The relationship between the rural background of general medical practitioners and their likelihood of practicing in rural New Zealand

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ABSTRACT

This paper explores the relationship between the rural background of general practitioners (GPs), their exposure to rural medical training, and the likelihood of their working in rural areas. For a GP in New Zealand, family influences and their own exposure to rural medical training during postgraduate years appear to have more influence over the likelihood of working in rural areas than does rural upbringing and rural medical training as an undergraduate. Policy initiatives must take account of these and other factors such as working conditions, professional preferences and lifestyle issues, all of which influence GPs’ choice of practice location.

Keywords: healthcare; health policy; health professions; practice climate, culture, environment

BACKGROUND

In 2010, Dr. Buzz Burrell spoke enthusiastically about the challenges and rewards of being a country doctor in New Zealand. Hours were long, but rural practice offered excitement and diversity: “On an ordinary day, you could treat anything from a bee sting to a head-on smash with a car of brittle-boned haemophiliacs” (Rural GP lives ‘outside comfort zone’, 2010, p. 5). While the variety, spontaneity and autonomy of rural practice appeals to some, in common with many countries overseas (Anyangwe & Mtonga 2007; Laven & Wilkenson 2003), New Zealand is experiencing a shortage of general practitioners in rural areas (Callister, Badkar & Didham 2009). Overseas researchers attempting to identify the reasons for similar shortages (e.g. Chan, Degani, Crichton, Pong, Rourke, Goertzen et al. 2005; Rourke, Incitti, Rourke & Kennard 2005) have found that it is doctors with rural backgrounds who tend to work in the rural areas when they graduate (Laven & Wilkenson 2003). Rural background is defined as spending early years of life in the rural areas, schooling in the rural areas, having ongoing attachment with the rural areas or been exposed to rural practice in undergraduate or postgraduate years of medical training (Chan et al. 2005). Our exploratory research investigates whether the overseas findings hold true for New Zealand.
New Zealand has a general shortage of doctors – the increase in supply is not keeping up with the increasing demand on health services due to general population growth and ageing population (Anderson & Hussey 2000). This is affecting the primary care sector most because of the shortage of general practitioners. For example, in 2001 New Zealand had 83 FTEs (full time equivalents) of GPs per 100,000 population which dropped to 72 FTEs per 100,000 population in 2007 – well below the average for OECD countries (New Zealand Medical Association 2009). Various reasons underpin the shortage of doctors in New Zealand, but foremost is emigration of New Zealand doctors to other OECD countries – mostly Australia, UK and the US. From 1998 to 2006, on average 330 medical doctors left New Zealand each year to settle permanently in Australia (Zurn & Dumont 2008). This may cancel out the expected gains from training new doctors. Lack of a retention strategy makes New Zealand, per head of population, one of the biggest exporters of doctors. Lynch (2008) argues that reasons New Zealand doctors are leaving the country include lack of world class career opportunities, unacceptable working conditions and low remuneration: New Zealand must compete at all levels if it is to keep its highly skilled medical workforce in the country (Lynch 2008).

The GP shortage is worst in rural areas where only 4.3% of New Zealand trained GPs provide care for 23% of New Zealanders living in rural and minor urban areas. This compares with 95% of New Zealand trained GPs working mainly in urban areas, home to 77% of New Zealanders (Hsueh, Wilkinson & Bills 2004). Moreover a relatively higher proportion of Maori (36%) and older people (31%) live in rural and minor urban areas compared to main urban areas (Ministry of Health 2007). As these two groups are overrepresented in the ‘at-risk’ health categories, this puts extra workloads on rural GPs. As a consequence, some GP practices are closing or merging with other practices as they cannot sustain the heavy work load under prevailing difficult conditions.

The current government, perceiving New Zealand’s medical workforce shortage in rural areas to be in crisis, is seeking ways to manage the problem. Policy solutions mooted include ‘writing off’ student debt in exchange for a bond to work in rural areas, increasing GP training places and increasing the number of students in the medical schools (Ryall 2009). This is over and above the financial incentives that rural GPs receive from the government to help sustain primary care in rural areas. Yet,
for sustained improvement, policy makers need to know the factors which may attract GPs to rural areas.

A recent review looked into 110 articles to investigate the factors influencing practice location of GPs (Wilson, Couper, De Vries, Reid, Fish & Marais, 2009). Reviewers identified five interventions with potential to increase the likelihood of working in rural areas, including: selecting medical trainees of rural origin; student exposure to rural training; use of authoritarian methods to coerce doctors into rural practice; financial incentives to attract doctors to rural areas; and providing support to rural doctors. Factors most strongly associated with practicing in rural areas following completion of training were found to be rural upbringing and exposure to rural practice during medical training.

**METHODOLOGY**

According to the Medical Council of New Zealand, in 2009, there were a total of 3,541 GPs in New Zealand and in 2010 the Royal New Zealand College of General Practitioners (RNZCGP) claimed to have more than 4,000 members representing more than 90% of GPs working in New Zealand. By 2011 around 600 GPs, 700 nurses and 270 administrators were working in 211 rural general practices throughout New Zealand (NZ General Practice Network, 8 April, 2011).

Because New Zealand lacks a national register of contact details of all GPs, it was difficult to directly access a statistically valid random sample, so a convenience sample of members was sought via the RNZCGP electronic weekly newsletter, *E-Pulse*. A web based questionnaire was considered ideal because it was a quick and inexpensive way of accessing GPs, and it had wide reach, and busy GPs had flexibility as to when to respond. This approach also ensured confidentiality and anonymity. Respondents directly entered their responses into Survey Monkey, which automatically undertook basic statistical analysis. The survey web-link was run in *E-Pulse* for three consecutive weeks in August 2010. Both rural and urban GPs registered as RNZCGP members were invited to fill in the questionnaire and resubmit online. 3% of New Zealand GPs responded, but 11% of rural GPs responded. These low response rates probably reflect work pressures of GPs, including failure to read the weekly newsletter. As the research was exploratory and there is no national register of contact
details, no alternative methods were employed to administer the survey. The research was considered ‘low risk’ and approved by the University Ethics Committee.

The New Zealand GP Network Rural Ranking Scale defines rural practice on the basis of such factors as travel time for GP from office to hospital, travelling time to closest colleague, and travelling time to most distant patient. In order to make our study comparable to similar research internationally (Richards, Farmer & Selvaraj 2005), we defined ‘rural area’ as one with a population of 10,000 or less, thus including some independent urban communities, and satellite urban areas (Statistics New Zealand 2006).

The questionnaire was self administered and comprised three sections, the first consisting of six questions collecting information on the respondents’ rural background, their exposure to rural practice and their affiliations with rural areas. Rural upbringing was assessed by two questions based on previous research on factors associated with recruitment of rural doctors (Laven, Beilby, Wilkinson & McElroy 2003; Matsumoto, Okayama, Inoue, & Kajii 2005). Respondents indicated the number of years spent in rural areas at various stages of life, from birth to secondary schooling. Measures developed by Chan et al. (2005) were used to assess exposure to rural practice during medical training. The two questions focused on duration of rural exposure during undergraduate or postgraduate medical training. Chan et al. had found that rural placement during medical training was more important to recruitment and retention of rural GPs than their rural upbringing. Ongoing rural affiliation was assessed by asking the respondents to indicate the level of their current social affiliations in rural communities and the number of years their partner spent in rural areas.

The second section measured the likelihood of working as a GP in the rural areas of New Zealand. This scale had a filter question which directed respondents to the appropriate part of the survey depending on whether the respondent was currently working in a rural or an urban area. Respondents in both the rural and urban categories were asked four questions. The first two questions related to the number of years they had been working in the rural/urban area and the number of years they intended to continue working in the rural/urban areas. The next two open ended questions sought reasons for choosing to practice in their current setting and insights into what would motivate them to change their practice location/setting. The measures used for working in rural medical practice were the
number of years worked in the rural setting and the number of years respondents intended to work in
the rural practice in the future, measures similar to those used previously by researchers (Dunbabin,
McEwin & Cameron 2006). The third section sought demographic information. The questionnaire
was piloted on 5 GPs after which two questions were modified.

RESULTS & ANALYSIS

It was not possible to ascertain how many GPs received/ read the electronic newsletter, however, we
received 92 completed questionnaires. Of these, 54 respondents were practicing in the rural areas and
38 were practicing in the urban locations. Because the variables lay on an ordinal scale, the Mantel-
Haenszel chi square test was used to test the significance of association between the various factors
signifying rural background and practicing in the rural areas. With the exception of the 30years or less
age group, all other cells had a frequency exceeding 5. As there were multiple variables, a logistic
regression model was used to determine the Odds Ratio (OR) for each factor influencing the GPs
choice to work in the rural areas. Items on the rural background scale, as a total measure of rural
background, had a good internal reliability with a coefficient alpha of 0.72. The scale of working in
rural practice had a very good internal reliability with a coefficient alpha of 0.81. Table 1 shows that
48% (n=44) of the respondents were male and 52% (n=48) were female. In rural areas the gender
distribution was equal but in the urban areas there were slightly more female respondents than male
respondents (54% vs. 46%).

INSERT TABLE 1

Most of the respondents were married (86%). Rural respondents were slightly older than the urban
respondents. Most of the respondents were born in New Zealand (62%) yet overseas born GPs were
more highly represented in rural (58%) than urban practices (42%). A similar pattern occurred for
basic medical training: even though the majority of total respondents received their training in New
Zealand compared to overseas (67% vs. 33%), rural doctors were more likely to have obtained their
basic medical training overseas. Most respondents (79%) received their postgraduate training in New
Zealand.
Most of the respondents were quite experienced, many (66%) with over 10 years experience working as a GP. Rural respondents were more experienced than their urban counterparts – 48% of rural respondents had more than 20 years experience compared to 32% of urban respondents. Over a third (36%) of urban respondents intend to leave their current practice in the next five years compared with 26% of rural respondents. Moreover, rural GPs were more likely to continue practicing in their current set ups for more than 10 years (45% vs. 36%).

Four main reasons were given by the urban respondents that attracted them to work in the urban areas. The most commonly cited reasons to work in the urban areas were availability of suitable jobs for partners and educational opportunities for children. Another major factor working against GPs locating to rural areas was the belief that rural practice involved many after-hours on-call requirements, something that, in urban practice, could be shared. A respondent who had moved from a rural to an urban practice commented: “Instead of one weekend off in four, I now only do one weekend every five weeks”. Flexibility and availability demands of rural practice were particularly off putting for women doctors with small children: “I have two children of under two years which is ‘on call’ enough”. Good collegial support also featured as a reason GPs chose to work in urban areas. Paradoxically, most of the rural practice doctors surveyed indicated that the relaxed lifestyle was what attracted them to work in a rural area. Rural living meant: “slower pace of life, easy to make friends, everyone is more open and friendly, care about each other”. Rural GPs found the nature of rural practice to be rewarding, challenging and satisfying: “You get to do all of the ‘usual’ general practice stuff and lots of ED work as well”. Similar to their urban colleagues, rural doctors reported that their partners’ employment in the area was a contributing factor for choosing rural practice.

**Association between rural upbringing and practicing in the rural areas**

As shown in Table 2, 39% of the rural participants had spent some time of their preschool years in the rural area compared to 34% of the urban respondents. This difference however was not statistically significant (p=0.66).
There was no relationship (Table 3) between rural upbringing and practicing in the rural areas doctors (OR=1.07, 95%CI=0.78-1.48, p=0.66). Similarly there was no relationship between schooling in the rural areas and practicing as a GP in the rural areas (OR=1.09, 95%CI=0.73-1.60, p=0.68).

**INSERT TABLE 3**

There was, however (Table 4), a highly significant association between social links with the rural areas and the likelihood of practicing in rural areas (OR =2.68, 95%CI=1.77-4.06, p=0.00). Again when the rural social association was adjusted for demographic factors, we found that female GPs who had social association with friends and extended family in the rural areas were significantly more likely to work in the rural practices than their male counterparts ( OR=3.92, 95% CI=2.18-7.04, p=0.00 vs. OR=1.71, 95% CI=0.93-3.15, p=0.08).

**INSERT TABLE 4**

Similarly, when adjusted to age, we found that the relationship between attending social activities in the rural areas and working in the rural practices was strongest in the 31-40 age group (OR=3.17, 95% CI=1.21-8.34, p=0.02), followed by 41-50 year range (OR=3.14, 95% CI=1.59-6.20, p=0.00), followed by 51-60 years age group (OR=1.99, 95% CI=0.98-4.09, p=0.05). The association between attending social activities in the rural areas and working in the rural areas was not statically significant in less than 30 years and more than 60 years age group (OR=1.98, 95% CI=0.56-7.06, p=0.29).

We also found a strong and statistically significant relationship between the partner’s rural background and the likelihood of practicing in the rural areas as shown in Table 5 (OR=1.33, 95%CI=1.06-1.68, p=0.01). As this relationship was significant, we looked at the effects of demographic variables on this association. We found that when adjusted for gender, the relationship was only significant for male GPs whose partners had ever lived in the rural areas (OR=1.7, 95%CI=1.20-2.42, p=0.00). The relationship between partner’s rural background and practicing in the rural areas was not statistically significant for female GPs (OR=1.13, 95%CI=0.83-1.53, p=0.45).

When adjusted for age, we found that the relationship between rural background of the partner and working in the rural areas was only significant in the younger respondents in the age group of less than 30 years (OR=2.75, 95% CI=1.27-5.95, p=0.01).

**INSERT TABLE 5**
Relationship between exposure to rural practice during medical training and working in rural areas

Of the 38 urban doctors, 25 (66%) were exposed to rural medical training in the undergraduate years while 32 of the 54 rural doctors (59%) were exposed to rural medical training (Table 6). This difference was not statistically significant (OR=0.90, 95% CI=0.54-1.52, \( p = 0.700 \)), suggesting that there is no association between exposure to rural training during undergraduate medical training and practicing in the rural areas.

INSERT TABLE 6

Conversely, 21 out of 38 (55%) of the urban doctors were exposed to rural postgraduate medical training as compared with 38 out of 53 (72%) of the rural doctors (Table 7). Our study found a statistically significant relationship between exposure to rural practice in the postgraduate years of training and practicing in the rural areas (OR=1.53, 95% CI=1.05-2.23, \( p = 0.02 \)). This relationship was strongest with female GPs (OR=1.82, 95% CI=1.07-3.08, \( p = 0.02 \)) and those aged 41-50 (OR=2.49, 95% CI=1.19-5.23, \( p = 0.01 \)).

INSERT TABLE 7

As there was a significant association, the effect of rural exposure during postgraduate training was adjusted according to age and gender. When adjusted to gender, it revealed that the effect of rural exposure during postgraduate training was more pronounced and statistically significant only in female GPs (OR=1.81, 95% CI=1.07-3.08, \( p = 0.02 \)). When adjusted for age, the effects were significant only in the 41-50 years age group (OR=2.49, 95% CI=1.19-5.23, \( p = 0.01 \)).

DISCUSSION

Association between rural upbringing and practicing in rural areas

According to overseas research, doctors who were born and schooled in rural areas were at least twice as likely to be working in rural areas (De Vries & Reid 2008; Dunbabin & Levitt 2003; Rolfe, Pearson, O’Connell, & Dickinson 1995). However, findings from this recent New Zealand study did not support this notion. There could be a number of explanations for this finding. A notable one may be that the large contingent of overseas trained doctors who take up rural practice in New Zealand are
likely to have had an urban upbringing. The relatively small size of our sample, coupled with other factors such as selection criteria and the definition of ‘rural’, may have influenced the result.

We found, however, a significant relationship between social links in rural areas and practicing in a non-urban setting. Consistent with previous research findings (Alexander 1998; Hays, Veitch, Cheers, & Crossland 1997), doctors who had well established social connections with friends and family in country districts were two and a half times more likely to be working in rural areas. Social connectedness to others in rural environments creates a sense of belonging to a wider rural community which leads to more satisfying rural experience for the GPs. Our study also found that a GP whose partner had a rural background was at least one and a half times more likely to work in rural settings, a finding consistent with overseas reports that a partner’s rural background had a much stronger influence than the rural background of the GPs themselves, on practice location (Laven et al. 2003; Stagg, Greenhill & Worley 2009).

**Relationship between training exposure to rural practice and working in rural areas**

Previous research exploring this association has provided mixed results: some have reported a positive association between rural exposure during undergraduate training and working in the rural areas (Chan et al. 2005; Halaas, Zink, Finstad, Bolin & Center 2008; Nichols, Worley, Toms, & Johnston-Smith 2004), while others have found no association (Easterbrook, Godwin, Wilson, Hodgetts, Brown, Pong, et al. 1999; Rabinowitz, Diamond, Hojat, & Hazelwood 1999). Our study did not find any significant association between rural exposure during medical training and practice location. As rural rotations in undergraduate medical training have only recently been introduced in New Zealand (Pasley & Poole 2009), undergraduate students who were exposed to this short rural undergraduate training may have spent the time as a ‘medical tourist’ rather than involving themselves in rural medical practice. Also, these trainee doctors may not have reached a stage in their careers where they would consider ‘settling’ into long-term rural (or urban) general practice. Further research could explore if prolonged exposure during undergraduate medical training will have an effect on practice location in New Zealand.
In contrast, a significant relationship was found between rural postgraduate training and practice location. Similar findings were reported in earlier studies (Matsumoto et al. 2005; Wilkinson et al. 2003; Wilson et al. 2009).

Other factors associated with GPs working in rural areas

General practitioners cited various factors when asked what attracted them to work in the rural or urban areas and what would influence them to leave. The factors can be broadly classified into two categories; professional and social. One of the things that attracted rural doctors to their chosen location was the variety of work that was professionally rewarding. As rural GPs are working on their own most of the time, they have to do both general practice and emergency medicine. They could also ensure continuity of care for their patients and found the patients in rural practice more appreciative.

The negative factors of rural practice identified by the respondents were lack of collegial support and more frequent after hours demands, similar to those factors identified in previous research (Alexander 1998; Hays et al. 1997; Henry, Edwards, & Crotty 2009).

A number of positive as well as negative social factors were proposed by GPs who chose to work in rural areas. The relaxed lifestyle identified as a positive was a finding also reported by Hays et al. (1997) although these researchers also mention personality clashes and privacy issues as examples of undesirable factors. It is therefore important to strike a balance between the sometimes competing social factors related to rural lifestyle.

GPs whose partners work in rural areas are likely to be motivated to work in the rural areas and the same applies for urban working partners and urban doctors, findings which reflect those of Henry et al. (2009) who found partner’s job and educational opportunities for children to be significant factors influencing practice location. Children’s educational opportunities as a choice factor may not be an issue in primary school years, but it becomes increasingly important for older children (Hays et al. 1997).
CONCLUSION

The aims of this study were to investigate the likelihood of GPs working in rural areas and to make recommendations to deal with the shortage of doctors in the rural areas. In particular, we sought to better understand the relationship between the rural upbringing of New Zealand GPs, their exposure to rural undergraduate and postgraduate medical training and their likelihood of practicing in rural areas.

The GPs surveyed showed that the rural upbringing and schooling of GPs had no apparent bearing on their subsequent choice of practice location. Rural GPs, however, were more likely to have partners who were brought up in the rural areas. Our study therefore found a stronger association between the rural upbringing of the spouse and the decision to go into rural practice, rather than the rural upbringing of GPs themselves. As both rural and urban GPs identified partner’s career and employment opportunities and educational needs of children as key determinants of practice location, much more emphasis may need to be placed on the needs of GP’s families.

Further research using a random and larger sample of GPs is recommended before any firm conclusions are drawn. If the results of future studies also indicate no association between the rural origin of doctors and practicing in the rural areas in New Zealand, then the policy of reserved seats in New Zealand medical schools for rural origin students will need to be reconsidered.

According to our study, having an established network of friends or family in rural areas was significantly associated with practicing in rural areas. This social dimension is likely to be more challenging for policy makers to address, but increased emphasis on working more closely with other rural networks may facilitate faster acculturation and a sense of acceptance in local communities.

Rural medical training in undergraduate years was not significantly associated with subsequent employment in rural areas but exposure to rural medical training in postgraduate years was significantly associated with rural practice. Given this, increased rural exposure during postgraduate GP training programme might be a key means of assistance for increasing GP supply in the rural areas. This may aid recruitment of more, newly qualified GPs to the rural areas. Further research is needed to explore not only this factor, but the factors influencing retention of rural GPs.
This research study was constrained by a number of factors, most immediately the lack of direct access to GPs and the inability to obtain a full list of GPs. Thus the sampling frame could not be verified because it was not possible to establish how many GPs regularly read the RNZCP weekly newsletter: GPs surveyed were self selected volunteers and not random which again may not reliably represent the opinion of the whole population. Moreover, our study did not look into other variables which may influence recruitment and retention of GPs in the rural areas such as financial incentives, locum support, educational support and other measures to attract and retain doctors to work in the rural areas. Further research is needed into this area before the findings can be usefully generalized to the GPs population in New Zealand.

The issue of rural GP recruitment and retention is clearly a complex and challenging professional social policy issue that will continue to engage policymakers. But our findings suggest that there is a case to be made for actively seeking to advance employment opportunities for spouses and for promoting and providing enhanced educational opportunities for the children of rural GPs.
REFERENCES


Table 1: Location of respondents according to gender

<table>
<thead>
<tr>
<th></th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>27</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>Female</td>
<td>27</td>
<td>21</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>38</td>
<td>92</td>
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Table 2: Rural upbringing and subsequent work in rural areas

<table>
<thead>
<tr>
<th>Preschool years spent in rural areas</th>
<th>Rural (n=54)</th>
<th>Urban (n=38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>61.1%</td>
<td>65.8%</td>
</tr>
<tr>
<td>&lt;1 year</td>
<td>7.4%</td>
<td>7.9%</td>
</tr>
<tr>
<td>1-4 years</td>
<td>5.6%</td>
<td>2.6%</td>
</tr>
<tr>
<td>&gt;4 years</td>
<td>25.9%</td>
<td>23.7%</td>
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Table 3: Relationship of rural upbringing and practicing in rural areas

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
<th>Chi²</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preschool years spent in rural areas</td>
<td>1.07 (0.78-1.48)</td>
<td>0.19</td>
<td>0.66</td>
</tr>
<tr>
<td>Schooling in rural areas</td>
<td>1.09 (0.73-1.60)</td>
<td>0.17</td>
<td>0.68</td>
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</table>
### Table 4: Relationship between social links with the rural areas and practicing in the rural areas, adjusted for demographic factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
<th>Chi²</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social links with rural areas</td>
<td>2.68(1.77-4.06)</td>
<td>21.59</td>
<td>0.00</td>
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<tr>
<td><strong>Gender:</strong></td>
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</tr>
<tr>
<td>Male</td>
<td>1.71(0.93-3.15)</td>
<td>3.02</td>
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<tr>
<td>Female</td>
<td>3.92(2.18-7.04)</td>
<td>20.78</td>
<td>0.00</td>
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<td><strong>Age Group:</strong></td>
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<td>&gt;30</td>
<td>1.98(0.56-7.06)</td>
<td>1.11</td>
<td>0.29</td>
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<tr>
<td>31-40</td>
<td>3.17(1.21-8.34)</td>
<td>5.47</td>
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<td>41-50</td>
<td>3.14(1.59-6.20)</td>
<td>10.81</td>
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<td>51-60</td>
<td>1.99(0.98-4.09)</td>
<td>3.59</td>
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<td>&gt;60</td>
<td>20.09(0.31-1.28e+03)</td>
<td>2.00</td>
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### Table 5: Relationship between partner’s background and practicing in the rural areas, adjusted for demographic factors

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<th>Variable</th>
<th>OR (95% CI)</th>
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<th>p value</th>
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<tr>
<td>Partner’s rural background</td>
<td>1.33(1.06-1.68)</td>
<td>6.01</td>
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<td><strong>Gender:</strong></td>
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<tr>
<td>Male</td>
<td>1.70(1.20-2.42)</td>
<td>8.88</td>
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<td>Female</td>
<td>1.13(0.83-1.53)</td>
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<td><strong>Age Group:</strong></td>
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<td>&lt;30</td>
<td>2.75(1.27-5.95)</td>
<td>6.57</td>
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<td>31-40</td>
<td>1.10(0.66-1.84)</td>
<td>0.15</td>
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<td>41-50</td>
<td>1.37(0.89-2.12)</td>
<td>2.02</td>
<td>0.15</td>
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<tr>
<td>51-60</td>
<td>1.42(0.96-2.10)</td>
<td>3.06</td>
<td>0.08</td>
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<tr>
<td>Variable</td>
<td>OR (95% CI)</td>
<td>Chi^2</td>
<td>p value</td>
</tr>
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<td>-----------------------------------------------</td>
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<tr>
<td>Exposure to rural training in undergraduate years</td>
<td>0.90 (0.54-1.52)</td>
<td>0.14</td>
<td>0.70</td>
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<tr>
<td>Exposure to rural training in postgraduate years</td>
<td>1.53 (1.05-2.23)</td>
<td>4.88</td>
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Table 7: Relationship between rural exposure during postgraduate training and practicing in the rural areas, adjusted for demographic factors

<table>
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<th>Rural exposure during postgraduate training</th>
<th>OR (95% CI)</th>
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<td></td>
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</tr>
<tr>
<td>Male</td>
<td>1.28 (0.75-2.19)</td>
<td>0.82</td>
<td>0.26</td>
</tr>
<tr>
<td>Female</td>
<td>1.81 (1.07-3.08)</td>
<td>4.90</td>
<td>0.02</td>
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<td>Age Group:</td>
<td></td>
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<tr>
<td>&gt;30</td>
<td>1.23 (0.29-5.19)</td>
<td>0.08</td>
<td>0.78</td>
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<tr>
<td>31-40</td>
<td>1.13 (0.57-2.23)</td>
<td>0.12</td>
<td>0.72</td>
</tr>
<tr>
<td>41-50</td>
<td>2.49 (1.19-5.23)</td>
<td>5.83</td>
<td>0.01</td>
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<tr>
<td>51-60</td>
<td>1.65 (0.78-3.52)</td>
<td>1.72</td>
<td>0.19</td>
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<tr>
<td>&gt;60</td>
<td>1.65 (0.41-6.59)</td>
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<td>0.47</td>
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