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The Podiatrists in Australia: Investigating Graduate Employment (PAIGE) Study

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ABSTRACT

The Podiatrists in Australia: Investigating Graduate Employment (PAIGE) study provides a systematic and rigorous evidence-base for rural podiatric workforce policy development, by developing a database modelled on the highly successful Medicine in Australia, Balancing Employment and Life (MABEL) longitudinal panel survey of Australian doctors. Analysis of data from waves 1 and 2 of this database, and concurrently collected qualitative data, address two key research questions about work location choice decisions and retention of podiatrists in location and the profession.

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The "Podiatrists in Australia: Investigating Graduate Employment (PAIGE)" longitudinal survey - Protocol for a prospective cohort study of Australian podiatrists' workforce participation

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Authorship contribution:

CWM, HBM and TH conceived the original study. BS, JW, MM and DR supported refinement of survey design. AC, JW and CMW collected data. AC, CMW and TH developed the analysis plan for quantitative data. AC, JW and CMW developed the analysis plan for qualitative data. The funders had no role and will continue to have no role in methods, data analysis or reporting of results.

Introduction

Australians have better health outcomes when they have timely access to health professionals and services. There has been a strong focus on improving access to medical services in regional and rural areas [Wakerman 2016] and more recently, nursing and allied health [Department of Health, 2019]. Allied health workers are increasingly needed to promote local chronic disease management, including early intervention and follow-up, since the rates of chronic disease, especially Type 2 diabetes, are rapidly escalating [Shaw, 2012].

The podiatry workforce has demonstrated skills in improving health outcomes and quality of life for people who have complications of diabetes such as neuropathic foot disease, foot pain and vascular impairment. Appropriate management of these complications can prevent lower limb amputations. Rates of amputation are higher for people living outside metropolitan settings, yet these are precisely the areas where there are limited podiatry services [Bergin, 2011]. Podiatry is a small but growing workforce of approximately 4,600 [Podiatry Board of Australia, 2018], yet only 7% of podiatrists work in outer regional or remote settings [Health Workforce Australia, 2016]. In major cities there are 16 podiatrists per 100,000, however, in outer regional or remote settings these numbers are 6.4-10.4 podiatrists per 100,000 [Health Workforce Australia, 2016]. It is critically important that policy makers better understand how, why and when podiatrists make choices about their work location, so that current podiatry workforce maldistribution can be improved.

Aims

The Podiatrists in Australia: Investigating Graduate Employment (PAIGE) study provides a systematic and rigorous evidence-base for rural podiatric workforce policy development, by developing a database modelled on the highly successful Medicine in Australia, Balancing Employment and Life (MABEL) longitudinal panel survey of Australian doctors [Joyce, 2010]. Secondly, analysis of data from waves 1 and 2 of this database, and concurrently collected qualitative data, address two key research questions about work

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location choice decisions and retention of podiatrists in location and the profession.

Primary aim
- What financial, personal, professional, geographical, educational, and marketplace factors are associated with the decisions of podiatrists about where they work?

Secondary aims
- What initiatives are undertaken by stakeholders to attract podiatrists to regional and rural settings, and how effective are they?
- What are the implications of mental health of podiatrists on podiatry practice in Australia?
- What are the key factors that impact on life long learning attributes of podiatrists in Australia? (Version 1.3)
- What are the implications of the coronavirus pandemic (COVID-19) on podiatry practice in Australia? (Version 1.4)

Methods

Study design:
PAIGE was designed as a prospective cohort study of workforce participation and its determinants among Australian podiatrists and podiatric surgeons.

The methods within this protocol are retrospectively described due to its publication date being after the data were collected, and analysed within one publication. The protocol was only varied according to waves as outlined, otherwise no amendments were made and the study protocol followed.

Participants and settings:
Podiatry participants were involved the collection of quantitative data via four waves of surveys. The first wave of data collection was in 2017 to establish the baseline cohort for the study. The first and second wave were limited to Victoria in 2017 and 2018. In Waves 1 and 2, all podiatrists registered to practice in Victoria were invited to participate (n=1,440) [5]. Additionally, survey respondents who graduated within the past 5 years, currently employed within Victoria and who agreed to be contacted by researchers, were recruited to participate in small focus groups. Waves 3 and 4 (2019 and 2020) targeted all podiatrists and podiatric surgeons (Version 1.2). In Waves 3 and 4, the invitation to participate was extended to all podiatrists working in Australia (n=5,429) [6].

Relevant stakeholder groups and agencies related to podiatry and podiatry employment in Victoria and interstate were invited to participate in mapping available interventions regarding rural employment. These included Australian podiatry specific stakeholders (e.g., Australian Podiatry Council, state based Australian Podiatry Associations, SARRAH, Department of Health and Human Services), and other health profession stakeholders (e.g., Australian Physiotherapy Association, Occupational Therapy Association, Speech Pathology Association, rural or regional employers).

Questionnaire and interview design
The survey design was based on the questions in MABEL [Joyce, 2010]. The research team mapped questions from MABEL survey waves for relevance to the podiatry profession. Surveys were additionally be modified for practice relevant to the podiatry profession. Wave 1 survey included seven sections: general demographics, job satisfaction, industry career progression intent, work setting including staffing, family and social opportunities, finances and a discrete choice experiment (DCE) examining preferences and trade-offs for different types of jobs; workload (10% increase, 10% decrease, hours remain the same); geographic location; home visit load (0% home visits, 50% home visits, 100% home visits), finances (15% increase, remain the same, 15% decrease). The job satisfaction domain was measured with the ten item version of the Warr-Cook-Wall Job Content Questionnaire [Warr, 1979].

Wave 2 and 3 surveys included seven sections: general demographics, job satisfaction, industry career progression intent, work setting including staffing, family and social opportunities, mental health, personality, life experiences and risk taking behaviours. Mental health measures included the Brief Resilience Scale [Smith. 2008], the abbreviated Maslach's Burnout Inventory with an additional three questions relating to job satisfaction domains [McManus. 2003], Kessler Psychological Distress Scale (K10) [Kessler, 2003]. A personality measure collected with the Ten-Item Personality Inventory (TIPI) [Gossling, 2003], personal life events were collected with the time frame of occurrence and risk taking behaviours, using questions refined through the MABEL survey relating to financial, person and clinical risk taking.

The Wave 4 survey incorporated scales of lifelong learning and engagement in social media. Intent and attributes of learning were collected through the Jefferson Scale of Lifelong Learning — Health Professions Students (JeffSLL-HPS) [Novak, 2014]. Social media use and attitudes were collect with semantic scale [Survey] with purpose build questions on platform use and frequency.

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COVID-19 questions were purpose built relating to accessibility of personal protection equipment availability, business contingency plans and staffing plans.

Domains and waves are depicted in Figure 1.

Domain	Wave 1	Wave 2	Wave 3	Wave 4
Demographics	✔	✔	✔	✔
Job satisfaction	✔	✔	✔	✔
Industry lead career education and progression	✔	✔	✔	✔
Work setting	✔	✔	✔	✔
Family & Social	✔	✔	✔	✔
Finances	✔			
Discrete choice experiment on job choices	✔			
Brief Resilience Scale		✔	✔	✔
Burnout		✔	✔	✔
Personality		✔	✔	✔
Personal life events		✔	✔	✔
Mental distress		✔	✔	✔
Risk taking behaviour		✔	✔	✔
Lifelong learning attributes				✔
Social media use				✔
Coronavirus pandemic impact on practice				✔

Figure 1. Key question domains and corresponding Waves.

Focus group questions for podiatrists were semistructured using a script and prompting. Questions prompted podiatrists to discuss their decisions leading up to acceptance of current job role and what attracted them to the job. Additional questions focused on locality, preconceptions of location, concerns of working environment, career aspirations and local and professional support. Interview questions for stakeholders were undertaken individually via telephone and prompted discussion about recruitment initiatives, perceived effectiveness of initiatives and and satisfaction with these initiatives.

Procedure

Waves data collection

We trialled the core data sets at each wave with four podiatrists who work in public and private sectors to determine any phrasing or flow challenges. Minor amendments were made to how questions were worded, no content was changed. Potential podiatrist participants were recruited through University graduates lists, Australian Podiatry Association email outs, social media and special interest groups. Participants were invited to participate in survey Waves conducted approximately 1 year apart. Survey data were collected online via Qualtrics® software (Qualtrics, Provo, UT, USA). Each participant self generated a unique participant number based on their initials and date of birth and responses linked between survey waves and directed to data collected through Qualtrics and privacy policies. Forced or requested responses were used to minimise missing data. Cookies are used by Qualtrics to allow responses to be saved up to 4 hours within partial completion. Qualtrics® also routinely collects Internet Protocol (IP) addresses as part of the de-identified metadata in the survey response. It was not pre-planned to routinely use or view IPs however if participant's self generated code was in a form where data was unable to be linked from code alone, IPs were viewed and used as a last resort to match data together with age, gender, postcode and training institution.

The survey tool was be adapted from questions asked in the MABEL longitudinal survey of Australian doctors [7]. The first wave enabled collection of basic demographic data, current employment (hours of work, practice ownership), preferences for job types (public/private or mixed), areas of interest of specialisation, practice ownership and location of work, personality, finances and family circumstances and job satisfaction and work-life balance ratings. Participants were asked to identify past responses which dictate question logic. The subsequent surveys, gathered information on variables that can change over time, for example work location or mix of public and private work undertaken and enable analysis of factors predictive of change.

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Surveys used logic to minimise survey fatigue through two key questions relating to if the participant has changed their job or changed where they lived. Where the participant responded those circumstances remained unchanged, they were not re-presented with the survey items relating to job satisfaction, workplace environment or postcode of where they lived. Participants were incentivised through a competition process at each wave, due to the length of the survey (approximately 45 min).

Podiatry focus group interviews. Participants (sample size determined as n=20) who met the focus group criteria from Wave 1 were invited to participate in focus groups during the first year of the project. Participation was at a convenient time to both parties. Recruitment to focus groups occurred via a workshop at the Australasian Podiatry conference, via special interest groups etc.), and by participants stating agreement to be contacted on the survey. Focus groups explored factors affecting choice of work location. Semi-structured questions explored: How they decided about their work location choices, what benefits and supports facilitated their choice, what strategies should be included in regional promotion of workplaces as employers of choice and who should lead this? All focus groups were recorded and responses transcribed for thematic data analysis

Stakeholder participant interviews
Relevant stakeholder groups and agencies related to podiatry and podiatry employment in Victoria and interstate were emailed invitations to participate in a phone interview at a convenient time. During this recorded interview, questions enabled the participant to explore recruitment and retention initiatives undertaken by the services during employment of podiatrists in regional setting in Victoria.

Data analysis
We will report all survey data guided by the CHERRIES (Checklist for Reporting Results of Internet E-Surveys) Checklist [Eysenbach, 2004].

Quantitative data will be analysed using a combination of single wave analysis methods (descriptive statistics, linear regression, logistic regression) and multi-wave change analysis methods, such as repeated measures regression models and panel regression models. We will use appropriate cohort data

Qualitative data will be thematically analysed using an inductive thematic approach incorporating constant comparison, and concurrent data collection and analysis. We will use the Consolidated criteria for reporting qualitative research (COREQ) guidelines to guide all reporting.

Ethical approvals:
Monash University Human Research Ethics Committee: 7871(Version 1.0)
Monash University Human Research Ethics Committee: 19959 (Version 1.1, Version 1.2, Version 1.3)

Protocol Version	*Date*	*Action*
Version 1.0	01/02/2017	Initial protocol development
Version 1.1	01/02/2019	Participant inclusion modification to whole of Australia
Version 1.2	01/02/2020	Addition of social media and life long learning questions for Wave 4
Version 1.3	01/03/2020	Addition of COVID impact question for Wave

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