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ORIGINAL RESEARCH

A Qualitative and Semiquantitative Exploration of the Experience of a Rural and Regional Clinical Placement Programme

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Abstract

In many countries, including New Zealand, recruitment of medical practitioners to rural and regional areas is a government priority, yet evidence for what determines career choice remains limited. We studied 19 newly qualified medical practitioners, all of whom had participated in a year-long undergraduate rural or regional placement (the Pūkawakawa Programme). We explored their placement experiences through focus groups and interviews and aimed to determine whether experiential differences existed between those who chose to return to a rural or regional location for early career employment (the Returners) and those who did not (the Non-Returners). Focus group and interview transcripts were a mean (range) length of 6485 (4720–7889) and 3084 (1843–4756) words, respectively, and underwent thematic analysis. We then used semiquantitative analysis to determine the relative dominance of themes and subthemes within our thematic results. Placement experiences were overwhelming positive – only four themes emerged for negative experiences, but five themes and nine subthemes emerged for positive experiences. Many curricular aspects of the placement experience were viewed as similarly positive for Returners and Non-Returners, as were social aspects with fellow students. Hence, positive experiences *per se* appear not to differentiate Returner and Non-Returner groups and so seem unlikely to be related to decisions about practice location. However, Returners reported a substantially higher proportion of positive placement experiences related to feeling part of the clinical team compared with Non-Returners (11% vs 4%, respectively) – a result consistent with Returners also reporting more positive experiences related to learning and knowledge gained and personal development.

Keywords Undergraduate · Junior doctors · Rural and regional placement · Clinical teamwork · Career choice · Qualitative · Semiquantitative

Introduction

A medical graduate's career choices may be influenced by many factors, including personal interest, financial compensation, employment opportunities, the cost of training programmes and lifestyle preferences [1–4]. In New Zealand, about a third of the medical workforce are general practitioners, and it has been estimated that 40–50% of future medical graduates are needed in the general practice sector, yet a much lower proportion state a strong interest in a career in general practice upon graduation [5, 6]. In addition, some evidence suggests that the rising cost of a medical education is causing some graduates to seek more highly paid specialties often available only in cities, thus undersupplying primary healthcare and rural healthcare locations [6–8].

In New Zealand, as in other countries such as Australia, the USA, Canada and the UK, recruitment of medical practitioners to rural and regional areas is a government priority

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[9, 10]. Established in 2008, the Pūkawakawa Programme is one such strategic programme intended to encourage medical graduates to work in rural and regional locations in New Zealand. Each year, the Programme comprises a year-long regional and rural experience for 24 selected Year 5 students from the University of Auckland's Medical Programme in partnership with the Northland District Health Board and two Northland Primary Healthcare Organizations [9, 11]. Features of the learning experience during the Pūkawakawa Programme include being part of small clinical teams allowing greater responsibility and more opportunity to perform procedures, greater exposure to patients with undifferentiated presentations and working more closely with senior colleagues [9]. Students are also more involved with local communities and get to experience the rewards and challenges of delivering healthcare in those communities.

A number of studies suggest that drivers for taking up a regional or rural career are a rural background and the experience of a lengthy rural clinical attachment [12–14]. Accordingly, students are often selected for placement programmes such as the Pūkawakawa if they show a career interest in such work. However, the degree to which longer-term career intentions versus immediate experiential factors affect a choice in rural or regional careers remains unclear [9, 15–17]. Therefore, in the present study, we aimed to explore the experiences of students in the Pūkawakawa Programme in general terms (both positive and negative). In addition, we aimed to determine whether there was a difference in such experiences between those who elected to return to a regional hospital in the Northland District as a resident medical officer after their initial placement and those who elected not to return.

Methods

Purposive sampling was used to select and invite participation from junior doctors, all of whom had completed the Pūkawakawa Programme as students. We recruited junior doctors who were employed by the Northland District Health Board in their first or second year after graduation at the time of the study (these were designated as the Returners). We used snowball sampling to locate and invite additional junior doctors who had elected not to return to the Northland District for early career employment (these were designated the Non-Returners). For Returners, focus groups were facilitated on site, by a member of the research team (AM), using a set of standard questions intended to explore career decisions related to, and experiences of, participation in the year-long Pūkawakawa Programme (Table 1). Due to their more disparate locations, Non-Returners underwent one-on-one semi-structured interviews using the same set of standard questions (Table 1). Audio recordings were made of focus group and interview sessions. When using purposive sampling of diverse participants, saturation typically occurs after 10 to 12 interviews, and so we aimed to include approximately 20 participants in our study [18].

Table 1 Question set used in the focus discussion groups and semi-structured interviews*

Influences on return to Northland

1. What influenced your decision to return (or not) to Northland?
2. What influence did your Pūkawakawa experience at the Whangarei Hospital have on your decision to return (or not)?
3. What influence did your Pūkawakawa experience in the Northland region have on your decision to return (or not)?
4. Where there any drawbacks or challenges to returning to Northland?

Career Intentions

1. What are some of your intentions about your career at this stage?
2. What do you think about pursuing a career in rural practice?
3. What about pursuing a career regional practice (i.e. in a provincial hospital or community)?
4. How does Northland fit into your career plans?
5. What are some of the most important influences on your current career decision? At what point did this influence operate?
6. If you are not considering either rural or regional practice, what was the most important influence on that decision? At what stage of your career did this influence operate?
7. Please describe any influence that Pūkawakawa has had on your career plans?

*In addition to these stem questions, probe questions were used to prompt for further details, experiences and examples if these were not forthcoming

Audio recordings were transcribed verbatim and loaded for analysis into the QSR NVivo v.11 (QSR International, Melbourne, Australia). The first phase of the analysis was performed by an independent professional agency, external to the research team (Academic Consulting, Auckland, New Zealand), who conducted a general inductive thematic analysis of complete transcripts, according to the sensitizing concepts of positive and negative experiences [19, 20]. Coding for sensitizing concepts and theme formation was subsequently checked by study investigators (CSW and AM), and themes and subthemes were reported with exemplar quotations. In the second phase of the analysis, we wished to compare the relative dominance of themes and subthemes within our results for Returner and Non-Returner participant groups. To achieve this, we used an established technique called semiquantitative analysis, which allows the calculation of the proportions of coded text attributed to each theme and subtheme but without permitting statistical testing [21, 22].

Results

Nineteen junior doctors, aged between 23 and 30 years old, participated in our study. Data collection occurred between September 2013 and August 2014, comprising five focus

Table 2 Themes and subthemes for negative and positive experiences of rural and regional placement in the Pūkawakawa programme*

Negative experiences

1. Accommodation
"I did have reservations before I went as to living with 20 other, or 19 other people"

2. Being away from family and friends
"It was pretty much just that it was that far away from my family"

3. Teaching and learning
"a big sticking point for me and I think a couple of other people, that they just felt the online resources were not accessible, were not easy to navigate"

4. Other
"It was a little bit too intense for my liking… it was like no, this is too hard"

Positive experiences

1. Fellow students
a. Social and recreational activities
"And it was a nice bunch that we were here with. Then we spent all the weekends diving and surfing and chilling out"

b. Relationships with other students
"But we were in this happy place (laugh), it was a good environment of the city, the beach, the hospital, the friends that we were living with. It was just supportive, and normalized the stress"

c. Accommodation
"Living together gives you that sense and lets you see other people's insights and then you have all got the same journey along the way"

2. General positive
"I had a really good time there, I had a really good year"

3. Healthcare colleagues
a. Admin and other support
"You just know who to email if you have a question, you know. It was just personal and nice"

b. Feeling part of the team
"Compared to being in Auckland, you are more of the team. You felt like they actually wanted you here and valued having you here"

c. Supportive clinical staff
"Having been here for the whole year meant you got to know the people and the support you would get. Made to feel welcome. People recognized you. Senior docs approachable, friendly and gave opportunities to learn"

4. Interaction with local community
"We even went on a morning breakfast show on the local TV thing there, we went to some local schools. It was like a really good experience and you got like a community feel"

5. Teaching and learning
a. Learning and knowledge gained
"And being in the smaller hospital it meant you get to see more things, do more things, and get to know people that you are around, so you feel like you can approach people and yeah learn off each other as well"

b. Personal development
"…it opens your eyes; you become a more tolerant person. It develops you into the sort of person that a doctor needs to be, someone who can relate to people from different walks of life"

c. Quality of teaching
"And you could actually get to know them, and they gave you tips, were really enthusiastic about teaching. They just kind of made it a lot more viable in terms of a career pathway"

*Themes are numbered and subthemes are lettered. Exemplar quotations are given in quotation marks

groups (each involving 2 to 4 Returners) and four individual semi-structured interviews with Non-Returners (one conducted face-to-face and the remainder by phone). Focus group transcripts comprised a mean (range) of 6485 (4720–7889) words, and interview transcripts comprised a mean (range) of 3084 (1843–4756) words.

Thematic Results

Reports of positive placement experiences greatly outnumbered those of negative experiences. Hence, thematic analysis yielded only four themes for negative experiences but five themes and nine subthemes for positive experiences (discussed below by theme and shown in Table 2 with exemplar quotations).

Those reporting negative experiences had concerns about the communal accommodation in terms of room allocation and getting on with other students, being at substantial distance from and family and friends and feeling somewhat overwhelmed in terms of the level of engagement expected of them during the placement. Some students also had difficulty accessing online teaching material (Table 2).

1. Fellow Students

   Positive placement experiences included many outdoor recreational activities such as surfing and swimming at beaches, running and bike riding on trails, and scenic places to visit with fellow students, such as Cape Reinga. Studying, working and living together also meant that many students felt they were on a journey together, learnt from each other and supported each other through the stress of exams and study (Table 2)
2. General Positive

   In addition to specific positive experiences, many students reported an overall positive impression of their Pūkawakawa placement, making it clear that it was a memorable experience and was "a really good year" for them.
3. Healthcare Colleagues

   A number of students contrasted the benefits of their Pūkawakawa placement experience with that of working in a large city, such as Auckland, saying that clinical staff knew them by name, were welcoming and made them feel like a valued member of the clinical team. Students also mentioned that the administrative staff on the programme were caring, thoughtful and responsive to requests.
4. Interaction with Local Community

   Many students enjoyed engaging in activities in their placement communities including appearing on a local television show, staying at a Marae, conducting home visits with patients, visiting local clinical centres, flying on a microlight aircraft and taking a trip on a coastguard boat.
5. Teaching and Learning

   Many students reported that the quality of clinical teaching during their placement was excellent, including obstetrics and gynaecology, orthopaedics, paediatrics and otorhinolaryngology teaching. One student reported that, in their own time, the house officers at their placement location put on a mock practical exam for students. Students appreciated the greater engagement with the clinical team, stating that consultants allowed them more responsibility than during placements elsewhere, with consequent better opportunities to learn in the context of real patient care. Clinical experiences were diverse, including general practice care, patients with undifferentiated conditions in the emergency department and urologic, cardiac and surgical cases. Work in the community also gave students a first-hand experience of the effects of poverty on healthcare needs and delivery. Several students described the Pūkawakawa experience as eye opening, allowing real insight into their patients' lives and allowing them to grow as a doctor and as a person.

Semiquantitative Results

The total number of sections of coded text attributed to themes for negative placement experiences was too small to allow a meaningful analysis for Returner and Non-returner groups ($n = 7$ and 8, respectively), and so semiquantitative analysis was not carried out for negative experiences. However, Returners and Non-Returners reported *positive* experiences of their placement a total of 123 and 48 times, respectively. Figure 1 reports these totals at theme and subtheme levels, and as a percentage proportion of their total number, for Returner and Non-Returner groups. From this semiquantitative analysis, it can be seen that many curricular aspects of the placement experience were viewed as similarly positive for Returners and Non-Returners – with similar proportions of positive experiences reported for the quality of teaching (Fig. 1, subtheme 5c), supportive clinical staff (subtheme 3c) and interaction with the local community (theme 4). Social activities with fellow students also appeared to be a similarly positive experience for both Returner and Non-Returner groups (Fig. 1, theme 1, subthemes a to c). Hence, in many respects, positive experiences *per se* appear not to differentiate Returner and Non-Returner groups and so seem unlikely to be related to a decision to return to a rural or regional location as an early career doctor. In fact, Non-Returners more often reported a positive general impression of their placement experience than did Returners (Fig. 1, theme 2). However, Returners reported positive experiences specifically related to feeling part of the clinical team substantially more often than did Non-Returners (11% vs 4%, respectively, Fig. 1, theme 3b). And this result may also be reflected in the more frequent mention by Returners of positive experiences for learning and knowledge gained (Fig. 1, subtheme 5a) and personal development (subtheme 5b) compared with Non-Returners – results also consistent with the qualitative finding indicating that better engagement in clinical teams led to greater opportunities for learning.

Discussion

Career choice in medical graduates has been an area of interest for many years, but evidence for what ultimately determines choice remains limited and is largely based on cross-sectional surveys concerned with long-term career planning [4, 17, 23–27]. The current study represents a small-scale natural experiment in the sense that all 19 participants were selected for, and participated in, a year-long rural or regional placement as part of the Pūkawakawa Programme, some of whom then chose to return for early career employment, while others did not – and to our knowledge, this is the first time a study of this type has been conducted. Selection for such placement programmes typically involves identifying participants with a rural or regional background and/or those who have expressed a career interest in rural or regional practice. Hence, the initial career intentions of the participants in this study are at least to some degree controlled and are certainly

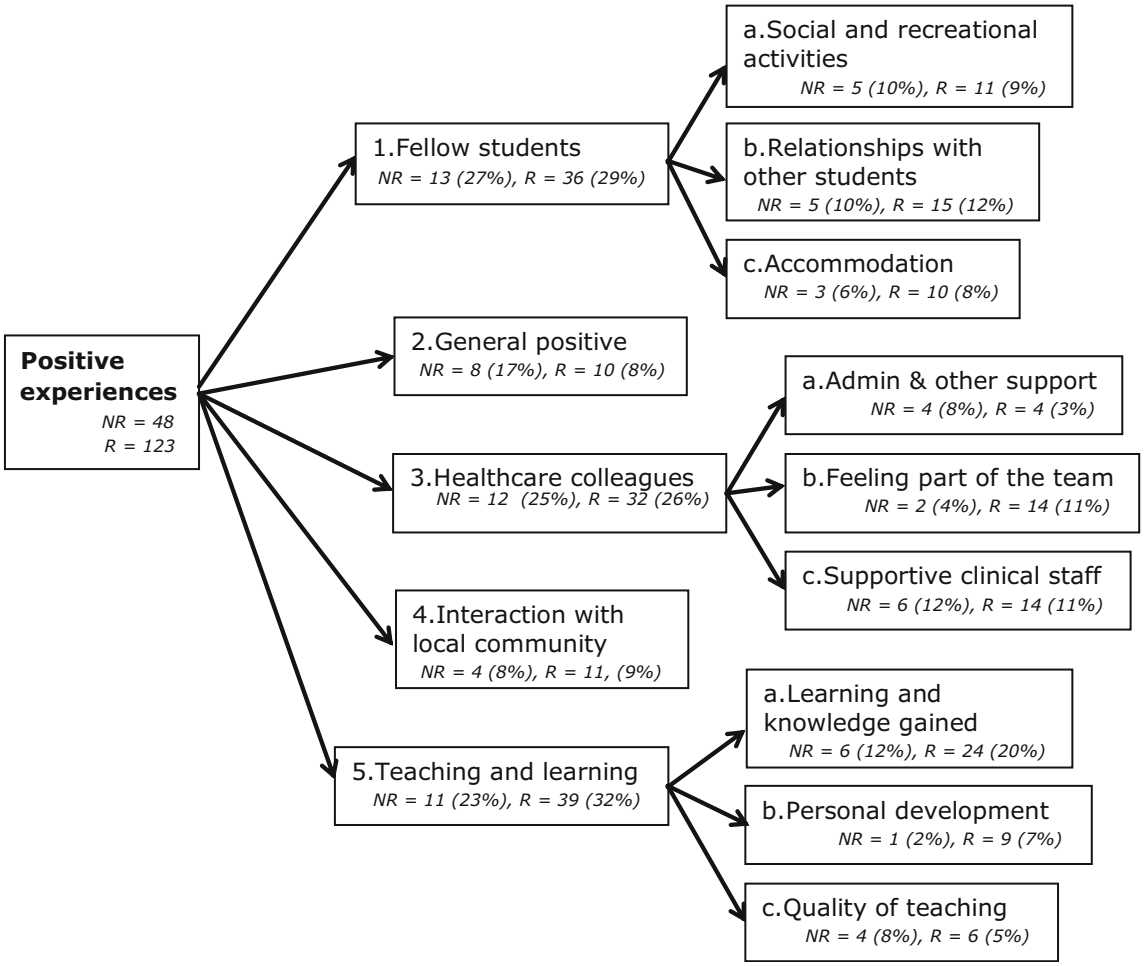

Fig. 1 Semiquantitative analysis of positive experiences reported by study participants during their Pūkawakawa placement. The total number of sections of coded text for Returners (R) and Non-Returners (NR) are 123 and 48, respectively – these are shown at the theme and subtheme levels as number and the percentage proportion of their totals (see text for interpretation)

more similar than those of the general population of medical student undergraduates. In this context, the results of our exploration of the differences between Returners and Non-Returners may allow insight in to the more proximate experiential factors affecting career choice. Overall, the Pūkawakawa placement experience was reported as a very positive one – with very few reports of negative experiences – and similarly positive experiences reported for Returners and Non-Returners on social activities with other students, and the quality of teaching. However, compared with Non-Returners, Returners reported a substantially higher proportion of positive experiences related to feeling part of the clinical team, and this result was consistent with Returners also reporting more positive experiences related to learning and knowledge gained and personal development.

Our study used qualitative and semiquantitative methods. Qualitative analysis is well established in healthcare and allows the identification of important elements of meaning in interview and focus group transcripts [19, 28]. Semiquantitative analysis is less well known in healthcare but has been used extensively in industrial, military and aviation domains to estimate the approximate proportions of elements within descriptive or qualitative data sets [21, 22, 29, 30]. While semiquantitative analysis does not allow the exact determination of proportions, within our study, it allowed us to compare the relative proportions of positive experiences reported by the Returner and Non-Returner groups in a way that gave us deeper insight into the elements of our qualitative thematic analysis. However, it is important not to overextend the use of semiquantitative analysis, for example, this method does not typically supply results of sufficient precision to allow the use of predictive statistical testing, and in a way similar to qualitative analysis, insights gained should typically be restricted to better understanding the existing data set rather than being generalized beyond it.

While our results suggest that feeling part of the clinical team may be a key element of the Pūkawakawa placement experience contributing to a decision to return to a rural or regional location as an early career doctor, further studies designed to focus specifically on this element of the placement

experience are needed to confirm this result [31]. Further work could also potentially consider whether it is possible to identify early in the placement experience, whether a participant is feeling overwhelmed by it (e.g. "too intense for my liking", Table 2) and whether remedial action could be taken. The Pūkawakawa placement experience need not be a one-size-fits-all experience but potentially could be tailored to some degree for the preferences of students.

Our exploratory study is not without its limitations. Fewer Non-Returner participants took part in our study as these participants were more difficult to locate. However, interview transcripts for Non-Returners comprised over 12,000 words of text, a volume more than adequate for thematic analysis, and our thematic analysis was conducted by an independent professional agency external to our research group. In addition, the semiquantitative analysis was based on the total number of codes per participant group, rather than the number of participants themselves. The results of the semiquantitative analysis appear to have face validity in the sense that a consistent result for both participant groups was seen across themes related to the quality of teaching and social aspects of the placement experience. In addition, not all proportional effects occurred in the same direction, as may be interpreted as an artefact of uneven groups, since Non-Returners reported a more generally positive impression of their placement experience than did Returners.

Conclusions

The use of qualitative and semiquantitative analysis in a group of participants who effectively underwent a natural experiment has allowed us to focus on what may be the more proximate experiential factors associated with early career choice. Our results suggest that feeling part of the clinical team during a 1-year rural or regional placement may encourage participants to return to a rural or regional location as an early career doctor. This result needs to be confirmed in further studies specifically designed to focus on this aspect of our findings. Such further work could also determine whether it is possible to intercept poorer placement experiences, in order to potentially increase the proportion of early career doctors who choose to work in rural or regional locations.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval Ethics approval was gained from the University of Auckland Human Participants Ethics Committee (Ref. 9890), and locality approval obtained from the Northland District Health Board.

Informed Consent All participants gave written informed consent.

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