412-9. doi: 10.1071/AH14022.
3. Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. Characteristics and practice profiles of migrant dentists groups in Australia: implications for dental workforce policy and planning. *International Dental Journal*. 2015. 65 (3):146-55. doi: 10.1111/idj.12154.
4. Balasubramanian M, Brennan DS, Spencer AJ, Watkins K, Short SD. The importance of workforce surveillance, research evidence and political advocacy in the context of international migration of dentists. *British Dental Journal*. 2015. 208:329-331. doi: 10.1038/sj.bdj.2015.195.
5. Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The ‘newness-struggle-success’ continuum: a qualitative examination of the cultural adaptation process experienced by overseas-qualified dentists in Australia. 2015. *Australian Health Review* [Early online; Published 3 Aug 2015]. doi:10.1071/AH5040.

6. Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The international migration of dentists: directions for research and policy. *Community Dentistry and Oral Epidemiology* [Submitted 29 Apr 2015, Under Review].
7. Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. Job satisfaction among ‘migrant dentists’ in Australia: implications for dentist migration and workforce policy. *Australian Dental Journal* [Accepted 14 Aug 2015; doi: 10.1111/adj.12370].
8. Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. Development of life story experience scales for migrant dentists in Australia: a sequential qualitative-quantitative study. *Community Dental Health* [Submitted 24 Aug 2015, Under Review].
9. Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. The life story experience for migrant dentists in Australia: new agendas for dental workforce planning, migration policy and international cooperation. [Draft article].

Media article

10. Balasubramanian M & Brennan DS. Dentist migration: a forgotten perspective. *Dental Tribune International*. Nov 2014. http://www.dental-tribune.com/articles/news/australia/20708_dentist_migration_a_forgotten_perspective.html

PRESENTATIONS ARISING FROM THE THESIS

Conference presentations

1. Balasubramanian M*, Brennan DS, Spencer AJ, Short SD. What can you learn from the life-story experiences of foreign trained in Australia? International Association for Dental Research – Indian Section Annual Conference. Invited Guest Lecture Presentation. [25+5 minutes]. Chennai. 7 Oct 2012.
2. Balasubramanian M*, Brennan DS, Spencer AJ, Short SD. Development of a life-story qualitative interviewing technique for a study on international dental graduates in Australia. Public Health Association of Australia Conference. Snapshot presentation. Methodology Stream.[5+2 minutes]. Adelaide. 10 Sep 2012.

University competitions and presentations

1. Balasubramanian M*. Characteristics and practice profiles of migrant dentists groups in Australia: implications for dental workforce policy and planning. Dental School Research Day. Oral Presentation. [10+5 min] The University of Adelaide. Adelaide. Jul 2014. *Winner of Best Presentation in PhD Category.*
2. Balasubramanian M* The global interconnectedness of dental profession: a case study of overseas-qualified dentists in Australia. Faculty of Health Sciences Annual Research Seminar. Poster Presentation. September 2013.
3. Balasubramanian M* The human face of dentist migration. The University of Adelaide -Three minute thesis competition. Faculty of Health Sciences, the University of Adelaide. Faculty Heats. August 2013. *Progressed to final faculty heats.*
4. Balasubramanian M*. Design and development of the mobility life story

questionnaire for international dental graduates in Australia: a mixed methods strategy. Dental School Research Day. Oral Presentation. [10+5 min] The University of Adelaide. Adelaide. Aug 2012.

Internal seminars

1. Balasubramanian M*. The International Dental Graduate Study. Australian Research Centre for Population Oral Health, School of Dentistry. Friday Lunch Seminar. Oral Presentation. [45 + 15 min]. Feb 2014.
2. Balasubramanian M*. Mobility of International Dental Graduates in Australia. Australian Research Centre for Population Oral Health, School of Dentistry. Friday Lunch Seminar. Oral Presentation. [45 + 15 min]. Aug 2012.
3. Balasubramanian M*. Migration, globalisation and leadership: a case of international dental graduates in Australia. Australian Research Centre for Population Oral Health, School of Dentistry. Friday Lunch Seminar. Oral Presentation. [45 + 15 min]. Apr 2012.
4. Balasubramanian M*. Mobility of International Dental Graduates in Australia. PhD Research Proposal. Australian Research Centre for Population Oral Health, School of Dentistry. Friday Lunch Seminar. Oral Presentation. [45 + 15 min]. Aug 2010.

*Presenting Author

STRUCTURE OF THESIS

The thesis is divided into three parts:

PART ONE offers an introduction to the dentist migration issue. First, a commentary (article) on the international migration of dentists (examined at a global level) is provided. Later, the issue of migration of dentists into Australia is discussed, which leads to the rationale and aims of the study. Further, an overview of both the qualitative and quantitative methods used in this study is provided.

PART TWO provides the list of original research articles (1-7) arising from the qualitative-quantitative study.

PART THREE provides a general discussion on the results arising from the qualitative-quantitative study. This part also includes an opinion article that tackles some issues arising from the original research work.

Published articles are provided in pdfs. Accepted articles are provided in the form they were accepted. Submitted or draft articles are provided in the form they have been submitted or drafted respectively.

For purposes of this thesis examination, all articles included in this thesis have been printed in a light blue tinted paper.

Referencing for the articles (published or submitted or accepted) included in the thesis is based on the format it was required for the respective journal. All supplementary material for this thesis is provided in the Appendix.

This thesis is structured based on the guidelines provided for a thesis by publication in the University of Adelaide.

PART ONE

1 INTRODUCTION

This chapter provides an introduction to dentist migration, mainly to support the original research articles arising from this doctoral work. First, the dentist migration issue is examined at a global level (commentary paper), following which, the Australian context for dentist migration is provided. The rationale, aims and methods used in the study are also discussed.

1.1 Commentary article: International migration of dentists

Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The international migration of dentists: directions for research and policy. *Community Dentistry and Oral Epidemiology* [Submitted 29 Apr 2015, Under Review].

Highlights

- This article provides a commentary on the international migration of dentists, examined at a global level.
- We point towards the shortcomings in dentist migration research and policy and provide arguments towards the role of developed countries (such as Australia) in responding to this global challenge.
- Minimum data required to support dentist migration research and policy is discussed.
- The WHO Global Code on the international recruitment of health personnel is introduced, and its relevance to the dental profession is discussed.
- Dental workforce data from 185 WHO member countries, obtained from the Global health observatory database, is used to substantiate the arguments raised in the article.
- This article currently has a minor revision status (received 17 Aug 2015) following the initial peer review process in *Community Dentistry and Oral Epidemiology* (see Appendix Two: B1).

1.1.1 Statement of authorship

Statement of Authorship

Title of Paper	The international migration of dentists: directions for research and policy
Publication Status	<input type="radio"/> Published <input type="radio"/> Accepted for publication <input checked="" type="radio"/> Submitted for publication <input type="radio"/> Publication style
Publication Details	Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The international migration of dentists: directions for research and policy. [Community Dentistry and Oral Epidemiology]. Submitted.

Author Contributions

By signing the Statement of Authorship each author certifies that their contribution to the publication is accurate (as detailed below). The co-authors also certify that the candidate's stated contribution to the publication is accurate, and the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Principal Author (Candidate)	Madhan Balasubramanian		
Contribution to the Paper	Conceptualized and developed the commentary paper. Wrote the manuscript and acting as the corresponding author. Overall contribution = 75%		
Signature		Date	24 Aug 2015

Name of Co-Author	David S Brennan		
Contribution to the Paper	Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	A John Spencer		
Contribution to the Paper	Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Stephanie Short		
Contribution to the Paper	Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

1.1.2 Linkage of article to body of research

The migration of dentists is a global issue that extends beyond national borders and affects a broad range of countries. Leading researchers in the migration of physicians and nurses have argued that a global overview of the migration problem is necessary to appreciate the relevance of the issue to a broad range of countries. The purpose of this commentary article was to discuss key issues on the international migration of dentists, highlight gaps in current knowledge, and offer recommendations for future research and policy directions. This article helped to establish the necessity of dentist migration studies, and provide avenues to develop such research in developed countries, such as Australia.

The work contained in this article was first written as part of a chapter that accommodated a review of literature for this thesis work. Later, we found this work could be refined into a stand-alone piece, and act as a contribution towards the global agenda on international migration of health professionals.

1.1.3 Submitted article

Pages 7 to 38 include the commentary article. The article is provided in the form it has been submitted to the journal.

1.1.3.1 Abstract

In 2010, the World Health Organization Global Code of Practice for International Recruitment of Health Personnel (the WHO Code) was adopted by the 193 Member States of the WHO. The WHO Code is a tool for global diplomacy, providing a policy framework to address the challenges involved in managing dentist migration, as well as improving the retention of dental personnel in source countries. The WHO Code recognizes the importance of migrant dentist data to support migration policies; minimum data on the inflows, outflows and stock of dentists are vital. Data on reasons for dentist migration, job satisfaction, cultural adaptation issues, geographic distribution and practise patterns in the destination country are important for any policy analysis on dentist migration. Key challenges in the implementation of the WHO Code include the necessity to coordinate with multiple stakeholders and the lack of integrated data on dentist migration and the lack of shared understanding of the interrelatedness of workforce migration, needs and planning. The profession of dentistry is also somewhat unique and requires coordination with a number of private and non-governmental organisations. Many migrant dentist source countries, in African and the South Asian WHO Regions, are in the early stages of building capacity in dentist migration data collection and research systems. Due to these shortcomings, it is prudent that developed countries take the initiative to pursue further research into the migration issue and respond to this global challenge.

Keywords: dentists; global organisations; health policy; international cooperation; migration

1.1.3.2 Introduction

“Mobilisation and strengthening of human resources for health, neglected yet critical, is central to combating health crises in some of the world’s poorest countries and for building sustainable health systems in all countries.”

Chen *et al.*, Lancet: 2004

In recent years, there has been a renewed interest in the international migration of health personnel both at a country and global level. The Joint Learning Initiative (JLI), an enterprise engaging over 100 global health leaders, established the unprecedented nature of brain drain in the developing and poorer regions of the world (1). The JLI report stressed the importance of a global effort in positively harnessing transnational flows of labour, knowledge and finance (1,2). Further, it is believed that the report influenced the adoption of a series of World Health Assembly (WHA) Resolutions on health personnel migration (3). The WHA Resolutions (No. 57.19 and 58.17) urged for strategies and mechanisms to mitigate the adverse effects of migration of health professionals, and minimize its negative impact on health systems (4,5). In 2006, the World Health Organization (WHO) called for “a decade of action” on human resources for health (6).

An important outcome due to the attention to migration of health personnel and health workforce was the formation of the Global Health Workforce Alliance (the Alliance), considered by many as the focal point for consolidated action in relation to the health workforce and health systems development (3). The Alliance has over 300 collaborators including academic/research institutions, foundations, national governments, non-governmental organisations, professional associations, United Nations agencies and other networks (7). Nevertheless, much of the interest in health

personnel migration has been on physicians and nurses. The migration of dentists is an issue that has received very little attention.

In general, dentists aim to improve the oral health of people in accordance with the ethics of the profession, and within the scope of their education, training and experience (8). The profession of dentistry is an attractive career option and continues to interest the top percentile of school leavers (9,10). In many countries, students require at least five years of dental education before they can seek to register and practise as a dentist. The high education investment and complex technical skill sets of dentists possibly make them an attractive group of health personnel to take part in international migration (11). Countries facing shortages in oral health personnel welcome migrant dentists. In addition, dentists also migrate for a variety of reasons (e.g. professional development, family, financial); the development of the desire to migrate could dwell deep into a migrant dentist's life-story (11). While migration appears to bring improved knowledge flows across borders, and contribute towards global development (12), it also offers several challenges for the migrating dentist and destination countries. Migrant dentists could face considerable delays in settling down in a new country that could in many ways affect their personal and family circumstances (13). On the other hand, destination countries face ethical challenges contributing towards brain drain in the developing and poorer regions of the world (14). Destination countries are also required to understand how well migrant dentists adapt to the new environment, so as to offer assistance in their cultural adaptation and integration process in the new country. As the dentist migration issue affects many countries, it requires a global effort to address the challenges associated in international migration of dentists.

The purpose of this paper is to discuss key issues on the international migration of dentists, highlight gaps in current knowledge, and offer recommendations for future research and policy directions.

1.1.3.3 The global dental workforce

The availability of dentists to provide necessary care is paramount in an oral health system. The global dental workforce is made up of around 1.5 million dentists (15). Dentists comprise nearly 80 percent of all oral health personnel^a (15). Over one-third of the world's dentists (35 percent) are based in the American Region of the WHO, followed by European Region (30 percent), Western Pacific Region (16 percent), South-East Asian Region (10.3 percent) and Eastern Mediterranean Region (7.2 percent). Only two percent of the world's dentist population is based in the African Region (see Table 1). Further, the largest proportions of dentists' continue to be based in the World Bank (WB) high-income countries (40 percent), followed by the upper-middle (33 percent) and lower-middle income countries (26 percent). Only about one percent are based in the low-income countries.

Table 2 lists the top 30 countries that contribute to the global dentist workforce. Nearly a quarter of the world dentists' are based in Brazil and United States of America (USA). India, Thailand and Indonesia are key contributors in the South-East Asian WHO Region; Egypt, Syria and Iran in the Eastern Mediterranean Region. In the Western Pacific WHO Region, Japan, China, Philippines and Australia have the largest proportion of the dentist workforce. Countries listed in the European Region are mainly high-income-countries, with the exception of Ukraine and Turkey.

The global distribution of dentists shows a larger proportion of dentists in the higher income group countries. Several low and lower-middle income countries continue to face a significant global burden of oral disease, yet face constraints to meet the required supply of dental practitioners (16). There is a substantial scarcity of dentists in the African Region, where in about 40 countries there are less than five

dentists per 100,000 people (15,16). The Sub-Saharan African countries appear to be the most affected (17). The prominent oral health problems among low-socioeconomic communities in Africa include noma^b, acute necrotizing gingivitis^c, oral cancer, oral manifestations of human immuno-deficiency virus and acquired immuno deficiency syndrome, orofacial trauma and dental caries (18). The inability to provide dentists has stretched the capacity of oral health systems in African countries to function effectively, and in many scenarios treatment is limited to pain relief, emergency care and tooth extraction (19).

Some lower-middle income countries in the South Asian WHO Region have dramatically upscaled the production of dentists. In India, for example, the number of dental colleges grew from 145 in 2002 to 294 in 2012 (20). Much of this improvement is due to the increase in number of private dental colleges (21). Over 85 percent of the dental colleges in India are private establishments that share about 90 percent of the overall student enrollment (21). Nevertheless, with over 20,000 dentists graduating every year, India still faces the most significant scarcity of dentists in rural areas and villages (22,23). Nearly 70 percent of the Indian population lives in these rural areas (24). A sharp increase in the number of dentists was found in Thailand, where 3038 new dentists were added to the workforce between 2006 and 2010 (25). However, about 80 percent of all dentists practised in the urban areas, and nearly half of the dentists in Thailand worked in the Bangkok region (25). In Indonesia, 10,693 new students enrolled in a dentistry program during 2009/10 (26). Further, the dental workforce is projected to increase to nearly 30,000 dentists by the end of 2020 (26).

Low- and middle-income countries in the Eastern Mediterranean Region of the WHO are facing significant challenges in health workforce development, including

shortages and maldistribution of dental personnel (27,28). Despite a strong public sector in countries like Jordan, 98% of the dentists work in the private sector (27). Pakistan, a Group 3 country^d in this Region, faces severe health personnel workforce shortages in both public and private sectors (27). Pakistan has 40 dental colleges; 29 of them are private colleges (29). In 2010, Pakistan reported to have around 10,500 registered dental practitioners and ranked 31st in the global dental workforce (15). Syria had invested significantly in scaling up the dentist workforce: dentist numbers increased from 1,975 to 20,005 between the years 1981 and 2008 (30,31). Nevertheless, the percentage of untreated dental caries, extent of periodontal disease and the number of decayed, missing and filled teeth remains unchanged (30–32). Egypt and Iran, though major contributors of dental workforce in this Region, still face several challenges in the provision of dentists in the rural areas and public sectors (27,33,34). In Iran, only 10 percent of the dentists work in the public services (33).

Philippines, in the Western Pacific Region, has adopted a strategy of educating health personnel (including dentists) both for the local market and export to high-income countries (35,36). Many Pacific Island countries in this Region struggle to produce enough dentists to meet population requirements: Papua New Guinea, Kiribati and Vanuatu have some of the lowest dentist to population ratios in the world (37). In China, the geographic distribution of dentists is reported to be very uneven; more dentists practise in the major cities and few in rural areas (38). Further, the shortage and uneven distribution of dentists limits access to oral health services for the Chinese people (38).

Most countries in the poorer or developing regions of the world also do not have suitable dental workforce surveillance systems, such as a workforce censuses or

surveys (19,39). Very little useful data exist concerning workforce distribution, or practice activity patterns of health personnel, including dentists (1,6). Very little is known if a dentist works in her/his home country or migrates altogether to a different country. In a survey of all FDI World Dental Federation member countries, migration to high-income countries seems to have emerged as a trend among dentists in developing countries (40). High-income countries such as the United States of America, United Kingdom, Canada, and Australia have faced an increased demand for dental care, making recruitment of dentists from poorer regions of the world a viable option to meet the local shortages in dental workforce.

1.1.3.4 Migration flows and patterns

Dentists migrate for several reasons. While research on factors that drive the migration of dentists has been limited, it can be argued that health professionals, in general, mainly migrate for better-remunerated job opportunities, professional development, career growth, and better working and living conditions (6,40–43). Broader political and economic forces also influence migration flows and patterns. For example, the 1997 handover of Hong Kong to the People’s Republic of China led to a mass emigration of dentists from Hong Kong, mainly due to freedom and stability concerns (44). Political uncertainties and internal conflicts that exist in many parts of world (e.g. Africa or Middle Eastern countries), contribute towards emigration of people, including health personnel (45–48). Economic policies coexist with broader political agendas influencing movement of personnel and goods, serving for enhanced growth, prosperity and demands of the participating countries (49,50).

The European Union (EU) is a “unique economic and political partnership” between 28 European countries that facilitates EU nationals to work for an employer or as a self-employed person in any EU country without needing a work permit (51). A primary dentist qualification^e obtained in an EU country is automatically recognised for practise across the EU (52). Following the 2004 and 2007 EU enlargements, it is argued that while the overall mobility of dentists is moderate, there is an increased movement from newer to older EU member countries (53). Austria, Belgium, Denmark, Finland, Germany, Sweden and the United Kingdom have reported an increase in the number of dentists migrating from the 2004/07 EU Accession States (53). For example, between 2007 and 2009, the number of the

dentists from Bulgaria and Romania (2007 EU Accession States) contributed to the largest increase in EU dentists registered in the United Kingdom (54). This movement can have considerable impacts on the poorer and underserved regions of source countries (53).

The Association for South East Asian Nations (ASEAN)^f Economic Community (AEC) is a recent initiative in the area of skills mobility undertaken in Asia (55). It is expected that the creation of an ASEAN skills recognition framework will promote mutual recognition of dental qualifications in this region (56). Similar arrangements also exist within the Gulf Cooperative Council (GCC) countries, an association of six Gulf nations that include United Arab Emirates, Bahrain, Kuwait, Oman, Saudi Arabia and Qatar (57). Bilateral or focussed regional agreements exist between some countries that facilitate skills recognition and thereby the movement of health personnel (58,59). A prominent example is the Trans-Tasman Agreement between Australia and New Zealand (60,61).

The changes in the political atmosphere and civil disturbances, for example in some Eastern Mediterranean WHO Region countries, can contribute to forced migration of people, including dentists. In Iraq, following the 2003 US invasion, it is estimated that 15% of the population and over 3000 doctors left the country (62–64). It is not known how many dentists left the country. Civil war in Somalia resulted in mass emigration of health personnel, bringing serious consequences to the local population (65). Chronic instability and internal conflicts in countries such as Lebanon, Palestine, Somalia, Sudan, Egypt, Syria and Yemen can contribute to mass movement of people, either internally to other neighbouring countries in the Region or to other popular migrant destinations (66).

The Philippines and more recently India can be viewed as modern commercial hubs for dental education and dentist export (11,58,67,68). As discussed earlier, both countries have faced a significant increase in the number of dental colleges. Government policies in these countries support migration, as a pathway to economic growth and knowledge circulation (58,59,69). Figure 1 provides an illustration of the migration flows and patterns discussed in the above paragraphs. Popular migration flows are superimposed on dentistry personnel per population ratio to provide a clearer view of the loss of dental personnel in source countries.

1.1.3.5 Global organisations and agendas

The migration of dentists is a global issue that extends beyond national borders and affects a broad range of countries. Few international organisations are actively involved in policy and advocacy on the migration of health personnel, including dentists. The Commonwealth of Nations (the Commonwealth) is arguably one of the first international organizations to deliberate on ethical problems caused due to migration of health personnel from developing to developed countries (14,70,71). The Commonwealth is a unique partnership among 53 countries, brought together by ties of history, language and institutions (14). In 2003, a detailed code of practice of international recruitment of health workers (mainly for physicians and nurses) was adopted by the Commonwealth (72). The Commonwealth Code, however, has a ‘developing country bias’ that focussed mainly on the loss of health personnel in source countries and very little on loss of (potential) opportunities for dentists and students in host countries (14). Further, the role of Britain was central to the Commonwealth (14). The dramatic shift (in the post-cold-war era) in Britain’s foreign policy from being Commonwealth centric to European and transatlantic has affected leadership in the Commonwealth (73–75). Prior research concluded that the role of the Commonwealth in dental migratory ethics is limited, mainly due to indifferent priorities, lack of funds and rise of other international organisations such as the WHO and FDI World Dental Federation (14).

The WHO is a highly focussed public health arm of the United Nations, providing leadership on international health issues (76). The WHO provides solutions to address the challenges involved in managing migration, as well as improving the retention of health personnel in source countries (77). In 2010, the

WHO Global Code of Practice for International Recruitment of Health Personnel (the WHO Code) was adopted by the 193 Member States of WHO (78,79). The WHO Code can be considered as a tool for international advocacy, providing a global context on health workforce development, and is relevant to both source and destination countries (78).

The WHO Code (Articles 4-10) make up a detailed framework for dialogue and cooperation with multiple stakeholders at local, national, regional and global levels (78,79). Article 4 of the WHO Code provides guidelines for employers in destination countries on fair recruitment and contractual practices of migrant health personnel, and encourages practices that are respectful of workers' rights and responsibilities (79). Article 5 advocates effective domestic workforce planning and retention strategies to sustain a workforce that is appropriate to the specific conditions of each country (79). Improving data gathering and research activity (Article 6) and enhancing information availability and exchange between countries (Article 7) are itemised as essential aspects towards better understanding health personnel mobility (79). Member States are encouraged to publicize and implement the WHO Code (Article 8), and guidance is to be readily available from the concerned authorities in the WHO, along with mechanisms towards monitoring and reporting (Article 9) the migration of health personnel (79). In addition, the WHO Code also emphasises the importance of partnerships between state and non-state organizations and for improved technical collaboration (Article 10) in the implementation of the WHO Code (79). This becomes particularly relevant in the dental profession, where a majority of the practitioners practise in private clinics.

The FDI World Dental Federation is a key global dental organisation that has adopted the WHO Code actively in its international advocacy agenda. Together with

the International Association for Dental Research (IADR), the FDI is one of the two dental organisations with an official relation with the WHO (80,81). The FDI is a federation of national dental associations in about 135 countries; represents over a million dentists worldwide, and acts with a unified voice for dentistry in international advocacy (39,82). The FDI has acknowledged that the maldistribution of dental personnel both within and between countries, and migration of dental personnel are key issues to tackle in the future (36,39,67). The FDI statement on ethical international recruitment of oral health professionals calls upon national dental associations to collaborate with governments to assist in: dental workforce development; improving sustainability of the dental workforce; and lessen adverse effects of migration (83). While the FDI provides an overarching ethical statement and supports the WHO Code, there exists very little understanding of national efforts particular to dentist migration.

The IADR is a non-profit corporation, comprising of nearly 11,000 members worldwide (84). The IADR promotes research activities in the field of dentistry, and assists researchers in the communication and dissemination of research findings (84). Dentist migration research, though in the early stages, can be considered as a part of the broader IADR dental health services research agenda. The International Federation of Dental Educators and Associations (IFDEA) is a partnership of key country-based and regional dental educators. The partnership has stressed the need for a collaborative approach to tackle the issue of academic and student migration, and it is believed that such migration can promote cross-border flows of knowledge and experience (85,86). The impact of such migration in developing and poorer regions of the world is an area that requires attention.

The World Bank recognizes migration as a “defining issue for global development.” (87) The focus of the World Bank has mainly been on improving data on migration and remittance flows (87). The World Bank along with the WHO are also members of the Global Migration Group (GMG), an inter-agency group^g that promotes wider application of international norms, and encourages more inclusive and better coordinated approaches to international migration (88). As discussed earlier, the Global Health Workforce Alliance is a new global partnership created in 2006, mostly to address the health workforce crisis (89). The Alliance provides a platform for interdisciplinary collaboration on migration related issues (89). Nevertheless, the Alliance needs to strengthen its research and advocacy agenda on dentist migration issues.

1.1.3.6 On Reflection: research and policy directions

The international migration of dentists introduces several policy questions for source countries, destination countries and global organisations. Source countries need to have a better understanding about the emigration of dentists, which leads to brain drain or contributes to knowledge circulation and development (12,43). Destination countries are required to focus on sustainable workforce solutions, reduce their reliance on migrant dentist workforce, and improve the number and capacity of the local dental workforce (6,43). Global organizations need to develop mechanisms to collaborate with national governments and facilitate international cooperation (1,43). Migration data are primary to support the policy analysis of health personnel migration, and minimum data on the inflows, outflows and stock of dentists are essential (43). Data on reasons for leaving a source country or coming to the destination country, career plans, career history, job satisfaction and cultural adaptation issues in the destination country are important for any policy analysis on health personnel migration (43). Figure 2 (adapted from nurse migration) provides an illustration of the minimum data required to support policy analysis in dentist migration.

Following the adoption of the WHO Code in the 63rd World Health Assembly, Member States were encouraged on regular reporting and information exchange of migrant health personnel (90). A National Reporting Instrument (NRI) was developed to collect minimum data on migrant health personnel, with each country also required to designate a National Authority for facilitating information exchange on health personnel migration and the implementation of the WHO Code (91). Recent reports point out that only 56 countries had reported on the status of the

WHO Code implementation (91). The key challenges in the implementation of the WHO Code were the necessity to coordinate with multiple stakeholders, lack of coordinated comprehensive data on health personnel migration and the lack of a shared understanding of the interrelatedness of workforce migration, workforce needs and workforce planning (91). The report concluded that greater collaboration is required between the state and non-state organisations, mainly to reinforce the importance of the WHO Code as a potent global advocacy and diplomacy tool (91).

The profession of dentistry requires coordination with a number of private and non-governmental organisations. Migrant dentist source countries, most especially in African and the South Asian Region, are in the early stages of building capacity in dentist migration data collection and research systems. In this context it is both timely and prudent that developed countries take the initiative to strengthen research into the migration issue in order to respond to this global challenge.

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1.1.3.8 End notes

- ^a The other dental workforce mainly includes dental therapists, dental hygienists, dental prosthetists, denturists, dental technicians and oral health therapists.
- ^b Noma is an opportunistic infection promoted by extreme poverty. It evolves rapidly from gingival inflammation to grotesque oral facial gangrene. Acute noma is predominant in children aged 1-4 years (92)
- ^c An acute bacterial infection of the gingiva characterised by interdental necrosis, punched out ulcerated papillae, gingival bleeding and pain (93).
- ^d WHO has classified countries in the Eastern Mediterranean Region (22 countries) into three groups based on health system performance and level of health expenditure: Group 1, Group 2 and Group 3. Group 1 includes countries with major socioeconomic progress and high income (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE). Group 2 include middle income countries with extensive public health service delivery infrastructure, but face resource constraints (Egypt, Iran, Iraq, Jordan, Lebanon, Libya, Morocco, Palestine, Syria and Tunisia) Group 3 countries (Afghanistan, Djibouti, Pakistan, Somalia, Sudan, Yemen) face major constraints in population health outcomes, and are mainly low income countries. They also face lack of resources for health, political instability and internal conflicts (94).
- ^e The automatic recognition of EU basic dentist qualifications is as listed in Directive 2005/36/EC. Qualifications that meet basic criteria for automatic recognition include at least 5 years of full time study, and basic coverage of knowledge and skills (52).
- ^f ASEAN countries include Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.
- ^g Other members of the GMG include Food and Agricultural Organization, International Labour Organization, International Organization for Migration, Office of the High Commissioner for Human Rights, United Nations Conference on Trade and Development, United Nations Department of Economic and Social Affairs, United Nations Development Programme, United Nations Educational, Scientific and Cultural Organization, United Nations Population Fund, United Nations High Commissioner for Refugees, United Nations Children's Fund, United Nations Institute for Training and Research, United Nations Office on Drugs and Crime, United Nations Regional Commissions, United Nations Entity for Gender Equality and the Empowerment of Women, and United Nations University (95)
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1.1.3.9 References

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1.1.3.10 List of tables and figures

Table 1: The global dentist workforce

Table 2: Number of dentists ranked by countries (Top 30)

Figure 1: The international migration of dentists

Figure 2: Minimum data required to support policy analysis in dentist migration

Table 1: The global dentist workforce^a

	Number	Percent
WHO Regions		
African Region	21,833	1.44
American Region	531,492	35.13
Eastern Mediterranean Region	108,264	7.16
European Region	453,711	29.99
South-East Asian Region	156,448	10.34
Western Pacific Region	241,207	15.94
Total	1,512,955	
WB Income Groups^b		
Low income countries	22,182	1.47
Lower-middle income countries	388,343	25.67
Upper-middle income countries	498,683	32.96
High income countries	603,740	39.90
Total	1,512,955	

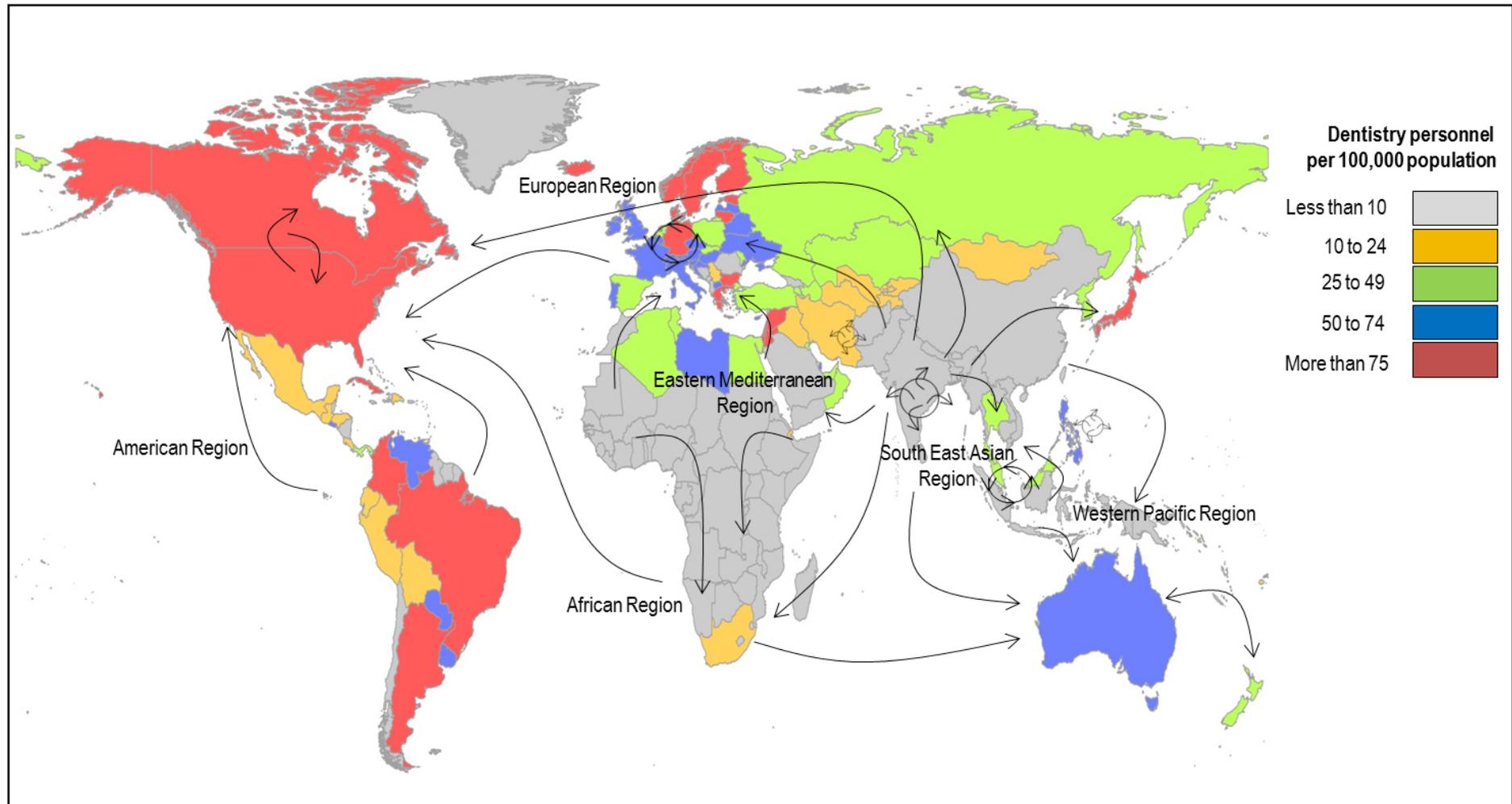
Note: (a) Estimates include dentist numbers obtained from the Global Health Observatory database of the World Health Organization (WHO). (b) Cook Islands, Niue and Nauru (including 7 dentists) were not classified into any World Bank (WB) Income Group.

Table 2: Number of dentists ranked by countries^a (Top 30)

Rank	Country	WHO Region	WB Income Gp.	Year	Number	Percent ^b
1	Brazil	American	Upper Middle	2009	231,399	15.29
2	USA	American	High	2000	134,245	8.87
3	India	South-East Asian	Lower Middle	2012	120,897	7.99
4	Japan	Western Pacific	High	2010	101,576	6.71
5	Germany	European	High	2011	65,502	4.33
6	China	Western Pacific	Lower Middle	2005	51,012	3.37
7	Philippines	Western Pacific	Lower Middle	2004	45,903	3.03
8	Russia	European	Upper Middle	2006	45,628	3.02
9	Colombia	American	Upper Middle	2010	44,858	2.96
10	France	European	High	2012	41,740	2.76
11	Argentina	American	Upper Middle	2004	35,592	2.35
12	United Kingdom	European	High	2012	33,653	2.22
13	Egypt	East. Mediterranean	Lower Middle	2009	33,476	2.21
14	Italy	European	High	2004	33,000	2.18
15	Ukraine	European	Lower Middle	2012	30,688	2.03
16	Korean Rep.	Western Pacific	High	2012	21,888	1.45
17	Turkey	European	Upper Middle	2011	21,099	1.39
18	Spain	European	High	2003	20,005	1.32
19	Canada	American	High	2008	19,433	1.28
20	Syria	East. Mediterranean	Lower Middle	2008	16,169	1.07
21	Venezuela	American	Upper Middle	2001	13,680	0.90
22	Mexico	American	Upper Middle	2011	13,451	0.89
23	Iran	East. Mediterranean	Lower Middle	2005	13,210	0.87
24	Poland	European	High	2011	13,033	0.86
25	Greece	European	High	2001	12,394	0.82
26	Australia	Western Pacific	High	2011	12,154	0.80
27	Cuba	American	Upper Middle	2010	12,144	0.80
28	Thailand	South-East Asian	Lower Middle	2010	11,847	0.78
29	Algeria	African	Upper Middle	2007	10,621	0.70
30	Indonesia	South-East Asian	Lower Middle	2012	10,566	0.70

Note: (a) Estimates include dentist numbers obtained from the Global Health Observatory database of the World Health Organization. (b) Percent is based on the overall dentist number (n=1,512, 955 dentists) reported from all member countries. WHO is World Health Organization; WB is World Bank.

Figure 1: An illustration of international migration of dentists



Note: Estimates include aggregated global dental workforce data obtained from the Global Health Observatory database of the World Health Organization. Available country estimates ranged from 1997 to 2013. This original map was prepared using ArcGIS (ESRI Arc Map 9.3; Cartogram)

Figure 2: Minimum data required to support policy analysis in dentist migration

Migration flows	Attitudes, Behaviour and Demographics	
Numbers leaving a country Numbers entering a country Numbers in the dental workforce Numbers not in the dental workforce	Career history Reasons for migration Job satisfaction Cultural adaptation issues Career plans	Qualifications (country and university) Year first qualified as dentist Geographic distribution Practice type and patterns Sex, Age, Race/Ethnicity
Number of countries travelled/worked Length of stay in each country		

Note: This figure is adapted from Buchan & Sochalski 2004 on policy challenges facing nurse migration.

1.2 Migration of dentists to Australia

The purpose of this section is to provide an overview of the dentist migration situation in Australia, so as help us better understand gaps in research and policy. This section also leads to the aims of the study.

1.2.1 Setting the scene

“You feel free in Australia. There is great relief in the atmosphere - a relief from tension, from pressure, an absence of control of will or form. The skies open above you and the areas open around you.”

D H Lawrence, English poet and author

The migration of dentists into Australia is an emerging policy issue both in Australia, and in many source countries that lose dentists to Australia. According to the FDI World Dental Federation (FDI), Australia has the largest proportion of migrant dentists amongst the Organisation of Economic Cooperation and Development (OECD) countries (1–3). It is estimated that one in four of every dentist in Australia is a migrant dentist, with a primary dental qualification (such as a BDS, BDSc or DDS) obtained from an overseas or foreign institution (4). Prior research in the 1980’s, has pointed out that the majority of the migrant dentists in Australia hail from the United Kingdom, New Zealand and Republic of Ireland (5). Over the last decade, however, the number of dentists migrating from the developing and poorer regions of the world has considerably increased (6, 7). Much of this increase is due to dentists migrating from India, Philippines, South Africa, Egypt, Iran, Iraq, and Indonesia (6).

As highlighted in the commentary article (see previous section), many developing countries lack suitable workforce planning and surveillance systems. As a

consequence, the extent of the dentist migration problem is largely unknown. Migration of dentists into Australia also contributes to brain drain; source countries lose their educational investment made on the migrating dentists, and migration affects their ability to meet adequate dental workforce requirements (8, 9). On the other hand, migration of dentists to Australia is also argued to restrict opportunities for school leavers and locally-practising dentists in Australia (10–12). The current wave of migration, caused by the inflow of dentists from developing countries, is a new phenomenon and is envisaged to have considerable impact on workforce planning and development in Australia.

1.2.2 The Australian dental workforce

In 2011, the Australian dental workforce was made up of 18,803 registered dental practitioners (13). Around three-quarter (75.4 percent) of the registered dental workforce were made up of dentists; 12,734 dentists^a were employed (13). Around one-third of employed dentists mainly practised in the state of New South Wales, followed by Victoria (24.3 percent), Queensland (19.8 percent), Western Australia (10.5 percent), South Australia (7.9 percent), Australian Capital Territory (1.8 percent), Tasmania (1.5 percent) and Northern Territory (0.75 percent). The average age of employed dentists was 43.5 years and they worked on an average of 37.4 hours per week. In addition, just over a third of the dental workforce in 2011, was made up of women. Between 2000 and 2011, the number of employed dentists in Australia increased at the national rate of 41.6 percent. Queensland (61.5 percent), Northern Territory (60 percent), Tasmania (57.1 percent) and Western Australia (45.8 percent) had increases greater than the national rate. The representation of women in the employed dentist workforce increased from 22.9 percent in 2000 to 35.6 percent in 2011. A slight decrease in the average age of the employed dentist

workforce was noticed (44.4 years in 2000 and 43.5 years in 2011). The average hours worked by dentists consistently reduced from 39.3 hours in 2000 to 38.5 hours in 2006 to 37.4 hours in 2011 (see Table 2).

Nearly 80 percent of the dentists in Australia mainly practise in the state/territory major city regions, where 70 percent of Australian population is concentrated (13, 14). Only about one percent of the dentist workforce practised in the Remote and Very remote areas (see Figure 4). Over four-fifths (83 percent) of the employed dentist workforce worked in private practices (13). Only about 15 percent of the dentist workforce worked in public practices (see Figure 5).

Dentistry in Australia has traditionally been practised in private clinics (15). Public dental services are provided by teaching dental hospitals, school and community dental clinics (16). Dental services are not covered under the Universal Health Insurance scheme (Medicare program) in Australia, and treatment generally incurs out-of-pocket payment, unless the patient is covered by private health insurance (17). Dental training was first provided in Melbourne Dental Hospital in 1897, and later as part of the Faculty of Dentistry in the University of Melbourne (18). Over the next 50 years four other dental faculties were established in the Universities of Sydney, Adelaide, Queensland, and Western Australia (19–22). Overall, these five dental schools produced around 200 graduates each year (23).

Projections of the supply and demand of dentists in Australia run on the baseline year 2003, estimated a supply shortfall of 2.8 million dental visits by 2020, equating to an undersupply of 1,000 to 1,100 dental practitioners (24). This supply shortfall could be argued due to the limited local production of dentists, or changes in work patterns and geographic practice tendencies of a dentist or changes in health seeking behaviour of patients. Until 2003, there were only five dental schools in

Australia producing around 200 graduates each year (25). Further, dentists seemed to be working for shorter hours and the average hours per week continued to decrease over the last decade (13, 26, 27). The increase in the female participation in dental labour force could also have partly contributed to the reduction in available dentist hours. Prior research has suggested that females work more part-time and take more career breaks (28–31). Moreover, geographic distribution of dentists has an urban bias, with proportionally more dentists practising in the major cities (27, 32). An ageing adult population with a more informed public also contribute to increasing demand for dental services (33, 34). Australia faced similar challenges as experienced by many developed countries in regard to dental workforce shortages, private-public and geographic maldistribution of dentists.

Over the last decade, several measures have been taken to alleviate the projected undersupply of dentists in Australia. Four new dental schools have been established in the Universities of Griffith, Charles Stuart, James Cook and La Trobe (25). These schools provide more opportunities for local Australians to pursue a career in dentistry, and improve the capacity to provide dental services to the Australian public. Changes in service provision have occurred through the increase in the oral health practitioner workforce (13). The migration and recruitment of overseas-qualified or migrant dentists has also been encouraged to reduce the growing gap of dental services in Australia (35).

1.2.3 Migration pathways into Australia

Since the early to mid-1900s, the migration of dentists into Australia was regulated by the state/territory dental boards (36). In the early 1970s, a formal legislation on migrant dentists was uniformly accepted across all dental boards (37). The Committee for Overseas Professional Qualifications (COPQ) was established in 1969

by the then Minister for Immigration, B. M. Snedden, and this was adopted by the other state and territory immigration ministers (38). The Committee helped create an Expert Panel in Dentistry in 1971, with key members drawn from dental boards and associations and who provided advice with respect to overseas qualifications (37–40). Based on the panel’s recommendations, dental boards were given discretionary power to further assess migrant dentists via a national screening examination conducted by the COPQ (38). This modus operandi remained largely unchanged, but became more structured under the Australian Dental Examination Council (ADEC)^b and later by the Australian Dental Council (ADC) in 1996.

The ADC is an independent national accreditation authority that is responsible for the examination of the suitability of migrant dentists to practice in Australia (41). The ADC has a well-established organisational structure; the governing body includes members from dental education providers, peak national bodies for dental professionals, dental specialist education bodies and dental boards (41). A range of committees and working parties also provide advice and support to the governing board (41, 42). The ADC is registered under the Cooperations Act 2001 as a non-for-profit company (41, 42).

Migrant dentists are examined by the ADC in four main steps: an initial assessment of qualifications, an English language examination, a preliminary written test and a practical clinical test (6, 41, 43). All documentation on migrant dentist’s education and experience is verified during initial assessment, so as to determine the level of further assessment required (43). The English language is mainly tested through the Occupational English Test^c (OET) (43). The preliminary written test includes multiple choice questions and short answers that mainly examine the candidates fundamental knowledge in dentistry and technical knowledge on

contemporary dental practices (43). The practical clinical test examines the candidate's clinical skills and judgement (43). According to the ADC, the standards for examination are set at a level of knowledge, skills and professional attributes of a newly qualified graduate of an Australian dental school (6, 43).

Migrant dentists from the United Kingdom, New Zealand, Republic of Ireland and Canada^d can have their qualifications directly recognised for practice without having to go through the ADC examination process (44). However, all other country candidates are required to successfully complete the ADC examination process (43). Candidates from recognised dental programs from South Africa, Hong Kong, Singapore, Malaysia and the United States can work in the public sector dental workforce scheme^e that allows them to seek conditional registration and practice under supervision (6, 43). These candidates can bypass the English language and theory test, but must complete the practical clinical test if they seek to practice independently in the private sector in Australia (43).

Migrant dentists can also choose to enter through the University pathway as students, academic and research staff (6). Candidates can enrol in graduate clinical dental programs (Doctor of Clinical Dentistry, Master of Philosophy and Graduate Diploma in Clinical Dentistry). Candidates involved in teaching or research can be given limited registration to practice under supervision, depending on the duration of their contract with the concerned teaching institution (6). Migrant dentists involved in a research degree (PhD) or research work can obtain limited registration for clinical activity based on the duration of their program (6). Nevertheless, in order to obtain full registration status, all university pathway candidates are required to successfully complete the ADC four-stage examination progress. Dental specialists

can seek to gain entry through their specialist qualification^f – the ADC assesses this on a case by case basis (6).

All migrant dentists are also required to obtain a valid visa to live and work in Australia (7). Dentists from New Zealand can migrate and work in Australia based on the Trans-Tasman visa arrangement. Generally, obtaining a visa to work in Australia is somewhat easier for dentists from developed countries (45). However, dentistry has often been listed in the demand list of professions, and additional points have been provided towards immigration and permanent residency (46), encouraging suitably qualified dentists from developing and poorer regions of the world to also migrate to Australia.

1.2.4 Roles of governmental and non-governmental organisations

A few organisations are actively involved in migrant dentist activities in Australia. The Department of Immigration and Border Protection^g offers visas for migrants to live and work in Australia (45). All migrant dentists are required to fulfil necessary immigration requirements and maintain a valid visa during their stay in Australia (45). Migrant dentists can move to Australia with a permanent visa or temporary visa (mainly work visa, sponsored visa, student visa or spouse visa). The Immigration Department is also a good source for information on life in Australia, and maintains a web portal with links for job seekers and new migrants (45). State immigration departments also offer arrival support and information sessions to assist new migrants.

The Australian Dental Council (ADC) is an assessment authority for migrant dentist qualifications (43). All migrant dentists wanting to practice as a dentist in Australia are required to meet the necessary requirements (English test, preliminary written test and practical clinical test) set forth by the ADC (41). The ADC conducts

the preliminary written test in 28 national and international locations (41, 43). These written tests are held twice a year. Practical clinical tests are held only in Australia, and up to 18 times in a year. Major clinical facilities in Australia are utilised to conduct these tests. The cost to candidates of the entire assessment process is about \$8500 (43). Candidates retaking the examinations are required to pay an additional fee. All migrant dentists must maintain a valid registration to practice with the Australian Health Practitioner and Regulation Agency (AHPRA), a national regulating agency for all health practitioners in Australia including dentists (44).

Public dental services in Australia are mainly run by the State/Territory Health Departments (47). Registered migrant dentists can choose to work in the public sector, providing services in dental hospitals, community or school dental clinics. Certain schemes run by the state dental services, such as the Public Sector Dental Workforce Scheme, offer appropriately qualified migrant dentists an opportunity to work in the public sector (48,49). Migrant dentists can be provided conditional registration in this Scheme, and carry a temporary obligation^h to work in areas of workforce shortage (such as the rural and remote areas in Australia) (6,43). State dental service departments offer support services for migrant dentists, mainly through induction seminars, supervision and continuing education programs (48). The private dental sector is the largest component of the dental sector in Australia (27). The private sector mainly includes solo practices or group practices (27). Migrant dentists choosing to practise in the private sector should have obtained full ADC registration.

University dental schools and hospitals provide opportunities for appropriately skilled migrant dentists to work in academic, teaching, research or management positions. Migrant dentists can also enrol as students in graduate and

research programs in dental schools. All migrant dentists involved in clinical work in a university-based environment are required to meet the ADC criteria, and have either full registration or conditional registration (43). A fully registered senior academic or clinician in the University is required to provide necessary supervision and support (6). Universities also provide support for new staff and students, ranging from induction seminars, accommodation support, medical and counselling services.

Employment opportunities in the public or private sector can be obtained from job search portals provided by the Australian government, private employment agencies and online based search engines. In addition, each state/territory health department and university provide a list of current openings available.

The Australian Dental Association (ADA) is a national body representing organised dentistry in Australia (50). More than 90 percent of all practising dentists in Australia are members of the ADA (51). The primary objectives of the ADA are to “encourage the improvement of the oral health and general health of the public, promote the ethics, art and science of dentistry, and support members to provide safe, high quality professional oral care” (51). The national body is supported by state branches. The ADA actively participates in policy, advocacy and research on issues concerning the dental profession in Australia. Migrant dentists can choose to become ADA members, and make use of the professional development programs run by the ADA.

Some organisations are actively involved in the collection and reporting of aggregated dentist data in Australia. These data mainly include demographic characteristics, geographic distribution and practice activity patterns in Australia. Key stakeholders include: Australian Bureau of Statistics, Australian Institute of Health and Welfare (and collaborating units) and Health Workforce Australiaⁱ

(7,27,52). Data collected by these organisations assist in dental workforce policy and planning in Australia. However, limited data exists on migrant dentists. Surveillance data collections from the immigration departments, population census and workforce agencies (such as the Australian Bureau of Statistics and Australian Institute of Health and Welfare) offer limited data on migrant dentists so as to support policy analysis. Immigration departments collect data on arrivals and departures, and provide visas for migrant dentists to work in Australia. The Australian Dental Council (ADC) provides numbers on migrant dentist assessments and examination. Data on migration flows (from immigrations and ADC) merely offers insights into the number of dentists migrating to Australia. Population censuses are argued to underestimate the number of migrant dentists, and also do not provide information such as dentist practice patterns. Further, most dental workforce surveys in Australia do not have sufficient migrant dentist numbers to allow us to differentiate migrant dentist demographics or geographic location or practice activity patterns.

1.2.5 Rationale for the thesis

As established earlier, there exists very little independent research on migrant dentists both globally and in Australia. Minimum data to support dentist migration policy analysis (see Figure 2 in Commentary paper; Page 46) point towards the importance of understanding the attitudes, behaviour, and demographics of migrant dentists (60). In this regard, an understanding on the reasons for migration, as well as their cultural adaptation process in Australia is essential. To date, there also exist no dedicated surveys on migrant dentists that collect or have collected such information. A systematic understanding of demographic, migration and residence characteristics, practice profiles, job satisfaction and other experiences is vital for dental workforce and migration policy, not just in Australia but in countries that lose dentists to

Australia. This will support Australia's global responsibility and assist in efforts to tackle dentist migration issues.

1.2.6 Endnotes

- ^a Please note that this number is based on the Australian Institute of Health and Welfare's dental workforce collections, and is likely to vary with the World Health Organization estimates on disaggregated dentist workforce (12,254 dentists) data reported in the previous section Table 1.
- ^b ADECs role in accessing overseas dentists was transferred to ADC in 1996. Prior to this the ADCs role mainly was to accredit dental schools and maintain standards for dental education in Australia.
- ^c Since 2012, the International English Language Testing System (IELTS) has also been used as an alternative English Language Test for OET. Currently, candidates require a B level for the OET test and a minimum band of 7 in all IELTS Listening, Reading, Writing and Speaking components.
- ^d Dental graduates from Canada were accepted for direct entry and practice in Australia since March 2010. (1)
- ^e Variations in the public sector dental workforce scheme exist in different states. For example in New South Wales and Victoria a broader list of country candidates can qualify for the scheme. (2,3). However detailed assessment is involved in selecting candidates for the public sector scheme.
- ^f There are historical variations in the recognition of specialist qualifications for practice. Currently, only specialists with a primary dental degree acceptable by the ADC (or) successfully completing the ADC examination can seek specialist registration.
- ^g The Department of Immigration and Border Protection was formerly known as the Department of Immigration and Citizenship between 2007 and 2013, and prior to 2007 as the Department of Immigration and Multicultural Affairs.
- ^h The contractual obligation varies depending on the state dental service running the public sector dental workforce scheme. In South Australia the usual term is for three years. However, if the overseas-qualified dentist is able to achieve full registration, s/he can choose to work in the private sector. New South Wales and Victoria have different versions of the scheme, where the period of necessary obligation under the scheme is usually a year.
- ⁱ Health Workforce Australia ceased to exist from 2014.

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1.2.8 List of tables and figures

Table 1: Employed dentists in Australia - selected characteristics 2000, 2006 and 2011

Figure 1: Employed dentist workforce in Australia by remoteness areas, 2011

Figure 2: Employed dentist workforce in Australia by type of practice, 2011

Table 1: Employed dentists in Australia - selected characteristics 2000, 2006 and 2011

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
2000^a									
Number	3,126	2,204	1,564	913	821	119	184	60	8,991
Average age	44.4	44.3	43.8	44.3	45.3	46.1	44.5	n.a.	44.4
Women (per cent)	22.7	25.5	20.6	21.6	22.7	16.8	25.7	27.5	22.9
Average hours worked	40.4	38.2	39.8	39.6	37.4	38.6	38.5	38.2	39.3
2006^a									
Number	3,561	2,449	2,028	1,071	826	172	218	78	10,404
Average age	45.4	44.4	44.7	44.8	46.3	47.6	47.5	47.6	45.1
Women (per cent)	27.6	32.3	27.9	27.7	28.5	24.1	30.2	45.3	29.0
Average hours worked	40.5	37.0	38.2	37.3	36.1	37.5	40.5	41.4	38.5
2011^b									
Number	4,252	3,098	2,526	1,331	1,000	187	231	96	12,734
Average age	44.6	42.8	42.1	42.3	44.7	45.2	44.5	44.1	43.5
Women (per cent)	34.1	40.4	33.6	36.7	34.7	15.4	35.1	n.p.	35.6
Average hours worked	38.4	36.5	37.8	36.6	36.0	36.7	39.6	39.7	37.4

Note: (a) The 2000 and 2006 dental workforce estimates are based on published data from the AIHW Dental Statistics and Research Unit collections based in the Australian Research Centre for Population Oral Health. (4,5) (b) The 2011 data collections was carried out directly by the AIHW (6). n.a: not available; n.p: not publishable

Figure 1: Employed dentist workforce in Australia by remoteness areas, 2011

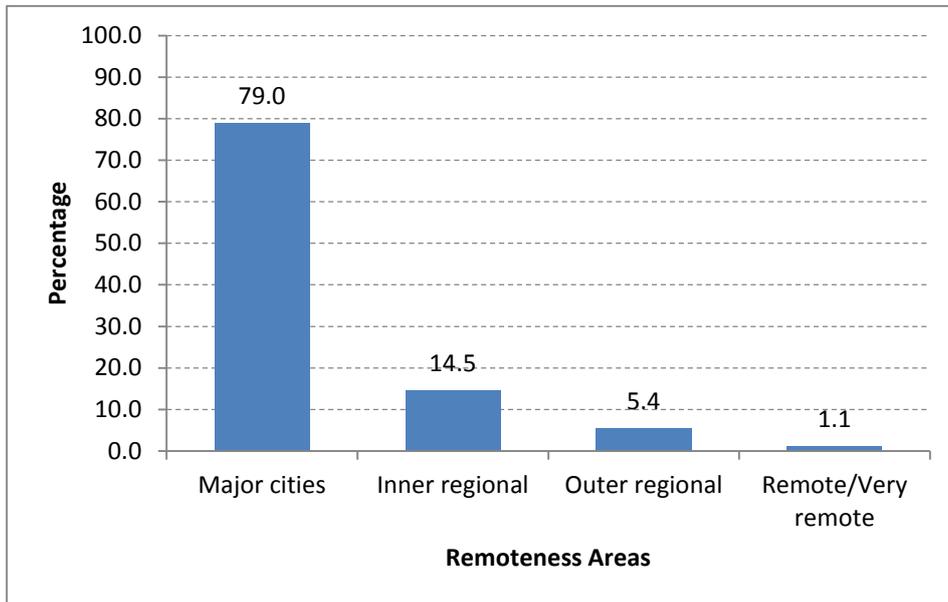
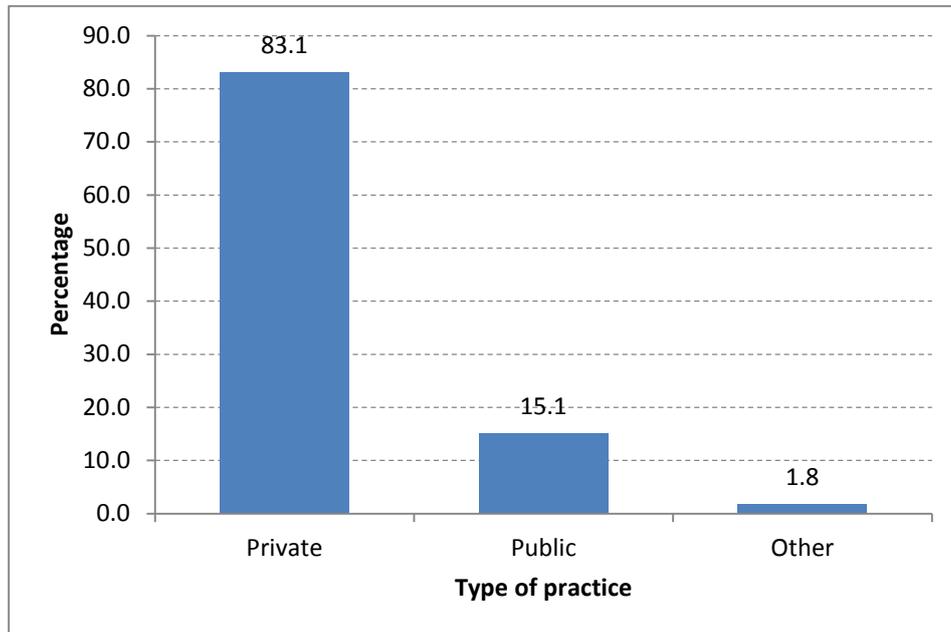


Figure 2: Employed dentist workforce in Australia by type of practice, 2011



Note: Public included dentists working in public health services, hospital/residential health care services, educational facility, defence force and other government department or agency.

1.3 Aim of the thesis

The broad aim of the thesis (by publication) is to provide a better understanding on the migration and settlement experiences of migrant dentists in Australia. This thesis utilises a qualitative-quantitative strategy and includes a series of original research articles (listed here as sub aims).

The purpose of the qualitative study was to gain a preliminary insight into the dentist migration issue, by exploring meanings that dentist brought to describe the migration phenomena. The sub aims of the qualitative study included:

1. To explore the reasons for the migration (or migration desire) of migrant dentists into Australia.
2. To explore the settlement experience (or cultural adaptation process) of migrant dentists in Australia.
3. To offer insights into the experiences migrant dentists have towards the qualifying examination process in Australia.

The quantitative study was designed as a national survey so as to provide an in-depth understanding, as well as establish precise statistical estimates towards the migration phenomena. The sub aims of the quantitative study included:

4. To obtain a systematic understanding on the demographic, migration and residence characteristics and the practice profiles of migrant dentists in Australia.
5. To assess the level of job satisfaction of employed migrant dentists in Australia, and to examine the association between various migrant dentist characteristics and job satisfaction.

6. To develop scales to assess migrant dentist experiences both in home countries and in Australia, and assess variations in the migrant dentist experiences with migrant dentists characteristics.

1.4 Overview of research methods

The purpose of this section is to provide an overview of the qualitative and quantitative methods used in the study. More detailed description of the study methods is included within the original research articles supplied in Part B.

1.4.1 Qualitative-Quantitative research strategy

This thesis utilises a qualitative-quantitative research strategy, mainly to bridge the strengths and address weaknesses of both methods. Qualitative methods (such as in-depth interviews) are primarily exploratory and assist in gaining a preliminary understanding on the phenomena of interest (1). The use of qualitative methods are usually justified when there is very little evidence available on the phenomena of interest, and/or the researcher intends to explore the meanings participants attribute to the phenomena (1, 2). Dentist migration is a relatively new area of research, and it was important first to understand the meanings migrant dentists attribute to the migration process. Qualitative research will develop original insights into the dental migration phenomena in Australia. Nevertheless, evidence from qualitative research is usually subjective, and it is difficult to demonstrate rigor in qualitative methods (2). On the other hand, quantitative research (such as population surveys) is more objective in nature and provides more precise statistical tools towards the measurement of the migration phenomena (2, 3). Therefore, we argue that the use of both methods was useful in addressing the thesis aim more elaborately.

1.4.2 Ethical approval

Ethical approval for the qualitative and quantitative studies was obtained from the Human Research Ethics Committee of the University of Adelaide (see Appendix A).

1.4.3 Qualitative study

The qualitative study included in-depth interviews of 49 migrant dentists in Australia (47 face-to-face and two telephone interviews). Selection of participants was based on purposive “snowballing” that included a maximum variation approach so as to enrich the quality of data (4). The sampling strategy accounted for the heterogeneity of migrant dentist characteristics *vis-à-vis* gender, mode of entry into Australia and country of training. The participants were identified by networking with professional colleagues based in dental schools, professional associations and public dental services. Invitations were sent to participants (see Appendix B1), followed by detailed information about the study (see Appendix B2). Written informed consent was obtained from all participants prior to the interview (see Appendix B3).

The interviews were conducted between July and December 2011. All interviews were conducted by the Ph.D. candidate, travelling to the location of participant’s choice based across five states and a territory in Australia. The majority of the interviews were completed in one hour or less. A semi-structured interviewing technique was used to facilitate the diachronic narration of participant’s life story (5). Participants were asked to revisit key events in their life story. Interviews were mainly in two parts: first on home country events that led to migration to Australia, and second on settlement experiences in Australia. Prompts were used sparingly, but to enable detailed discussion (see Appendix B4 for interview guide).

The analysis of the interviews was guided by a hermeneutic phenomenological approach (6, 7). Detailed description on the sampling, data collection procedures, analysis and ethical considerations are provided in the respective qualitative papers (see Part B: Original Research Articles 1 to 3).

1.4.4 Quantitative study

The quantitative study included a national survey of migrant dentists (n=1977) resident in Australia. All migrant dentist members of the Australian Dental Association (ADA) (n=1872) or enrolled as a graduate student (n=105) in any of the dental schools in Australia were included in the survey. These surveys were conducted in collaboration with the ADA, and the Australasian Council of Dental Schools (ACODS). The ADA component included three postal mailouts and one online follow-up. A unique identified barcode was used, and only non-respondents were followed. The ACODS component included a handout followed by an online survey.

Both components of the quantitative surveys were conducted between January and May 2013. Appendix C1 provides the cover letter, and information sheet as used the survey material. The ADA component also included a support letter supplied by the ADA Federal President (see Appendix C2). The survey package also included an independent complaints form (see Appendix C3). The main survey was printed as a booklet in eight A4 sized pages (see Appendix C4). The online survey was designed using COGNIX ViewFlash (8). This was done in collaboration with the Unified Adelaide University Online Portal team, and was administered through a local server based in the University of Adelaide (see Appendix C5).

In general, the survey collected a broad range of information that included demographic, migration and residence characteristics, practice profiles, job satisfaction and life story experience of migrant dentists. More detailed information on data collection, data preparation and linkage, analysis techniques and ethical considerations are provided in the respective quantitative papers based on the national survey (see Part B: Original Research Articles 4 to 7)

1.4.5 Integration of qualitative and quantitative methods

Our approach towards the integration of qualitative and quantitative methods was rooted within a pragmatic philosophical position (9, 10). We choose to preserve the methodological uniqueness of both methods, and the point of integration was limited to two areas:

1. Harvesting a list of migrant experience items for use in the survey questionnaire (see original research article 6).
2. Qualitative findings presented in the original research articles 1, 2 and 3 are compared while discussing the quantitative findings in original research articles 4, 5 and 7.

1.4.6 References

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PART TWO

2 RESEARCH ARTICLE 1: GLOBAL INTERCONNECTEDNESS

Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The “global interconnectedness” of dentist migration: a qualitative study of the life-stories of international dental graduates in Australia. *Health Policy and Planning*. Oxford University Press; 2015;30(4):442–50.

Highlights:

- This paper was accepted for publication in *Health Policy in Planning* in March 2014, and first published online (early view) on May 2014.
- *Health Policy and Planning* has an Impact factor of 3.442, and is consistently ranked among the “top tier” journals in Health Policy and Health Services.
- Both reviewers had positive comments, and particularly the first reviewer had noted: *“Good article that will make a significant contribution to a very important matter that of migration of health professionals”*

Readers are advised on the use of the term “international dental graduates” in this article as opposed to a more generic term “migrant dentists” (as adopted for this thesis write up). These terminology issues are discussed in Part C.

2.1 Statement of authorship

Statement of Authorship

Title of Paper	The 'global interconnectedness' of dentist migration: a qualitative study of the life-stories of international dental graduates in Australia
Publication Status	<input checked="" type="radio"/> Published <input type="radio"/> Accepted for publication <input type="radio"/> Submitted for publication <input type="radio"/> Publication style
Publication Details	Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The 'global interconnectedness' of dentist migration: a qualitative study of the life-stories of international dental graduates in Australia. Health Policy and Planning. Oxford University Press; 2015. 30(4):442-50. doi: 10.1093/heapol/czu032

Author Contributions

By signing the Statement of Authorship each author certifies that their contribution to the publication is accurate (as detailed below). The co-authors also certify that the candidate's stated contribution to the publication is accurate, and the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Principal Author (Candidate)	Madhan Balasubramanian		
Contribution to the Paper	Designed the study. Conducted fieldwork. Collected data, and performed the analysis. Wrote the manuscript and acted as the corresponding author. Overall contribution = 75%		
Signature		Date	24 Aug 2015
Name of Coauthor	David S Brennan		
Contribution to the Paper	Supervised the development and progress of the study. Contributed to the study design. Drove the funding and ethics applications. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015
Name of Coauthor	A John Spencer		
Contribution to the Paper	Supervised the development for the study. Contributed to the study design, and drove the overall strategy for the study. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015
Name of Coauthor	Stephanie Short		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design and expert insights to the use of qualitative methods. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

2.2 Linkage of article to body of research

The purpose of this article is to explore the reasons for migration (or migration desire) of migrant dentists in Australia. This emerges from the qualitative analysis, based on the home country experiences of migrant dentists: “global interconnectedness” was the first of the two superordinate themes that emerged from the qualitative analysis.

2.3 Published article

Pages 72 to 80 include pdfs of the published article in Health Policy and Planning.

Balasubramanian, M., Brennan, D.S., Spencer, A.J. & Short, S.D. (2015). The 'global interconnectedness' of dentist migration: a qualitative study of the life-stories of international dental graduates in Australia.
Health Policy and Planning, 30(4), 442-450.

NOTE:

This publication is included on pages 72 - 80 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

<http://dx.doi.org/10.1093/heapol/czu032>

3 RESEARCH ARTICLE 2: NEWNESS-STRUGGLE-SUCCESS

Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The ‘newness-struggle-success’ continuum: a qualitative examination of the cultural adaptation process experienced by overseas-qualified dentists in Australia. 2015. Australian Health Review. [3 August 2015; Early view].

Highlights

- This article was submitted to Australian Health Review as it was considered more relevant to an Australian audience. The article was accepted for publication on 28 June 2015 and was first published online (early view) on 3 August 2015.
- The Australian Health Review is the official journal of the Australian Health and Hospital Association and is considered as the premier health policy journal in Australia. The journal has an impact factor of 1.00.
- Both the reviewers provided positive feedback for the paper. In the words of one reviewer: *“The paper tries to shed light on some of the aspects that have not been explored before and are quite relevant to both the dental community and the policy makers.”*

Readers are advised on the use of the term “overseas-qualified dentists” in this article as opposed to a more generic term “migrant dentists” (as adopted for this thesis write up). These terminology issues are discussed in Part C.

3.1 Statement of authorship

Statement of Authorship

Title of Paper	The 'newness-struggle-success' continuum: a qualitative examination into the cultural adaptation process experienced by overseas-qualified dentists in Australia
Publication Status	<input checked="" type="radio"/> Published <input type="radio"/> Accepted for publication <input type="radio"/> Submitted for publication <input type="radio"/> Publication style
Publication Details	Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The 'newness-struggle-success' continuum: a qualitative examination of the cultural adaptation process experienced by overseas-qualified dentists in Australia. 2015. Australian Health Review [Early online; Published 3 Aug 2015]. doi:10.1071/AH5040.

Author Contributions

By signing the Statement of Authorship each author certifies that their contribution to the publication is accurate (as detailed below). The co-authors also certify that the candidate's stated contribution to the publication is accurate, and the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Principal Author (Candidate)	Madhan Balasubramanian		
Contribution to the Paper	Designed the study. Conducted fieldwork. Collected data, and performed the analysis. Wrote the manuscript and acted as the corresponding author. Overall contribution = 75%		
Signature		Date	24 Aug 2015

Name of Co-Author	David S Brennan		
Contribution to the Paper	Supervised the development and progress of the study. Contributed to the study design. Drove the funding and ethics applications. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	A John Spencer		
Contribution to the Paper	Supervised the development for the study. Contributed to the study design, and drove the overall strategy for the study. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Stephanie Short		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design and expert insights to the use of qualitative methods. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

3.2 Linkage of article to body of research

The purpose of this article is to explore the cultural adaptation process of migrant dentists in Australia. This emerges from the qualitative analysis, based on the settlement experiences of migrant dentists: “newness-struggle-success continuum” was the second of the two superordinate themes that emerged from the qualitative analysis.

3.3 Published article

Pages 85 to 90 contain the pdf of the article in Australian Health Review. The article is an online early version, and is yet to be assigned to an issue.

Balasubramanian, M., Brennan, D.S., Spencer, A.J. & Short, S.D. (2015). 'Newness-struggle- success' continuum: a qualitative examination of the cultural adaptation process experienced by overseas-qualified dentists in Australia. *Australian Health Review*, 40(2), 168-173.

NOTE:

This publication is included on pages 85 - 90 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

<http://dx.doi.org/10.1071/AH15040>

4 RESEARCH ARTICLE 3: ADC EXAMINATION EXPERIENCE

Balasubramanian M, Brennan DS, Spencer AJ, Watkins K, Short SD. Overseas-qualified dentists' experiences and perceptions of the Australian Dental Council assessment and examination process: the importance of support structures. *Australian Health Review*. 2014;38(4):412–9.

Highlights:

- This article was accepted for publication in the *Australian Health Review* on Feb 2014, and first published online (early view) on 8 July 2014.
- The *Australian Health Review* is the official journal of the Australian Health and Hospital Association and is considered as the premier health policy journal in Australia. The journal has an impact factor of 1.00.
- The reviewers had some encouraging comments about the article and one reviewer in particular stressed the importance of this work: *“This excellent work shades light [sic] on an area often forgotten: Overseas trained dentists and their experiences. There has not been much research undertaken in this area. Indeed, this publication will be very much appreciated by policy makers and stakeholders”*

Readers are advised on the use of the term “overseas-qualified dentists” in this article as opposed to a more generic term “migrant dentists” (as adopted for this thesis write up). These terminology issues are discussed in Part C.

4.1 Statement of authorship

Statement of Authorship

Title of Paper	Overseas-qualified dentists' experiences and perceptions of the Australian Dental Council assessment and examination process: the importance of support structures
Publication Status	<input checked="" type="radio"/> Published <input type="radio"/> Accepted for publication <input type="radio"/> Submitted for publication <input type="radio"/> Publication style
Publication Details	Balasubramanian M, Brennan DS, Spencer AJ, Watkins K, Short SD. Overseas-qualified dentists' experiences and perceptions of the Australian Dental Council assessment and examination process: the importance of support structures. Australian Health Review. 2014 Sep; (4): 412-9. doi: 10.1071/AH14022.

Author Contributions

By signing the Statement of Authorship each author certifies that their contribution to the publication is accurate (as detailed below). The co-authors also certify that the candidate's stated contribution to the publication is accurate, and the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Principal Author (Candidate)	Madhan Balasubramanian		
Contribution to the Paper	Designed the study. Conducted fieldwork. Collected data, and performed the analysis. Wrote the manuscript and acted as the corresponding author. <u>Overall contribution = 75%</u>		
Signature		Date	24 Aug 2015
Name of Co-Author	David S Brennan		
Contribution to the Paper	Supervised the development and progress of the study. Contributed to the study design. Drove the funding and ethics applications. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015
Name of Co-Author	A John Spencer		
Contribution to the Paper	Supervised the development for the study. Contributed to the study design, and drove the overall strategy for the study. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015
Name of Co-Author	Keith Watkins		
Contribution to the Paper	Reviewed manuscript prior to submission.		
Signature		Date	24 Aug 2015
Name of Co-Author	Stephanie Short		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design and expert insights to the use of qualitative methods. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

4.2 Linkage of article to body of research

During the qualitative fieldwork migrant dentist narrations on the Australian Dental Council (ADC) examination process formed a substantial aspect of their discussion on the settlement experience of migrant dentists in Australia. Though this aspect wasn't planned in detail before the study commenced, the ADC examination experience was found to affect a large part of the settlement experience of migrant dentists. We strongly felt that this issue required special consideration, and decided to pay attention to the subtheme "ADC examination experience", presented in this paper.

4.3 Published article

Page 95 to 102 include the pdfs of the published article in Australian Health Review.

Balasubramanian, M., Brennan, D.S., Spencer, A.J., Watkins, K. & Short, S.D. (2014). Overseas-qualified dentists' experiences and perceptions of the Australian Dental Council assessment and examination process: the importance of support structures.
Australian Health Review, 38(4), 412-419.

NOTE:

This publication is included on pages 95 - 102 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

<http://dx.doi.org/10.1071/AH14022>

5 RESEARCH ARTICLE 4: NATIONAL SURVEY

Balasubramanian M, Spencer A, Short S, Watkins K, Chrisopoulos S, Brennan D. Characteristics and practice profiles of migrant dentist groups in Australia: implications for dental workforce policy and planning. *International Dental Journal*. 2015. 65 (3):146-55.

Highlights:

- This article was accepted for publication in the *International Dental Journal* on November 2014, and first published online (early view) on 11 February 2015.
- The *International Dental Journal* is the journal of the FDI World Dental Federation (the peak body for the dental profession). The journal has an impact factor of 1.195, and is widely read by the dental profession and oral health policy makers across the world.
- This article presents findings from the first national survey of migrant dentists (overseas-qualified dentists) in Australia.
- The article currently has an altmetric score of 17, and is ranked No 1 among 172 articles of the same age in the journal. Please refer link: http://www.altmetric.com/details.php?domain=aurora.adelaide.edu.au&citation_id=3614374
- The article has gained considerable media attention both in Australia and globally. Link to media release in the University of Adelaide on the lead up to the World Oral Health Day on 20 March 2015: <http://www.adelaide.edu.au/news/news76862.html>

5.1 Statement of authorship

Statement of Authorship

Title of Paper	Characteristics and practice profiles of migrant dentist groups in Australia: implications for dental workforce policy and planning
Publication Status	<input checked="" type="radio"/> Published <input type="radio"/> Accepted for publication <input type="radio"/> Submitted for publication <input type="radio"/> Publication style
Publication Details	Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. Characteristics and practice profiles of migrant dentists groups in Australia: implications for dental workforce policy and planning. International Dental Journal. 2015. 65 (3):146-55. doi:10.1111/idj.12154

Author Contributions

By signing the Statement of Authorship each author certifies that their contribution to the publication is accurate (as detailed below). The co-authors also certify that the candidate's stated contribution to the publication is accurate, and the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Principal Author (Candidate)	Madhan Balasubramanian		
Contribution to the Paper	Designed the study. Conducted fieldwork and collected data. Supervised data entry. Performed analysis. Wrote the manuscript. <u>Overall contribution = 75%</u>		
Signature		Date	24 Aug 2015

Name of Co-Author	A John Spencer		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design, and drove the overall strategy for the study. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Stephanie Short		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Keith Watkins		
Contribution to the Paper	Provided expert opinion towards the revision of the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Sergio Chrisopoulos		
Contribution to the Paper	Provided expert opinion towards statistical analysis and revision of the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	David S Brennan		
Contribution to the Paper	Supervised the development and progress of the study. Contributed to the study design, and overall analysis strategy. Drove the funding and ethics applications. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

5.2 Linkage of article to body of research

The purpose of the article is to report findings based on the first national survey of migrant dentists in Australia. The article provides a systematic understanding on the demographic, migration and residence characteristics and practice profiles of migrant dentists in Australia. This is the first sub-aim of the quantitative study.

5.3 Published article

Pages 107 to 116 include the published article in the International Dental Journal, provided in pdf format.

Balasubramanian, M., Spencer, A.J., Short, S.D., Watkins, K., Chrisopoulos, S. & Brennan, D.S. (2015). Characteristics and practice profiles of migrant dentists groups in Australia: implications for dental workforce policy and planning. *International Dental Journal*, 65(3), 146-155

NOTE:

This publication is included on pages 107 - 116 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

<http://dx.doi.org/10.1111/idj.12154>

6 RESEARCH ARTICLE 5: JOB SATISFACTION

Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. Job satisfaction of migrant dentists in Australia: implications for dentist migration and workforce policy. 2015. Australian Dental Journal. [Accepted 14 Aug 2015; doi: 10.1111/adj.12370. In press]

Highlights:

- This article was submitted to Australian Dental Journal on 9 May 2015 and was accepted on 14 Aug 2015. The pdf of the accepted version was made available online by the journal on 22 Aug 2015.
- As migrants arrive from diverse cultural and professional backgrounds, they are at risk of several settlement problems in the new country that in turn can affect their work. This article provides evidence on the job satisfaction of migrant dentists in Australia.
- The reviewers had constructive feedback, and this article received a minor revision following the initial review process.

6.1 Statement of authorship

Statement of Authorship

Title of Paper	Job satisfaction among 'migrant dentists' in Australia: implications for dentist migration and workforce policy
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Contribution to the Paper	Designed the study. Conducted fieldwork and collected data. Supervised data entry. Performed analysis. Wrote the manuscript. <u>Overall contribution = 75%</u>		
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Contribution to the Paper	Supervised the development and progress of the study. Contributed to the study design, and overall analysis strategy. Drove the funding and ethics applications. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

6.2 Linkage of article to body of research

The purpose of the article is to assess the level of job satisfaction of employed migrant dentists in Australia, and to examine the association between various migrant dentist characteristics and job satisfaction. This is the second sub-aim of the quantitative study.

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Job satisfaction among ‘migrant dentists’ in Australia: implications for dentist migration and workforce policy

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Running Head: Job satisfaction among migrant dentists in Australia

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Ethical considerations

The study was approved by the Human Research Ethics Committee of the University of Adelaide and was conducted in accordance with the Declaration of Helsinki. The study was conducted as a mailed self-complete survey; consent was implied through the return of completed surveys.

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Conflict of interest

None declared.

Abstract

Background: Migrants occupy a significant proportion of the dental workforce in Australia. The objectives of this study were to assess the level of job satisfaction of employed migrant dentists in Australia, and to examine the association between various migrant dentist characteristics and job satisfaction. **Methods:** All migrant dentists resident in Australia were surveyed using a five-point Likert scale that measured specific aspects of job, career, and satisfaction with area and type of practice. **Results:** A total of 1022 migrant dentists responded to this study; 974 (95.4%) were employed. Responses for all scales were skewed towards strongly agree (scores ≥ 4). The overall scale varied by age group, marital status, years since arrival to Australia, and specialist qualification (Chi square, $p < 0.05$). In a multivariate logistic regression model, there was a trend towards greater satisfaction amongst older age groups. Dentists who migrated through the examination pathway (mainly from low- and middle-income countries) had a lower probability of being satisfied with the area and type of practice (OR=0.71; 0.51 – 0.98), compared with direct-entry migrant dentists (from high income countries). **Conclusion:** The high-level of job satisfaction of migrant dentists reflects well on their work-related experiences in Australia. The study offers policy suggestions towards support for younger dentists and examination pathway migrants, so they have appropriate skills and standards to fit the Australian health care environment.

Keywords: dental workforce; health policy; job satisfaction; migrant dentists; settlement issues

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Introduction

Over the last decade, there has been a significant increase in the number of dentists migrating to Australia.¹⁻³ A large proportion of migrant dentists (trained in an overseas institution) to Australia continue to be from high-income countries such as the United Kingdom, Republic of Ireland and New Zealand.^{4,5} The more recent increase in dentists coming from low- and middle-income countries, such as India, South Africa, Iran, Malaysia, Indonesia and Philippines, raises several policy challenges both for 'source' countries and Australia.⁶⁻⁹ Many source countries are interested in identifying methods to reduce brain drain and attract emigrants back home.⁸ A key issue for policy makers in Australia is to improve self-sufficiency in the local dental workforce by reducing the level of dependence on migrant dentists.¹⁰ The current environment of improved cross-border mobility of health professionals also brings ethical obligations and a global responsibility to seek a better understanding on the settlement experiences, including job satisfaction, of migrant dentists in Australia.^{11,12}

In general, job satisfaction can be described as a pleasurable or positive state of mind resulting from the appraisal of an individual's job or job-related experiences.¹³ Job satisfaction is linked with various aspects such as stress, turnover, burnout, team work, patient care, organizational functioning and health system outcomes.¹⁴⁻¹⁷ Being satisfied with the job can be argued as vital for a dentist's performance. In addition, job satisfaction is closely related to general life satisfaction, as they both reciprocally contribute to an individual's happiness and overall wellbeing in the community.^{18,19} The issue of job satisfaction among dentists has been reported from at least a dozen different countries.^{17,20-23} It is suggested that dentists in Australia and elsewhere in the world experience high to very high levels of overall job satisfaction.²³ However, very little is known about such migrant dentist experiences in a new country.

Migrant doctors and nurses have reported low-pay, excessive workload, bad working

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conditions and discrimination at work, amongst some of the issues that can affect satisfaction towards work.^{11,24,25} As migrants arrive from diverse cultural and professional backgrounds, they are at risk of several settlement problems in the new country that in turn can affect their work. Qualitative studies on migrant dentists' settlement experiences in Australia²⁶ and New Zealand²⁷ have stressed the importance of support structures, especially for migrants from low-and middle-income countries. A survey on job-related stressors in New Zealand has also suggested that migrant dentists feel professionally isolated in work.²⁸

To date, there is no evidence that specifically relates to job satisfaction of migrant dentists in Australia. Prior job satisfaction surveys in Australia have not reported disaggregated data on migrant dentists.^{20,29} The attraction of Australia as a favourable destination with modern dental technology, high levels of professional development and networking opportunities, and an enviable lifestyle has encouraged dentists (from both developing and developed countries) to migrate to Australia.⁸ Currently, one in four of every practising dentist in Australia is a migrant dentist.³⁰ A better understanding of the job satisfaction of migrant dentists will provide evidence to reflect upon current immigration and pathways to practice in Australia.²⁰ Uncovering differences in levels of job satisfaction based on dentists' background and country of origin would inform future dental workforce policy and planning in Australia. Further, it will provide evidence on Australia's global responsibility towards the World Health Organization's Global Code of Ethical Recruitment of Health Personnel that calls for a positive work environment for migrant professionals, so as to assist them realise their professional goals and career aspirations.¹²

The aim of this study was to assess the level of job satisfaction of employed migrant dentists in Australia, and to examine the association between various migrant dentist characteristics and job satisfaction.

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Methods

Data collection

All migrant dentists resident in Australia and registered with the Australian Dental Association (ADA) (n=1872) or enrolled as a graduate student in any of the nine dental schools in Australia (n=105) were surveyed between January and May 2013. Dentists were asked to complete a self-administered questionnaire. The ADA component involved three postal mailouts followed by an online survey. Migrant dentists enrolled as graduate students in dental schools were surveyed through the Australasian Council of Dental Schools (ACODS), the peak body representing tertiary education, training and research in dentistry across Australia and New Zealand. This involved one handout followed by an online survey. A broad range of data including demographic, migration and residence characteristics, practice profiles, job satisfaction and life-story experience were collected. Further details on the study design, data collection and data preparation procedures are described elsewhere.⁵ The focus of this study is limited to understanding the job satisfaction of migrant dentists.

Data items

Job satisfaction was collected using a 12 item global scale, primarily developed for use among US general medical practitioners³¹ but adapted to reflect general dental practice in Australia.^{20,29} Global measures of job satisfaction are more frequently used than facet-based measures and have been widely used in different organisational contexts.³² Measurements of job satisfaction would also require to consider the health system in which the professional works.²² Therefore, it was necessary to use a scale that has been adapted to an Australian dental practice environment.

The scale used for the study consisted of three conceptual and empirical subscales that measured specific aspects of job (5 items), career (4 items) and satisfaction with area and type of practice (3 items). These items were presented as statements relating to the respondents' overall experience with dentistry.²⁰ Respondents' were asked to indicate their level of agreement with each statement using a five-point Likert scale with '1' indicating strong disagreement (and hence strong dissatisfaction) and '5' indicating strong agreement (and hence strong satisfaction). Both positively and negatively worded statements were used to minimize the effect of response set.

Data analysis

All negatively worded items in the job satisfaction scale were first corrected for direction of response in the analysis. Scale scores, both for subscales and the overall scale, were then calculated by summing responses to individual items and dividing by number of items in a scale. This results in a scale that is consistent with the Likert range with all items contributing equally.³³ The distribution of the scale scores was expressed as percentages, along with measures of central tendency and dispersion. Reliability of the scales was assessed by Cronbach's alpha coefficient of inter-item reliability, with the minimum recommended level being 0.70.³³

Migrant dentists were classified into three mutually exclusive groups: Direct Recognition, ADC Successful and Alternative Pathway.⁵ Dentists with a primary dental qualification from New Zealand, the United Kingdom, Republic of Ireland and Canada were classified as Direct Recognition (Direct recognition candidates can practice dentistry in Australia without having to take an assessment and examination conducted by the Australian Dental Council (ADC)).^{5,26} Dentists having participated and successfully completed the ADC

examination process were classified as ADC Successful (The ADC examination is a three stage examination process involving an English test, written test and practical clinical test. Migrant dentists from all other countries, except UK, Republic of Ireland, New Zealand and Canada, are required to complete the ADC examination).^{5,26} The Alternative Pathway group comprised of dentists working in the public sector employment scheme, or as academics/researchers or specialists (these dentists are provided conditional registration to practice under supervision) or having migrated to Australia at a time when mutual qualifications from other countries were recognised.⁵ Further, the country of primary dental qualification was linked with World Health Organization (WHO) Regions³⁴ and World Bank (WB) Income Groups³⁵ data to derive two new variables based on their region or group.

Date of birth was used to derive average age and age groups. Number of hours worked in a week in all practice locations was used as a basis for deriving average hours worked per week, and to classify dentists into groups based on hours worked. The postcode of main practice location was linked with Australian Standard Geographic Classification (ASGC) Remoteness Areas³⁶ and Socio-Economic Indexes for Areas (SEIFA) – Index of Relative Socio-Economic Disadvantage data³⁷ in order to provide variables relevant to the relative remoteness and socioeconomic status of practice location respectively.

The analysis was restricted to practising dentists as this was the primary intention of the study. All global job satisfaction scales were dichotomised into two groups using mean scores less than 4 as the cut-off and coded as indicator variable with values greater than or equal to 4 coded as 1 (indicating strong agreement) and values less than 4 coded as 0 (other). This cut off point was chosen based on conceptual grounds so as to identify dentists, who at the minimum had agreed to a scale (i.e. 4 or above). Prior studies have also used similar cut off points.^{38,39} Dichotomised scales were then examined by migrant dentist characteristics using chi-square tests, and a level of significance set at $p < 0.05$. Thereafter, migrant dentist

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characteristics found significantly associated with any subscale or overall scale were entered as covariates in a series of multivariate logistic regression models. The dichotomised scales were treated as dependent variables. Entry of variables in the model was tested to establish the most parsimonious model with as few terms as possible⁴⁰, both conceptually relevant and able to explain the predicted job satisfaction of migrant dentists. Adjusted odds ratios were generated. Data were analysed using IBM SPSS Version 20.⁴¹

Ethical considerations

Ethical approval was obtained from an approved Human Research Committee in Australia, and the study was conducted in accordance with the Declaration of Helsinki.

Results

A total of 1022 migrant dentists responded to this study (response rate = 54.5 %); 974 dentists (95.4%) were currently practising in Australia.

Sample characteristics

Table 1 presents the percentage of respondents by characteristics of migrant dentists and practice variables. The largest proportion of dentists' were from the direct recognition group (48.5%), followed by the ADC successful group (40.1%) and the alternative pathway group (11.4%). Overall, there were 407 female dentists (41.8%) and 567 male dentists (58.2%). Over half of the respondents (51.1%) were aged 45 years or older, and a larger proportion (58.5%) had arrived to Australia ten or more years ago. A majority of the respondents (51.8%) worked between 35-44 hours per week; over three-quarters (76.1%) practised in the major cities, and 88.5% mainly in private clinics.

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Distribution of job satisfaction items

The distribution of scale scores of the full set of 12 job satisfaction items is presented in Table 2. Responses ranged from 1 (strongly disagree) to 5 (strongly agree) for each particular item. The direction of responses was reversed for items 4, 5, 6, 8 and 11 in subsequent analyses. These five items were skewed towards 1 (strongly disagree). All the remaining items were skewed towards 5 (strongly agree). A low number of respondents with missing data for the individual items, and subsequent scales were also noted.

Table 3 presents the distribution of the global job satisfaction scales. These scales are treated as continuous variables, ranging from 1 (strongly disagree) to 5 (strongly agree). Scores greater than or equal to 4 represent agreement with job satisfaction measured by the particular scale. The mean value of the overall scale was 3.94, with more than half of the respondents (52.7%) in agreement with the scale. A larger proportion of the respondents were in agreement with the “job satisfaction” (61.9%) and “career satisfaction” (59.7%) in comparison with “satisfaction with area and type of practice” (47.7%). All scales had Cronbach alpha coefficient greater than 0.70, hence high inter-item reliability.

Job satisfaction scales by migrant dentist characteristics

Table 4 presents bivariate associations between the dichotomized global job satisfaction scales and migrant dentist characteristics. The total number of respondents (n) and proportion in agreement with each scale are presented. The overall scale was associated with age group, marital status, years since arrival to Australia and being qualified as a specialist (Chi square, $p < 0.05$). The “job satisfaction” and “satisfaction with area and type of practice” subscale was associated with migrant dentist groups and WHO Regions. In addition, “satisfaction with area and type of practice” subscale was also associated with WB Groups. Gender, children, remoteness and socio-economic area of main practice, hours worked group were not associated with any of the job satisfaction scales.

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Logistic regression analysis between the dichotomized global job satisfaction scales and migrant dentist characteristics is presented in Table 5. Adjusted models for selected characteristics are presented for each scale. There was a significant trend towards greater agreement in the overall scale amongst older age groups. Compared to the reference category of age <35 years, the odds ratio for the 55+ years old age group was also the highest for “job satisfaction” subscale (2.15; 1.16-3.97). Migrant groups varied in the “satisfaction with area and type of practice”, with the ADC successful group having a lower odds ratio (0.71; 0.51 – 0.98) in comparison with the reference group (direct recognition), implying less satisfaction with area and type of practice.

Discussion

The findings from the study provide a better understanding on the job satisfaction of employed migrant dentists in Australia and offer avenues to reflect upon dentist migration and workforce policy in Australia. The sampling frame for the survey was based on migrant dentists registered with the ADA, and graduate students enrolled in dental schools. This approach was adopted, as the national registration data from the Australian Health Practitioner Regulation Agency⁴² was not available for research purposes. As over 90% of all employed dentists were also ADA members,⁴³ it was expected that the survey would adequately represent employed migrant dentists in Australia. The overall response yield for the study (1022 migrant dentists; 934 employed) provided sufficient numbers for analysis. In a previous publication, non-response bias was examined by comparing selected characteristics of employed migrant dentists with national dentist workforce data.⁵ Even though, we argue that the survey brings the best available evidence of migrant dentists in Australia, caution should be exercised in using the findings to generalise about migrant dentist groups that could have been underrepresented in this survey.⁵ We studied only

migrant dentists currently active in the Australian dental workforce. As suggestive in the wider health workforce and organizational behaviour literature, it is possible those unsatisfied with the job could have exited the profession or even migrated elsewhere.^{44,45} Future research on job satisfaction would benefit from a multicountry approach, so as to account for global mobility of dentists and the views of migrant dentists who emigrated Australia also can be understood.

Job satisfaction was assessed through a 12 item global scale, which was a general assessment of satisfaction with job, career, area and type of practice. Global measures provide an “all-encompassing viewpoint”^{20,46}, and offer greater content validity and temporal reliability in comparison to facet-based measures.⁴⁷ While global measures are less likely to offer in-depth information on individual attitudes and organisational factors that can indirectly influence job satisfaction³², they still offer valuable insights into these issues.

The migrant dentists’ study has reported a high overall job satisfaction score, which was similar to a national survey for all dentists in Australia.²⁰ Australia is believed to be witnessing a ‘golden age’ in dentistry due to technological advances, research and teaching infrastructure, enviable lifestyle and attractive salaries.⁴⁸ Prior qualitative studies have highlighted that migrant dentists held in high regard the quality of dentistry in Australia that contributed to their desire to migrate to Australia in the first place.⁸ Migrant dentists have also expressed dissatisfaction with their home country systems,⁸ and appear to have migrated for better opportunities.⁵ The high levels of overall job satisfaction possibly indicate migrants appreciate practising dentistry in Australia, and are able to realise their aspirations in work and life.

The bivariate analysis found no significant association between overall job satisfaction levels and migrant dentist groups. Migrants from the ADC and alternative pathway are mainly from low- and middle-income countries such as India, South Africa, Iran, the Philippines and Egypt. Prior studies have reported ongoing problems in dental workforce planning, dental education and political situation in these countries that encourages dentists to perceive migration as an essential progression in their work and life.^{8,49-51} Further success in the tough dental training and assessment process to enter dental practice in Australia could be seen as an achievement,⁶ contributing to their overall satisfaction. Direct recognition candidates and dentists from developed OECD countries, who migrate for somewhat different reasons, such as adventure and lifestyle,⁵ also experienced similar levels of satisfaction compared to other migrant dentist groups. While the migrant dentists' study leads to a preliminary argument that country of origin does not necessarily determine overall job satisfaction, it is inappropriate to make such a conclusion without an understanding of the broader life-stories of these dentists. Further research on the settlement experience of these dentists will help us understand factors that enable migrants to develop an affinity towards work and life in Australia.

The adjusted models, controlled for other migrant dentist characteristics, found age as the only significant predictor of overall job satisfaction. This supports studies in dental and indeed in the broader health workforce literature that provide evidence of job satisfaction increasing with age.^{16,20,28,29,52} Younger dentists could be in the process of establishing their dental practice, facing added demands in their work and life.²⁰ Migrant dentists might face extra problems due to their relative newness to Australian practice culture that in turn can influence their approach to work and thereby success in life.^{6,27} This study offers suggestions towards improved support for younger migrant dentists in Australia, so they have an opportunity to better understand the Australian practice culture, and gain appropriate skills

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and standards to fit into the workplace. This will enhance their value to the Australian dental system.

The satisfaction score for all subscales (mean) were similar in comparison to a national estimate for all dentists in Australia.²⁰ In the bivariate analysis, satisfaction with job and area and type of practice subscales varied by migrant dentist groups. However, when controlled for other characteristics, the statistical regression models showed the associations appear prominent only in the area and type of practice subscale. The ADC pathway group were least satisfied. Prior research has suggested that a larger proportion of migrant dentists through the ADC pathway work in disadvantaged areas in Australia.⁵ Rural/remote locations are somewhat less competitive compared with metropolitan areas⁵³, which might have forced the ADC pathway group to be less selective in choosing their area and type of practice.

Nevertheless, practitioners working in rural and remote areas can face issues such as professional and social isolation (both for individual and families); poor local amenities and infrastructure; limited training and professional development opportunities.^{54,55,56} The low job satisfaction levels of the ADC pathway group, is a possible clue that migrant dentists could face similar issues and require more support. Further research on settlement issues faced by migrant dentists working in these areas can help us understand the broader social and family issues that in turn affect job satisfaction. The argument of improving support for practitioners working in more disadvantaged areas in Australia has also been raised in regard to physicians and nurses.^{2,54} This finding has implications for policy development to address support structures for migrant dentists practising in disadvantaged areas in Australia.

The World Health Organization's Global Code of Practice of Ethical Recruitment of Health Personnel (Article 4) stresses the importance for member states and stakeholders to provide a positive work environment for migrant professionals so as to help them realise their

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professional goals and career aspirations.¹² The Code also identifies the urgent need for strengthening data gathering and research (Article 6) on migrant health professionals.¹² This study of job satisfaction among migrant dentists is consistent with Australia's global responsibility in this regard.

Conclusions

The high levels of overall job satisfaction among employed migrant dentists in Australia suggest that migrants appreciate practising dentistry in Australia, and are able to realise their aspirations in work and life. Age is a significant predictor of overall job satisfaction, with younger migrant dentists more likely to face additional demands in dental practice in Australia. The examination pathway group of migrants (mainly from low- and middle-income countries) were least satisfied with the area and type of practice. The study offers policy suggestions towards support for younger dentists and examination pathway migrants, so they have appropriate skills and standards to fit the Australian health care environment. Further research on the settlement experience of migrant dentists is required to better understand the factors that enable migrants to develop a positive affinity towards work and life in Australia.

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Table 1: Sample characteristics

Variable	Study sample ^[a]	
	Count	Percent
Migrant dentist group (n=974)		
Direct recognition	472	48.5
ADC successful	391	40.1
Alternative pathway	111	11.4
Gender (n=974)		
Male	567	58.2
Female	407	41.8
Age (n=971)		
Less than 35 yrs	213	21.9
35 to 44 yrs	262	27.0
45 to 54 yrs	226	23.3
55 to 64 yrs	189	19.5
65+ yrs	81	8.3
Marital status (n=959)		
Single	140	14.6
Married	756	78.8
Other	63	6.6
Years since arrival to Australia (n=842)		
Less than 10 yrs	349	41.4
10 to 29 yrs	347	41.2
30+ yrs	146	17.3
Type of main practice (n=897)		
Public	103	11.5
Private	794	88.5
Remoteness area of main practice (n=907)		
Major city	690	76.1
Rest of state	217	23.9
Specialist qualification (n=964)		
Specialist	249	25.8
Not a specialist	715	74.2
Hours worked per week (n=866)		
Less than 25 hrs	126	14.5
25 to 34 hrs	174	20.1
35 to 44 hrs	449	51.8
45+ hrs	117	13.5

^[a] The estimates for the study sample only include employed dentists (n=974).

Table 2: Distribution of 'global job satisfaction' items ranging from 1 (strongly disagree) to 5 (strongly agree)

Item	Description of item	n	Distribution of responses (%)					Skew	Mean	(SD)
			1	2	3	4	5			
1	I find my present clinical work very rewarding	948	0.9	3.0	15.1	44.0	37.0	-0.94	4.13	(0.84)
2	Overall, I am pleased with my work	949	0.7	1.5	9.9	52.2	35.7	-1.02	4.21	(0.74)
3	Overall, I am satisfied with my current practice	947	1.4	4.0	14.1	50.6	29.9	-1.00	4.04	(0.85)
4	My current work situation is a major source of frustration*	943	34.1	38.8	19.2	5.8	2.0	0.85	2.03	(0.97)
5	My work in current practice has not met my expectations*	944	32.7	38.1	16.6	9.0	3.5	0.87	2.12	(1.07)
6	If I were to choose over again, I would not become a dentist*	944	48.6	23.3	15.8	6.5	5.8	1.10	1.98	(1.20)
7	All things considered, I am satisfied with my career as a dentist	946	2.4	1.7	10.5	44.3	41.1	-1.43	4.20	(0.87)
8	In general, my dental career has not met with my expectations*	943	35.3	38.7	16.0	7.5	2.4	0.93	2.03	(1.02)
9	I would recommend dentistry to others as a career	947	4.6	9.2	25.3	36.9	24.0	-0.63	3.66	(1.08)
10	If I were to start my career over again, I would choose my current area and type of practice	946	3.7	13.1	24.4	35.5	23.3	-0.49	3.62	(1.09)
11	My area and type of practice no longer has the appeal to me as it used to have*	943	29.6	38.2	19.8	9.5	2.9	0.73	2.18	(1.05)
12	I would recommend my area and type of practice to a dental student seeking advice	946	3.3	7.8	26.6	42.2	20.1	-0.64	3.68	(0.99)

* Negatively worded questions. Direction reversed in subsequent analyses.

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Table 3: Distribution and internal consistency of global job satisfaction scales

Description of scale	n	Distribution of responses (%)					Skew	Mean	(SD)	Cronbach α	Strongly agree/Agree %
		≤1	≤2	≤3	≤4	≤5					
Job satisfaction (Items 1, 2, 3, 4*, 5*)	937	0.1	1.0	9.2	54.2	100.0	-0.67	4.05	(0.70)	0.836	61.9
Career satisfaction (Items 6*, 7, 8*, 9)	939	0.4	2.4	14.7	55.8	100.0	-0.78	3.97	(0.78)	0.734	59.7
Satisfaction with area and type of practice (Items 10, 11*, 12)	940	0.5	3.8	25.1	70.5	100.0	-0.45	3.71	(0.83)	0.714	47.7
Overall scale (All items)	923	0.0	0.3	8.7	54.7	100.0	-0.60	3.94	(0.63)	0.868	52.7

* Items corrected for reversals

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Table 4: Bivariate analysis of global job satisfaction scales and sample characteristics

Variable	Job satisfaction		Career satisfaction		Satisfaction with area and type of practice		Overall scale	
	n	Strongly Agree/Agree %	n	Strongly Agree/Agree %	n	Strongly Agree/Agree %	n	Strongly Agree/Agree %
Migrant dentist groups		*				*		
Directly Recognition	454	66.1	458	59.2	457	52.5	451	53.4
ADC Successful	374	56.7	372	60.5	375	43.2	365	50.4
Alternative Pathway	109	63.3	109	59.6	108	43.5	107	55.1
Gender								
Male	547	63.6	553	60.4	553	49.0	545	53.8
Female	390	59.7	386	58.8	387	46.0	378	50.5
Age group		*						*
Less than 35yrs	204	49.5	205	56.6	205	47.8	201	41.3
35 to 44 yrs	253	59.3	252	57.9	253	47.8	249	50.2
45 to 54 yrs	216	66.7	219	60.7	219	48.9	216	56.5
55 to 64 yrs	184	69.6	183	59.6	183	46.4	178	57.9
65+ yrs	77	72.7	77	71.4	77	46.8	76	64.5
Marital status		*						*
Single	129	47.3	129	51.2	130	41.5	126	39.7
Married	731	64.2	733	61.1	733	49.1	720	55.1
Other	62	61.3	62	59.7	62	45.2	62	45.2
Children								
Have children < 18 yrs	444	65.5	447	62.6	447	51.0	439	55.8
No children < 18 yrs	381	61.9	379	58.3	380	48.2	374	52.9
Years since arrival		*		*				*
Less than 10 yrs	172	51.8	191	56.8	155	46.5	152	46.2
10 to 29 yrs	233	69.3	203	60.4	161	47.8	188	56.8
30+ yrs	101	72.1	93	66.4	73	52.1	87	63.5
WHO Regions		*				*		
African	49	61.2	46	57.5	32	40.0	41	51.9
American	14	73.7	13	68.4	8	42.1	13	68.4
Eastern Mediterranean	31	49.2	38	58.5	23	35.9	24	39.3
European	229	68.0	209	61.7	191	56.5	187	56.0
South Asian	114	60.0	116	62.4	87	46.3	100	54.6
Western Pacific	144	58.1	139	55.6	108	43.0	119	48.2
WB Income Groups						*		
Low & Lower-middle	138	60.5	146	64.6	104	45.8	122	55.0
Upper-middle income	94	56.0	93	55.0	62	36.9	78	47.3
High income	22	61.1	20	54.1	15	40.5	17	47.2
High income OECD	327	64.8	302	59.6	268	52.8	267	53.4

*p<0.05, Chi-square test

Table 4: Bivariate analysis of global job satisfaction scales and sample characteristics (Cntd.)

Variable	Job satisfaction		Career satisfaction		Satisfaction with area and type of practice		Overall scale	
	n	Strongly Agree/Agree %	n	Strongly Agree/Agree %	n	Strongly Agree/Agree %	n	Strongly Agree/Agree %
Type of main practice		*						
Public	98	51.0	98	56.1	98	41.8	95	44.2
Private	770	63.9	772	60.1	773	48.3	759	53.0
Remoteness area of main practice								
Major city	665	61.4	664	60.1	665	46.9	651	51.9
Rest of state	210	63.8	212	57.5	212	49.5	210	53.3
Socio-economic area of main practice								
Most disadvantaged	75	54.7	75	56.0	76	40.8	73	47.9
2	124	57.3	125	64.0	124	50.0	123	53.7
3	200	62.5	198	57.6	198	48.5	196	51.5
4	189	66.1	187	58.8	187	47.1	185	54.1
Least disadvantaged	245	66.1	249	59.0	249	49.4	243	54.7
Specialist qualification								*
Specialist	239	64.0	238	60.1	240	52.1	235	58.3
Not a specialist	688	61.3	692	59.7	690	46.4	679	50.4
Hours worked group								
Less than 25 hrs	121	57.0	121	57.0	121	46.3	119	46.2
25 to 34 hrs	168	65.5	167	59.3	169	49.7	165	52.7
35 to 44 hrs	434	62.0	440	61.8	437	46.5	431	53.4
45+ hrs	114	65.8	112	58.0	112	49.1	111	55.9

*p<0.05, Chi-square test

Table 5: Logistic regression analysis (adjusted model) of job satisfaction by sample characteristics

Variable	Job satisfaction		Career satisfaction		Satisfaction with area and type of practice		Overall scale	
	Odds Ratio	95% CIs	Odds Ratio	95% CIs	Odds Ratio	95% CIs	Odds Ratio	95% CIs
Migrant dentist groups								
Direct recognition	Ref.		Ref.		Ref.		Ref.	
ADC successful	0.82	0.58-1.15	0.97	0.70-1.36	0.71 *	0.51-0.98	1.04	0.74-1.45
Alternative pathway	0.74	0.45-1.25	0.92	0.56-1.50	0.73	0.45-1.19	0.94	0.57-1.53
Age group								
Less than 35yrs	Ref.		Ref.		Ref.		Ref.	
35 to 44 yrs	1.43	0.89-2.30	1.29	0.81-2.07	0.94	0.59-1.52	1.44	0.89-2.31
45 to 54 yrs	1.78 *	1.02-3.09	1.31	0.76-2.25	0.90	0.53-1.55	1.77 *	1.02-3.07
55+ yrs	2.15 *	1.16-3.97	1.66	0.91-3.01	0.80	0.44-1.44	2.18 *	1.20-3.96
Years since arrival								
Less than 10 yrs	Ref.		Ref.		Ref.		Ref.	
10+ yrs	1.45	0.94-2.21	0.96	0.63-1.46	1.15	0.76-1.74	1.11	0.73-1.68
Type of main practice								
Public	Ref.		Ref.		Ref.		Ref.	
Private	1.26	0.78-2.05	1.09	0.67-1.75	1.36	0.84-2.20	1.19	0.73-1.93
Specialist qualification								
Specialist	Ref.		Ref.		Ref.		Ref.	
Not a specialist	0.97	0.68-1.39	1.00	0.71-1.41	0.75	0.53-1.05	0.78	0.56-1.11

*(P<0.05)

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7 RESEARCH ARTICLES 6 AND 7: LIFE STORY EXPERIENCE

ARTICLE 6: Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. Development of life story experience scales for migrant dentists in Australia: a sequential qualitative-quantitative study. *Community Dental Health* [Submitted 24 Aug 2015].

ARTICLE 7: Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. The life story experience for migrant dentists in Australia: new agendas for dental workforce planning, migration policy and international cooperation. [Draft article].

Highlights:

- These articles build a suite of five sub-scales around migrant dentists' life story experience.
- Based on this research, we provide suggestions for a more inclusive approach on dentist migration in Australia, and greater consensus towards an international agenda to address the dentist migration issue.
- Article 6 has been submitted to *Community Dental Health* (see Appendix Two: B2).

7.1 Statement of authorship

Statement of Authorship

Title of Paper	Development of life story experience (LSE) scales for migrant dentists in Australia: a sequential qualitative-quantitative study.
Publication Status	<input type="radio"/> Published <input type="radio"/> Accepted for publication <input checked="" type="radio"/> Submitted for publication <input type="radio"/> Publication style
Publication Details	Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. Development of life story experience (LSE) scales for migrant dentists in Australia: a sequential qualitative-quantitative study. [Community Dental Health] Submitted.

Author Contributions

By signing the Statement of Authorship each author certifies that their contribution to the publication is accurate (as detailed below). The co-authors also certify that the candidate's stated contribution to the publication is accurate, and the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Principal Author (Candidate)	Madhan Balasubramanian		
Contribution to the Paper	Designed the study. Conducted fieldwork and collected data. Supervised data entry. Performed analysis. Wrote the manuscript. Overall contribution = 75%		
Signature		Date	24 Aug 2015

Name of Co-Author	A John Spencer		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design, and drove the overall strategy for the study. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Stephanie Short		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Keith Watkins		
Contribution to the Paper	Provided expert opinion towards the revision of the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Sergio Chrisopoulos		
Contribution to the Paper	Provided expert opinion towards statistical analysis and revision of the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	David S Brennan		
Contribution to the Paper	Supervised the development and progress of the study. Contributed to the study design, and overall analysis strategy. Drove the funding and ethics applications. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Statement of Authorship

Title of Paper	The life story experience of migrant dentists in Australia: new agendas for dental workforce planning, migration policy and international cooperation.
Publication Status	<input type="radio"/> Published <input type="radio"/> Accepted for publication <input type="radio"/> Submitted for publication <input checked="" type="radio"/> Publication style
Publication Details	Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS. The life story experience of migrant dentists in Australia: new agendas for dental workforce planning, migration policy and international cooperation. [Draft article].

Author Contributions

By signing the Statement of Authorship each author certifies that their contribution to the publication is accurate (as detailed below). The co-authors also certify that the candidate's stated contribution to the publication is accurate, and the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Principal Author (Candidate)	Madhan Balasubramanian		
Contribution to the Paper	Designed the study. Conducted fieldwork and collected data. Supervised data entry. Performed analysis. Wrote the manuscript. <u>Overall contribution = 75%</u>		
Signature		Date	24 Aug 2015
Name of Co-Author	A John Spencer		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design, and drove the overall strategy for the study. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015
Name of Co-Author	Stephanie Short		
Contribution to the Paper	Supervised the development of the study. Contributed to the study design. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015
Name of Co-Author	Keith Watkins		
Contribution to the Paper	Provided expert opinion towards the revision of the manuscript.		
Signature		Date	24 Aug 2015
Name of Co-Author	Sergio Chrisopoulos		
Contribution to the Paper	Provided expert opinion towards statistical analysis and revision of the manuscript.		
Signature		Date	24 Aug 2015
Name of Co-Author	David S Brennan		
Contribution to the Paper	Supervised the development and progress of the study. Contributed to the study design, and overall analysis strategy. Drove the funding and ethics applications. Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

7.2 Linkage of articles to body of research

In these two articles, we first develop a suite of measures (sub-scales) for migrant dentist experiences in Australia, and later assess the variation between migrant dentist experiences in Australia and migrant dentist characteristics. This is the final sub-aim of the quantitative study.

7.3 Submitted article

Pages 154 to 181 include the article that develops a suite of measures (sub-scales) for migrant dentist experiences in Australia. This article has been submitted to Community Dental Health, and is provided in the form as submitted to the journal.

Balasubramanian, M., Spencer, A.J., Short, S.D., Watkins, K., Chrisopoulos, S. & Brennan, D.S. (2016). The life story experience for migrant dentists in Australia: new agendas for dental workforce planning, migration policy and international cooperation.

Community Dental Health, Submitted.

NOTE:

This publication is included on pages 154 - 181 in the print copy of the thesis held in the University of Adelaide Library.

7.4 Draft article

Pages 183 to 212 include a draft article that provides an assessment on the variation of migrant dentist experiences by migrant dentist characteristics. This article is planned for submission to a health policy journal, once the previous article (Article 6) is accepted in a journal. This article is of 3111 words in length and the abstract is of 260 words.

7.4.1 Abstract

Introduction: Dentists from over 120 countries migrate to Australia, and it is estimated that one in four of every practising dentist in Australia is a migrant. The aim of the study was to assess variation in migrant experiences in Australia by migrant dentist characteristics. **Methods:** A national survey of all migrant dentists resident in Australia was conducted in 2013. Migrant experiences were assessed through life story experience (LSE) scales, comprising 38 items. Respondents rated experiences using a five-point Likert scale. **Results:** A total of 1022 migrant dentists responded to the survey (response rate=54.5%). LSE1 (health system and general lifestyle concerns in home country), LSE2 (appreciation towards Australian way of life) and LSE3 (settlement concerns in Australia) scales varied by migrant dentist groups, gender, and years since arrival to Australia (Chi-square, $p < 0.05$). In a logistic regression model, migrants mainly from developing countries (ADC Successful group) had a higher odds ratio for LSE1 (9.32; 3.51-24.72) and LSE3 (5.39; 3.51-8.28), and a lower odds ratio for LSE2 (0.66; 0.46-0.96), when compared to migrants from well-developed countries (Direct Recognition group). Migrants also seem more appreciative towards the Australian way of life if they had lived at least ten years in Australia (1.97; 1.27-3.05), compared to migrants who have lived for less than ten years. **Conclusion:** Migrant dentists from developing countries face challenges, both in their home and in Australia. This study offers recommendations towards targeted policies for migrants facing settlement issues in Australia. A further suggestion is to adopt a more inclusive approach and greater consensus for an international agenda to address dentist migration.

Keywords: dentists; health policy; international cooperation; migration.

7.4.2 Introduction

The migration of dentists is a major challenge affecting both the developing and well-developed countries. Dentists, similar to physicians and nurses, form a highly skilled group of health professionals involved in international migration (1). In a recent survey of all FDI World Dental Federation member countries, migration to the well-developed countries has emerged as a growing trend among dentists in developing countries (2). While migration appears to bring improved knowledge flows across borders and contribute towards global development (3), it can also lead to brain drain in poorer regions of the world (4–7).

Australia is a popular destination for migrant dentists, trained from an overseas dental institution (7,8). Dentists from over 120 countries migrate to Australia (9), and it is estimated that one in four practising dentists in Australia is a migrant (10). A large proportion of migrant dentists arrive from countries with a similar historical and cultural proximity to Australia, such as New Zealand, United Kingdom, Republic of Ireland and Canada (7,11). Dentists from these countries can have their qualifications directly recognised for practise^a and can register fully as a dentist in Australia (12,13). A concern in recent years is the dramatic increase in the number of dentists arriving from developing countries, such as India, Philippines, South Africa, Indonesia, Egypt, Iran, and Iraq (9). These dentists are usually required to undergo a detailed examination process to gain entry into dentistry in Australia (13). Migrants can also choose to enter as students or academics and be associated with an Australian University, or obtain public sector employment in regional/remote areas in Australia with limited registration.

The reasons for dentist migration are complex, and it is believed that a broad range of factors influences a dentist's decision to migrate to Australia (1). Prior

research suggests that dentists from the well-developed countries migrate to Australia for slightly different reasons (such as adventure) than dentists from developing countries, who migrate seeking better opportunities (7). Developing countries in South Asia and the Middle East are facing several health system challenges and political uncertainties that can affect dentist experiences, and thereby influence migration (1). Oral health systems in these countries seem largely unresponsive to dentist expectations on work conditions or better career opportunities (14–17). Migrant dentists arriving Australia also face various settlement issues (18,19). The examination process is resource intensive, and can be tough on newly arrived dentists, or migrants with a family to support (18). As suggestive in other migration studies, migrants are also at the risk of discrimination, isolation, stress and loss of identity in Australia (20,21). Migrant dentists face several cultural issues and require support for understanding the Australian way of life (19).

To date, very little has been done to gain a thorough understanding on the migration and settlement experiences of migrant dentists in Australia. Prior studies were mainly qualitative (1,18,19), and failed to provide any conclusive evidence. National dental labour force collections (22–24), dentist practice activity (25,26) and job satisfaction (27,28) studies in Australia have not presented disaggregated data on migrant dentists. An understanding of their experiences (both in home countries and in Australia) can help us uncover events that are more likely to affect migrant dentists. Further, as experiences are unlikely to remain similar to all migrants, an assessment based on various migrant dentist characteristics, such as background and country of origin is vital. This will enable us to develop more focused migration policies, and provide evidence to support international cooperation. Therefore, the

aim of the study was to assess the variation between migrant dentist experiences in Australia and migrant dentist characteristics.

7.4.3 Methods

Data collection

A national survey of migrant dentists resident in Australia was conducted between January and May 2013 (7). All migrant dentists registered with the Australian Dental Association (n=1872) or enrolled as a graduate student in the nine dental schools (n=105) in Australia were included in the survey. Dentists were asked to complete a self-administered questionnaire; postal mailouts, handouts, and online approaches were used in the surveys^b. A wide variety of data including demographic, migration and residence characteristics, practice profiles, job satisfaction and life-story experience were collected. Further details on study design, data collection, and data preparation procedures are described elsewhere (7). The focus of this study is limited to understanding the life story experience of migrant dentists.

Data items

The life story experience of migrant dentists was assessed through a battery of 38 items, comprising five empirical scales, designed through a qualitative-quantitative sequential study^c (29). Three scales (LSE1, LSE4, and LSE5) brought out the home country experiences of migrant dentists that led to migration into Australia; two scales (LSE2 and LSE3) captured settlement experiences in Australia. The list of all items included in each scale is presented in Supplementary Table 1. “Health system and general lifestyle concerns” scale (LSE1), included 10 items that highlighted misgivings associated with migrant dentists home country health systems and living conditions. Two additional home country scales LSE4 (four items) and LSE 5 (five items) highlighted the attraction towards “society and culture” and “career development” respectively. “Appreciation towards Australian way of life” scale

(LSE2), included 12 items and “settlement concerns” in Australia (LSE3) scale, had seven items. All survey participants were asked to indicate their level of agreement with each life story experience item, using a five-point Likert scale with ‘1’ indicating strong disagreement and ‘5’ indicating strong agreement.

Data analysis

Migrant dentists were classified into three mutually exclusive groups based on their country of primary dental qualification and route towards registration in Australia: Direct Recognition, ADC Successful and Alternative Pathway (7). Migrants with a primary dental qualification from New Zealand, the United Kingdom, Republic of Ireland and Canada were classified as Direct Recognition; primary qualifications from these countries were recognised for practice in Australia, without any further examination. Migrant dentists’ having participated and successfully completed the Australian Dental Council (ADC) examination process were categorised as ADC Successful. This group of migrant dentists were mainly from the low- and middle-income countries. The Alternative Pathway group included dentists working in the public sector dental workforce scheme^d, or as academics/researchers/students or specialists or having migrated to Australia at a time when mutual qualifications from other countries were recognised.

The year of birth was used to derive average age and age groups. The postcode of main practice location was linked with Australian Standard Geographic Classification (ASGC) Remoteness Areas (30) data in order to provide a new variable relevant to the relative remoteness of practice location.

All the life story experience scales were dichotomized into two groups using mean scores less than four as the cut-off point and coded as indicator variables. This approach was based on prior studies that have used a similar cut-off point (31,32).

Values greater than or equal to 4 coded as 1 (indicating strong agreement) and values less than 4 coded as 0 (other). Later, these dichotomised life story scales were examined by selected characteristics of migrant dentist using chi-square tests, and a level of significance set at $p < 0.05$. Migrant dentist characteristics were later entered as covariates in a series of logistic regression models. The dichotomised life story experience scales were treated as dependent variables. Entry of variables in the model was conceptually based to establish the most parsimonious model (33) - fewer terms as possible, but both conceptually relevant and able to explain the predicted life-story experience of migrant dentists. Adjusted odds ratios were generated. All data were analysed using IBM SPSS Version 20 (34).

Ethical considerations

Ethical approval for the study was obtained from an approved Human Research Ethics Committee in Australia. The survey was conducted as mailed self-complete questionnaire; consent was therefore implied by the return of the completed questionnaire.

7.4.4 Results

A total of 1022 migrant dentists responded to the national survey, resulting in an overall response rate of 54.5%.

Sample characteristics

Table 1 presents the number and percentage of respondents by selected characteristics of migrant dentists. The Direct Recognition Group comprised of the largest proportion of migrants (48.0 %), followed by the ADC Successful (40.2 %) and the Alternative Pathway (11.7 %) Groups. The majority of participants were male (58.2%), and over half of all participants (53.6%) had children less than 18 years of age. Further, over half of the respondents (51.2%) were aged 45 years or older, and a larger proportion (58.0%) had arrived in Australia 10 or more years ago. Over three-quarter of the participants (76.2%) practised in major cities in Australia, and a large majority reported to work in private practices (88.4%).

Life-story experience scales by migrant dentist characteristics

Table 2 presents bivariate associations between the dichotomised life-story experience scales and migrant dentist characteristics. The total number of respondents (n) and proportion in agreement with each scale are presented. “Health system and general lifestyle concerns” home country scale (LSE1) varied by migrant dentist groups, gender, age group, years since arrival in Australia and having children less than 18 years of age. Both Australia based life-story experience scales (LSE2 and LSE3) were associated with migrant dentist groups, gender, age group and years since arrival to Australia. Further, “appreciation towards Australian way of life” (LSE2) scale varied by type of main practice; “settlement concerns” (LSE3) scale also varied by having children less than 18 years of age. LSE4 (society and culture)

home country scale varied by remoteness area of main practice location, and LSE5 (career development) was associated with age group and years since arrival to Australia.

Logistic regression analysis between the dichotomised life-story experience scales and migrant dentist characteristics is presented in Table 3. Adjusted models for selected characteristics are presented for each scale. Compared with the reference category (Direct Recognition group), the odds ratio for the ADC Successful group (9.32; 3.51-24.72) and Alternative Pathway group (7.38; 2.04-26.73) were significantly higher for concerns on “health system and general lifestyle concerns” home country scale (LSE1). Both the home country based scales - “society and culture” (LSE4) and “career development” (LSE5) - varied with the remoteness area of main practice. Migrant dentists practising in the rest of state had lower odds ratio, 0.59; 0.40-0.85 for LSE4 and 0.64; 0.43-0.94 for LSE5, when compared to the reference category (major city). Further, the odds ratio for the LSE5 scale varied for migrant dentists aged 55+ years old (2.15; 1.06-4.38), when compared to the reference category (less than 35 years old).

The ADC Successful group also had a lower odds ratio (0.66; 0.46-0.96) in the “appreciation towards Australian way of life” scale (LSE2), when compared to Direct Recognition group. The odds ratio in the LSE2 scale was higher with years since arrival in Australia, and compared to the reference category of less than 10 years, being in Australia for 10 to 29 years, and 30+ years both had a higher odds ratio (1.97; 1.27-3.05 and 2.90; 1.40-5.99 respectively). Further, the odds ratio of the LSE2 scale varied for migrant dentists working in private practice (2.31; 1.31-4.06), when compared to the reference category, public dental practice. The “settlement concerns” scale (LSE3) in Australia, showed a higher odds ratio for the ADC

Successful group (5.39; 3.51-8.38) in comparison with the reference category, Direct Recognition group. The odds ratio for the LSE3 scale (settlement concerns in Australia) was lower with years since arrival in Australia, and the 30+ year group had the lowest odds ratio (0.23; 0.07-0.74). Further, the odds ratio for the LSE3 scale was lower for migrant dentists having no children under 18 years old (0.50; 0.31-0.80), when compared to the reference category of having children under 18 years old.

7.4.5 Discussion

The study assessed the variation between migrant dentist (migration and settlement) experiences in Australia and migrant dentist characteristics, using life story experience (LSE) scales. The scales include five experience domains: three based on home country events and two on settlement experiences in Australia. As the scales were designed through a grounded qualitative approach, including the actual narrations of migrant dentists, it is likely to reflect sentiments of migrant dentists in Australia (29). The five LSE domains were intended to be assessed separately, so it could offer in-depth information on the experiences associated with each domain; a single composite measure of life story experience was not essential or informative (29). The interpretation of results to each of the five LSE domains also required attention. The “health system and general lifestyle concerns” home country scale and “settlement concerns in Australia” scale brought out concerns or misgivings experienced by migrant dentists; other scales (Australian way of life, society, and career related issues at home country) brought out appreciation or affinity towards the underlying concept of each of the scales.

The adjusted logistic regression model for the “health system and general lifestyle concerns” home country scale (LSE1) found associations that were prominent only for migrant dentist groups and years since arrival to Australia. The ADC Successful and Alternative Pathway group of migrant dentists were more likely to have experienced difficulties and seemed less satisfied with home country systems and living conditions, compared with the Direct Recognition group (from well developed countries) A vast majority of participants from the ADC Successful and Alternative Pathway groups are from middle-income countries, witnessing major shortcomings in dental workforce policy and planning (7). Countries such as India

(14,15), Philippines (35,36), Thailand (16) and Indonesia (17) have dramatically upscaled the production of dentists, yet with little consideration towards the organization and delivery of dental services (37,38). Much of the contribution to this increase in dentists is from private dental colleges. Dentists from many developing countries also are more involved in private practices (37); the rise in the number of dentists has increased competition in the metropolitan areas that appear already well supplied with dentists (39). Public dental services and rural areas are the most affected (37). Broader issues such as corruption and bad living conditions also seem to coexist with health system deficiencies and affect dentist experiences. Some countries in the African and Middle Eastern Regions have been experiencing unstable political environments and more complex issues such as racism and discrimination (40,41). Dentists seem to migrate, as they feel let down by home country systems (1). Further, many countries in the poorer regions of the world do not have suitable workforce surveillance systems, and very little is known on the migration flows of dentists so as to support policy making decisions (42). Similar concerns also exist in physician and nurse migration (43,44). Policies developed to address health professional migration as a whole, will also need to take in regard the predominant privatized nature of dental education and dental practice.

The ADC Successful group of migrant dentists (mainly from developing countries) appear to have a lesser “appreciation towards the Australian way of life” scale (LSE2), and have experienced more settlement concerns (LSE3) in Australia. Migrant dentists involved in the qualifying examination process have expressed sentiments on the tough and stressful nature of the examination, and the impact of the examination on one’s finances and time. This study supports prior qualitative studies that called for support structures for migrant dentists involved in the examination

process (18,45). Further, migrant dentists seem more appreciative towards life in Australia if they have lived longer in Australia. Our finding provides new evidence to an argument that current policies and programs directed at recent migrants to facilitate their integration to the Australian way of life could be ineffective, and need reconsideration. Currently, support for migrants is offered by immigration departments or more specifically by universities and the public dental sector (19). A large proportion of migrant dentists might not avail themselves of these services. Migrants might face broader challenges such as seeking work or improving their financial position or settling down with a family— therefore gaining an understanding towards the Australian way of life might not seem an immediate priority. Migrants also appear to cherish work in the private dental sector. The limitations of public sector in terms of scope of practice of a dentist (27), and/or better financial returns of working in the private sector, could have contributed towards migrant dentist experiences in Australia.

In the adjusted analysis, participants living in non-metropolitan areas were less likely to have expressed affinity to home country “society and culture” scale (LSE4). Prior studies lend support to an argument that migrants closely knit to family and friends, are more likely to be socially active (1,46), and possibly aim to preserve such culture. While there is not enough evidence to suggest that this attraction will make emigration to home countries imminent, we can at least argue that such migrants will tend to live in areas where they can experience closeness to their native cultures. Metropolitan areas in Australia have vibrant multicultural hubs, providing a similar community experience (47). More attention is required towards migrant dentists living in non-metropolitan areas gain to better understanding of their cultural adherence, and assimilation of Australian values. Younger migrant dentists in

Australia were less likely to be in agreement with the “career development” in home country scale (LSE5). The dental education systems in some developing countries (e.g. India and Philippines) are producing surplus graduates with a possible intention to make them available to a global market (42,48). Current dental education is more technology-driven and less problem-centric (49). As a consequence, migrant dentists do not seem to realise the potential for career development in home countries and appear to relish a desire to practice high-end dentistry (1). Therefore, policies that address dentist migration need also to focus on the emerging workforce, so as to identify clues to cultivate new dental education and practice philosophies.

Limitations

The sampling frame for the study was based on migrant dentist registrations in the Australian Dental Association and enrolment information provided by the participating dental schools (7). A more exhaustive list of migrant dentists, based on the national register of dentists (50), was not available for research purposes. Nevertheless, over 90% of all practising dentists in Australia are also members of the dental association (51). The inclusion of graduate students in dental schools improved representativeness of the study sample (7). We did not survey migrants, who were involved in a non-dental job (or) non-dental university study program (or) who were unemployed. The identification of this group of migrant dentists would require integration of several data sources such as immigration, dentist registration, dental association membership, student enrolment and possibly taxation and social service information (7,42). Linkage between these systems is not in place in Australia. The study included only migrant dentists, who were residing in Australia at the time of the survey. It is possible that migrants living in Australia could exhibit a different set of experiences, compared to those who have left Australia. Prior

studies in general population movement offer various explanations (52–54); return migration to home country or emigration to a third country seems more common among migrants who have experienced severe failure or among the more successful migrants who have accumulated considerable financial wealth. In order to include all migrant experiences (those who emigrate or returned), would require an international effort first addressing challenges in migrant dentist immigration and surveillance systems (42). Future studies could benefit from a multicountry approach to better account for global mobility, so as to offer a more detailed assessment on the experiences of the mobile migrant dental workforce.

7.4.6 Conclusion

Migrant dentists from developing countries (mainly the ADC Successful Group) face broader challenges, compared to other migrant dentist groups, both in their country of origin and in Australia. Migrants appear to be let down by home country systems and have reported shortcomings in the structure, organization and delivery of dental services. Broader issues such as corruption and bad living conditions seem to coexist with health system deficiencies and influence dentist experiences. Migrant dentists, who have migrated to Australia more recently, and migrants with children, have experienced greater settlement concerns in Australia. Migrants also seem to cherish working in the private sector. This study offers recommendations towards targeted policies for migrants facing settlement concerns in Australia. A further suggestion is to adopt a more inclusive approach and call for greater consensus towards an international agenda to address the dentist migration issue. This approach will assist developing countries to understand the extent of the problem, and assist dental workforce planning and migration policy.

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7.4.8 End notes

- ^a The assessment and examination process is conducted by the Australian Dental Council (or ADC). Dentists from New Zealand, Ireland, United Kingdom and Canada do not require a detailed examination.
- ^b The Australian Dental Association component included three postal mailouts followed by an online survey. The dental school component included one handout followed by an online survey.
- ^c The qualitative-quantitative sequential approach included 82 items harvested through a qualitative study that were later deployed in the national survey. The wider list of items was reduced through factor analysis into 38 items comprising of five empirical scales, used in this study.
- ^d The public sector dental workforce scheme is offered by various state public dental services. This includes supervised dental practice in Areas of Need such as rural and remote areas. Migrant dentists who usually qualify for this scheme go through a selection process, and mostly have contractual obligation to work in public services for a certain period of time.

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7.4.10 List of Tables

Table 1: Sample characteristics

Table 2: Bivariate analysis of the life story experience (LSE) scales by sample characteristics

Table 3: Logistic regression analysis (adjusted model) of the life story experience (LSE) scales by sample characteristics

Supplementary Table 1: List of items in the life story experience (LSE) scales

Table 1: Sample characteristics

Variable	Study sample	
	Count	Percent
Migrant dentist groups (n=1022)		
Direct Recognition	491	48.0
ADC Successful	411	40.2
Alternative Pathway	120	11.7
Gender (n=1021)		
Male	594	58.2
Female	427	41.8
Age group (n=1018)		
Less than 35yrs	226	22.2
35 to 44 yrs	271	26.6
45 to 54 yrs	237	23.3
55 to 64 yrs	201	19.7
65+ yrs	83	8.2
Years since arrival to Australia (n=885)		
Less than 5 yrs	158	17.9
5 to 9 yrs	214	24.2
10 to 19 yrs	222	25.1
20 to 29 yrs	139	15.7
30+ yrs	152	17.2
Children (n=895)		
Have children under 18 yrs	480	53.6
Do not have children under 18 yrs	415	46.4
Remoteness area of main practice (n=932)		
Major City	710	76.2
Inner Regional	148	15.9
Outer Regional	65	7.0
Remote/Very Remote	9	0.9
Type of main practice (n=921)		
Public	107	11.6
Private	814	88.4

Note: Sample characteristics are based on full sample (n) =1022

Table 2: Bivariate analysis of the life story experience (LSE) scales by sample characteristics

	<u>LSE1</u>		<u>LSE2</u>		<u>LSE3</u>		<u>LSE4</u>		<u>LSE5</u>	
	N	Strongly Agree / Agree (%)								
Migrant dentist groups		*		*		*				
Directly Recognition	458	1.3	452	60.2	408	15.2	474	51.1	464	41.4
ADC Successful	369	18.2	364	50.8	361	57.6	380	57.4	371	41.5
Alternative Pathway	111	7.2	109	49.5	94	28.7	114	58.8	112	52.7
Gender		*		*		*				
Male	550	7.1	542	58.5	501	31.5	568	52.1	555	44.7
Female	387	10.9	382	50.8	362	38.4	399	57.9	391	40.2
Age group		*		*		*				*
Less than 35yrs	205	14.1	204	47.1	190	46.8	213	53.5	210	35.2
35 to 44 yrs	254	12.6	249	45.8	241	49.8	256	57.8	252	41.3
45 to 54 yrs	213	4.7	209	63.2	198	22.7	221	54.3	216	44.4
55 to 64 yrs	185	3.2	184	64.7	162	19.8	192	54.2	185	50.8
65+ yrs	78	3.8	76	63.2	70	12.9	82	46.3	80	45.0
Years since arrival		*		*		*				*
Less than 5 yrs	144	8.3	143	37.1	132	39.4	148	55.4	146	50.0
5 to 9 yrs	200	16.0	196	46.4	193	49.2	204	52.9	201	32.3
10 to 19 yrs	202	5.0	198	58.6	193	32.1	208	56.7	204	44.6
20 to 29 yrs	129	4.7	128	65.6	117	24.8	134	55.2	131	48.1
30+ yrs	138	2.9	137	70.8	118	5.9	145	49.0	138	42.8
Children		*				*				
Have children under 18 yrs	437	10.5	428	54.9	414	44.4	447	53.7	438	42.0
No children under 18 yrs	386	5.4	384	57.6	347	25.1	401	54.6	390	45.4

Note: Shaded areas represent home country based scales on experiences that contributes to dentist migrating to Australia; Unshaded represent scales based on settlement experiences in Australia; LSE1 is Health system and general lifestyle concerns scale; LSE2 is Appreciation towards Australian way of life scale; LSE3 is Settlement concerns scale; LSE4 is Society and culture scale; LSE5 is Career development scale. *p<0.05; Chi-square test

Table 2: Bivariate analysis of the life story experience (LSE) scales by sample characteristics (Cntd. 1)

	N	<u>LSE1</u> Strongly Agree / Agree (%)	N	<u>LSE2</u> Strongly Agree / Agree (%)	N	<u>LSE3</u> Strongly Agree / Agree (%)	N	<u>LSE4</u> Strongly Agree / Agree (%)	N	<u>LSE5</u> Strongly Agree / Agree (%)
Remoteness area of main practice								*		
Major City	665	8.0	660	55.0	607	32.3	689	58.1	674	45.0
Inner Regional	142	14.1	137	58.4	132	37.9	143	46.9	140	35.7
Outer Regional	62	6.5	61	50.8	61	41.0	63	39.7	63	41.3
Remote/Very Remote	9	11.1	9	77.8	8	12.5	9	55.6	9	33.3
Type of main practice				*						
Public	96	6.3	94	39.4	92	42.4	98	61.2	97	37.1
Private	755	9.3	744	57.5	693	32.3	780	53.6	763	43.3

Note: Shaded areas represent home country based scales on experiences that contributes to dentist migrating to Australia; Unshaded represent scales based on settlement experiences in Australia; LSE1 is Health system and general lifestyle concerns scale; LSE2 is Appreciation towards Australian way of life scale; LSE3 is Settlement concerns scale; LSE4 is Society and culture scale; LSE5 is Career development scale. *p<0.05; Chi-square test

Table 3: Logistic regression analysis (adjusted model) of the life-story experience (LSE) scales by sample characteristics

	<u>LSE1</u>			<u>LSE2</u>			<u>LSE3</u>			<u>LSE4</u>			<u>LSE5</u>		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
Migrant dentist groups															
Directly Recognition	Ref.			Ref.			Ref.			Ref.			Ref.		
ADC Successful	** 9.32	3.51	24.72	* 0.66	0.46	0.96	** 5.39	3.51	8.28	1.36	0.95	1.94	0.94	0.65	1.35
Alternative Pathway	** 7.38	2.04	26.73	0.83	0.48	1.43	1.88	0.91	3.90	1.63	0.96	2.74	1.45	0.86	2.44
Gender															
Male	Ref.			Ref.			Ref.			Ref.			Ref.		
Female	1.28	0.67	2.42	0.76	0.53	1.10	0.84	0.56	1.28	1.30	0.92	1.83	1.04	0.73	1.48
Age group															
Less than 35yrs	Ref.			Ref.			Ref.			Ref.			Ref.		
35 to 54 yrs	0.96	0.44	2.10	0.64	0.38	1.09	0.66	0.36	1.20	0.83	0.50	1.39	1.28	0.76	2.17
55+ yrs	0.66	0.14	3.18	0.59	0.29	1.22	0.59	0.25	1.37	0.87	0.43	1.75	* 2.15	1.06	4.38
Years since arrival to Australia															
Less than 10 yrs	Ref.			Ref.			Ref.			Ref.			Ref.		
10 to 29 yrs	** 0.32	0.14	0.74	** 1.97	1.27	3.05	0.63	0.39	1.02	1.14	0.74	1.74	0.92	0.60	1.41
30+ yrs	0.32	0.04	2.34	** 2.90	1.40	5.99	* 0.23	0.07	0.74	0.98	0.49	1.95	0.54	0.27	1.08
Children															
Have children under 18 yrs	Ref.			Ref.			Ref.			Ref.			Ref.		
No children under 18 yrs	0.87	0.42	1.81	0.79	0.53	1.18	** 0.50	0.31	0.80	1.07	0.73	1.56	0.95	0.65	1.38
Remoteness area of main practice															
Major city	Ref.			Ref.			Ref.			Ref.			Ref.		
Rest of state	1.37	0.70	2.68	1.19	0.80	1.78	0.977	0.61	1.56	** 0.59	0.40	0.85	* 0.64	0.43	0.94
Type of main practice															
Public	Ref.			Ref.			Ref.			Ref.			Ref.		
Private	1.84	0.61	5.55	** 2.31	1.31	4.06	0.87	0.47	1.64	0.75	0.44	1.28	1.05	0.62	1.79

Note: Shaded areas represent home country based scales on experiences that contributes to dentist migrating to Australia; Unshaded represent scales based on settlement experiences in Australia
LSE1 is Health system and general lifestyle concerns scale; LSE2 is Appreciation towards Australian way of life scale; LSE3 is Settlement concerns scale; LSE4 is Society and culture scale; LSE5 is Career development scale. *(P<0.05), **(P<0.01);

Supplementary Table 1: List of items in the life story experience (LSE) scales

Scale/ Item	Description of scale/item
LSE1	Health system and general lifestyle concerns
1	I was affected by corruption in my day to day practice life in my home country.
2	I thought the health service infrastructure in my home country was very good. *
3	Patients did not receive quality care in public clinics/hospitals back home.
4	There was too much competition between dentists in my home country.
5	Dentistry was not seen as a priority for policy makers in my home country.
6	The quality of dental practice was not good in my home country.
7	There are too many dental colleges/schools in my home country.
8	The oral health service system in my home country needs improvement.
9	The living standards in Australia are better than my home country.
10	Australia is somewhat similar to my home country. *
LSE2	Appreciation towards Australian way of life
11	I like the cultural diversity in Australia.
12	Australians have been very kind to me.
13	I found it easy to settle down in Australia.
14	I haven't felt any issues of discrimination in Australia.
15	I have made very good friends here in Australia.
16	The quality of life is better in Australia.
17	Australia is a safe place to live.
18	The standards of dentistry in Australia are very high.
19	Professional life in Australia is enjoyable.
20	Working in private practice is enjoyable.
21	There are good professional development opportunities in Australia.
22	I find myself very comfortable in the place I am staying right now in Australia.
23	I love Australia very much.
LSE3	Settlement concerns
24	The ADC exam process is very long.
25	Support structures to prepare for the exam are very important.
26	It takes lot of hard work to start a private practice in Australia.
27	Specialist registration requirements in Australia are difficult.
28	In future, I would like to see myself a bit higher in professional status.
29	I want my children to understand the culture of my home country.
30	I am planning to spend more time with my family in the future.
LSE4	Society and culture
31	I had a very active social life in my home country
32	I come from a tight-knit family.
33	I loved the lifestyle back in my home country.
34	I did not have enough time for social activities in my home country. *

LSE5 Career development**

35 I felt I had good hand skills, so I opted for dentistry.

36 I was very happy with my professional career in my home country.

37 I had very good mentors in my home country.

38 I had adequate professional development opportunities in my home country.

Note: Shaded areas represent home country based scales on experiences that contributes to dentist migrating to Australia; Unshaded areas represent scales based on settlement experiences in Australia.

PART THREE

8 GENERAL DISCUSSION

The purpose of this thesis was to provide a better understanding of the migration and settlement experiences of migrant dentists in Australia. Original research conducted through qualitative and quantitative studies is presented through the seven articles included in Part B. This general discussion summarises key outcomes arising from the qualitative-quantitative study. This Part mainly includes an opinion paper that offers several recommendations arising as a result of the thesis work. Terminology issues in the naming of migrant dentists are also discussed. Also, future research directions are provided.

8.1 Migrant dentist terminology

In this thesis the term “migrant dentists” was used as a generic term to indicate dentists in Australia with a primary dental qualification (such as BDS., BDDSc., or DDS.) obtained from a foreign institution. We have also used this term in all the quantitative research articles 4 to 7. However, migrant dentists were named as “international dental graduates” in original research article 1, and “overseas-qualified dentists” in original research articles 2 and 3. We were unable to discern a single position in the naming of migrant dentists and our usage reflected the primary target audience and previous (or similar usage) in a journal.

The use of a common global terminology in naming migrant dentists will be useful in this current era of improved cross-border mobility. However, owing to the newness of dentist migration research, and differences in the contemporary usage by policy makers in various country contexts (1–4), it is unlikely a common terminology will emerge in the near future. Nevertheless, we do not see terminology issues affecting research or policy on the migration of dentists.

8.2 The qualitative study

The aim of the qualitative study was to gain a preliminary understanding on dentists' migration and settlement experiences in Australia. We examined the life stories of 49 migrant dentists in Australia (5–7). Nevertheless, we interviewed only migrant dentists resident in Australia. It is possible that the qualitative findings might not represent the views of dentists who are yet to migrate to Australia, or those who had subsequently left Australia. The maximum variation sampling approach provided rich qualitative data for analysis (8). However, we were unable to find participants for the study from low-income countries. We used a two-phased interviewing approach, with the first focussed on home country stories and second on settlement experiences in Australia. Though this approach limited the interview duration available for each phase, we argue that data saturation was achieved during the qualitative analysis. All interviews were conducted in 2011. Since then, there have been some changes in the immigration and registration processes for migrant dentists in Australia. Our study might not be reflective of any newer concerns. We improved the credibility of findings through peer debriefing (9), aiming to reduce the subjective bias. However, as with most qualitative studies, findings are to be seen as exploratory and suggestive, but not conclusive.

Original research article 1 provided insights into the origins of the dentist migration problem through a qualitative analysis of the reasons for dentist migration (migration desire or why dentists migrate) to Australia. We argue that the origins of the migration desire emerge very early in a migrant dentists life story and accumulates due to a broad range of factors, some unique to the dental profession (5). The key drivers for dentist migration (mainly in developing countries) seem to be: technology intensive dental training and a vastly privatised dental education and

practise system (5). These drivers also appear to coexist with the broader health system, social and political issues (5). The first superordinate theme “global interconnectedness” from the qualitative study suggests that the origins of the migration phenomena are complex and involve a historical aspect stimulated by a priori knowledge (and interactions) of people, place and things (5). We mainly argue that policy efforts to address dentist migration should first begin with an understanding on the complexity of the migration phenomena, and require a commitment from all dentist migration sources and destination countries. The findings of this qualitative study also complemented the ongoing efforts of the World Health Organization for international cooperation on the migration issue (5,10,11).

Original research articles 2 and 3 provided insights into the settlement experiences of migrant dentists in Australia. The second superordinate theme ‘newness-struggle-success’ highlighted the vital roles played by family, friends and organisational structures (such as universities and public sector organisations) in the cultural learning process of migrant dentists in Australia (6). We argued that supportive migration policy will need to focus mainly on these enabling factors, so as to facilitate integration of migrant dentists into the Australian way of life, and improve their contribution to the Australian health care system, economy and society (6). The Australian Dental Council (ADC) examination process also influenced the settlement experience of a large majority of migrant dentists (involved in the ADC process). We argued that appropriate support structures (such as improved information, training facilities and counselling support) for migrant dentists are essential to prevent potential exploitation of migrant dentists (7). In this regard, we noticed that public sector schemes, successful in providing such support, could offer alternative policy options for limited recruitment of migrant dentists in Australia (7).

8.3 The quantitative study

The purpose of the quantitative study was to provide in-depth understanding on migrant dentists in Australia, as well as offer precise statistical estimates towards the measurement of the migration phenomena. We surveyed all migrant dentists registered with the Australian Dental Association (ADA) or enrolled as a graduate student in any one of the nine dental schools in Australia (12). The national registration data from the Australian Health Practitioner Regulation Agency (13) was unavailable for research purposes. However, over 90 percent of all dentists in Australia were also ADA members (14). We did not survey non-employed migrant dentist or those in non-dental jobs or study programmes (12). Identification of these groups would require integration of several sources of data, such as immigration, registration, social security, taxation and association membership data (12,15). Unfortunately, these systems are not yet in place in Australia. Further, we only surveyed migrant dentists resident in Australia. Similar to the qualitative study, the quantitative study might not also be representative of the concerns of migrant dentists who have left Australia.

Original research article 4 provided a systematic understanding on the characteristics and practice profiles of migrant dentists in Australia. Migrant dentists were classifiable into three groups: Direct Recognition; ADC Successful and Alternative Pathway (12). The Direct Recognition group (from high-income countries) migrated for slightly different reasons than the ADC groups (mainly from middle-income countries). We also noticed a large proportion of migrant dentists in Australia were from lower-middle income countries, pointing towards deficiencies in oral health systems both for the source countries and Australia (12). Further, the ADC group migrants were younger and worked more in the disadvantaged areas in

Australia (12). This study was able to establish a clear view on the profile of migrant dentist profile in Australia, and thereby able to offer recommendations for dental workforce policy and planning.

Original research articles 5 assessed the level of job satisfaction of migrant dentists in Australia and examined the association between various migrant dentist characteristics and job satisfaction. We argued that high levels of job satisfaction of migrant dentists in Australia suggested migrant dentists enjoy practising dentistry in Australia and can realise their aspirations in work and life. However, younger migrant dentists were more likely to face additional demands in dental practice, and ADC Successful group migrants were least satisfied with the area and type of practice. Similar to the qualitative study, this article offered recommendations for policies, programs and services that aim to improve support structures for migrant dentists in disadvantaged areas in Australia. We argued that this would improve retention of migrant dentists working in Australia.

Original research article 6 and 7 developed a suite of sub-scales to measure migrant dentists overall experience (both in the home and in Australia) and used this scale to assess variations in migrant dentist experiences. The discussion provided in article 7 also compared the qualitative and quantitative findings. We argued that a large majority of participants from the ADC Successful and Alternative Pathway groups appear less satisfied with home country systems, and have experienced difficulties in Australia. Migrant dentists seem to be more appreciative of the Australian way of life if they have lived longer in Australia. This finding provided new evidence suggesting that policies and programs directed at recent migrants would require more thought, so as to facilitate their integration to Australian life. A main suggestion was to adopt

a more inclusive approach, and a call for an international agenda to address dentist migration issues.

8.4 Opinion article

Balasubramanian M, Brennan DS, Spencer AJ, Watkins K, Short SD. The importance of workforce surveillance, research evidence and political advocacy in the context of international migration of dentists. *British Dental Journal*. 2015. 208:329-331. doi: 10.1038/sj.bdj.2015.195.

Highlights:

- This work was accepted in the British Dental Journal on Feb 2015 and was published on Mar 2015.
- The British Dental Journal is part of the Nature publishing group, and one of the longest serving journals in the dental field. The journal has wide readership in European countries.
- The article was selected as an “Our Pick” article in the Nature Asia. The pick is usually made on articles published among the Nature group of journals: <http://www.natureasia.com/en/nindia/our-picks>

8.4.1 Statement of authorship

Statement of Authorship

Title of Paper	The importance of workforce surveillance, research evidence and political advocacy in the context of international migration of dentists
Publication Status	<input checked="" type="radio"/> Published <input type="radio"/> Accepted for publication <input type="radio"/> Submitted for publication <input type="radio"/> Publication style
Publication Details	Balasubramanian M, Brennan DS, Spencer AJ, Watkins K, Short SD. The importance of workforce surveillance, research evidence and political advocacy in the context of international migration of dentists. British Dental Journal. 2015. 218:329-331.

Author Contributions

By signing the Statement of Authorship each author certifies that their contribution to the publication is accurate (as detailed below). The co-authors also certify that the candidate's stated contribution to the publication is accurate, and the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Principal Author (Candidate)	Madhan Balasubramanian		
Contribution to the Paper	Conceptualized and developed the opinion paper. Wrote the manuscript and acted as the corresponding author. Overall contribution=75%		
Signature		Date	24 Aug 2015

Name of Co-Author	David S Brennan		
Contribution to the Paper	Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	A John Spencer		
Contribution to the Paper	Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Keith Watkins		
Contribution to the Paper	Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

Name of Co-Author	Stephanie Short		
Contribution to the Paper	Provided intellectual content and revised the manuscript.		
Signature		Date	24 Aug 2015

8.4.2 Linkage of article to body of research

The purpose of this article is to discuss the importance of three ingredients that we consider vital for policy making on the international migration of dentists: workforce surveillance, research evidence and political advocacy. The article emerges as an outcome of the thesis work, and adds to the argument that tackling the migration of dentists requires a global effort.

8.4.3 Published article

Pages 224-226 contain the pdf of the published article in British Dental Journal.

Balasubramanian, M., Brennan, D.S., Spencer, A.J., Watkins, K. & Short, S.D. (2015). The importance of workforce surveillance, research evidence and political advocacy in the context of international migration of dentists. *British Dental Journal*, 218, 329-331.

NOTE:

This publication is included on pages 224 - 226 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

<http://dx.doi.org/10.1038/sj.bdj.2015.195>

8.5 Future directions

The articles contained in this thesis offer several recommendations for future research and policy on the migration of dentists. A major challenge is the lack of workforce surveillance and research evidence from many developing countries that are key source locations of migrant dentists. In Australia, there exist several challenges in the identification of migrant dentists. Future research will benefit from the integration of several data sources such as immigration, dentist registration, association membership and possibly social security and taxation. This will help us identify migrant dentists not currently in the dental workforce, and possibly determine reasons for 'brain waste'. An interesting parallel is to compare migrant dentist practice profiles to that of Australian trained dentists. This will help us understand if migrant dentists differ in any way to Australian trained dentists, offering valuable policy suggestions towards migrant dentist assessment and training programs. In general, dentist migration research is arguably in its early stages. We suggest that political advocacy and an international effort is essential to tackle the dentist migration problem as a whole.

8.6 References

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APPENDIX ONE: METHODS

A ETHICAL APPROVAL [1 TO 4]

1 – UNIVERSITY OF ADELAIDE ETHICS APPROVAL 2010



RESEARCH BRANCH
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CRICOS Provider Number 00123M

14 October 2010

Associate Professor DS Brennan
School of Dentistry

Dear Associate Professor Brennan

PROJECT NO: *Mobility of internationally trained dentists in Australia*
H-172-2010

I write to advise you that I have approved the above project on behalf of the the Human Research Ethics Committee. Please refer to the enclosed endorsement sheet for further details and conditions that may be applicable to this approval.

Approval is current for one year. The expiry date for this project is: 31 October 2011

Where possible, participants taking part in the study should be given a copy of the Information Sheet and the signed Consent Form to retain.

Please note that any changes to the project which might affect its continued ethical acceptability will invalidate the project's approval. In such cases an amended protocol must be submitted to the Committee for further approval. It is a condition of approval that you immediately report anything which might warrant review of ethical approval including (a) serious or unexpected adverse effects on participants (b) proposed changes in the protocol; and (c) unforeseen events that might affect continued ethical acceptability of the project. It is also a condition of approval that you inform the Committee, giving reasons, if the project is discontinued before the expected date of completion.

A reporting form is available from the Committee's website. This may be used to renew ethical approval or report on project status including completion.

 Professor Garrett Cullity
Convenor
Human Research Ethics Committee

2 – APPROVAL FOR MODIFICATION TO PROJECT DESIGN



RESEARCH BRANCH
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CRICOS Provider Number 00123M

Applicant: Associate Professor DS Brennan

Department: School of Dentistry

Project Title: *Mobility of internationally trained dentists in Australia*

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE

Project No: H-172-2010

RM No: 0000010706

APPROVED for the period until: 31 October 2011

subject to minor modification to the participant information sheet and consent form. It is noted that this study will involve Madhan Balasubramanian, PhD candidate.

Refer also to the accompanying letter setting out requirements applying to approval.

Professor Garrett Cullity
Convenor
Human Research Ethics Committee

Date: 13 OCT 2010

Page 1 of 1

3 – UNIVERSITY OF ADELAIDE ETHICS RENEWAL 2011



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14 October 2011

Associate Professor D Brennan
School of Dentistry

Dear Associate Professor Brennan

PROJECT NO: H-172-2010
Mobility of internationally trained dentists in Australia

Thank you for your report on the above project. I write to advise you that I have endorsed renewal of ethical approval for the study on behalf of the Human Research Ethics Committee.

The expiry date for this project is: 31 October 2012

Where possible, participants taking part in the study should be given a copy of the Information Sheet and the signed Consent Form to retain.

Please note that any changes to the project which might affect its continued ethical acceptability will invalidate the project's approval. In such cases an amended protocol must be submitted to the Committee for further approval. It is a condition of approval that you immediately report anything which might warrant review of ethical approval including (a) serious or unexpected adverse effects on participants (b) proposed changes in the protocol; and (c) unforeseen events that might affect continued ethical acceptability of the project. It is also a condition of approval that you inform the Committee, giving reasons, if the project is discontinued before the expected date of completion.

A reporting form is available from the Committee's website. This may be used to renew ethical approval or report on project status including completion.

Yours sincerely

 **PROFESSOR GARRETT CULLITY**
Convenor
Human Research Ethics Committee

Received 11.10.11

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE
APPLICATION TO RENEW ETHICAL APPROVAL OR REPORT ON PROJECT STATUS

Project No:	H-172-2010	Rm Code: 10706
Title:	Mobility of internationally trained dentists in Australia	
Applicant:	Assoc Prof David S. Brennan	
Department:	ARCPDH, School of Dentistry	
Telephone:	8303 4046	
Email:	david.brennan@adelaide.edu.au	
Others Involved:	Prof A. John Spencer Mr Madhan Balasubramanian Prof. Stephanie Short Dr Keith Watkins	
Date first approved:	14 October 2010	Annual expiry date: 31 October 2011

STATUS OF PROJECT	COMMENCED/NOT COMMENCED/CONTINUING/COMPLETE?
Reason if project has not commenced? Not applicable	
Expected completion date? November 2013	

Have there been any changes to the project in the last year which may affect its ethical approval? No

Are there likely to be any changes to the project in the next twelve months which may affect its ethical approval? No

If yes, give details of changes (if insufficient space, please attach a separate sheet):

Not applicable

Have any participants withdrawn from the study? No

If yes, give number of participants who have withdrawn and reasons if known?

Not applicable

4 – UNIVERSITY OF ADELAIDE ETHICS RENEWAL 2013



RESEARCH BRANCH
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27 February 2013

Associate Professor DS Brennan
Dentistry

Dear Associate Professor Brennan

PROJECT NO: H-172-2010
Mobility of internationally trained dentists in Australia

Thank you for the email dated 19.2.13 from Mr Balasubramanian regarding the changes to the sampling design and survey process for phase 2 of the study. I write to advise you that on behalf of the Human Research Ethics Committee I have approved the changes as detailed in the email.

The ethical endorsement for the project applies for the period until: 31 October 2015

Where possible, participants taking part in the study should be given a copy of the Information Sheet and the signed Consent Form to retain.

Please note that any changes to the project which might affect its continued ethical acceptability will invalidate the project's approval. In such cases an amended protocol must be submitted to the Committee for further approval. It is a condition of approval that you immediately report anything which might warrant review of ethical approval including (a) serious or unexpected adverse effects on participants (b) proposed changes in the protocol; and (c) unforeseen events that might affect continued ethical acceptability of the project. It is also a condition of approval that you inform the Committee, giving reasons, if the project is discontinued before the expected date of completion.

A reporting form is available from the Committee's website. This may be used to renew ethical approval or report on project status including completion.

Yours sincerely

Dr John Semmler
Convenor
Human Research Ethics Committee

B QUALITATIVE STUDY [1 TO 4]

1 – INVITATION LETTER



26th Oct 2011



Dear Colleague

Re: Invitation to participate in a research study on IDGs

The Australian Research Centre for Population Oral Health is currently involved in a research study on International Dental Graduates (IDGs) in Australia. In this regard, we wish to invite you to participate in the study.

The aim of this research study is to improve understanding on IDGs in Australia with specific focus on background characteristics (home country, age, sex etc.), migratory experience (immigration & registration to practice), behaviour (movement & practice activity) and associated motivations. The outcomes of the study will inform policy makers, particularly on IDG migration, registration and practice activity in Australia. The study will also offer newer insights on international cooperation and transnational governance in dentistry.

We aim to interview participants from all **five groups of IDGs in Australia:**

1. Mutual Entrants (IDGs from New Zealand, Ireland, United Kingdom and Canada).
2. PSDWS Entrants (IDGs from Singapore, Malaysia, South Africa, Hong Kong and the US).
3. ADC Entrants (IDGs from the Australian Dental Council Examinations).
4. Student Entrants (undergraduate and postgraduate dental students in Australian Universities).
5. Others (others with overseas dentist qualifications pursuing studies/work that does not require dental registration eg. academics, researchers, students and other dental jobs).

Your selection was based on the fact you fall in either one of the above categories, and also based on expert advice from senior colleagues and professional networks. **Your participation involves an interview generally lasting for less than an hour.** Interviews can be organised in your workplace or public place, based on your preference and ethical obligations of the study. A trained member of the team will conduct these interviews and at a time convenient for you. More information on the project, nature of involvement, research team and ethical obligations are provided in the information sheet.

Please note your participation in the interview is entirely confidential. This study has ethical approval from the University of Adelaide Human Research Ethics Committee, and strictly follows set ethical regulations. **We would anticipate interviewing you in the next few weeks.** We thank you for your support and look forward towards working with you.

Yours sincerely

David Brennan
Associate Professor

A John Spencer
Professor

Stephanie D Short
Professor (Sydney)

Madhan Balasubramanian
PhD Candidate

2 – INFORMATION SHEET



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Mobility of International Dental Graduates in Australia

INFORMATION SHEET

10th Oct 2011

Dear Colleague

We thank you for considering to participate as a key informant in a project on International Dental Graduates (IDGs) in Australia. Before we can induct you as a key informant, we would like you to read through these **five sections** on: further details of the project, the team conducting the study, nature of your involvement, our ethical obligations to you and possible extended participation in the project.

1

The project

1. There are around 12,000 registered dentists in Australia, and it is believed that one in two dentists is overseas born and one in four is overseas trained.
2. Migration of overseas dentists into Australia has followed a cyclic pattern, with at least three recognised periods of increased movement (mid 1970s; late 1980s; late 2000s).
3. There are four types of IDGs: *Mutual Entrants*, *Australian Dental Council Entrants* (including *Public Sector Dental Workforce Scheme* candidates), *International Dental Students* and *Others* (academics and students not actively enrolled in dental courses).
4. This project seeks to gain a *better understanding of IDGs in Australia* with specific focus on background (home country, age, sex etc.), migratory experience (immigration & registration to practice), behaviour (movement & practice activity) and associated motivations.
5. The outcomes of the study will inform policy makers, particularly on *IDG migration, registration and practice activity* in Australia. The study will also offer newer insights on *international cooperation and transnational governance* in dentistry.

2

Nature of your involvement

1. You will be invited to participate in a *face-to-face interview* and/or *focus group discussion*, which is expected to last less than an hour.
2. Interviews will involve discussion on issues concerning IDGs. A trained member of the team will conduct both and at a time convenient for you. Only IDGs can participate in the interviews.
3. Interviews can be organised in your workplace or public place, based on your preference and ethical obligations of the study. In case you are unavailable, we can conduct a *telephone interview*.
4. Focus group discussions are generally held in a designated space (dental school or university campus), and you might need to travel to the location at a particular time. We can reimburse your expenses involved in local travel.
5. Focus group discussions are conducted by a senior and trained facilitator, and will involve a mixture of IDGs, experts, policy makers and academics interested in dentist migration.
6. All interviews will be recorded using a digital tape recorder. In case you do not wish the interview to be recorded, please inform us before the interview so notes can be taken.

3 Research team

1. The team comprises of a group of leading researchers from the Australian Research Centre for Population Oral Health, the *University of Adelaide* and from the Faculty of Health Sciences, the *University of Sydney*.
2. Associate Professor *David* Brennan has been involved in several dentist practice activity and labour force studies in Australia. David has vast experience in health services research and in epidemiological analysis of dental public health data. He leads the core team for this study made up of Professors John Spencer, Stephanie Short and Mr Madhan Balasubramanian.
3. Professor *John* Spencer is considered as the pioneer for dental public health research in Australia. John is the founder of Australian Research Centre for Population Oral Health and has over four decades of rich experience in dental labour force, dentist migration and practice activity issues.
4. Professor *Stephanie* Short is a medical sociologist and a health policy analyst from the University of Sydney. Stephanie convenes a group of leading researchers in Australia, who are intensely involved in health professional migration issues. At an international level, she is Executive Director of the International Consortium for Research on Governance of the Health Workforce.
5. Mr *Madhan* Balasubramanian is a PhD candidate and Research Officer in the Australian Research Centre for Population Oral Health. Madhan has worked on dentist migration issues in Australia with specific focus on international cooperation and governance.

4 Our ethical obligations to you

1. Your participation is *voluntary* and you are free to withdraw at any time.
2. The interviews/focus group discussions will remain *confidential*. Individual identity will be protected by reporting the results in aggregate form.
3. The information you provide will be used *only for the purpose of research* for which it was collected and not to be made available to others.
4. While there *might not be any direct benefit* to you by participating in this research, the outcomes of the study will inform evidence based policies on dentist migration into Australia.
5. This project has been approved by the *University of Adelaide's Human Research Ethics Committee (Ethical Approval Number: H-172-2010)*. If you have any ethical concerns about the project or questions about your rights as a participant or problems in the conduct of the study please refer the Complaints form.

5 Possible extended participation

1. As research will benefit from accuracy of the information provided, we will be pleased if you choose to *volunteer to check the veracity of your transcripts* (your recorded interview transcribed by a trained person into word/text document).
2. We will also aim to keep in touch with you and *share the results* we come up during the research.

In case, if you have any concerns on your participation please feel to email the project coordinator at madhan.balasubramanian@adelaide.edu.au or call +61 8 83035027 or 0466888231. Thank you for your assistance, and we look forward towards working with you in this timely project.

Yours sincerely

David S Brennan
Associate Professor
08 8303 4046

A. John Spencer
Professor
08 8303 5029

Stephanie D Short
Professor (Sydney)
02 9036 7374

Madhan Balasubramanian
PhD Candidate
0466888231

3 – CONSENT FORM

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE

CONSENT FORM

1. I, *(please print name)*

consent to take part in the research project entitled:

Mobility of International Dental Graduates in Australia

2. I acknowledge that I have read the attached Information Sheet entitled:

.....

3. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker. My consent is given freely.

4. Although I understand that the purpose of this research project is to improve the quality of oral health services, it has also been explained that my involvement may not be of any benefit to me.

5. I have been given the opportunity to have a member of my family or a friend present while the project was explained to me.

6. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.

7. I understand that I am free to withdraw from the project at any time and that this will not affect medical advice in the management of my health, now or in the future.

8. I am aware that I should retain a copy of this Consent Form, when completed, and the attached Information Sheet.

9. I agree to give consent to record the interview Yes No .

I understand that if I choose to have my interview recorded, my names will not be identifiable, and results will be only represented in group aggregates.

.....
(signature) *(date)*

WITNESS

I have described *(name of subject)*
the nature of the research to be carried out. In my opinion she/he understood the explanation.

Name:

.....
(signature) *(date)*

INTERVIEWER

Name:

.....
(signature) *(date)*

4 – INTERVIEW GUIDE



INTERVIEW GUIDE

Checks | Opening – Home country experience – Settling down experience – Closing | Sign off

- Check recorder if working
 - Check if participant has read information sheet
 - Check if participant has filled consent form
-

Opening the interview

1. Greeting and thank you
 2. Overview of the study
 3. Explain interview process
-

Home country experience:

Cover life-story events: Early life, undergraduate student life; dental practice and professional life; social and cultural life; travels and migration to Australia)

Direct prompts

1. Why dentist? Where did the motivation to choose dentistry come from?
2. Let's talk about your life as a student in your home country?
3. Are there any aspects in your student life that you liked and are there any aspects that you disliked?
 - Dental education, training, professional support
4. What did you choose to do after your completing your undergraduate degree? Why?
5. Apart from your profession – in your social life- are there few things in your home country that you really liked doing, and few things that you did not like about?
6. Do you like travelling? Have to been to any other country before you come to Australia? How was the life back there?
7. How well was your decision to migrate to Australia received by your family and friends?

Hypothetic prompts

1. Can we go back in time and discuss how you decided to choose dentistry as a career?
2. If you were given an opportunity to change a few things in your country what would that be?
3. Can we go back in time again, and discuss when and why you decided to migrate to Australia?

Story mode prompts

1. My colleague, who finished dental education with me in India, chose to work as a tutor in my university. She also went to private practice in the evening. She liked professional practice compared to teaching. Her private practice was very busy and she had a good number of specialists offering mentoring and support. On an average she saw around 20 patients a day. What did you choose to do after graduation? And what part of your work you liked?
 2. In Columbia a South American country, dentistry was essentially practiced in private clinics, until a policy change in the 1990's – when all clinics were to accommodate public patients. The change was well received by the public, as this dramatically reduced the cost of services. Shall we talk about the oral health system in your country?
 3. In Australia there used to be 5 dental schools, there about 9. India has about 300 dental schools. In many countries there seem to be a rise in dental school and dentist graduating. Possibly causing competition for dentists, and quality of dental education. What do you feel is the scenario in your country?
-

Settling down experience:

Cover life-story events: Immigration process; social and cultural experiences; study/work life; the Australian dental council examination

Direct prompts

1. How was the immigration process to Australia?
2. Did you experience any cultural shock when you first came to Australia?
 - Nature of shock;
 - Assistance received in Australia.
3. What did you find different about Australia?
4. Do you like your work (or) study in Australia? Tell us about it – name a few things u like.
 - Finding work; dental/non-dental work.
5. Can you tell us about your experience in the ADC examination?
 - Process in general;
 - English test;
 - Theory;
 - Clinical Test;
 - Information available to prepare for exam;
 - Interaction with examiners;
 - Preparation for the examination;
 - What would you like to change in the ADC process.
6. Public sector scheme; Universities – Identify if participant was involved first:
 - How useful was your participation the public sector scheme? Can you tell us about it?
 - How supportive is the University environment?

Hypothetic prompts

7. Let's talk about your social life here in Australia. Can you go back in time, and recollect events that you liked and did not like in Australia?
8. If you had a dream on a perfect place to live and practice dentistry, what would that be? Do you think you have achieved that dream?

Story mode prompts

9. A participant who I interviewed earlier suggested when she first came to Australia; she expected a good job as a dentist, followed by a good work environment and life style. What would your expectations be, and how far have they been achieved?
10. Let's imagine a close member of your family, who lives with you moves to (a different place) on a better opportunity. Would you also consider moving? What do you think will influence your decision?

Closing the interview

1. Ask if there is anything the participant wants to add to the interview.
2. Say copy of the interview transcript will be sent for verification or if any clarification was needed.
3. Thank you.

-
- Check if the interview was recorded
 - Transfer and encrypt file
 - Collate field notes

C QUANTITATIVE STUDY [1 TO 5]

1 – COVER LETTER AND INFORMATION SHEET



OVERSEAS QUALIFIED DENTISTS STUDY

Dear Colleague

The Australian Research Centre for Population Oral Health (ARCPOH), the University of Adelaide would like to invite you to participate in a research study on overseas qualified dentists in Australia.

Please go through the **five points** below, before you participate in the study:

What is this study for? The study broadly involves understanding the experiences of overseas qualified dentists in Australia. This includes your stories on migration, settling down experience, life/work in Australia and future dreams.

Why is it important? Recent data points out that one of every four dentists in Australia is an overseas qualified dentist. Australia has dentists coming from over 120 different countries, and from all major continents. This study helps us in better understanding the experiences of these overseas qualified dentists in Australia. We hope that this endeavour will help us in making better policies for the future.

What does the study include? The study includes collection of responses to a survey questionnaire from overseas qualified dentists, who are resident in Australia. The questionnaire will take about 10-15 minutes to complete.

How to participate?

1. Please fill the questionnaire attached.
2. Post it to us in the reply paid envelope provided as soon as you can.

Ethics and confidentiality: The study has ethical approval from the Human Research Ethics Committee of the University of Adelaide. Responses to the survey will be confidential. Results will be reported as group profiles only. Your participation is voluntary.

Yours sincerely,

David S Brennan
Associate Professor

A John Spencer
Emeritus Professor

Stephanie D Short
Professor

Madhan Balasubramanian
PhD Candidate

Enclosed [3]

1. Overseas qualified dentists survey questionnaire.
2. Reply paid envelope.
3. Independent complaints procedure.

The Core Research Team | Overseas Qualified Dentists Study

The core research team comprises of leading researchers from the Australian Research Centre for Population Oral Health, the University of Adelaide and from Faculty of Health Sciences, the University of Sydney.

Associate Professor David Brennan has been involved in several dentist practice activity and labour force studies in Australia. David has vast experience in health services research and in epidemiological analysis of dental public health data. He leads the core team for this study.

Emeritus Professor A John Spencer is considered as a pioneer for dental public health research in Australia. John is the founder of the Australian Research Centre for Population Oral Health and has over four decades of rich experience in dental labour force, migration and practice activity issues.

Professor Stephanie Short is a medical sociologist and a health policy analyst from the University of Sydney. Stephanie convenes a group of leading researchers, who are intensely involved in health professional migration issues. She is also Executive Director of an international governance research network.

Mr Madhan Balasubramanian is a PhD candidate and Research Officer in the Australian Research Centre for Population Oral Health. Madhan has worked on dentist migration issues in Australia with specific focus on international cooperation and governance. He is also an overseas qualified dentist.

Contact details

Further information on the study can be obtained by contacting the research team in the University of Adelaide.

Contact point: Madhan Balasubramanian

Australian Research Centre for Population Oral Health
School of Dentistry, The University of Adelaide
SOUTH AUSTRALIA 5005

Tel: (08) 8313 5027 Fax: (08) 8313 3070

Email: madhan.balasubramanian@adelaide.edu.au

Website: www.arcpoh.adelaide.edu.au

2 – SUPPORT LETTER



The Australian Dental Association Inc.

14-16 Chandos Street
St Leonards NSW 2065

All Correspondence to:
PO Box 520 St Leonards NSW 1590

18th Mar 2013

Dear Colleague

I am writing to encourage your co-operation with the **National Survey on Overseas Qualified Dentists** in Australia. This study is being conducted by a team of dedicated researchers from the Universities of Adelaide and Sydney, in collaboration with the Australian Dental Association (ADA) Inc. The research team is headed by Associate Professor David Brennan in the Australian Research Centre of Population Oral Health, the University of Adelaide.

This study will help us to better understand the experiences of overseas qualified dentists in Australia. The results of this survey will help make informed decisions regarding future migration and regulatory policies in Australia.

The ADA supports your participation, and we encourage your involvement so the research team can paint an accurate picture of overseas qualified dentists in Australia.

Individual confidentiality is assured and your name is not required. The basic data will be used only to calculate statistical averages and group profiles and will not be available to any individual or agencies other than Associate Professor David Brennan and his Research Unit.

Please take the time to complete the enclosed short survey.

Regards

Dr Karin Alexander
President
Australian Dental Association Inc.

Telephone + 61 2 99064412; Facsimile: Administration +61 2 9906 4676; Executive +61 2 9906 4736 Publications +61 2 9906 4917;

Email adainc@ada.org.au; Website: www.ada.org.au

3 – INDEPENDENT COMPLAINTS FORM



THE UNIVERSITY OF ADELAIDE
HUMAN RESEARCH ETHICS COMMITTEE

INDEPENDENT COMPLAINTS PROCEDURE

The Human Research Ethics Committee is obliged to monitor approved research projects. In conjunction with other forms of monitoring, it is necessary to provide an independent and confidential reporting to assure quality of the institutional ethics committee system. This is done by providing you with an additional avenue for raising concerns regarding the conduct of any project in which you are involved.

The following study has been reviewed and approved by the University of Adelaide Human Research Ethics Committee:

Project title: Mobility of International Dental Graduates (overseas qualified dentists) in Australia

1. If you have any concerns or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should contact the project coordinator or director:

Name: Mr Madhan Balasubramanian [project coordinator]

Telephone: 08 8313 5027

Email: madhan.balsubramanian@adelaide.edu.au [OR]

Name: Associate Professor David S Brennan [project director]

Telephone: 08 8313 4046

Email: david.brennan@adelaide.edu.au

2. If you wish to discuss with an independent person on matters related to:
 - a. making a complaint;
 - b. raising concerns on the conduct of the project;
 - c. the University's policy on research involving human subjects;
 - d. your rights as a participant.

Please contact the Human Research Ethics Committee secretary on **08 8313 6028**

4 – POSTAL SURVEY



OVERSEAS QUALIFIED DENTISTS SURVEY

An overseas qualified dentist or international dental graduate is any dentist in Australia with a primary dental qualification from a foreign institution. This research study broadly involves understanding experiences of these overseas qualified dentists. We hope that this endeavour will help us to inform future policies.

The next few pages involves collection of responses to a survey questionnaire. This will only take around **10-15 minutes to complete**.

We are grateful for your support and appreciate your participation in this very important study.

How to complete the survey?

1. Please use a DARK pen to write your answers.
2. Please use BLOCK LETTERS.
3. Mark your responses as where necessary.
4. Follow the titles in bold inside each box numbered from sections **1 to 13**.
5. Please answer all the questions.

Your feedback is strictly confidential

1. Results will be reported as group profiles only.
2. Individual identity will not be revealed.

Any queries

International Dental Graduate Study Team
Contact point: Madhan Balasubramanian
Tel: 08 83135027 Fax: 08 83133070
madhan.balasubramanian@adelaide.edu.au

Conducted by

Australian Research Centre for Population Oral Health
School of Dentistry, The University of Adelaide
SOUTH AUSTRALIA 5005

Website: www.arcpoh.adelaide.edu.au

Please return the completed questionnaire as soon as possible in the reply paid envelope provided

1 About you

Your year of birth:

Your country of birth:

Gender:
 Male
 Female

Marital status:
 Single
 Married
 Other

2 Your qualification(s)

The year you completed your primary or **first** dental qualification?
 (such as BDS, BDS_c or DMD, DDS)

Name of the University where you completed this dental degree?

Do you have a specialist dental qualification? Yes No → **If NO go to SECTION 3 now**

Where did you obtain your specialist qualification? Country of birth Australia Other

What is your main dental speciality?

Endodontics Oral medicine Oral/Maxillofacial Surgery Oral pathology Orthodontics
 Paediatric dentistry Periodontics Prosthodontics Other speciality _____
(Specify if other)

3 Your previous work in other countries

Did you work as a dentist in a country other than Australia? Yes No → **If NO go to SECTION 4 now**

	Country 1	Country 2	Country 3	Country 4
Please list up to four countries (other than Australia) where you have spent most time working as a dentist.				
Please write down the number of years you worked in each country.				
Please write down the number of hours you worked in a usual week in each country.				
Please select the sector you mainly worked				
Public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Private	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 Travel to Australia

In which year did you first come to Australia?

Which city/town did you first choose to stay in Australia?

What is your current residency status? Australian citizen Permanent resident Temporary resident

5 Your reasons for coming to Australia

Please select up to **three reasons** for coming to Australia. Please mark 1, 2 and 3 in the box provided, where 1 is the most important, 2 is the second most important and 3 is the third most important:

Adventure <input type="checkbox"/>	Freedom <input type="checkbox"/>	Racial/Ethnic war <input type="checkbox"/>
Better opportunities <input type="checkbox"/>	Future of kids <input type="checkbox"/>	Residency <input type="checkbox"/>
By chance <input type="checkbox"/>	Health reasons <input type="checkbox"/>	Study (dental) <input type="checkbox"/>
Corruption <input type="checkbox"/>	Lifestyle <input type="checkbox"/>	Study (non dental) <input type="checkbox"/>
Crime <input type="checkbox"/>	Love (future partner) <input type="checkbox"/>	Work (dental) academic/research <input type="checkbox"/>
Family networks <input type="checkbox"/>	Marriage <input type="checkbox"/>	Work (dental) clinical <input type="checkbox"/>
Enhance family status <input type="checkbox"/>	Peers or Friends <input type="checkbox"/>	Work (non dental) <input type="checkbox"/>
Financial reasons <input type="checkbox"/>	Professional networks <input type="checkbox"/>	Other <input type="checkbox"/>

6 The Australian Dental Council (ADC) exam

Did you attempt the ADC exam at least once? Yes No **If NO go to SECTION 7 now**

Have you been successful in all three stages of the ADC Exam? Yes No

	English	Preliminary	Clinicals
Please write the number of attempts it took you to successfully complete each stage of the exam	<input type="text"/>	<input type="text"/>	<input type="text"/>

7 Your occupation and family in Australia

What is your main occupation in Australia?

Dental practitioner Student (dental) Student (non dental) Other dental job Non dental job

Dental specialist

Academic/ Researcher

Program of study: Please specify:

Does your spouse/partner live with you? (if applicable) Yes No Not applicable

Do you have any children under the age of 18 yrs living with you? (if applicable) Yes No Not applicable

8 Your life in Australia

Please list in the boxes provided your **current residence** in Australia, and the **three immediate previous locations** (if applicable) you used to live in Australia.

	Current residence	Previous residence 1	Previous residence 2	Previous residence 3
Please name the suburb or town or post-code you reside or used to reside.				
Please name the state/territory of each of the residences you have provided.				
How long (in years or months) have you resided in each location?				

9 Your work in Australia

Did you register as a dentist in Australia? Yes No → **If NO go to SECTION 10 now**

In which year did you **first register** as a dentist in Australia?

--	--	--	--

Did/do you study or work in any of these **IDG schemes**?

- a. Public sector scheme c. OTC scheme (Victoria)
 b. NIDG scheme (NSW) d. Other e. N/A

CURRENT PRACTICE LOCATIONS Please list in the boxes provided **up to three locations** you currently work as a dentist or in a dental related profession.

	Main Location	Second Location	Third Location
Please write the suburb or town or postcode of your work location in Australia			
Please name the state/territory of each of the work locations you have provided.			
Please write down the number of hours you work in a usual week of the locations you have provided			
Which sector do you mainly work in each location?	Public <input type="checkbox"/> Private <input type="checkbox"/> Other <input type="checkbox"/>	Public <input type="checkbox"/> Private <input type="checkbox"/> Other <input type="checkbox"/>	Public <input type="checkbox"/> Private <input type="checkbox"/> Other <input type="checkbox"/>

PREVIOUS PRACTICE LOCATIONS Please list in the boxes provided **three recent locations** you have worked as a dentist or in a dental relation profession in the past.

	Previous Location 1	Previous Location 2	Previous Location 3
Please write the suburb or town or postcode of your previous work location(s) in Australia			
Please name the state/territory of each of the previous work location(s) you have provided.			
Please write down the number of hours you worked in a usual week of the previous location(s) you have provided			
Which sector did you mainly worked in each of the previous location you have provided?	Public <input type="checkbox"/> Private <input type="checkbox"/> Other <input type="checkbox"/>	Public <input type="checkbox"/> Private <input type="checkbox"/> Other <input type="checkbox"/>	Public <input type="checkbox"/> Private <input type="checkbox"/> Other <input type="checkbox"/>

10

Your story



Please tell us **how much you agree or disagree** with the following statements in relation to your life story. The following statements have been collected from the life stories of international dental graduates (IDGs) in Australia. They have been developed from in-depth interviewing of IDGs from different countries, who are now living in Australia. They have been found to represent an IDGs professional life story.

strongly disagree
disagree
neither agree or disagree
agree
strongly agree

mark with

My career choice

- 1. I thought if I were a dentist, I could get a job anywhere around the world.
- 2. I got a good score in high school, so I opted for dentistry.
- 3. I choose dentistry as a career by accident.
- 4. Dentistry was something new to my family and background.
- 5. I felt I had good hand skills, so I opted for dentistry.
- 6. I considered that dentists in my home country have high social prestige.

My dental schooling

- 1. I studied in one of the top dental schools in my home country
- 2. I found graduates from other dental schools to be of similar standards to mine.
- 3. Dental education in my school was less focussed on evidence based approaches.
- 4. During schooling, my theoretical knowledge was much better than my clinical skills.
- 5. I had an excellent peer network in my school.
- 6. Dental school life was an enjoyable experience.
- 7. My family financially supported my dental education.

My early professional career

- 1. I had to complete a compulsory community service before I was fully registered
- 2. I was not an academically interested person but more of clinical person.
- 3. I found it hard to find a good job as a dentist in my home country.
- 4. I found it inspiring to treat patients through a long term dental health program.
- 5. Private dental practice was more lucrative than public practice back home.
- 6. I was very happy with my professional career in my home country.
- 7. I had very good mentors in my home country.
- 8. I had adequate professional development opportunities in my home country.
- 9. I was not happy with the compensation I received as a dentist in my home country.

My social life in home country

- 1. I had a very active social life in my home country
- 2. I come from a tight-knit family.
- 3. I loved the lifestyle back in my home country.
- 4. I have experienced discrimination in my home country.
- 5. I did not have enough time for social activities in my home country.

Your story (contd.)



Please continue answering and tell us **how much you agree or disagree** with the remaining statements collected from the life story experiences of IDGs living in Australia.

strongly disagree
 disagree
 neither agree or disagree
 agree
 strongly agree

mark with

Oral health service system in home country

1. I was affected by corruption in my day to day practice life in my home country.
2. I thought the health service infrastructure in my home country was very good.
3. Patients did not receive quality care in public clinics/hospitals back home.
4. Very few dentists in my home country preferred to work in the public sector.
5. There was too much competition between dentists in my home country.
6. Dentistry was not seen as a priority for policy makers in my home country.
7. The quality of dental practice was not good in my home country.
8. There are too many dental colleges/schools in my home country.
9. The oral health service system in my home country needs improvement.

Settling down in Australia

1. The living standards in Australia are better than my home country.
2. I like the cultural diversity in Australia.
3. Australians have been very kind to me.
4. I had problems communicating here.
5. I found it strange that people couldn't understand my accent over here.
6. Religion was a big shock for me in Australia.
7. I found it easy to settle down in Australia.
8. Australia is somewhat similar to my home country.
9. I haven't felt any issues of discrimination in Australia.
10. I find it a bit isolated living in Australia.
11. I have made very good friends here in Australia.
12. The quality of life is better in Australia.
13. Australia is a safe place to live.

The Australian Dental Council Exam (please answer even if not an ADC candidate)

1. In general, the ADC exam process is quite fair.
2. The ADC exam process is very long.
3. The English test could be relaxed for people with good English background.
4. Support structures to prepare for the exam are very important.
5. The ADC exam process is hard to understand.

Your story (contd.)



Please continue answering and tell us **how much you agree or disagree** with the remaining statements collected from the life story experiences of IDGs living in Australia.

strongly disagree
 disagree
 neither agree or disagree
 agree
 strongly agree



Dentistry in Australia (please answer even if not practising as a dentist)

mark with

1. The standards of dentistry in Australia are very high.
2. The scope of clinical practice in the public sector is limited in Australia.
3. It is very hard to work in Australia as a dentist.
4. Professional life in Australia is enjoyable.
5. Private dental practice is more rewarding than public in Australia.
6. The public sector in Australia offers a very good environment to work in.
7. It is hard to treat patients of different races and ethnicities in Australia.
8. It takes lot of hard work to start a private practice in Australia.
9. Working in private practice is enjoyable.
10. In general, the gap between public and private dentistry is very big in Australia.
11. There are good professional development opportunities in Australia.
12. It is easier to find a job as a dentist in a rural area than it is in a city.
13. Specialist registration requirements in Australia are difficult.
14. Life as a dentist becomes easy after completing the ADC exam.



My future (please answer even if not practising as a dentist)

1. In future, I would like to see myself a bit higher in professional status.
2. If there were offers for a better job, I would pick the most financially lucrative job.
3. I am aiming to do some academic work in the future.
4. I wish to be a busy dentist in the future.
5. I want my children to understand the culture of my home country.
6. I am planning to spend more time with my family in the future.
7. I find myself very comfortable in the place I am staying right now in Australia.
8. I am thinking of moving to a different state/territory in Australia.
9. I personally don't like to live in big cities.
10. I intend to migrate to another foreign country in the future.
11. I would prefer to not keep changing clinics.
12. I still haven't decided where I would like to live in the future.
13. I am considering moving to the countryside for financial reasons.
14. I love Australia very much.



11 Your intentions for the future

Are you planning to **continue living in Australia**? Yes No → **If NO go to SECTION 12 now**

	Which city/town do you intend to live in Australia? (eg. Sydney)	What type of work or practice do you want to do there? (please select from the options in the right)
a. In 1 year from now:		
b. In 5 years from now:		
c. In 10 years from now:		

1. Private Solo
2. Private Solo with assistant
3. Private partnership
4. Private associationship
5. Private assistant
6. Private locum
7. Private industry
8. Public dental hospital
9. Public school dental service
10. Public Tertiary education intallition
11. Public general dental service
12. Other (please specify if other)

12 Your perspectives on job satisfaction

Are you currently practising as a dentist in Australia? Yes No → **If NO go to SECTION 13 now**

(Please **circle** how much you agree or disagree to the following statements regarding your current practice/work environment)

	Strongly disagree		Strongly agree		
	1	2	3	4	5
1. I find my present clinical work very rewarding.	1	2	3	4	5
2. Overall, I am pleased with my work.	1	2	3	4	5
3. Overall, I am satisfied with my current practice.	1	2	3	4	5
4. My current work situation is a major source of frustration.	1	2	3	4	5
5. My work in current practice has not met my expectations.	1	2	3	4	5
6. If I were to choose over again, I would not become a dentist.	1	2	3	4	5
7. All things considered, I am satisfied with my career as a dentist.	1	2	3	4	5
8. In general, my dental career has not met with my expectations.	1	2	3	4	5
9. I would recommend dentistry to others as a career.	1	2	3	4	5
10. If I were to start my career over again, I would choose my current area and type of practice.	1	2	3	4	5
11. My area and type of practice no longer has the appeal to me as it used to have	1	2	3	4	5
12. I would recommend my area and type of practice to a dental student seeking advice.	1	2	3	4	5

13 Your comments

Please use this space to write any concerns or other issues that you want to highlight to us on the study topic.

**Thank you for your co-operation and time in answering this questionnaire.
Please return the completed questionnaire as soon as possible in the reply paid enveloped provided.**

Mailing ID:

5 – ONLINE SURVEY

The screenshot shows a web browser displaying the 'The IDG Project' website. The URL is <https://unified.adelaide.edu.au/web/arcpho/idg-project>. The page has a blue header with the University of Adelaide logo and navigation tabs for 'The IDG Project', 'Ethics', and 'Survey'. The 'Survey' tab is active.

The main content area is divided into several columns:

- What is the IDG Project?**: Explains the project's phases: Phase 1 (Qualitative Study) and Phase 2 (National Survey).
- Why is the IDG Project important?**: Discusses the importance of understanding overseas qualified dentists in Australia.
- Timeline**: Lists key dates from 2011 to 2013, including postal mailouts and the online survey.
- IDG Project Team**: Lists the project coordinators and their affiliations.
- Security and storage**: States that all information is stored in a secure location at the University of Adelaide.
- Contact info**: Provides contact details for Madhan Balasubramanian, the project coordinator.

The right-hand sidebar contains:

- FrontPage**: A section for the project's front page, currently under construction.
- What is IDG Blog?**: A section for the project's blog, which provides updates and news.

The screenshot shows the 'Ethics' tab of the 'The IDG Project' website. The URL is <https://unified.adelaide.edu.au/web/arcpho/ethics>. The page has a blue header with the University of Adelaide logo and navigation tabs for 'The IDG Project', 'Ethics', and 'Survey'. The 'Ethics' tab is active.

The main content area is divided into several columns:

- Ethics approval**: States that ethical approval for the study was obtained from the Human Research Ethics Committee of the University of Adelaide (Project Number: H-172-2010).
- Your responses**: Lists four points regarding the confidentiality and security of the survey data.
- Complaints form**: Provides a form for reporting concerns or complaints about the project.
- INDEPENDENT COMPLAINTS PROCEDURE**: Explains the process for raising concerns about the project's conduct.

The 'Complaints form' section includes the following information:

- Project title**: Mobility of International Dental Graduates (overseas qualified dentists) in Australia.
- Contact details for the project coordinator**:
 - Name: Mr Madhan Balasubramanian
 - Telephone: 08 8313 5027
 - Email: madhan.balasubramanian@adelaide.edu.au [OR]
- Contact details for the project director**:
 - Name: Associate Professor David S Brennan
 - Telephone: 08 8313 4045
 - Email: david.brennan@adelaide.edu.au

The 'INDEPENDENT COMPLAINTS PROCEDURE' section states that the Human Research Ethics Committee is obliged to monitor approved research projects and provide an independent and confidential reporting to ensure quality of the institutional ethics committee system.

Unified | The IDG Project | Ethics | Survey

<https://unified.adelaide.edu.au/web/arcpoth/survey>

The University of Adelaide

Unified

The IDG Project Ethics Survey

Open surveys

IDG Study - ADA

IDG Study - ACODS

The survey phase of the IDG project has mainly three components. Firstly, a consent form is sent in order to maintain consistency, these surveys will be run in different timeframes.

- The Australian Dental Association Inc. (ADA) component surveys all overseas qualified dentists who are ADA members. We will run one online survey only. Three initial mailouts have preceded this online survey (Jan 2013 to Mar 2013).
Timeframe: [Currently OPEN] Closes on the 9th of May
If you are ADA member and received this survey, please click this link to go back to the page you are in the survey: <https://unified.adelaide.edu.au/web/arcpoth/idg-study-ada>
- The Australian Council of Dental Schools (ACODS) component surveys all overseas qualified dentists who are enrolled as postgraduate students, or working as academic/researchers, or involved in further training in any of the dental schools in Australia. We have planned to run two online surveys. This follows an in-person survey, that was provided to some overseas qualified dentists (mainly students) in most of the dental schools.
Timeframe: 10th May to 9th Jun. Opens 8:00am on the 10th of May. Closes 12am on the 9th of June. [Currently CLOSED]
- State Oral Health Service components: Information on this will be made available soon.

Survey sections

The IDG survey has 13 sections. The questionnaire has been developed after an extensive qualitative feedback that involved a narrative inquiry of overseas qualified dentists from 22 different countries.

Section 1: About you
Section 2: Your qualifications
Section 3: Your previous work in other countries
Section 4: Travel to Australia
Section 5: Your reasons for coming to Australia
Section 6: The Australian Dental Council (ADC) Exam
Section 7: Your occupation and family in Australia
Section 8: Your life in Australia
Section 9: Your work in Australia
Section 10: Your story
Section 11: Your intentions for future
Section 12: Your perspectives on job satisfaction
Section 13: Your comments

Section 19

This section collects responses from 32 statements on a five-point Likert Scale - strongly disagree to strongly agree. These statements were collected from the life stories of overseas qualified dentists, and are used in developing an instrument to better understand the 'lived experience' of overseas qualified dentists.

Sections 1 to 3

This section helps us to get some information on your home country, dental qualifications and previous work in home and other foreign countries.
Key variables: Age, country of birth, country of training, specialty and work in other countries.

Sections 4 and 5

These sections helped us to mainly understand the reasons for coming to Australia. A list of reasons are provided, and the participant is required to select the top three.

Section 6

This section collects information on the overseas dental qualifying examination (ADC) in Australia.

Sections 7, 8 and 9

These sections collect information on your life and work in Australia. We mainly explore mobility and practice activity patterns in Australia.

Sections 11 and 12

Section 11 helps us to understand your future dreams, and Section 12 helps us to measure up the survey to a tested global job satisfaction instrument.

Section 13

This is a place for you to provide any feedback for us towards the survey, or any highlight any concerns you have in mind.

Unified | The IDG Project | Ethics | Survey

<https://unified.adelaide.edu.au/web/arcpoth/idg-study-ada>

The University of Adelaide

Unified

The IDG Project Ethics Survey

OVERSEAS QUALIFIED DENTISTS SURVEY - ADA COMPONENT

An overseas qualified dentist or international dental graduate (IG) is any dentist in Australia with a primary dental qualification (such as BDS/BSc/DDS or DMD) from a foreign institution. This research study broadly involves understanding experiences of these overseas qualified dentists. We hope that this endeavour will help us to inform future policies.

The next few pages involves collection of responses to a survey questionnaire. This will only take around 5 to 10 minutes to complete.

We are grateful for your support and appreciate your participation in this very important study.

* I am an overseas qualified dentist (international dental graduate) and I agree to take part in the survey

Yes No

0% complete | Page 1 of 9

CONFIDENTIALITY AND SECURITY OF INFORMATION

- You are in a secure University of Adelaide Portal environment.
- All your responses are stored in local servers based in the University of Adelaide.
- Your responses are accessible only by the research team.

INDEPENDENT COMPLAINTS PROCEDURE

Please click the Ethics Tab in the top to view information on ethical protocols, and complaints procedure if you wish to highlight any issues on the nature of the study or on its conduct.

ANY QUESTIONS?

International Dental Graduate Study Team

Contact point: Michèle Baleschowskyman
Tel: 08 85132027 Fax: 08 85133079
Email: michele.baleschowskyman@adelaide.edu.au

This National Survey of Overseas Qualified Dentists is conducted by:

Australian Research Centre for Population Oral Health (ARCPQH)
School of Dentistry, The University of Adelaide
122 Frome St, ADELAIDE SA 5005.

This survey component is in collaboration with the Australian Dental Association Inc. (ADA)

ARCPQH
Australian Research Centre for Population Oral Health

APPENDIX TWO: ACCEPTED/SUBMITTED ARTICLES [1 TO 2]

B1 COMMUNICATION FROM COMMUNITY DENTISTRY AND ORAL EPIDEMIOLOGY

From: n.brown@otago.ac.nz

To: madhan.balasubramanian@adelaide.edu.au, david.brennan@adelaide.edu.au,
john.spencer@adelaide.edu.au, stephanie.short@sydney.edu.au

CC:

Subject: Community Dentistry and Oral Epidemiology - Manuscript ID CDOE-15-180

Body: 27-Apr-2015

Dear Author of "The international migration of dentists: directions for research and policy",

The manuscript entitled "The international migration of dentists: directions for research and policy" has been submitted by Dr. Madhan Balasubramanian to Community Dentistry and Oral Epidemiology and is presently being given full consideration for publication.

You have been listed as author for the manuscript. If this is not the case, please reply to this email.

Sincerely,

Miss Natalie Brown
Community Dentistry and Oral Epidemiology Editorial Office
n.brown@otago.ac.nz

Date Sent: 27-Apr-2015

Decision Letter (CDOE-15-180)

From: murray.thomson@otago.ac.nz

To: madhan.balasubramanian@adelaide.edu.au

CC: n.brown@otago.ac.nz

Subject: Community Dentistry and Oral Epidemiology - Decision on Manuscript ID CDOE-15-180

Body: 16-Aug-2015

Dear Dr. Balasubramanian:

The initial reviews for your manuscript ID CDOE-15-180 entitled "The international migration of dentists: directions for research and policy," which you submitted to Community Dentistry and Oral Epidemiology, have been completed. The comments of the reviewers are at the end of this letter.

You will see that the reviewers have recommended some minor revisions. These will need to be addressed before the manuscript can proceed further.

To revise your manuscript, log into <https://mc.manuscriptcentral.com/cdoe> and enter your Author Center, where you will find your manuscript title listed under "Manuscripts with Decisions." Then click on "Continue Submission." Your manuscript number has automatically been amended to denote a revision.

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript (other than minor editorial corrections) by using bold or colored text, and do NOT use "track changes" for this edited paper; the MC system doesn't like it. Once the revised manuscript is prepared, you can upload it and submit it through your Author Center.

When submitting your revised manuscript, please respond to the comments made by the reviewers (other than minor edits) in the space provided. You can use this space to document any changes you make to the original manuscript. Please be as specific as possible in your response to the reviewers, and be sure to address all issues they have raised. If you disagree with a reviewer, justify your position here.

IMPORTANT: Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Your revised manuscript should be uploaded within 60 days. If you have problems with that time schedule then do let me know.

I look forward to receiving your revision.

With best wishes,
Prof. W Murray Thomson
Editor-in-Chief, Community Dentistry and Oral Epidemiology
murray.thomson@otago.ac.nz

(Reviewer comments not included)

B2 COMMUNICATION FROM COMMUNITY DENTAL HEALTH

Preview

From: cdhjournal@gmail.com

To: madhan.balasubramanian@adelaide.edu.au

CC:

Subject: Community Dental Health - Manuscript ID CDH3842

Body: 24-Aug-2015

Dear Dr Balasubramanian,

Your manuscript entitled "Development of life story experience (LSE) scales for migrant dentists in Australia: a sequential qualitative-quantitative study" has been successfully submitted online and is presently being given full consideration for publication in Community Dental Health.

Your manuscript ID is CDH3842.

Please mention the above manuscript ID in all future correspondence. If there are any changes in your street address or e-mail address, please log in to ScholarOne Manuscripts at

<https://mc04.manuscriptcentral.com/cdh>

and edit your user information as appropriate.

You can also view the status of your manuscript at any time by checking your Author Centre after logging in to

<https://mc04.manuscriptcentral.com/cdh>.

Thank you for submitting your manuscript to Community Dental Health.

Sincerely,
Community Dental Health Editorial Office

Date Sent: 24-Aug-2015

APPENDIX THREE: RELATED PUBLICATIONS [1 TO 2]

C1 MEDIA ARTICLE

This media article was due to an invitation from the Editor of Dental Tribune International (the Worlds Dental Newspaper). We were asked to specifically comment on the issue of dentist migration in Australia, and also discuss issues of dentist migration in the Asia Pacific Region. This is a big picture article, written mainly to showcase our work. In addition, it sets the pace for future work and was in line with the advocacy message arising from the thesis.

Balasubramanian M, Brennan DS. *Dentist migration: a forgotten perspective*. Dental Tribune International. 2014. http://www.dental-tribune.com/articles/news/australia/20708_dentist_migration_a_forgotten_perspective.html

Dentist migration: a forgotten perspective

Balasubramanain M and Brennan DS

The migration of dentists is an emerging policy issue that requires attention. Much of the current policy debates on dentist migration tend to evolve from one of these two dominant perspectives: 1. Free trade, free capital flows and free labour mobility 2. National interests including concerns of the 'local' population.

Free movement of labour is considered as an eventual objective of globalisation.(8) Regional trade agreements such as the European Union free movement of personnel (or) the Trans-Tasman agreement between Australia and New Zealand, provide avenues for health professionals including dentists to take part in international migration. Nevertheless, movement of labour between countries of different economic levels of development such as a low-income country to a high income OECD country makes brain drain prominent, also raising ethical questions on international migration. 2. (9)

Many well-developed countries continue to face an increase in the demand for dental care. (10) The inability to meet this demand through the local supply of dentists has in some way contributed to policies that encourage dentist migration (Eg. public sector schemes that provide a pathway for migrant dentists to work in areas of need, or additional points for immigration as a means for permanent residency). Nevertheless, dentists who arrive from countries with diverse cultural and professional backgrounds are likely to differ in their dental treatment philosophies and competencies, raising the necessity to examine their suitability to practice in a new country.

A major shortcoming in both these broad policy perspectives is the lack of understanding on migrant dentist experiences, mainly on their reasons for migration and settling experiences in a new country. Such an understanding can provide us with a 'human aspect', complementing efforts by the World Health Organization (WHO) on the international recruitment of health personnel.(11)

Migrant dentists' study

Our research on migrant dentists' based in the Australian Research Centre for Population Oral Health, the University of Adelaide has explored this policy issue from the perspective of the individual – the migrant dentist themselves.

We focussed on the experiences of migrant dentists' in Australia, mainly to understand their motivations behind migration and settling experiences in Australia. We have also explored practice activity patterns of migrant dentists' (home country, Australia and

elsewhere), and other key issues such as 'push-pull' factors, job satisfaction and future intentions.

This study included a qualitative field work on the life stories of migrant dentists in 2011-12, followed by the first national survey of all migrant dentists in Australia.

Migration of dentists into Australia

Australia has the largest proportion of foreign dentists in the world. (12) Historically, Australia has been an attractive destination for dentists from high-income OECD countries (mainly United Kingdom, Republic of Ireland and New Zealand). (13) In recent years, however, the number of dentists migrating from low and middle income countries (mainly India, Egypt, Philippines, Iran, Iraq, South Africa, and Malaysia) has increased. (14) Currently, one in every four dentists in Australia is a migrant dentist (both born and trained overseas). (15) Prior research suggests that that nearly 30% of the migrant dentists in Australia are from the Western Pacific Region, followed by the European Region (28.8%).(15) Many countries in the South East Asian and African Region have very low dentist to population ratios, and the increase in the number of dentists migrating can prove detrimental to health systems development in this region.

Migrant dentists seeking to practice dentistry in Australia are examined for their suitability to practice by an assessment authority called the Australian Dental Council (ADC). This is usually a four stage process that includes an initial assessment, English test, written test and clinical test. (16)

Migrant dentists from the United Kingdom, Republic of Ireland, New Zealand and Canada can obtain direct registration to practice in the public or private sector in Australia. Migrant dentists from approved institutions in South Africa, Hong Kong, Malaysia, Singapore and the United States of America are permitted to practice in the public sector scheme, mainly in regional/remote areas, where there is a recognised need for dental care. Study and work based migration in the University sector can provide migrant dentists with limited registration to practice. In order to independently practice in the private sector, these migrant dentists need to fulfil the requirements of the ADC.

Understanding the origins of dentist migration

Our research on the life stories of migrant dentists in Australia provided some important insights into the origins of migration. Migrant dentists' exhibited a desire to be involved with the latest technology. Many dentists from low- and middle-income countries were also disappointed by the lack of opportunities in their home countries. Dentists also carried prior

travel learnings and unforgettable memories contributing to their coming to Australia. Family members and peers also influenced their desire to migrate.

The conceptual framework of the study was driven by four subordinate themes: "Being good at something," "Feelings of being let down," "A novel experience" and "Influenced by someone." (17)

We also noticed that these themes coexist for most migrant dentists. We named this superordinate theme or world view as "global interconnectedness" and we describe the development of migration desire as a historical process, stimulated by *a prior* knowledge (and interactions) of people, place and things. (17)

Our study adds to the argument that the issue of dentist migration dwells deep in a dentist's life-story and has several interlacing factors that contribute to the dentists' desire to migrate to a foreign country. Therefore, we suggest that policy efforts to address the dentist migration problem begin from this very basic understanding. (17)

Settling experience in Australia and the importance of support structures

Our research on the settling experience of migrant dentists in Australia (mainly on the assessment and examination process) has pointed towards the importance of support structures for migrant dentists in Australia. This study described support in three parameters "information, training and counselling." (16) Similar findings have also been reported in nurse migration studies. More importantly migrant dentists highlighted how a streamlined mentoring program (such as the public sector scheme or training in a University) improved their settling experience in Australia. (16) Further research was recommended to understand more about different programs that can improve the settling experience of migrant dentists, and simultaneously also address the concerns of regional population and the Australian dental workforce. (16)

Contributions to 21st century policy on dentist migration

Overall, the qualitative component of the migrant dentists study has made a modest contribution by providing evidence to streamline dentist migration policy alongside the mainstream health professional migration dialogue.

We argue that due to the nature of complexity in transnational flows, successful country strategies will also depend on appropriate international reinforcement. Tacking dentist migration policy at a national or local level also requires similar international commitment.

While low- and middle-income countries can aim to address individual issues such as dental education, oral health service delivery, professional and social ethos; policies that address the problem as a whole requires a global effort. (17)

We also raise the importance of improving surveillance data collections (on migrant dentists) at different levels of national data collections systems (immigration, registration and census). Potential integration of these systems is a possible way forward, but requires further research.

Political advocacy to improve the research evidence base – so as to contribute to policy making is extremely important – mainly due to the reason that migrant dentist research (as compared to other physician and nurse migration research) is at its infancy.

The WHO global code for international recruitment of health personnel has stressed the need for partnerships in addressing health professional migration. Considering the vastly private nature of the dental industry in many countries, partnerships with non-state players and organisations such as the FDI World Dental Federation is vital.

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11. Balasubramanian M, Brennan DS, Spencer AJ, Short SD. The "global interconnectedness" of dentist migration: a qualitative study of the life-stories of international dental graduates in Australia. *Health Policy Plan*. Oxford University Press; 2014; Advance access link:
<http://heapol.oxfordjournals.org/content/early/2014/05/10/heapol.czu032.short?rss=1>

C2 PREQUEL ARTICLES

These two prequel articles were based on my Australia-India Council Fellowship work in 2009-10. The fellowship was supported by a consortium of five leading Australian Universities – University of Queensland, University of New South Wales, University of South Australia, Australian National University and Monash University. The fellowship research examined dental workforce governance issues in the Commonwealth countries. This led to a government report, two peer review journal articles and a conference presentation. The work was supervised by Professor Stephanie Short. During this fellowship period, I first travelled to the Australian Research Centre for Population Oral Health, the University of Adelaide. This visit probably proved to be a turning point for dentist migration research. My meetings with Professors John Spencer, Kaye-Roberts Thomson and David Brennan set the pace for further research into the dentist migration issue. Closer to the submission of the fellowship report to the Australian Government Department of Foreign Affairs and Trade, I received a scholarship to commence my Ph.D. in the University of Adelaide.

Balasubramanian M, Short S D. *The Commonwealth as a custodian of dental migratory ethics: views of senior oral health leaders in India and Australia.* International Dental Journal. 2011; 61(5). 281-286. Article link: <http://www.ncbi.nlm.nih.gov/pubmed/21995377>

Balasubramanian M, Short SD. *Is the concept of ethics misplaced in the migration of Indian trained dentists to Australia? The need for better international co-operation in dentistry.* Indian J Dent Res. 2011; 22: 866-8. Article link: <http://www.ncbi.nlm.nih.gov/pubmed/22484889>

Balasubramanian, M. & Short, S. (2011). The Commonwealth as a custodian of dental migratory ethics: views of senior oral health leaders from India and Australia. *International Dental Journal*, 61(5), 281–286

NOTE:

This publication is included on pages 270 - 275 in the print copy of the thesis held in the University of Adelaide Library.

It is also available online to authorised users at:

<http://dx.doi.org/10.1111/j.1875-595X.2011.00074.x>

Is the concept of ethics misplaced in the migration of Indian trained dentists to Australia? The need for better international co-operation in dentistry

Madhan Balasubramanian, Stephanie D Short¹

Research Officer, Australian Research Centre for Population Oral Health, School of Dentistry, The University of Adelaide, South Australia, ¹Professor of Health Sciences, Discipline of Behavioural and Social Sciences in Health, Faculty of Health Sciences, The University of Sydney, New South Wales, Australia

ABSTRACT

The purpose of this article is to discuss the ethics involved in the migration of Indian trained dentists to Australia. It develops from interviews of senior oral health leaders in both the countries to provide evidence that ethics in migration is diluted in practice and to suggest that migratory procedures in both the countries should be reconsidered. There is also an urgent need for more organized bilateral communication and negotiation between the concerned organizations of both the countries (dental councils, immigration departments and research centers) in order to prevent the somewhat irreversible and intensive brain drain of top quality dentists from India to Australia. We would suggest as a starting point better monitoring of the migrants' academic and social background, the nature of the educational investment in India and the nature of the stay in Australia. This new information base could possibly lay the groundwork for more restrictive policies to be introduced both in Australia and India.

Received : 14-02-10
Review completed : 27-09-10
Accepted : 08-08-11

Key words: Dentists, ethics, international cooperation, migration

Over the years, the concept of ethics in the migration of health professionals has evolved into two major schools of thought. One school of thought holds that the international migration of personnel from low-income to high-income countries is unethical and harmful, and the other that this migration is beneficial to the "source" country. The purpose of this article is to discuss how conflicting views of these two schools of thought have contributed to the migratory practices for "internationally trained dentists". It develops from the case of Indian dentists migrating to Australia, and provides evidence to claim that ethics in migration is diluted in practice and calls for better international cooperation between concerned dental organizations of both source and recipient countries in order to prevent the somewhat irreversible intensive migration of top quality oral health professionals from India.

Address for correspondence:

Dr. Madhan Balasubramanian
E-mail: madhan.balasubramanian@adelaide.edu.au

THE TWO SCHOOLS OF ETHICAL THOUGHT IN MIGRATION

The concept of ethics in migration emerged in the early 1960s to highlight educational investment loss in Britain, due to the migration of British-trained scientists and physicians to other developed countries (mainly, the USA and Canada). In due course, ethics became an even stronger case in discussing the migration of health personnel between developing and developed countries. The World Health Organization has regularly expressed concerns about the distribution of health professionals between developing and developed countries, and the effects of migration *vis-a-vis* this disparity.^[1,2] Several international organizations and professional associations have also discussed the ethical problem, and as a result some ethical protocols have been put in place.

The dominant mode of thinking (as reflective of this ethical debate) is to restrict the migration of highly trained health professionals in order to avoid loss in investment, and preserve the scarce health personnel resources in developing countries. This school of thought placed emphasis on selective recruitment in recipient countries (based on the region of origin of health professionals) and capacity building in source countries (through better monitoring of health personnel).

Access this article online	
Quick Response Code:	Website: www.ijdr.in
	DOI: 10.4103/0970-9290.94689

Alongside this notion, a second school of thought was also fostered. This focused on the complexities involved in migration policies and benefits to the source country due to migration.^[3,4] Migration was considered as mostly unavoidable due to several human rights problems. This school of thought also focused on financial investments and knowledge gain/sharing made by the emigrants to their home country. It could be argued that this mode of thought mainly takes a global development perspective, with more emphasis on long-term benefits and on the unavoidable nature of migration.

THE CASE OF INDIAN DENTISTS MIGRATING TO AUSTRALIA

In a recent study on Indian dentists migrating to Australia, 15 key informants in the field of oral health (a mixture of senior academics, researchers and administrators), both from India and Australia, were interviewed. Each interview lasted around 45–60 minutes, and included questions on the nature, size, regulations and ethics of migration. Discussion on international cooperation formed a major part of the interview, with topics ranging from bilateral to multilateral (role of Commonwealth, World Dental Federation, World Health Organization). The results discussed explore only one aspect of a wider research study on Strengthening Dental Workforce Governance in the Commonwealth. Results on the role of the Commonwealth (and other international organisations) on dental workforce governance has been published elsewhere.^[5] Ethical approval for this research was obtained from the University of Queensland: MB05112008.

A key issue which emerged was the difference in how the migration was interpreted. While one group considered all migration as *avoidable and unethical*, the other group felt it was *unavoidable and justified*.

“As far as the norm is considered the distribution of dentists in India is definitely less. The distribution is so disproportionate that all the dentists want to live in posh urban localities. The large rural population remains unserved or underserved”.

Indian Dental Academic

The avoidable and unethical group purported claims in relation to the underlying health care scenario of the source country (India), highlighting the growing need of dentists in rural and remote areas, and greater prevalence of oral disease. In addition, some of them also stressed on the resources spent in training dental personnel. One key Indian oral health administrator went to the extent of asking, *“One doctor costs around 1.7 crore rupees. And why should he be allowed to go now?”* On reciprocity issues, a senior Indian academic indicates, *“One possibility is to give the Indian government the investment made on the student”.*

These were also considered appropriate by some of the Australian interviewees. The dominant mode of thought was that migration was detrimental, and at best should be prevented or at least compensated.

“Fairness is a relative concept... Countries work according to the notion of competitive advantage, and it is to Australia’s advantage – if they can’t produce them (dentists) to the amount required – they should buy them as cheaply as they can from other countries”.

Australian Social Scientist

In contrast, the unavoidable and justified group expressed doubts on the concept of fairness. Migration was considered as unavoidable, with supporting arguments on the demand and supply of dentists in the source and recipient countries. A senior Indian researcher suggested, *“Migration is a human rights issue and you cannot stop any one from migrating”.* An Australian academic also claimed, *“They do in fact make substantial financial contribution to their families in their own countries”.* It was suggested that in the long term, migration leads to significant investment and development in the source country.

CONFLICTING VIEWS AND THE ETHICAL PARADOX

For decades, the migration of dentists into Australia was considered as mainly one from developed countries.^[6] The entry of internationally trained dentists not directly registrable in Australia is through a national examination system. These procedures were implemented to select dentists of an acceptable quality to suit the underlying health system concerns. The examinations are perceived to be of very high standard, and are often revised to maintain effective selection of international graduates. To some extent, these reasons have partially contributed to the limited number of entrants through this pathway. The quality of these examinations permits only the top or more experienced oral health professionals to migrate. However, these numbers have substantially risen by at least fivefold between 2003 and 2006.^[7] The underlying context for this increase is the growing demand for dental care in Australia.

The Indian dental education system consists of around 290 dental schools, and produces around 15,000 graduates each year,^[8] with an annual output almost the size of Australia (in the number of dentists). However, the dentist to population ratio in India is very low compared to Australia, and there are significant disparities in the rural and urban distribution of dentists.^[9] The dental health care system has often found it difficult to direct the vast dental workforce resources into visible gains in oral health status.^[10] As more than three-quarters of the Indian population live in rural areas, the majority are still unserved or underserved. Migration poses a serious problem to India. While on one

side there is paucity of data on the nature and size of such migration, on the other side differences in state/territory educational systems, and freedom of movement concerns have considerably lessened the possibility of the Indian government to consider restrictive measures. This places India in a highly vulnerable position to lose the educational investment made on dental graduates.

The accepted notion that migration of dentists into Australia is mainly one from developed countries is gradually fading. The tough examination and licensing procedures imposed on Indian trained dentists restricts only the best to migrate. The successful graduates are encouraged toward permanent residency in Australia. Such migrants, though few in number, could very well be leaders in the field and constitute a significant loss to the source country. In addition, the massive growth in the number of dental graduates and inadequate migratory restrictions in India has contributed to the increasing number of dentists seeking to travel overseas.

Conflicting views from senior oral health professionals reflect the fact that both the countries are unable to maintain ethical migratory practices. As the two schools of thought are universally prevalent, it is hard to suggest that either country has a dominant view. This difference could have a historical link, with underlying health care concerns contributing toward the development. In addition, international laws on human rights could have also influenced current migration policies. Therefore, there is some scope to suggest that the ethics involved in current migratory procedures in both countries need to be reconsidered.

ON REFLECTION

The case of Indian dentists migrating to Australia is a good example to suggest how conflicting views between two groups have contributed to the ethical paradox, resulting in the dilution of ethics and causing the migration of top quality leaders from India. In the context of globalization, there is a need for more organized bilateral communication and negotiation between the concerned organizations of both the countries (dental councils, immigration departments and research centers). It would be beneficial to work together to curtail the somewhat irreversible and intensive brain

drain of top quality dentists from India to Australia. We would suggest as a starting point better monitoring of the migrants' academic and social background, the nature of the educational investment in India and the nature of the stay in Australia. This new information base could possibly lay the groundwork for more restrictive policies to be introduced both in Australia and India.

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