AUSTRALIAN AND OVERSEAS TRAINED DOCTORS

A STUDY OF COMMUNITY INTEGRATION, QUALITY OF LIFE AND THE RESULTANT RETENTION IN RURAL AND REMOTE AUSTRALIA

A thesis submitted in fulfilment of the requirements for

the degree of Doctor of Philosophy

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DECLARATION

I certify that, except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Signed:

Prikshat Verma                                   May 2014
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ABS</td>
<td>Australian bureau of statistics</td>
</tr>
<tr>
<td>ACRRM</td>
<td>Australian college of rural and remote medicine</td>
</tr>
<tr>
<td>AIHW</td>
<td>Australian institute of health and welfare</td>
</tr>
<tr>
<td>AMA</td>
<td>Australian medical association</td>
</tr>
<tr>
<td>AMWAC</td>
<td>Australian medical workforce advisory committee’s report</td>
</tr>
<tr>
<td>APHCRRI</td>
<td>Australian primary health care research institute</td>
</tr>
<tr>
<td>ARIA</td>
<td>Accessibility/remoteness index of Australia</td>
</tr>
<tr>
<td>ARRWAG</td>
<td>Australian rural and remote workforce agencies group</td>
</tr>
<tr>
<td>ASGC-RA</td>
<td>Australian standard geographical classification remoteness areas</td>
</tr>
<tr>
<td>ATD</td>
<td>Australian trained doctor</td>
</tr>
<tr>
<td>BMP</td>
<td>Bonded medical places</td>
</tr>
<tr>
<td>CaLD</td>
<td>Culturally and linguistically diverse</td>
</tr>
<tr>
<td>CD</td>
<td>Collection district</td>
</tr>
<tr>
<td>CME/CPD</td>
<td>Continuing medical education/Continuing professional development</td>
</tr>
<tr>
<td>ComQol</td>
<td>Comprehensive quality of life scale</td>
</tr>
<tr>
<td>CS</td>
<td>Compulsory service</td>
</tr>
<tr>
<td>DoHA</td>
<td>Department of health and ageing</td>
</tr>
<tr>
<td>FWE</td>
<td>Full-time work equivalent</td>
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<tr>
<td>GHIs</td>
<td>Global health initiatives</td>
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<tr>
<td>GP</td>
<td>General practitioner</td>
</tr>
<tr>
<td>HMO</td>
<td>Hospital medical officer</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and communication technologies</td>
</tr>
<tr>
<td>LOS</td>
<td>Length of service</td>
</tr>
<tr>
<td>OQOL/SOQL</td>
<td>Objective quality of life/Subjective quality of life</td>
</tr>
<tr>
<td>QOL</td>
<td>Quality of life</td>
</tr>
<tr>
<td>GPRIP</td>
<td>General practice rural incentives program</td>
</tr>
<tr>
<td>OTD</td>
<td>Overseas trained doctor</td>
</tr>
</tbody>
</table>
| MABEL        | Medicine in Australia: Balancing employment and life [
| MDA          | Medical directory of Australia |
| MDS          | Minimum data set report |
| MESRAP       | Medical education for students in rural area |
| MRBS         | Medical rural bonded scholarship |
| NBN          | National broadband network |
| NHHRC        | National health and hospitals reform commission |
| PEPFAR       | President’s emergency plan for aids relief |
| PHP          | Physicians health program |
| PRCC         | Parallel rural community curriculum |
| RDAA         | Rural doctors association of Australia |
| RDWA         | Rural doctors workforce agency |
| RRIPS        | Registrars rural incentives payment scheme |
| RRMA         | Rural, remote and metropolitan area |
| RMFN         | Rural medical family network |
| RMFSS        | Rural medical family support scheme |
| ROS          | Return of service |
| RRGPP        | Rural and remote general practice program |
| RRP          | Rural retention program |
| RTT          | Rural training track |
| RWA          | Rural workforce agencies |
| RWAV         | Rural workforce agency, Victoria |
| SLA          | Statistical local area |
| TROTD        | Temporary resident overseas trained doctor |
| VCU          | Virtual community of users |
| VMO          | Visiting medical officers |
| WHO          | World health organisation |

Abbreviations
ABSTRACT

This study has explored the impact of the community integration of ATDs (Australian Trained Doctors) and OTDs (Overseas Trained Doctors) in rural and remote communities on their quality of life (QOL) and its resultant effect on their retention by developing a model of research linking QOL as the intervening variable between community integration (the independent variable) and retention (the dependent variable). A national survey of 279 rural and remote GPs was conducted between September and December 2010. Satisfaction levels of both types of GPs (ATDs and OTDs) in rural and remote Australia were observed regarding their community integration and QOL. The survey proper explored the objective experiences of GPs for community integration and QOL. Their satisfaction levels with community integration was measured using the ‘Experiential Place Integration’ framework first used by Cutchin in his paper, ‘Physician retention in rural communities: the perspective of experiential place integration’ (Cutchin, 1997). The ‘Comprehensive Quality of Life scale (ComQol A-5)’ developed by Cummins (1997) was adapted and modified for measuring satisfaction with QOL of these GP respondents.

The study observed higher satisfaction levels for GP respondents (both ATDs and OTDs) with most of the dimensions of ‘Experiential Place Integration’ domains, and as well as with the domains of QOL in rural and remote Australia. The major finding was that ATD respondents were more satisfied than OTD respondents. The results from the study further indicated that there was a significant difference between the ATD respondents and OTD respondents regarding security dimension of community integration. OTD respondents felt less secure than ATD respondents in rural and remote settings. Further, the result from the univariate analysis of GP respondents indicated that there was a significant difference between the ATD
and OTD respondents in rural and remote communities regarding satisfaction with QOL domains. The major differences were observed in the domain of “material possessions’ followed by ‘acceptance by community’ and ‘sense of security’ domain respectively.

The level of correlation amongst three variables of the study, namely, QOL, community integration and retention was determined using statistical mediation analysis. The results of this study have indicated that retention of rural and remote GP (ATDs and OTDs) respondents was significantly related to resultant quality of life based on community integration i.e. the higher the QOL, the greater chances of potential retention and vice versa. The themes and subthemes that have emerged in this study mirror the literature and extend the scope further. Noticeable contributions have been made to the existing body of knowledge.
CHAPTER 1
INTRODUCTION
1.0 RATIONALE FOR THE THESIS

This thesis explores the factors influencing the social and professional experiences of General Practitioners (GPs) in Australia’s rural and remote communities. The study covers both Australian Trained Doctors (ATDs) and Overseas Trained Doctors (OTDs) and seeks to examine the degree to which these experiences contribute to them continuing work in those rural and remote communities. The employment and retention of GPs (ATDs and OTDs) in rural and remote areas has become a major issue in meeting the shortage of medical practitioners in these areas. The study seeks to analyse how community integration and quality of life (QOL) influence the retention of GPs (ATDs and OTDs) in these areas.

1.1 TRENDS IN THE PRIMARY CARE WORKFORCE IN RURAL AND REMOTE AREAS

The rural health workforce in Australia is decreasing and remains in a state of shortage (Wilkinson, 2000; MDS report, 2005; Eley, 2008; Kamalakanthan & Jackson, 2008). This shortage continues to jeopardise the provision of quality healthcare to rural and remote communities (Australian Medical Workforce Advisory Committee 1996, 2005; Access Economics 2002; Productivity Commission 2005).

Access to the services of a GP is a critical element in the healthcare of rural and remote residents in Australia. Eighty-five per cent of the population sees a GP in the course of the year. Due to current and recurring GP shortages, regional and remote Australians continue to be disadvantaged in their access to GPs compared to their urban counterparts. According to National health and hospitals network Report (DHA, 2010), it was estimated that 59% of Australians lived in an area with a shortage of available doctors. Workforce shortages were most acute outside Australia’s major cities. The number of GPs per 100,000 head of
population varied from under 60 in ‘very remote’ locations through to almost 200 GPs per 100,000 people in major cities (DHA, 2010).

Medical access within regional Australia is projected to show sustained growth through to 2020. The numbers of rural and remote GPs particularly, are projected to increase significantly during the years 2011 to 2020. These projections appear to be due to Commonwealth programs and policies. Enrolment in GPRIP (General Practice Rural Incentives Program programs) is estimated to progressively increase, along with enrolment in the Five Year Overseas Trained Doctor Scheme (5YOTDS) and stable enrolment in bonding programs.

In the latest projections of the medical workforce distribution in Australia (DHA report 2011), the number of GPs per 100,000 population is projected to increase across rural and remote Australia, with greater growth in remote and very remote areas (Figure 1.1).

![Figure 1.1: GPs per 1,000,000 population by remoteness area](source: DoHA, General Practice Workforce Statistics, 2011)

Despite these projections, indications are there that these numbers alone would not be sufficient to address existing GP shortages, as this growth does not indicate an increased
availability of GPs because the increase in medical practitioners has not kept pace with the rate of population growth. Over the decades from 1996–97 to 2006–07 the FWE (Full-Time Work Equivalent) of GPs increased by 10.9% while the population increased by some 13.0%, resulting in an overall decrease in the supply (RHW, 2012).

One indicator of accessibility to primary medical care such as GPs is that of potentially preventable hospitalisation (Weissman et al., 1992; Billings et al., 1993; Bindman et al., 1995; Pappas et al., 1997; Laditka & Mastanduno, 2003). Scarcity of GPs is positively associated with preventive hospitalization (Parchman & Culler, 1994; Laditka, 2003, 2005). Individuals in areas with a low supply of GPs may have more difficulty accessing primary care than do individuals in areas with greater supply, as evidenced by longer waiting times for appointments, longer travel times to obtain care, shorter physician encounters and reduced follow-up (Zastowny, Roghmann & Cafferata, 1989). The current scarcity of GPs in rural and remote areas has resulted in more people being admitted as patients in hospital, when this could have been avoided with better care primary care (AIHW report 2011) as indicated in Fig 1.2 below:

**Figure 1.2: Potentially preventable hospitalisations by remoteness of area of usual residence, 2009–10**
One of the results is hospital overspending on people from rural and remote areas of some $829 million (AIHW report, 2011). This report estimated that, overall, country people experienced an extra 60,000 episodes of acute care in 2006—2007, and about 190,000 more episodes of overnight hospital stay than would have been the case at major cities’ rates. In other words, hospitals are providing rural and remote people with the primary and aged care that is often not available due to shortages of GPs in many of their home areas. Many of these extra acute care episodes and the longer hospital stays that characterise rural and remote people would be avoidable with an improved focus in the rural healthcaresystem on primary, diagnostic and early intervention services.

A number of factors have contributed to Australia’s shortage of medical practitioners. Prominent among these is federal government policy in the 1990s, which limited the number of medical school places in Australia, as the Australian Medical Workforce Advisory Council maintained that there was no shortage of doctors (Birrell & Hawthorne, 2004). But in 2003, the government’s stance on the medical workforce was reversed from too many to too few doctors. Given the perceived urgency of the undersupply situation by 2003, the Coalition Government’s priority was an immediate expansion of the medical workforce. To this end, in 2003, the government introduced its “Strengthening Medicare” package comprising financial assistance for recruitment of Overseas Trained Doctors (OTDs) in line with the policies of many countries such as the USA, the UK and Canada to meet the demand produced by a worldwide shortage of doctors. The Commonwealth and state governments prioritised the recruitment of OTDs as the prime solution to medical shortages outside metropolitan areas. Employers with vacancies defined as in ‘areas of need’, where the relevant state health departments believed no resident doctor could be attracted on the financial terms offered, could sponsor these doctors (OTDs) to Australia on four-year (renewable) temporary visas –
usually the 457 visa—without any formal assessment of their medical knowledge or clinical skills.

Most OTDs were sponsored to hospital work, either as trainees in specialist programs or as junior HMOs (Hospital Medical Officers). In addition, a substantial minority was sponsored to work in GP practices. The numbers of OTDs holding temporary visas increased sharply, with several thousand temporary visas being issued to this group in 2002–03 and in every year thereafter. Most left Australia after completing their appointment, but an increasing proportion stayed on in Australia (Birrell, 2011). The permanent residence door was also opened. After 2001, doctors were permitted to apply under Australia’s permanent entry General Skilled Migration program (which included both the points-tested and state-sponsored visa subclasses). This resulted in an influx of overseas trained doctors to Australia.

The advantage of tapping into this group from the government’s perspective was that they were required as a condition of their visa to work in the particular job for which they were sponsored. An additional advantage of this strategy, from the point of view of employers, was that it was relatively inexpensive. OTDs were normally employed at much lower rates than would be required to attract fully registered ATDs. This was one of the reasons that very few locally-trained doctors, including recent graduates not subject to geographical restrictions, took up rural practice. The more that OTDs dominated the rural and remote medical workforce, the fewer the number of domestic doctors (ATDs) who moved to the countryside.

Australia has the highest rate of OTDs per capita in the world (Rabinowitz et al., 2001; Audas et al., 2005; Spike, 2006; Alexander & Fraser, 2007; Iredale, 2009; Han, 2010; Lim, 2010). In 2005, 28.5% of the rural medical workforce had obtained their medical qualifications.
overseas (Health Workforce Queensland report, 2005). The following figure (1.3) illustrates the Australian situation:

**Figure 1.3: GPs headcount percentage change Australiawide and rural and remote 1996–2006**

![Graph showing percentage change in GPs headcount](image)

Source: DoHA, 2007

As this chart indicates, taking Australia as a whole, over a ten-year period (1996–2006) the number of ATDs declined while those from overseas increased by almost 30%. According to the Rural Doctors Association of Australia (RDAA) the factors contributing to the declining level of ATDs are complex and include: ageing and retirement of the GP workforce; inadequate numbers of medical graduates choosing general practice and, of those, fewer still choosing rural practice; increasing numbers of GPs seeking to work part-time; the lack of attraction of solo practices, and the overall decline of some rural communities (RDAA Factsheet II 2010). However, the rural and remote picture shows a more dramatic change, with an increase in ATDs of just under 10% but an increase in OTDs of almost 100% (Figure 1.4).
Figure 1.4: Percentage change from 1995–96 to 2005–2006 rural and remote GPs –ATDs and OTDs

Source: DoHA, 2007

Medicare data shows that 36% of doctors currently working in Australia were trained overseas, with more than 41% of doctors working in rural and remote areas having overseas qualifications (Figure 2.5) (Report on Audit of Health Workforce in Rural and Regional Australia, 2008).

Figure 1.5: Proportion of OTDs in the Australian workforce by FWE and broad RRMA* for 1996–97 and 2006–2007

Source: Report on Audit of Health Workforce in Rural and Regional Australia, 2008 (P.27)
This dramatic rise in the number of OTDs is a testament to policy changes over the past decade. Through the effective use of compulsion via Medicare, the Australian government has directed OTDs to rural and remote areas. Medicare registration or a provider number is a requirement for a GP and their patients in order to have access to medical payments through the national Medicare system. This has gone a long way towards filling the gaps in the rural and remote medical workforce through a controlled supply of OTDs (DoHA, 2007 General Practice Statistics).

![Figure 1.6: GP headcount by citizenship status](source: AIHW, 2001–2008)

As at February 2008, there were 4,669 overseas trained doctors, including GPs and specialists, with current Section 19AB exemption status. There were 3,028 overseas trained GPs and 1,641 overseas trained specialists in private practice nationally. Of the 3,028 GPs, 1,068 worked in capital cities (including the outer metropolitan areas) and 1,437 in rural and remote areas. Of the 1,641 overseas trained specialists, 181 worked in rural and remote areas and 1,027 in capital cities (Report on Audit of Health Workforce in Rural and Regional Australia, 2008; p.37).
Increasingly, OTDs are becoming the mainstay of the GP workforce in regional centres, and in rural and remote communities. The following graph (Figure 1.7) provides evidence of a trend which could result in even greater reliance on OTDs in rural and remote Australia, with retiring rural GPs almost exclusively replaced by OTDs. Of the 1,452 additional GPs in regional, rural and remote areas between 2000–01 and 2008–09, 82% (1,196) were OTDs. In 2000–01, OTDs constituted 30% of the rural GP workforce and in 2008–09 this had increased to 40% (Parliamentary Inquiry into Overseas Trained Doctors report, 2011). The trend is mirrored in the cities but the rate of change is slower at 34% compared with 70% in regional and remote areas.

**Figure 1.7: Percentage change in GPs by place of qualification 2000–01 to 2008–09**

![Graph showing percentage change in GPs by place of qualification](source)

The Deloitte Access Economics report 2011 highlighted the nation’s ongoing reliance on OTDs and non-bonded ATDs through to 2020, posing the challenge of retaining these doctors in rural and remote practice. The number of GPs which are projected to increase significantly during the years 2011 to 2020 is 6,413, 13% (858) will be from bonded programs, 47% (2,986) from OTDs and 40% (2,569) from other sources, non-bonded ATDs. In this context, it
is important that rural and remote communities retain their GPs, particularly given that retention may be five to ten times less expensive than the costs associated with recruiting replacement staff (Murrow et al., 2007).

Another reason, which can be attributed to GP shortages, was a decline in the number of medical graduates choosing to enter or stay in primary care, and on the other hand increased consumer demand for medical care as the Australian population ages (Productivity Commission Research report, 2005; Australian Bureau of Statistics 2010).

1.2 FACTORS INFLUENCING WORKFORCE RETENTION

Workforce retention refers to the length of time between commencement and termination of employment. Retention does not imply an indefinite length of service in one location, employer or organisation, but refers to some minimum length of stay (Waldman, 2004; Humphreys et al., 2007). Considerable research has been conducted regarding the reasons that medical professionals stay in rural and remote practice (Pathman, 1992; Cutchin, 1997a, 1997b; Wilkinson, 2001; Jackson et al., 2003; Schoo et al., 2005; Crouse & Munson, 2006; Alan & Ball, 2008; Lehmann, 2008; Humphreys et al., 2009; Stretton & Bolon, 2009).

The relationships between community integration and rural medical practitioner retention have been well documented (Pathman, 1992; Cutchin, 1997a, 1997b; Veitch, 2002; Osmond, 2004; Han & Humphreys, 2006; Luman et al., 2007). Physical aspects of the community have most often been recognised as a retention factor (Pope et al., 1998; Thommasen & Berkowitz, 2000; Crossland & Veitch, 2003). Broadly speaking, in the case of the medical workforce it is useful to distinguish two types of community integration issues regarding their migration status: namely, migration between countries in the case of the overseas trained health
workforce; and migration within countries relating to the nationally trained health workforce from urban areas. The experiences of these migrants in rural areas tend to differ from their counterparts in urban areas because they live in small numbers dispersed in the countryside, which makes them highly visible and may generate feelings of vulnerability. They often lack contact with others from the same background (Henderson & Kaur, 1999; De Lima, 2001). Few studies have explored the integration of both immigrant and non-immigrant GPs in rural and remote areas (Alexander & Fraser, 2006; Simard, 2002). Most studies of professional migrants’ adjustment to, or settlement in, a new place have focused on migrants in the urban context and have thus failed to shed light on their integration in the rural context.

In a recent study of social interaction between internal migration (local migration from urban to rural areas) and immigration (migration from other countries) and their communities-of-place (i.e. neighbourhoods, villages, towns, cities and regions) in rural areas, Vergunst (2009) has gone beyond established understanding by arguing that immigrants and local migrants face similar issues in their contact with people belonging to the communities-of-place of the localities to which they have moved. Both groups share the communities-in-place integration experience.

Another important factor which has become more important recently for retention is QOL, that is the extent to which the rural and remote health workforce can experience a work and family/home life balance, based on a demanding job in areas where there are fewer social and community resources. An active engagement in activities and community integration, the latter of which has been defined in terms of successful engagement in occupational, social, and community activities (e.g. Dijkers, 1999; Felce & Emerson, 2001), have been identified as important factors predicting QOL (e.g. Huebner et al., 2003; Schonherr et al., 2005).
In addition to the relationship between engagement in leisure activity and QOL, previous literature has demonstrated that community integration is an important factor for the experience of life satisfaction and high QOL. Some researchers have reported a statistically significant relationship between community integration and life satisfaction (e.g., Stancliffe et al., 2001; Bramston et al., 2002; Reistetter et al., 2005; Stalnacke, 2007). In a longitudinal study, Charlifue and Gerbart (2004) reported that declined community reintegration over time was associated with decreased QOL.

Keeping in view the above studies and the reliance of Australia on OTDs and the shortage of GPs in rural and remote communities, the research reported in this thesis envisioned a relationship between the domains of community integration of both types of GPs (ATDs and OTDs) in rural and remote Australia and the specific resultant QOL, which could help to explain the retention phenomena.

1.3 FOCUS OF THE STUDY

This study has explored the impact of the community integration of ATDs (Australian Trained Doctors) and OTDs (Overseas Trained Doctors) in rural and remote communities on their quality of life (QOL) and its resultant effect on their retention by developing a model of research linking QOL as the intervening variable between community integration (the independent variable) and retention (the dependent variable).

This model of retention examined the resultant QOL of GPs based on the domains of community integration in rural and remote Australia and how this varying level of QOL influences GPs’ (both ATDs and OTDs) decisions to stay or leave rural and remote practice (see Figure 1.8 below).
Although there is significant research evidence concerning the retention of GPs in rural and remote Australia, little research has been undertaken linking the shortage with resultant QOL stemming from the domain of community integration in rural and remote settings.

The research questions have focused on the living experience of GPs (both ATDs & OTDs) in rural and remote Australia, so that the factors that influence their community integration and QOL in these areas could be identified. Once these factors were identified, further analysis was undertaken to assess the impact of community integration on QOL of GPs (both ATDs and OTDs) and the resultant effect on their retention in rural and remote areas.

The research questions that were pursued in this study are:

1. What are the factors that influence GPs’ (ATDs and OTDs) community integration in rural and remote Australia?

2. What are the factors that impact the QOL of GPs (ATDs and OTDs) in rural and remote Australia?
3. How does the community integration of GPs (ATDs and OTDs) in rural and remote areas affect on their QOL?

4. How does the resultant QOL affect the potential retention of GPs (ATDs and OTDs) in rural and remote Australia?

1.4 RESEARCH DESIGN

The nature of the study’s major variables (community integration, QOL and retention) lent itself to the use of quantitative methods, leading to a non-experimental quantitative research design. In this study, the descriptive research method was employed so as to measure the community integration, QOL and retention issues of GPs in rural and remote Australia. The time horizon of the research was cross-sectional. Data were collected through a mailed questionnaire. The questionnaire included questions pertaining to GPs’ community integration, QOL and retention issues in rural and remote settings in Australia. The full questionnaire is included in Appendix 1.

A pilot study was conducted after making the initial draft of the questionnaire, so as to refine the questionnaire and determine the probable sample size for the study. Fifteen GPs practising in Victorian rural suburbs were interviewed and their suggestions were incorporated into the research questionnaire. After refining the questionnaire, the Statistical Consulting Service of the School of Mathematical and Geospatial Sciences at RMIT University was consulted.

1.4.1 Locale of the Study

The study was conducted throughout Australia. To make it more representative, all states and territories of Australia were covered.
1.4.2 ASGC-RA classification
The ASGC-RA (Australian Standard Geographical Classification Remoteness Areas) was used to identify rural and remote areas. The Australian Standard Geographical Classification (ASGC) is a hierarchical geographical classification defined by the Australian Bureau of Statistics (ABS), which is used in the collection and dissemination of official statistics. The ASGC-RA essentially divides Australia into five regions – major cities, inner regional, outer regional, remote and very remote – for comparative statistical purposes.

Five regions
ASGC RA 1-major cities
ASGC RA 2-inner regional
ASGC RA 3-outer regional
ASGC RA 4-remote
ASGC RA 5-very remote

1.4.3 Sources of Data
Caution was taken to find only those areas in different states which came under the classifications of RA3, RA4 and RA5. Once the areas pertaining to the RA3, RA4 and RA5 geographical demarcations were confirmed, the next step was to check the contact details of all the GPs in those rural and remote areas with the help of MDA online.

1.4.4 Population Sampling
The study population consisted of a total sample size of 1,200 GPs, whose contact addresses were extracted from MDA online on the basis of stratified random sampling.

1.4.5 Data Analysis
The community integration of GPs (ATDs and OTDs) in rural and remote areas was measured using ‘experiential place integration’ framework developed by Cutchin in 1997. The
framework represents integration as an active developmental process based on the enhancement of security, freedom, identity and meaning in place. GPs’ (ATDs and OTDs) satisfaction with QOL was measured along the seven domains of the comprehensive quality of life scale (ComQol) designed by Cummins (Comprehensive quality of life scale-fifth edition, 1997a). Statistical mediation analysis was used to prove the correlation with the three variables of the study, namely, quality of life, community integration and retention. Mediation implies a causal hypothesis whereby an independent variable influences a mediator, which in turn influences the dependent variable (Holland, 1988; Sobel, 1990).

1.5 LIMITATIONS

The present study has a number of limitations, which have been taken into account in the reporting, and analysis of the results.

The most obvious limitation of the study is its cross-sectional design based on survey questionnaires. The main limitation of this process lies in the fact that the data were collected at one point in time and thus fail to track changes over time on the experience of those surveyed. Clearly the perceptions of the respondents may vary over time as they experience their working and living circumstance. The impact of community integration and quality of life would ideally be examined through a longitudinal research design, with a series of observations taken over time. However, such a study was beyond the scope and resources of this research. The results must therefore be examined with this limitation in mind and cannot really be used in a predictive manner.

Secondly, the selection of a sample was complicated by the existence of three different geographical classifications used in rural health policy in Australia namely, the Rural,
Remote and Metropolitan Area (RRMA), the Accessibility/Remoteness Index of Australia (ARIA) and the Australian Standard Geographical Classification Remoteness Areas (ASGC-RA – discussed in Section 1.4.2). It was observed that there was some disparity in GPs’ understanding of rural and remote demarcations. These disparities are reflected in studies, which have also referred to the anomalies within and between classification systems (ABS, 2003). Over the last twenty years the Australian Government has provided additional incentives and resources to rural and remote areas where it has been difficult to retain GPs. In order to target the distribution of these limited resources, some variant of the RRMA, ARIA or ASGC-RA classifications has frequently been used as the basis for differentiating both entitlement to, and nature of, financial and support incentives. Given that there is no 'natural' rural urban classification, it follows that decisions made about where you draw the boundary differentiating 'urban' from 'rural' or 'rural' from 'remote' directly affects the eligibility and amount that different rural communities receive, and consequently how well the problem of GP workforce shortages in rural areas is addressed (McGrail & Humphreys, 2009). The Australian Government has recognised, to some degree, the inappropriateness of current classifications used for rural health policy decisions (DHAC, 2005; Australian Labor Party: Media release, 2008). While this study uses the ASGC-RA classification for measuring QOL and resulting retention it is recognized that this is not the only possible classification for research purposes, it is the most commonly used classification.

Third, the sample of the study is based on a random sample there may be a possibility statistical sampling or testing error by systematically favoring some outcomes over others.

Although there is a widely accepted and tested Community Integration Questionnaire (CIQ) scale (Willer et al., 1993) in healthcare research, it was mainly developed for disability and
rehabilitation research. The (CIQ) scale uses behavioral indicators of integration and does not include items focused on feelings or emotional status (Willer et al., 1994; Dijkers, 1997). This study seeks to explore the feelings or emotional status of GPs in rural and remote areas in order to assess their quality of life and resultant retention, thus the CIQ scale was not used. Instead, the community integration scale for this research was developed using 27 dimensions of Cutchin’s model of experiential integration of physicians in rural and remote settings, which represents integration as an active developmental process based on the enhancement of security, freedom, identity and meaning in place. These dimensions provide an acceptable summary of the types of issues raised by rural and remote GPs and incorporate the feelings and emotional status as well as behavioral indicators of GPs regarding their integration in rural and remote settings. This is the first study, which uses the conceptual framework of experiential place integration developed by Cutchin to measure community integration of GPs in rural and remote settings, and it has not yet been field tested to the extent of the CIQ scale. Moreover, Cutchin’s broader vision of engagement with and commitment to community and place were not explained in the questionnaire. Thus, there is a possibility that respondents might not fully recognize the extent to which the question might range in this newly developed scale.

Finally, a possible limitation of the study relates to the moderate response rate (23.5%) comparable with response rates for other GP surveys without monetary or other incentives (McAvoy & Kaner, 1996; Kellerman & Herold, 2001). This might limit the predictive validity and generalisability of the findings to the rest of the study population. This issue is further discussed in Chapter 3 (Section 3.11) in detail.
1.6 SIGNIFICANCE OF THE STUDY

Rural medical practice actually offers a more challenging climate in comparison to urban general practice because rural and remote GPs have to perform procedural work, provide a greater breadth of services and maintain a connection with the community. Another aspect is that GPs in rural areas have to do most of the hospital work themselves because rural hospitals often do not have enough staff.

This study has examined the experiences of two groups of doctors not explicitly represented in rural and remote research: doctors who immigrate from outside the Australian education system (immigrants) – from overseas OTDs; and their counterparts; doctors trained in Australia (in-migrants) – ATDs. This study is important because it reinforces the need to acknowledge different domains of community integration resulting in better QOL of GPs (ATDs and OTDs) in rural and remote Australia and at the same time offers solutions to the retention problems of GPs in these areas.

The retention of doctors in rural Australia promotes the continuity and accessibility of services and has as its ultimate aim the improvement of the health status of rural and remote Australia. Understanding the specific areas of need regarding the QOL of both types of GPs (ATDs and OTDs) and targeting these areas through community integration domains would serve as an approach to address retention problems, and this approach could enhance better healthcareservices across rural and remote Australia. The findings of the study have implications for practice and intervention to support doctors (ATDs and OTDs), who are current and/or newly appointed doctors in rural and remote areas.
The findings of this study, although specific to medical contexts, may extend existing theory on QOL to other organisational contexts where relocation to isolated and circumscribed communities is involved. The theory suggests complex relationships between QOL domains and community integration and it could be used to conduct further research relating to other professional fields in the healthcare sector.

1.7 STRUCTURE OF THE THESIS

The remainder of the thesis is structured with a literature review (Chapter 2), research design (Chapter 3), research findings, discussion (Chapter 5) and conclusion & implications (Chapter 6). Chapter 2 is subdivided into three sections probing into various theoretical frameworks and concepts of the main variables of the study i.e. community integration, QOL and retention, that have possible bearing on this study. Chapter 3 reviews the research design, the participant population and the data analysis process. Chapter 4 is concerned with the analysis of the quantitative findings and hypothesis formulation. The first section analyses the demographic profile of respondents. The second and third sections exhibit the quantitative findings of the perceived QOL and community integration of GPs (ATDs and OTDs) in rural and remote areas. The final section of the chapter focuses on the research hypothesis formulation. Chapter 5 provides a detailed discussion of the research data reporting experiences of GPs (ATDs and OTDs) in rural and remote communities in Australia. The relationships between community integration, QOL and retention are explored in detail and compared to the current research. Following these discussions, Chapter 6 focuses on conclusion and implications for the policy maker to address the retention issues of GPs in rural and remote Australia.
CHAPTER 2
REVIEW OF RELATED LITERATURE
2.0 INTRODUCTION

This chapter reviews a wide range of literature associated with the shortage, employment and retention of GPs in rural and remote areas. There are a number of different reasons that physicians leave rural and remote practice, some of which are within the control of the rural community/region and some of which are not. Uncontrollable factors such as planned retirement, return to education, family needs, and changes in family health which can cause a physician to leave rural practice are more the result of a strong attraction to another form of medical practice or a change in life plan. The region/community can do little to influence the physician’s decision in these areas. On the other hand the region/community has, at least to some degree, control over other factors such as the changed work environment, altered job requirements, revised job relationships or continuing opportunities for physicians. By careful planning, and involving the local physicians in the decision-making process, many of these controllable factors can be managed in such a way to ensure that they do not become a dissatisfying ‘trigger’ for rural physicians and help in retaining them (MacDonald, 2002).

Retention is often discussed as to a solution to overcome the shortage of GPs in rural and remote areas and it continues to be a major concern across the world. There have been numerous research attempts to solve the persistent dearth of physicians in rural and remote communities all over the world. In the context of management, retention of promising employees is considered as a fundamental means of achieving competitive advantage amongst organisations (Walker, 2001). Much of the emphasis of ‘good’ employment practices has been placed on strategies to retain staff, and to link satisfaction and commitment to retention. Flexible employment, communication, family friendly work policies, telecommuting, wellbeing programs, employment conditions and social & community practice have been underlined as bases of employee retention (Zatzick & Iverson, 2006; Beauregard & Henry,
It has been observed that for the management of employees’ retention there are several factors which need to be managed congruently i.e. compensation & rewards, job security, training & developments, supervisor support culture, work environment and organisation justice. Accordingly, organisations have to utilise an extensive range of human resource management factors to influence the employee’s commitment and retention (Stein, 2000; Beck, 2001; Clarke, 2001; Parker & Wright, 2001).

This research specifically deals with retention of rural and remote GPs, that’s why more literature pertaining to the retention of GPs in rural and remote communities was covered. Research in the 1970s and 1980s examined the experiences of GPs in rural and remote communities and establishing the link with retention (Cordes, 1978; Parker & Sorensen, 1978; Hassinger et al., 1980). Earlier research has reported a wide range of factors that influence retention including job satisfaction, extrinsic rewards, a fair salary compared to that of peers, benefit packages composed of financial and non-financial incentives, attachment to co-workers, commitment to the organisation, organisational prestige, organisational fairness, flexible work practices including teamwork and relationships with managers, and advancement opportunities (Chen et al., 2004; Hausknecht et al., 2009). Several authors have concluded that because workforce retention is a function of several interrelated factors, the strategies to address them should reflect this complexity (Alexander & Fraser 2001; Williams et al., 2007; Gillham & Ristevski, 2007; Humphreys et al., 2008; Lehmann & Martineau, 2009; WHO, 2009).

Strategies aimed at GP retention are of particular importance to the current Australian health system. This chapter aims to outline a number of factors found to be important in explaining the shortage of GPs and covers a review of the literature on various interventions, recommendations and strategies undertaken to overcome this problem.
2.1 EXISTING RESEARCH AND LITERATURE

Previous research has demonstrated that there is a skewed geographical distribution of studies, in the context of developed and developing countries that have analysed the effectiveness of rural retention interventions. Most evidence comes from high-income countries, such as Australia, Canada, Japan, New Zealand and the USA, with very few studies originating from developing countries in Africa, Latin America or south-eastern Asia, and no evaluations from the eastern Mediterranean region (Lehmann et al., 2008; Bärnighausen et al., 2009; Grobler et al., 2009; Wilson et al., 2009; Carmen et al., 2010). For a wider coverage and better understanding of various strategies to combat the shortage of GPs in rural and remote areas, the literature should incorporate developing countries also, although it may not be applicable to the Australian situation.

Previous research has focused on diverse factors such as supply imbalance, educational strategies, regulatory interventions, financial/non-financial incentives, professional support, community integration and QOL, which are known to have a significant impact on the shortage and retention of doctors/health workers in rural and remote areas. The review systematically explores existing research relating to these factors, looking at the world spectrum and focusing on Australian research pertaining to these issues.

2.1.1 Supply imbalance

Supply imbalance is a major healthcare issue in many countries, both developed and developing. Urban areas almost invariably have a substantially higher concentration of physicians than rural areas (Blumenthal, 1994; Zurn et al., 2004). A definition of supply imbalance from an economic perspective is given in a World Health Organization (WHO) paper by Zurn et al. (2004), who explained that imbalance occurs when the quantity of a given skill supplied by the workforce and the quantity demanded by employers diverge in the
existing market conditions. In other words, a surplus or shortage is the result of disequilibrium between the demand and the supply for that particular type of labour. International organisations such as the WHO and the World Bank have long recognised that the supply imbalance of doctors is a fundamental problem in many countries (Kamalakanthan & Jackson, 2006). The concern is with both the overall shortage of physicians and the uneven distribution of the available stock of medical practitioners. There is a general belief that in most developed nations, the overall supply of physicians is adequate, or even excessive in some cases, but there is a geographical maldistribution of physicians, with rural and remote areas having an inadequate supply (Pitblado & Pong, 1999). In general there is a higher concentration of GPs in the inner suburbs of the metropolitan areas as compared to rural and remote areas.

It is well documented that rural and remote Australians have poorer access to medical services than their counterparts in the USA, Canada and Britain (Ellsbury et al., 2000; Wilkinson, 2000; AIHW 2005). In Australia, not only is the allocation of GPs between and within states and territories unequal, but also it is clear that capital cities are greatly oversupplied when compared to the rural and remote areas of Australia (Wilkinson et al., 1999; Wilkinson, 2000). From the available statistics in 2000, Australia had a surplus of doctors, especially GPs, in some urban locations (Australian Medical Workforce Advisory Committee, 2000; Prideaux, 2001). Wilkinson’s study showed that three states – South Australia, New South Wales and the Australian Capital Territory – were relatively oversupplied. But the remaining states of Queensland, Western Australia, Victoria, Tasmania and the Northern Territory were relatively undersupplied. Adjusted for estimated demand, the findings showed that the Australian Capital Territory (ACT) was oversupplied by 71% while Western Australia (WA) was undersupplied by 15% Thus, the allocation of GPs between states and territories as unequal (Wilkinson, 2000).
Similarly, in another study Adams and Hicks (2000) pointed out that urban areas almost invariably have a higher concentration of physicians than rural areas, because most professionals prefer to reside in urban areas where there are better social, cultural and professional advantages, citing supply imbalance as the possible cause.

2.1.2 Educational strategies
Various educational strategies, such as recruiting students from rural backgrounds, establishing medical institutes near rural and remote areas, clinical rotations, curriculum that reflects rural health issues, and continuous professional development for rural health workers, have been cited to boost the retention of health workers in rural and remote areas (Global policy recommendations WHO, 2010). The following section discusses the research relating to the abovementioned strategies.

Students from rural backgrounds
Medical schools that selectively recruit from rural areas have been shown to have a higher percentage of graduates who enter rural practice (Brazeau et al., 1990; Boulger, 1991; Verby, 1991; Rabinowitz, 1993). A rural background increases the chance of graduates returning to practice in rural communities (Brazeau et al., 1990; Kamien & Buttfield, 1990; Kassebaum & Szenas, 1993; Laven & Wilkinson, 2003; Vries & Reid, 2003; Woloschuk & Tarrant, 2004; Rabinowitz et al., 2005). Students may also be more likely to enter practice in an area close to their place of study (Rosenblatt et al., 1992, Veitch et al., 2006; McDonnel & Lowe, 2007; Gum, 2007). Rural origin plus a rural clinical school placement is a significant predictor of a medical student’s intentions to practise rurally (Walker et al., 2012).

In the 1990s, the focus on the universal problem of insufficient medical practitioners in rural areas was on recruitment and training (Kamien & Buttfield, 1990; Strasser, 1992). The issue
of the retention of rural practitioners was often seen as a simple extension of the recruitment issue and the primary cause of the workforce problem was thought to be insufficient numbers of graduates entering rural practice (Pathman & Ricketts, 1992; Horner et al., 1993). Evidence from America (Rabinowitz et al., 2008), Australia (Rolfe et al., 1995; Wilkinson et al., 2003; Kamien & Cameron, 2006; Worley et al., 2008), Canada (Curran & Rourke, 2004), Japan (Matsumoto et al., 2008), Norway (Magnus & Tollan, 1993), South Africa (De Vries & Reid, 2003) and Scotland (Richards et al., 2005) has confirmed that medical students from a rural background are more likely to take up rural medical practice than their peers with city origins, with evidence indicating that rural origin students are two to three times more likely to end up practising in rural areas (Hutten-Czapski, 2010).

The above studies indicated that medical professionals regardless of their origins are more likely to stay in a rural or remote community if they are themselves from such a community or if their training has given them exposure to practice in such communities. However, recruitment and admission strategies need to acknowledge and address the challenges faced by rural students in accessing tertiary health education. These include socio-economic disadvantage, geographic isolation, separation from family and friends and perceptions of social exclusion (Durey et al., 2003). The literature appears to indicate strongly that training programs which selectively recruit and admit health and medical students with a rural background and/or a stated intent to practise rurally can make a positive contribution to the rural workforce (Dunbabin & Levitt, 2003; Laven & Wilkinson, 2003; Australian Medical Workforce Advisory Committee, 2005; Somers et al., 2007; Krahe et al., 2010; Rogers et al., 2011).
The evidence around the impact of undergraduate training from North America is generally supportive. These studies show similar strengths of association (Becker, 1979; Fryer et al., 1995). Carter et al. (1987) and Potter (1995) showed that rural GPs had a longer duration of rural postgraduate training and Rabinowitz et al. (1999) suggested that a special program focused on developing rural physicians may be effective. Many of the rural workforce strategies in Australia have targeted selection of medical students, medical curricula, postgraduate training and retraining experienced urban graduates (Holub & Williams, 1996). According to a study in South Australia (Wilkinson et al., 2003), undergraduate rural training, postgraduate training and medical school entry criteria favouring rural students were all associated with an increased likelihood of being a rural GP.

Data obtained from the Medicine in Australia: Balancing Employment and Life (MABEL) study (Mcgrail et al., 2011) elucidated the association between rural background and rural practice for both GPs and specialists. GPs with at least six years of their childhood spent in a rural area were significantly more likely than those with 0–5 years in a rural area to be practising in a rural location, while only specialists with at least eleven years’ rural background were significantly more likely to do so.

**Health professional schools outside major cities**

The WHO in its report titled “Increasing access to health workers in remote and rural areas through improved retention” (2010) suggested training students in locations closer to rural communities, as the graduates of these schools and programs are more likely to work in rural and remote areas. Large observational studies from China (Wang, 2002), the USA (Wilson, 2009) and the Congo (Longombe, 2009) suggested that medical schools located in rural areas are likely to produce more physicians working in rural areas than urban located schools.
Medical schools which are decentralised, located in rural areas, have a rural focus, encourage admission of rural students, facilitate a rural-oriented medical curriculum and provide early and repeated undergraduate rural medicine learning experiences are most successful at graduating physicians who will choose rural practice as a career (Rosenblatt et al., 1992; Rourke, 1993; Hays, 2007; Bowman, 2008).

The relatively close location of practicing graduates to their parent institutions (rural medical schools) offers an opportunity to provide continued professional development (CPD) from these medical schools, which other studies have shown to be important in retaining doctors in rural areas (Kamien, 1998; Hoyal, 1999; White, 2007). These findings suggest that medical schools established in rural areas, which give priority to admission to students from that province or state, as well as urban students, may encourage rural students to pursue medical careers in rural and remote areas. The approach of “distributed medical education (DME)” in USA, Canada, Norway, Japan and Australia seems most in keeping with what is perceived to be the sentiment at the heart of the cultural idea that the setting of medical education can be as important a determinant of educational outcome as the didactic content of the curriculum. A central hypothesis, for, the idea of DMEs is that in order to sustain sufficient numbers of well qualified doctors in rural and remote regions, regular cohorts of medical students, many of whom will have rural, remote or aboriginal origins, will need to be educated in rural and remote locations throughout the continuum of medical education (Horne & Klass, 2012).

Canada has adopted DME strategies in some of its provinces and it has made a substantial contribution to its local physician supply (Chaytors & Spooner, 1998; Easterbrook et al., 1999; Maria, 2006). The University of British Columbia Faculty Of Medicine (UBC), in collaboration with the University of Northern British Columbia (UNBC) and the University of
Victoria (UVic) are running their DMEs, established in September 2004 and September 2011 respectively. Another distributed site was added at the University of British Columbia Okanagan (UBCO) in September 2011. Medical training in British Columbia is now distributed across four sites: the Island Medical Program at UVic, the Northern Medical Program at UNBC, the Southern Medical Program at UBCO, and the Vancouver-Fraser Medical Program at UBC. Another DME exists in Lakehead University in Thunder Bay and Laurentian University in Sudbury, which were established in 2005. Similarly, two new DMEs in the forms of University of New Brunswick and Saint John Campus of Dalhousie University were established at Halifax in 2010.

A survey of medical schools in the USA also confirmed that medical schools in rural states were most successful in producing rural practitioners (Rosenblatt et al., 1992). In 1970, prompted by the shortage of primary care physicians that has historically affected rural areas, the University of Washington School of Medicine created a four-state (later five-state, with the inclusion of Wyoming in 1996) community-based program with the goal of increasing the number of general physicians throughout the United States Northwest. WWAMI (Washington, Wyoming, Alaska, Montana & Idaho) was created as a regional medical education program for neighbouring states that lacked their own medical schools, while also encouraging physicians-in-training to eventually stay and practice in the region, as the amount of time students spend in a given state is thought to increase their likelihood of practicing there after graduation (Ramsey et al., 2001). The program is largely considered a success, and serves as a model for comprehensive regional medical education (Norris et al., 2006).

In Norway, the University of Tromso School of Medicine in Norway has developed programs in lines with DME and has succeeded in supplying doctors to rural areas (Magnus & Tollan,
1993). It offers a decentralised medical school curriculum providing repetitive training opportunities in rural and community-based settings. Similarly, the Japanese national government on the basis of its ambitious strategy called ‘one medical school in each prefecture’ in the 1960s and 1970s was able to raise the number of medical schools from 46 to 79 between the years 1950 and 1980 and the number of medical school entrants rose from 3560 in 1965 to 8260 to 1980 (Asano et al., 2001). Jichi Medical School in Japan was established in 1972 conforming to the strategies of DME and it was successful in supplying doctors to rural areas (Inoue, Hirayama & Igarashi, 1997). The experience in Thailand also pointed in the direction that doctors educated in rural areas stay in rural areas (University of New England, 2007).

Similarly, Flinders University in Australia was a pioneer in establishing DMEs in Adelaide and Northern Territory communities in Australia. The establishment of Flinders School of Medicine (1975), Northern Territory Clinical School (1996), Northern Territory Remote Clinical School (2005) and Northern Territory Medical Program (2011) were steps in this direction. Later, James Cook University’s School of Medicine was established at Townsville and Cairns in year 1999 (Horne & Klass, 2012). Therefore, it appears that the combination of rural background and decentralised training programs is a favourable one (Dunbabin & Levitt, 2003).

Clinical rotations in rural areas during studies
Short rotations or introductory exposure to rural settings might also have a positive influence on the stated interest of medical practitioners in rural practice or the intent to practise rurally among health profession students (Courtney 2002; Denz-Penhey et al., 2005; Guion et al., 2006; Crichley et al., 2007). There is considerable evidence in the literature from America
Chapter 2: Review of related literature

(Cullen et al., 1997), Australia (Eley & Baker, 2007; Henry et al., 2007; Playford et al., 2008; Rogers et al., 2010) and South Africa (De Vries et al., 2010) that future attraction to the rural workforce can be influenced by medical school student selection and positive undergraduate work experiences in rural placements. The ‘rural pipeline’ approach appears to be generally supported by the evidence (Dunbabin & Levitt, 2003; Hsueh et al., 2004; Curran & Rourke, 2004; Worley et al., 2008). This approach involves strategies that respond to pre-tertiary education factors (e.g. targeted recruitment of rural students, preferential admissions and rural scholarships) as well as undergraduate and then postgraduate training factors (e.g. regional location, rural curriculum and rural placements).

Pathman et al. (1999) surveyed primary care physicians who moved to rural practices between 1987 and 1990 to identify the educational approaches that best prepared physicians for rural work. Residency rotations in rural areas were the best educational experiences, both to prepare physicians for rural practice and to lengthen the time they stayed there. There also appears to be evidence of a link between longer rural placements or rotations and rural recruitment for internships (Dunbabin & Levitt, 2003; Denz-Penhey et al., 2005; Veitch et al., 2006; Ranmuthugala et al., 2007; Smedts & Lowe, 2007). Rurally oriented training experiences have been found to “solidify existing rural affiliations” (Woloschuk & Tarrant, 2002) among rural-background allied health students in the United States; however, this is not a universal effect.

Norway has faced recurrent shortages during the last five decades, especially of primary-care physicians. Norway was successful in applying clinical rotations strategy successfully. An innovative ‘group tutorial’ approach through postgraduate training for primary-care physicians in remote areas was helpful in enhancing the retention of physicians without
compromising the quality of training. This tutorial-based learning, accompanied by appropriate tutelage and in-service training, allowed the trainees and their families to ‘grow roots’ in the remote area while in training. The group tutorial developed peer support and professional networks to alleviate professional isolation. In total, 65–67% of the physicians from this program are still working in the country five years after completion of the group tutorial (Straume et al., 2010).

There is limited Australian evidence to indicate that rural undergraduate training increases the likelihood of subsequent rural practice. Rolfe et al. (1995) showed that students who chose a rural general practice attachment in their final year of medical school were more likely (relative risk RR: 3.02) to become rural GPs, and similar evidence has been provided by other studies in South Australia, Victoria and nationally (Strasser, 1992; Western et al., 2000). Rural GPs were more likely to report having had rural undergraduate training (odds ratio OR 1.61, 95% confidence interval CI 1.32–1.95) than were urban GPs. Rural GPs were much more likely to report having had rural postgraduate training (OR 3.14, 95% CI 2.57–3.83). As the duration of rural postgraduate training increased, so did the likelihood of working as a rural GP: those reporting that more than half their postgraduate training was rural were most likely to be rural GPs (OR 10.52, 95% CI 5.39–20.51). South Australians whose final high-school year was rural were more likely to be rural GPs (OR 3.18, 95% CI 0.99–10.22 (Wilkinson, Laven, Pratt & Beilby, 2003).

Rural training offers a compelling solution to rural primary-care shortages: medical residents who train in rural settings are two to three times more likely to practice in a rural area (Bowman & Penrod, 1998; Rosental & McGuigan, 2000; Rabinowitz et al., 2001; Brooks et al., 2002). It is widely accepted that physicians often choose to practice in settings similar to
that of their residency experience (Rosental, 2000). This has been well demonstrated by Rural Training Track (RTT) programs in the USA. The RTT model combines one year of urban training with two years of rural training, and has been very successful in graduating wellprepared physicians to rural practice in the USA. In fact, RTTs have demonstrated at least 75% success at placing graduates in rural practice (Rosenthal, 2000; Maudlin et al., 2010; Longenecker et al., 2011; Patterson et al., 2011). At least half of RTT graduates locate in rural areas after graduation, two to three times the proportion of family medicine residency graduates overall, with most of these physicians staying with their rural choice for at least three years.

The Australian Medical Workforce Advisory Committee (2005) found that there was good evidence to support programs of rural education and training as a rural recruitment strategy, a position also taken by the Productivity Commission (2005). Hsueh, Wilkinson and Bills (2004) systematically reviewed undergraduate interventions that were successful in promoting rural health among medical students, and observed that there was strong evidence to support a “chronological sequence” of interventions, with the most effective programs utilising a combination of strategies that respond to pre-admission factors, as well as medical school factors including rural placement or training.

These baseline studies point to the continuing success of interventions aimed at bringing students to rural and remote communities and preparing them for rural practice who might otherwise have limited exposure to rural and remote areas.
Curricula that reflect rural health issues

Various medical school initiatives to inculcate curricula that reflect rural health issues, including rural specific subjects, have been found to be an effective strategy to encourage more doctors to practise in rural communities (Adkins et al., 1989; Kaufman et al., 1989; Brazeau et al., 1990; Hickner, 1991; Verby et al., 1991; Rabinowitz, 1993; Craig, 1993; Strasser, 1995; Rolfe et al., 1995; Kamien, 1995; Palsdottir et al., 2008). The underlying objective of these initiatives is to produce more medical graduates willing and able to practice medicine in rural and remote areas and eventually lead to long-term solutions to the chronic problems of recruitment and retention of doctors in regions with widely-dispersed populations (Tesson et al., 2005). In addition, generalist or primary care focused curricula should include sufficient exposure to relevant specialist knowledge in order to prepare practitioners with the wider scope of practice that is often required in rural areas.

When students from rural backgrounds are trained in schools also located in rural areas, using curricula that are adapted for rural health needs, they are more likely to return to work in those areas. The WHO report (2010) emphasised the importance of revising undergraduate and postgraduate curricula to include rural health topics so as to enhance the competencies of health professionals working in rural areas, and thereby increase their job satisfaction and retention. Although there is no direct evidence that curricula changes improve rural retention, ample supportive evidence shows that rurally oriented curricula equip young students with the skills and competencies necessary to practice in those areas (Curran & Rourke, 2004).

The studies relating to the University of Minnesota’s Rural Physician Associate Program and Cambridge University’s longer longitudinal attachment course throughout the clinical years suggested that such approaches had a reasonable likelihood of success (Verby, 1988; Oswald
et al., 1995). Similarly, a small-scale study in Australia indicated that students from the rural curriculum course gained better results than in the urban-based medical curriculum in several disciplines related to general practice (Worley et al., 2000).

A national Rural Undergraduate and Support Program and a network of University Departments of Rural Health (Dunbabin & Levitt, 2003) have been established in Australia in an attempt to address the rural medical workforce maldistribution and shortage. In 1997, Flinders University and the Riverland Division of General Practice pioneered an entire year of the undergraduate clinical curriculum in Australian rural general practice. The curriculum has cut across the traditional clinical discipline boundaries by teaching in an integrated way in rural general practice. This program was called the Parallel Rural Community Curriculum (PRCC). There was a small amount of community-based experience throughout the course, with the major component being a 5-week block in the final year, divided between attachments to urban (3 weeks) and rural practice (2 weeks). Longitudinal cohort research by Worley on the career decisions of these students indicates that they were more than 20 times more likely to choose rural practice than their tertiary-trained peers (Worley et al., 2008).

**Continuous professional development for rural health workers**
In the case of rural and remote health, anecdotal evidence on the importance of effective education and training in contributing to professional satisfaction and workplace attractiveness and consequent length of stay abounds (Dillon & Loermans, 2003). Professional isolation and lack of continuing medical education/continuing professional development (CME/CPD) have been identified as key deterre...
workers (Buchan, 1994; Shobbrook & Fenton, 2002; Postler & Foley, 2003; Robinson & Tingle, 2003; Billingsley, 2004). Moreover, a supportive environment boosting continued professional development is essential in reducing the negative impacts of professional and personal isolation linked to rural and remote living (Parker & Sorenson, 1978; Killam & Carter, 2010). From the employee perspective, CPD/CPE increases their competence and confidence, job satisfaction, and arguably commitment and loyalty to employer and place. Employees are less likely to leave if remaining in the organisation will enable them to develop their careers and move up (Clarke & Newman, 1997).

The provision of CME/CPD is identified as a key factor in the support of generalist expertise delivering primary health care; the provision of culturally safe service delivery (National Indigenous Health Equality Council, 2010); the provision of quality, safe care as individual practitioners and in teams (National Health Reform Agreement, 2011); keeping older health professionals in the workforce longer (Fragar & Depczynski, 2011); increasing job satisfaction (Campbell et al., 2010); and addressing avoidable staff turnover in rural health services (Humphreys et al., 2007 & 2009). CME/CPD can range from training existing practitioners in broader areas such as epidemiology and public health training (Lopez & Caceres, 2008), to training them to deal with more specific individual needs, such as mental health emergencies (Ellis & Philip, 2010). Programs need to be designed to meet the needs of rural health workers and must be accessible from where they live and work, so as to support retention (WHO, 2010).

Research conducted in British island communities has shown that GPs are reluctant to move to these remote locations because of the perceived lack of professional development opportunities and the larger workloads inherent in a community with fewer medical
professionals (Gould & Moon 2000). Little attention has been paid to the issues relating to the education, training and support needs of ATDs and OTDs in rural practice. ATDs and OTDs largely agree on key education, training and professional support needs (Alexander & Fraser, 2007). In a cross-sectional survey of rural GPs working in rural north-west New South Wales, Australia, the results illustrated that being able to successfully meet the identified education, training and professional support needs contributed significantly to both ATDs and OTDs being retained in rural and remote practice (Alexander & Fraser, 2007).

Utility of new technologies, particularly online learning, is increasingly an option when geographical distance restricts training and education opportunities. Evidence also indicates that having training opportunities in rural and remote areas encourages students to remain and work as health professionals in their communities (Nartker et al., 2010). Tele-education may contribute to attracting and retaining health staff in the rural and remote sector, where turnover is a continual problem because of lack of education, training and supervision (Dillon & Loermans, 2003). The national e-health strategy (DoHA, 2008b) through the National Broadband Network (NBN-2011) is a step taken by the Australian government in view of the importance of CPD/CPE for the regional, rural and remote health workforce (Health Workforce Australia, 2011).

Furthermore, the Remote Vocational Training Scheme (RVTS), founded in 2000 provides distance GP training towards Fellowship for doctors already practicing in rural areas. As such, trainees may complete their training while working at remote sites through the Remote Vocational Training Scheme (RVTS, 2011). Recent research has found that this program is an effective model of general practice training and RVTS achieved its targets of increasing retention of the rural and remote workforce during and after training (Wearne et al., 2010).
Expansion of this model may be part of the solution by enabling additional training opportunities in rural and remote locations.

### 2.1.3 Regulatory strategies

Regulatory measures can be defined broadly to encompass any government control exercised through legislative, administrative, legal or policy tools. With regard to recruitment and retention in rural areas, the interventions that require regulatory measures are related to compulsory service requirements and subsidised education for return of service (ROS). The following section discusses the review of literature pertaining to these measures.

**Compulsory service**

Compulsory service (CS) is understood as the mandatory deployment of health workers in remote or rural areas for a certain period of time, with the aim to ensure availability of services in these areas. It can be either imposed by the government (for positions that are under government employment) or linked to various other policies. The WHO report (2010) observed that even if only for a limited period of time, health workers completing their compulsory service requirements can significantly increase the availability of health workers in underserved areas. Furthermore, compulsory service periods in remote and rural areas can increase health workers’ appreciation for rural health issues, prove a valuable learning experience and provide an opportunity to make a difference to the health of people living in underserved and disadvantaged communities. The advantage of compulsory programs is that health workers who have completed their period of compulsory service and leave can be replaced by a new batch of health workers. It may also have the benefits of a lower financial outlay, which is important for low and medium income countries. Compulsory rural services are not without their set of problems. The health workers obtained under this system are newly graduated and less experienced. Forcing young workers into rural work can (and
probably does) demoralise them. There is still controversy about whether mandatory service is ethically acceptable (Wiwanikit, 2011).

There is evidence of significant improvement in doctor access in rural and remote areas as a result of CS programs in countries such as Thailand, South Africa, Turkey, Puerto Rico and Mozambique (Parliamentary Inquiry into Overseas Trained Doctors report, 2011). In Thailand it helped to narrow the disparities in urban/rural health worker density (Wongwatcharapaiboon et al., 1999). In South Africa, better staffing levels in rural hospitals, shorter patient wait times and more frequent visits to outlying clinics by health workers were reported (Reid, 2004). Turkey’s program was effective at mitigating staffing discord (Erus & Bilir, 2007). In Puerto Rico, before compulsory service 16 of 78 municipalities had no physician; after implementation, all 78 had at least one doctor (Ramirez, 1981). Due to its national service program, Mozambique was able to declare that all 148 districts in the country had at least one physician (Ramirez, 1981).

Responding to an emerging shortage of physicians in rural areas, in 1968 the Thai government set high medical education fees for public medical schools and launched a program of mandatory rural service in which all newly graduated physicians worked for public medical facilities for three years in exchange for waiver of the fee (Rohde et al., 2008). Subsequently in 1974, the Thai Ministry of Public Health launched the Medical Education for Students in Rural Area (MESRAP) program in collaboration with medical schools in order to increase the number of physicians in specific rural areas (Tantraporn, 1992; Thoresen, 2010). Under the MESRAP procedure, students who enrol in the program are recruited from rural areas in accordance with their high-school grade and particularly their behavior. MESRAP students are officially assigned to the hospitals in their own towns after they have graduated. By this
promising intervention, MESRAP students have been trained to become doctors suitable for the district hospitals. The program has effectively increased the number of MESRAP physicians from approximately 500 in 1974 to approximately 1700 per year at present (2010) (Wibulpolprasert & Pengpaibon, 2003). Almost all graduated physicians from this MESRAP group went to rural locations after graduation (DocChula, 2010), with the retention rate after mandatory service reported to be two thirds (Wibulpolprasert & Pengpaibon, 2003).

Australia adopted a form of CS program in 1999 when it legislated to require OTDs to work in ‘districts of workforce shortage’ as a condition of access to Medicare (i.e. the 10-year moratorium). Compulsory rural service (CS) schemes such as the 10-year moratorium are a practical necessity in the absence of better alternatives. While retention outcomes are for the greater part unknown, evidence exists to show how compulsory service programs operate to increase access to medical services in underserved communities (RHWA, 2011).

However, many studies have concluded that compulsory service programs can only provide a temporary solution. Such programs may not provide a permanent workforce or a permanent solution for capacity development (Shankar, 2010). Various studies in Ecuador, South Africa and Thailand demonstrated that compulsory service in rural areas without preparation to provide health services in resource constrained settings (and without training in rural health) is not likely to be successful in terms of improving service quality and health worker motivation (WHO, 2011). The WHO report of 2010 alluded to 70 countries that have operated CS schemes to ensure that rural health services are available. But the number of health professionals who stayed in the rural areas after their compulsory service was over was not clear for most countries (Myanmar Ministry of Health Report, 2008; Capstick, Beresford & Gray, 2008; Yang, 2008; Ministry of Health Report, Vietnam, 2008). Frehywot et al. (2010)
observed that compulsory service may not be able to provide a permanent answer to capacity development, nor guarantee the development of a permanent workforce for underserved communities but, if well planned with incentives, can contribute to a nation’s plan for health workforce capacity.

**Subsidised education for return of service**

The provision of financial incentives in exchange for a rural or under serviced area return of service (ROS) commitment is another strategy to address shortages of family physicians in rural and remote areas (Sempowski, 2004). Financial incentives (scholarships, loans or direct financial incentives) for ROS are intended to alleviate health worker shortages. A future health worker enters into a contract to work for a number of years in an underserved area in exchange for a financial pay-off. A systematic review conducted by Barnighausen and Bloom in 2009 analysed the effectiveness of financial incentives given in return for medical service in rural areas. It included 43 studies, of which 34 evaluated programs were based in the USA, while the rest examined programs from Canada (two studies), Japan (five), New Zealand (one) and South Africa (one). In these programs, future health workers (i.e. students) or practicing health workers entered into a contract whereby they received some sort of financial incentive (either scholarships for their education, loans to pay back their education or direct financial incentives) and in exchange they committed to serve in a rural area for a certain period of time. These types of bonding schemes were linked to impressive retention rates in 18 studies: the proportion of participants who remained in the under-served area after completing their obligated period of service ranged from 12% to 90% (Barnighausen & Bloom, 2009).
Various studies provided evidence that scholarships or bursaries with rural ROS agreements successfully recruited and retained more rural doctors (Duttera et al., 2000; Mak et al., 2001; Rabinowitz et al., 2001; Stageman et al., 2003; Pathman, 2004; Ross, 2004; Rosenblatt, 2006; Thaker et al., 2008). A study in Canada observed that programs offering financial incentives in exchange for ROS commitments to rural or underserved areas achieved their primary goal of short-term recruitment. In the USA in the absence of a multi-dimensional approach, these programs have had less success with respect to long-term retention (Sempowski, 2004). Similarly, the long-term effect of Jichi Medical University (JMU) Japan’s home prefecture recruiting scheme demonstrated the success of these types of interventions. Students who attend JMU are fully funded by their prefecture government to study medicine and they sign a contract bonding them to working in their home prefecture medical institutions for nine years post-graduation. Five to six years of this obligation includes rural dispatch areas chosen by their home prefecture. About fifteen hundred graduates from JMU were reviewed and surveyed in 2000, 2004 and 2006. On average, 69.8% of JMU graduates remained in their home prefectures for at least six years after their obligatory service. The rates varied from 45.5% to 93.3% depending on prefecture. The cumulative rate of JMU graduates who completed the contract among all the graduates was over 95% (Matsumoto et al., 2008).

In Australia also, Bonded Medical Places (BMP) and Medical Rural Bonded Scholarship (MRBS) schemes are a step in that direction. The BMP scheme provides around 680 additional Commonwealth-supported medical places each year. Following medical qualification, applicants are required to work in a district of workforce shortage for a period of time equal to the duration of their medical degree, referred to as ROS. The MRBS provides 100 additional Commonwealth supported medical places each year. MRBS students in receipt of a tax-free scholarship agree to work in a rural or remote area for a period of six
continuous years. The impact of rural bonded schemes has led, over the eight years to 2008, to a substantial increase (38%) in foreign doctors living in rural and remote areas (Deloitte Access Economics report, 2011).

There has been some criticism of these interventions, as the concept of bonding as a means of retaining staff is considered to be an infringement on the rights of individuals by some and it tends to promote the desertion of staff without giving the contractual notice period (Chimbari et al., 2008). Moreover, previous reviews of retention strategies found that financial incentives can improve recruitment and retention in the short-term, but long-term impact on retention is less certain (Sempowski, 2004; Barnighausen & Bloom, 2009; Buykx et al., 2010; Ditlopo et al., 2011).

2.1.4 Financial and non-financial incentives
Direct financial incentives to practice in rural areas may encourage rural practice, in particular in developed countries, but reports from developing countries are not positive, with the exception perhaps of a few countries such as Mali, Zambia and South Africa (Reid, 2004; Koot, 2005; Perry, 2006; Coulibaly et al., 2008). Several studies point to salaries and allowances as two of the key factors that influence health workers’ decisions to stay in or leave a rural workplace (Mrayyan, 2005; Ipinge, 2006; Kotzee & Couper, 2006; Martineau et al, 2006; Mangham & Hanson, 2008). The WHO has recommended using a combination of fiscally sustainable financial incentives such as hardship allowances, grants for housing, free transportation and paid vacations, sufficient enough to outweigh the opportunity costs associated with working in rural areas as perceived by health workers, to improve rural retention (WHO report, 2010). Financial incentives for physicians have had a positive outcome on the distribution of health resources (Barnighausen & Bloom, 2009). Other studies have shown positive effects of financial incentives on increased attractiveness of rural areas.
A survey in South Africa found that 28% to 35% of rural health workers who received the 
rural allowance believed it affected their career plans for the next year (Reid, 2009).

However, researchers have noted a gap in the existing literature and pointed out that those 
health-worker retention initiatives were mostly concerned with financial incentives 
(Lehmann et al, 2005). Financial incentives can contribute to the retention of health workers, 
but studies have pointed out that financial incentives are successful only in the short term and 
for recruiting health personnel (Jackson et al., 2003; Pathman et al., 2003; Reid, 2004; 
Mantler et al., 2006; Sempowski, 2004; Barnighausen & Bloom, 2009). Further research has 
shown that financial incentives alone are not sufficient for retaining workers in the health 
sector and a lack of non-financial incentives contributes significantly to the intentions of 
health workers to leave their jobs (Stilwel et al., 2004; Vujicic et al., 2004; WHO, 2004). 
Therefore, other factors influencing retention need to be brought into play, such as job 
satisfaction, the employee’s attitude towards their institution, job discretion, welfare, support, 
working conditions, supervision and management, and education and training opportunities 
(Masango et al., 2008; Stilwell, 2001). To be sustainable, financial incentive schemes must be 
complemented by non-financial incentives (WHO, 2006).

The Australian government has used a number of techniques to encourage doctors to work in 
the country. For example, in the past it has used financial incentives to encourage health 
workers, especially GPs, to voluntarily move to rural and remote areas. It has also 
encouraged OTDs to work in country areas where there are shortages and to access the 
Medicare Benefits Schedule, and non-vocationally registered GPs to obtain the full Medicare 
Benefit rebates by practicing in areas where there are shortages (Willis et al., 2008). Financial 
incentives were set up for long-serving physicians in remote and rural areas and the amount
paid varied according to location and length of service. One of these incentive plans (Central Payments System - CPS) succeeded in achieving a 65% retention rate of physicians after five years (Gibbon & Hales, 2006). The Australian government’s Rural Health Workforce Strategy currently provides $134.4 million of additional financial support for rural doctors based on the Australian Standard Geographical Classification—Remoteness Area (ASGC-RA) classification, with workforce incentives supposedly scaled or geared “to provide greatest benefits to the most remote communities where there is the greatest need” (DoHA, 2011).

In 2009, the Australian Primary Health care Research Institute (APHCRI) commissioned a literature review of what, if any, evidence existed to show that retention strategies and incentives were effective in improving the length of stay of health workers in rural and remote areas (Buykx et al., 2010). Considerable evidence was found to indicate that non-financial incentives related to working and housing conditions had greater potential to influence decision-making relating to length of stay (Wilkinson et al., 2001; Wilks et al., 2008). The balance of evidence suggests that financial incentives might assist with recruitment and short-term retention. Given that existing evidence of the effectiveness of financial incentives is inconclusive, further research into this is required (Humphreys et al., 2010).

2.1.5 Professional and personal support
The need for professional and personal support is cited as the reason that matters the most when students, young graduates and health workers choose to work in rural and remote areas. Issues related to good infrastructure, opportunities for social interaction, schooling for children and employment for spouses all rank high in the preferences of health workers. On a professional level, opportunities to advance careers and to communicate and consult with
peers through networks, tele-health or other approaches are equally important (WHO report, 2010). The following section covers the research dealing with these issues along the lines of the WHO recommendations:

**Better living conditions**

Although living conditions are generally considered to have an impact on staff retention, little has so far been published on strategies to improve living conditions and their effects on retention (Lehmann et al., 2005; Dieleman & Hammeijer, 2006). Although numerous factors contribute to this, a significant issue is simply the differences in living conditions between rural, remote and urban communities and the influence this has on the personal decisions of health workers (Health Workforce Australia, 2011). Once in service, doctors not only faced adverse external circumstances but also struggle with magnifications of the generic problems of government health systems, including poor working and living arrangements, long estrangements from families and threats to personal security. These conditions evoke a mix of responses among doctors, some revelling in the experience and finding opportunities in the challenge of adversity, and others confronting an eroding knowledge base and decline in professional confidence and capabilities (Public Health Foundation of India report, 2010).

Findings from various studies have shown that attraction and retention motivators regarding living conditions for rural and remote work included the availability of equipment and supplies, effective and efficient support systems, career development opportunities, and better living and family support systems (Agyepong et al., 2004; Reid, 2004; Manongi et al., 2006; Sengooba et al., 2007; Willis-Shattuck et al., 2008; Manafa et al., 2009). A study of South African doctors listed better accommodation as one of the three most important factors that would influence them to remain in a rural area (Kotzee & Couper, 2006).
Recognition of the non-work-related needs of workers is crucial in formulating an effective retention strategy, because workers normally look for work circumstances that best match their personal and family conditions or motives (ibid). Interventions to improve productivity, responsiveness and competencies may also address the living conditions of health workers in rural areas or the needs of specific groups, such as female health workers or workers in specific age groups. Emerging evidence suggests that Global Health Initiatives (GHIs) have been increasingly recognizing the importance of focusing attention on (and funding for) training and improving the work and living conditions of health workers in rural areas as retention strategies. Recently, the President's Emergency Plan for AIDS Relief (PEPFAR) in the USA has supported a number of activities focused on the retention of health workers, providing physicians working in rural areas with better working and living conditions such as housing, transportation, hardship allowances and educational stipends for their children (Sepulveda et al., 2007)

**Safe and supportive working environment**

The working environment has a strong influence on job satisfaction. Decisions by doctors to migrate are often related to a poor working environment (Dieleman et al., 2003; WHO, 2004; Bolger et al., 2005). It is generally understood that health workers value working conditions that include appropriate infrastructure, water, sanitation, lighting, drugs, equipment, supplies, communications and transportation. This also includes the inputs available to them to do their jobs, how the health system is organised, how the workers are paid, supervised and managed, and factors such as their personal safety.

Supportive evidence from satisfaction surveys shows that health professionals are disinclined to apply for or accept assignments to practice in facilities that are in a state of disrepair and that do not have basic supplies, such as running water, gloves, elementary basic drugs and
rudimentary equipment, because this dysfunctional work environment severely limits their ability to practice what they have been trained to do (Kotzee & Couper, 2006; Henderson & Tulloch, 2008). Safe working and living conditions also contribute to worker satisfaction. Safety is an important factor in countries such as Papua New Guinea, where the risk of violence is high (Bolger et al., 2005). Violence against female health workers, including physical assaults and bullying, is a particular problem worldwide. In Tonga, security was an issue for nurses posted to remote locations (WHO, 2004). Some research findings suggest a direct link between aggression in the workplace and increased sick leave, burnout and staff turnover. In many countries, female health service providers are particularly scarce in rural areas, a situation that may arise in part because it is unsafe for female workers to live alone in some isolated areas (WHO, 2006).

No matter how motivated and skilled health workers are, they cannot do their jobs properly in facilities that lack clean water, adequate lighting, heating, vehicles, drugs, working equipment and other supplies (Stekelenburg, 2003; Hopkinson et al., 2004; Rese et al., 2005). Kotzee & Couper (2006) in their study in South Africa regarding influencing factors on the choice of health professionals for staying, observed that rurally practicing health professionals remained in rural areas because of the context and nature of their work and the environment in which they worked, supported by the role of family and friends, ongoing training and development and the style of health service management, was important for any retention strategies. A number of doctors stated that the working conditions were one of the most important factors contributing to good job satisfaction (Kotzee & Couper, 2006).

Supportive supervision is also a key element that contributes to improved job satisfaction, performance and subsequent retention and practice in rural areas (Couper et al., 2007,WHO
A study in South Africa ranked clearly defined responsibilities, a supportive attitude when mistakes are made, and rewarding ability and not length of service as reasons which boosted the employment choices in rural and remote areas and higher job satisfaction among health workers (Blaauw & Penn-Kekana, 2003). Functioning support systems such as store managers, accounts clerks, information officers, equipment technicians, hospital administrators and personnel and procurement managers are critical to scaling up service delivery in rural and remote areas (Denham & Shaddock, 2004). A conflict arising between any of these stakeholders can cause severe and long-lasting damage to the health workforce, resulting in management system collapse, deterioration of working environments and decline of professional values, which may result in health workers leaving health centres and hospitals from rural and remote areas (Robinson et al., 2004).

The WHO report (2010) recommended providing a good and safe working environment to rural and remote health workers, including appropriate equipment and supplies, supportive supervision and mentoring, in order to make rural and remote postings professionally attractive and thereby increase the recruitment and retention of health workers in remote and rural areas.

**Outreach services**

It is essential to build and strengthen health workers’ capacities in order for an effective health system to provide quality care. In underserved areas, it is often difficult for health workers to have access to continuing education: schools and training centres are mostly located in attractive areas, where the potential number of students is higher. By creating social and professional networks, outreach services allow the transfer and exchange of knowledge between rural and urban health workers. ‘Outreach services’ describe any type of health...
service that mobilises health workers to provide services to the population or to other health workers away from the location where they usually work and live. Outreach services can be organised on a permanent basis, with health workers hired to serve in rural and remote places according to a set schedule. Outreach services can result from a voluntary or a mandatory approach. When mandatory, the activities are part of the health worker’s job description and fully acknowledged in his/her activity report. Outreach services could also be included in the health system’s service delivery options and should therefore be fully supported to ensure success. Two main outreach strategies are presented: physical and virtual, both of which rely on the involvement of health workers from better served areas. For physical strategies, health workers have to go to the field to provide services. When outreach services rely on virtual strategies (e.g. telemedicine, tele-health) health workers can run the services without moving from their workplace. In both cases, health workers must dedicate a portion of their time to serve front line workers and underserved populations. Outreach activities can be considered as a modality of service delivery for any type of service to any type of population; the focus here is on rural and remote areas (de Roodenbeke et al., 2009).

Outreach services are one of the possibilities to enhance access to health workers and to improve overall retention at the country level. Better mobilisation of urban health workers to serve remote or underserved areas is a strategy to improve access to health to the population in remote and rural areas. There is no direct evidence that outreach support programs improve rural or remote retention. However, there is ample supportive evidence from observational studies that such programs improve competencies and job satisfaction of rural health workers, which may play a significant role in retention strategies (Watanabe et al., 1999; Gruen et al., 2003; Gagnon et al., 2006–07).
Over the last decade, new information and communication technologies (ICT) – such as tele-health – have entered the sphere of medical practice. Different studies suggest that tele-health could have a positive impact on medical practice (Watanbe, 1999; Gagnon et al., 2007). Outreach through tele-health could have a positive impact on professional factors influencing physician recruitment and retention by increasing QOL at work, supporting professional practice and giving access to high technology. A study in Spain to connect the doctors from a basic zone of health (BZH), located in the rural province of Burgos, Spain, found that providing computer resources and internet connection to a rural medical centre enabled rural doctors to join a ‘Virtual Community of Users’ (VCU) hosted by the ‘Internet-based thematic network’ (UniNet) for collaborative work with medical specialists and allowed for access to high-quality medical information. Through this network, rural doctors had an effective, useful, user-friendly and cheap source of medical information, which may be related to the improvements observed in the medical quality indices (Como del Corral et al., 2005). The WHO (2010) also recommended identifying and implementing appropriate outreach activities to facilitate cooperation between health workers from better served areas and those in underserved areas and, where feasible, use tele-health to provide additional support to health workers in remote and rural areas.

In Australia, the Department of Health and Ageing (DoHA) manages a number of programs supporting health outreach services, including the Medical Specialist Outreach Assistance program, the Royal Flying Doctor Service program, the Visiting Optometrists Scheme and the Rural Women’s GP Service. Appropriately directed specialist, GP, allied and primary care outreach services provide communities with access to a range of health professionals closer to home, minimising time-consuming and costly travel to larger centres (DoHA, 2010). The existence of clinical networks in various rural and remote locations in Australia enhances
regional specialist capacity. These clinical networks involve coordination of care for chronic-disease patient needs to be done locally, with the local GP being the centrepiece, working collaboratively with local or regionally based specialists. The existence of these clinical networks enhances the experience of rural and regional practitioners, leading to greater likelihood of workforce retention (DoHA, 2009).

**Career development programs**
The key to retaining workers in rural areas is ensuring career opportunities similar to those available to workers in more privileged settings. Clear career prospects are important factors in the choice of health workers to practise or not in a remote or rural area (Muula, 2005; Masango et al., 2006; Butterworth et al., 2008; De Villiers, 2009;). Career ‘death’ and prolonged rural appointments are a common fear. Doctors in remote postings are very conscious of their disadvantage when it comes to mentoring and moving up the career ladder, and this is a major source of frustration. In-depth discussions with doctors suggest that while salary is important, it is career development priorities that are keeping doctors in urban centres. Short-term service in rural areas would be more appealing if it were linked to special mentoring and/or training and led to career advancement (Snow et al., 2011).

Rural doctors often face difficulties in the promotion process and personnel departments are specifically identified as a problem area. Doctors often leave because of lack of or delays in rectifying problems with salaries, promotions and annual leave. Lack of the use of basic personnel management tools by hospital managers, such as exit interviews with doctors when they leave rural and remote hospitals, are missed opportunities to identify and correct problems (Kotzee & Couper, 2006).
The development of career pathways is important, even for small primary-healthcare services. This includes maintaining corporate memory in the form of long-serving staff that can utilise their experience in mentoring and also in service development in other regions (Humphreys et al., 2009). Difficulties with promotion were a commonly stated problem that led to doctors leaving for ‘greener pastures’. Interventions recommended included improving career options by creating more senior posts in rural hospitals. Providing access to further training programs such as postgraduate master’s in medicine degrees and diploma courses, as stated above, may also lead to more career development opportunities (Kotzee & Couper, 2006).

For instance, doctors in Thailand working in rural areas received management support in terms of improved personnel and logistic support, peer recognition and awards and opportunities for career progression, thus making their compulsory rural work more attractive. This intervention was based on the assumption that rural careers could be made attractive through public and peer recognition, as well as by career development paths that included rural practice (Wibulpolprasert & Pengpaibon, 2003). In Zambia, the introduction of refresher training for medical staff seems to have led to a higher retention rate. In Ethiopia, a mix of continued medical education, the provision of housing, the establishment of a clear career structure and a defined number of services in hospitals led to improved staff satisfaction and retention (Mathauer & Imhoff, 2006). Thus there is a need to create an attractive career structure, not only to draw medical practitioners to rural and remote areas, but also to keep them there (Jacques, 1994). A clear policy on the terms and conditions of service for healthcare professionals needs to be formulated, which should spell out clearly all the career paths and prospects for professional growth for the various healthcare professions (WHO report, 2010).
Professional networks

Support and networking are sometimes used to aid retention in health and other professions (Martin & Kennedy, 2010). Although working conditions may vary tremendously around the world, physicians share common features: they are generally highly educated professionals who desire continuous professional development throughout their working life. Providing the opportunities for this also in rural areas is crucial to retaining them (Straume et al., 2010). A 2006 report into the attraction and retention of planning professionals acknowledged that linkages with other professions ought to be considered (Report of Planning Professionals, NSW, 2006). Health workers’ need for continuous professional stimulation is all the more relevant in rural or remote areas, where professional isolation can negatively influence performance. Therefore, supporting professional networking and academic activities, including specialised journals with a focus on rural areas, can prove beneficial for rural health workers (Couper & Worley, 2006).

Some evidence shows that rural professional associations have increased the retention of health workers in rural areas. For example, in Mali, young doctors who were supported by the professional association ‘Association des Médecins de Campagne’ remained in rural areas for an average of four years; the retention rate was lower for those who did not have this support (Codjia et al., 2010). The ‘Rural Doctors Society and Foundation’ in Thailand has had several positive effects on the profile and impact of rural physicians (Wibulpolprasert & Pengpaibon, 2003). As discussed earlier, the Norway model of postgraduate training based on group tutorials for family physicians and public health/community medicine physicians in rural areas developed peer support and professional networks to alleviate professional isolation, which ultimately contributed to retaining 65–67% of the physicians (Straume et al., 2010).
In addition to professional associations, other types of support programs can be envisaged. For example, the Dr Doc program launched in South Australia in 2006 has set up various support mechanisms such as telephone consultations, crisis support, links to urban general practitioners (GPs) who provide healthcare for rural GPs and their families, as well as country practice retreats to allow rural GPs some rest and relaxation. This has reportedly reduced the number of rural physicians who want to leave their practice (Gardiner et al. 2006). There are certain initiatives on the part of the Australian government to deal with the retention problem of health workforce through this intervention.

The WHO (2010) has recommended the support and development of professional networks, rural health professional associations and rural health journals in order to improve the morale and status of rural providers and reduce feelings of professional isolation.

2.1.6 Community integration studies
Towards the end of the 1990s there was increasing recognition in the literature that retention might involve a different set of issues from recruitment (Cutchin, 1994; Forti et al., 1995). This was related to the fact that decisions to take up rural practice were made outside the contextual setting of rural practice, whereas decisions to remain occurred within that setting and were based on experience there (Cutchin, 1997a; Kamien 1998). The decision to remain in rural practice appeared to be a dynamic equilibrium of positive and negative factors, and issues such as overwork and poor adaptation to role changes were considered to easily upset the equilibrium (Hays et al., 1997). Therefore, the need was felt to understand better the issues that influence retention.
A study of long-standing rural physicians in eastern Kentucky, USA, demonstrated a relationship between integration and rural physician retention (Cutchin, 1997a). It was observed that integration into a community was a key element in retention. The process of integration was described as a type of progress that builds bonds with place that in turn encourage retention (Cutchin, 1997b). Cutchin observed that integration and retention of physicians in rural in remote settings could be challenged by various contingencies of life that more or less required change of locations. Based on these observations, Cutchin propagated a model of integration based on three ‘principles’ – security, freedom and identity – *Experiential Place Integration Model* – which together form the basis of practitioner retention in rural and remote areas.

Broadly speaking, in the case of the health workforce it is useful to distinguish two types of community integration issues regarding their migration status: migration between countries in the case of the overseas trained health workforce; and migration within countries relating to the nationally trained health workforce from urban areas. The experiences of these both types of migrants in rural areas tend to differ from their fellows in urban areas because they live in small numbers dispersed in the countryside, which makes them highly visible and generates feelings of vulnerability. They often lack contact with others from the same background (Henderson & Kaur, 1999; De Lima, 2001). Migration within countries, first took the form of migration from rural to urban areas in search of work in the emerging industries (Jedrej & Nuttall, 1996). The continuing rural-to-urban migration flow in search of employment and education, especially of young people, is a phenomenon widely commented on (Jamieson, 2000; Stockdale, 2002; Wiborg, 2003; Jentsch, 2007). As discussed in Chapter 1 (p-12) Vergunst (2009) argued that immigrants and in-migrants face similar issues in their contact with people belonging to the communities-of-place of the localities to which they have
Integration is strongly affected by variables that are also important determinants for the economic success of migrant workers, such as education, years of residence, and language proficiency. The processes of economic and social assimilation are accordingly closely related to each other in the way that they are dependent on similar determinants. While in the case of economic assimilation these variables reflect improvements in productivity, their positive effect on social assimilation comes about by favouring exposure and habituation. Social and economic assimilation, however, are not interdependent, but seem to be parallel processes (Dustmann, 1996). Thus both types of health workforces’ social and economic assimilation have to be gauged to reach the deep root level of the retention problem.

A common theme running through all of the studies pertaining to community integration is that the health workforce (whether local or overseas-trained) both interacts with, and is affected by, dimensions of rural place. Notions of place in the retention debate are often reduced to issues of distance, location and accessibility. “Place involves a recursive relationship between literal location and a more metaphorical ‘place-in-the-world’, a notion that involves dimensions of status and identity” (Eyles, 1985; Kearns, 1993). Thus, living in a rural community means that one’s place is potentially shaped by both physical isolation (invoking ideas of distance and inaccessibility) and social reliance on a limited number of others (invoking notions of place-in-the-world). As a central human reality, place is intimately connected with both health experience and healthcare activities (Gesler & Kearns 2002). Indeed, Cutchin (1997b) suggested that we are caught up in places through the actions and events of everyday life. He used the term “experiential place integration” with respect to rural
Pathman et al. (1996) identified three key areas that are associated with the satisfaction of physicians practicing in rural areas: satisfaction with the community; professional goal attainment; and earnings. However, they argued that in order to improve physician experiences in rural or remote healthcare delivery areas, rural communities and health administrators “should focus on those areas that predict longer retention and other important outcomes” (p.366–77). Pagliccia (1995) & Kajanjian (1996) found that spousal influence was one of the strongest influences on practice location. This is supported by an array of literature on retention, which emphasises the importance of supporting physicians’ families as opposed to focusing solely on individual physician satisfaction (Conte et al., 1992; Pagliccia et al., 1995; Pathman et al., 1996; Lee et al., 2009).

Another study completed by Cutchin (1997b) indicated that physician retention is the result of the integration process into a community. Cutchin posits a theoretical perspective that defines retention as “the ongoing manifestation of an underlying process of place integration” or the “activity of becoming a part of place” (p. 25). In his study, integration involved three domains: physician’s self; the medical community; and the community-at-large. Retention results when these three domains foster physician integration through the development and enhancement of security, freedom and identity in place. Cutchin called this perspective of retention experiential place integration, which “creates focus on the connection and interaction between physicians and their local settings” (p. 27). Through ongoing interaction with place and their status and role in the rural community (Farmer et al., 2003), “physicians become woven into the fabric of place” (Cutchin, 1997b, p. 28). The quality of the interaction

Chapter 2: Review of related literature 60
and experience in place influences a physician to stay or to leave. Integration is also affected by the culture of the community, its history, economy, and demographics.

**Physician self** - As mentioned, integration involves the three domains of the physician self, the medical community and the community-at-large. Cutchin (1997a) defined self as being creative and independent, continuously being shaped by values, social groups, community and rules. Physician’s self is characterised by historic, social, and emergent dimensions. The historic self consists of a physician’s background, previous rural experience, mentors, education and cultural matrix or beliefs, attitudes, language “and other symbolic significances ingrained over time” (Cutchin, 1997a, p. 1665). The social self consists of group affiliations, roles, family, institutional membership and present cultural matrix of the physician as this matrix changes with time and socialisation. The emergent self consists of values, aspirations, strength of identity and creativity. The dimensions that define physicians ultimately influence their retention in rural practice. For example, if a physician grew up in poverty in a rural area, a draw to serve in a similar area may be present, or if a physician had a role model or a mentor, the relationship may have influenced the physician as a child to do well in school, which ultimately led to a medical degree.

**Medical community** - The medical community includes institutions and physicians. The institution dimension is defined by whether or not a community has a hospital, local practice structures, the size and power of institutions, the role of other extra-local institutions or institutions that have affiliations or are controlled from outside of the community, and the historical development of the medical community. The physician dimension is defined by demographics; medical ideologies; levels of cooperation, communication and interaction; number of physicians; and types of innovations. The medical community’s role and
relationship with the physician and community-at-large play an important role in a physician’s retention. For example, retention will be compromised if a medical community is fractured by differing physician demographics, which results in opposing ideologies and competition as opposed to a collaborative culture.

**Community-at-large** - Community provides a framework of shared interests and commitments accomplished through social interaction. The community-at-large is defined by its social, economic and political capital in addition to its historical development and geographic coherence. The social capital may include extra-local ties in addition to the socio-cultural milieu (community activities, religious support), social networks and class divisions. Better health translates to higher levels of social capital (Flora et al., 2004). Farmer et al. (2003) propose that the social capital, as influenced by physicians, may contribute to benefits to the community beyond health outcomes, such as enhancing community vitality and indirectly contributing to community reassurance and security. Physicians have the potential for high levels of interaction within and outside the local community that contribute to building social capital. Social capital can strongly contribute to community viability and the strong social infrastructure that leads to community wellbeing. The existence of dense social networks is also said to build social capital, a concept currently popular among policymakers and social scientists in helping to explain communities’ ability to adapt to change. Shared knowledge, history and vision for the future enhance social relationships. Physicians “working and residing locally, make a valuable contribution to the social structure of remote communities, in addition to health care, social care, and economic contributions” (Farmer et al., 2003, p. 683). The economics of a community-at-large are determined by the development of available resources. Rural communities and their viability are affected by the
economic development in the area (Glasgow et al., 2004). Communities must promote economic development by attracting quality jobs, which will in turn attract quality healthcare.

**Experiential place integration**- The place integration process described above is characterised by three primary integrative principles: security, freedom and identity, and their 27 component dimensions (Cutchin, 1997b) that form the basis of physician retention (See Table 2.1, p.64). These principles look at problems that may influence physicians to leave rural areas, but also at solutions physicians realise through action and integration into a community. The principles describe what physicians face, but physician experiences vary based on the place-physician context. Ensuring that a physician has satisfaction in these three principle areas will increase the physician’s integration into their rural community and ultimately influence retention.

Cutchin (1997b) defined security as “the level of safety, stability, and confidence achievable in a situation” (p. 34). Freedom is defined as “the degree to which we can act upon desire, deliberation, and choice to refine and expand present activity toward an end-in-view” (Cutchin, 1997b, p. 35). Identity is defined as “the coherence of a self in its relation to another person, social group, community or environment. Strength of identity requires a certain level of security and freedom in place” (Cutchin, 1997b, p. 37). These three principles and the configuration of dimensions are individual for each physician. The meaning of experience and action in place that influence retention are dependent on a physician’s satisfaction as it relates to each dimension. Therefore, each physician’s integration path differs.
### Table 2.1  
**EXPERIENTIAL PLACE INTEGRATION**  
(Dimensions of security, freedom and identity)

<table>
<thead>
<tr>
<th>Security</th>
<th>Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Confidence in medical abilities</td>
<td>1. Challenges and diversity in medical work</td>
</tr>
<tr>
<td>2. Commitment to aspiration and goals</td>
<td>2. Ability to consult with more patients</td>
</tr>
<tr>
<td>3. Ability to meet family needs</td>
<td>3. Cooperation with in the medical community and community-at-large</td>
</tr>
<tr>
<td>4. Comfort with medical community and institutions</td>
<td>4. Respect of medical and community-at-large</td>
</tr>
<tr>
<td>5. Degree of on-call average</td>
<td>5. Power in medical relations</td>
</tr>
<tr>
<td>6. Practice group environment and the anchorperson</td>
<td>6. Ability to develop healthcare resources</td>
</tr>
<tr>
<td>7. Community and medical institution development</td>
<td>7. Diversity in social interaction possibilities</td>
</tr>
<tr>
<td>8. Social and cultural networks available</td>
<td>8. Involvement in community affairs</td>
</tr>
<tr>
<td>9. Respect of medical and at-large community</td>
<td>9. Personal and family activities</td>
</tr>
<tr>
<td></td>
<td>10. Developed perspective on self and place</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Loss of anonymity</td>
</tr>
<tr>
<td>2. The “like minded” practice group</td>
</tr>
<tr>
<td>3. Roles played and responsibilities taken</td>
</tr>
<tr>
<td>4. Respect of medical and community-at-large</td>
</tr>
<tr>
<td>5. Fulfilling aspirations in place</td>
</tr>
<tr>
<td>6. Seeing the self belonging to the community</td>
</tr>
<tr>
<td>7. Awareness of self in time and place</td>
</tr>
<tr>
<td>8. Creation of future goals in place</td>
</tr>
</tbody>
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The primary outcome of the study indicated that retention must be studied as a social process that leads to place integration. Transactions, interactions and self-actions need to be addressed when looking at issues of retention, which historically has not been done. Implications for future research must also address other place components such as cultural, political, economic, ethnic, class and gender components. Cutchin concluded that integration is the connection between recruitment and retention and that integration necessitates adjustment and change as problems arise in the transactions of place (1997b).
Considering the relevance of Cutchin’s US-based model in Australian rural settings, Veitch and Crossland decided to review transcribed in-depth interviews with former rural practitioners in Queensland, Australia, as a first step in developing a prospective longitudinal study of newly recruited rural practitioners (Veitch & Crossland, 2002). In their paper, they used Cutchin’s model of integration to analyse the interview transcripts in an effort to identify consistent patterns of presence or absence of Cutchin’s three experiential place integration dimensions. The results suggested that a dedicated prospective study focusing on the three principles and their associated dimensions propagated by Cutchin was warranted in the Australian context.

Another study by Hays et al. (2003) investigated the factors involved for GPs in staying and leaving rural general practice. In the longitudinal interview-based study, 18 GPs were re-interviewed 10 years after their first interview. Attachment to community was reported to be a strong factor in maintaining them in rural and remote practice. In a study conducted in 2004, Veitch and Grant reflected on the experiences of GPs gained through working with rural and remote communities in Queensland, Australia, with the key purpose of facilitating active community involvement in the retention of GPs. This article raised and discussed a number of issues arising from GPs’ experiences, with particular focus on barriers and opportunities to community involvement.

Another qualitative study (Humphreys & Han, 2005), using the life-history perspective in rural communities throughout Victoria, examined the factors that influenced foreign doctors’ community integration and how these affected their intention to stay in the rural community. The results indicated that the importance of a supportive environment within the clinic
and community awareness of the OTDs’ needs should not be underestimated as influences on an OTD’s retention in a rural community.

2.1.7 Quality of life (QOL) studies
The other factor which has become more important recently for retention is the extent to which the rural and remote health workforce can experience a work and family/home life balance, based on a demanding job in areas where there are fewer social and community resources. “Quality of life is an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns” (WHOQOL Group, 1995). In sociological studies of work the issue of work/family and life balance has emerged as important in contemporary society as the nature of work, changes and female labour force participation increases (Hill et al., 2001; Tausig & Fenwick, 2001). Keeping this in perspective, it is apt to consider the impact of QOL on retention of GPs in rural and remote communities.

Quality of life measures the difference, or the gap, at a particular period of time, between the hopes and expectations of the individual and that individual’s experiences (Calman, 1984). In simple words, QOL is the gap between what a person is capable of doing and being, and what they would like to do and be; in essence, it is the gap between capability, reality and expectations. Although definitions of QOL vary, there is general agreement that individuals’ statements of satisfaction with major aspects of daily functioning are the crucial indicators of subjective QOL (Priebe et al., 2000). QOL through job satisfaction is considered to improve retention and can be achieved by improved working conditions, participation in decision-making, responsibility for work, supportive leadership and management, and professional development (Dieleman & Hammeijer, WHO, 2006).
The most commonly implemented retention strategies comprise financial incentives. This is despite data showing that financial considerations might not be the only or most important factor in the decision of a health worker to stay or leave an organisation (Buykx & Humphreys, 2010). The existing research on health workers points out that health workers leave for many reasons and that financial reasons are often neither the only nor the main reasons. The QOL and aforementioned factors (WHO, 2006) are also likely to be related. For instance, poor and remote areas often lack infrastructure such as roads, schools and electricity, which has an impact on personal decisions to leave such locations, whereas healthcare facilities in these areas are often poorly managed and lack equipment and supplies, which then has an impact on work-related factors for departure (Lehmann et al., 2005; Dussault & Franceschini, 2006).

Few studies have explored the QOL and social needs of GPs and their family’s impact on rural acculturation and settlement success. Previous research has focused primarily on employment integration, satisfaction and practice support. A gap exists where the QOL and social needs of GPs and their families have been overlooked (Alexander, 1998; Stanley & Bennett, 2005; Colic-Peisker, 2009). These are crucial factors impacting rural acculturation, retention and GPs’ health and wellbeing (Terry et al., 2011).

In terms of overall QOL and overall job satisfaction, the literature reveals no obvious differences between rural and urban physicians. Earlier research (Thommasen et al., 2002) established that there are certain aspects of work (e.g. on-call responsibilities, daily workload issues, on-call remuneration) and their profession (e.g. lack of time for CME-Continued Medical Education) where rural physicians are clearly more dissatisfied than urban physicians. Professional and work-related dissatisfaction is associated with intention to
relocate. The literature suggests GPs’ community retention is also related to non-work factors including personal/family (e.g. educational opportunities for children), community (e.g. cultural and recreational opportunities) and environmental factors (e.g. climate) (Linn et al. 1985; Pastor & Huset, 1989; Mainous & Ramsbottom, 1994; Van der Weyde, 1997; Martin, 1999).

The role of the spouse and of family-friendly factors in the rural and remote community has an important impact on QOL of GPs and these issues make a major contribution to retention in rural and remote practice (Veitch & Crossland, 2005). Cheney’s (2003) study indicated that several GPs were stressed because of QOL in rural and remote communities and were thinking of leaving. Stressors consisted of factors such as overwork and their children’s education. Other studies have also supported the finding on the importance of QOL for retention. Tolhurst et al. (2000) and Boles and Yuterzenka (2000), for example, reported on a qualitative study of work, family and lifestyle issues. Moreover, an increased balance between work and home (including community-based activities and recreation) was a need reported by Willis and Peterson (2008) in their study of recruitment and retention of GPs in rural and remote Australia.

Kimball and Crouse (2007) conducted a study using unstructured interviews of ten female physicians practising in rural Wisconsin to understand their perspectives. Interviews were conducted for between 30-60 minutes and a thematic analysis was carried out. They found that most of the women had rural backgrounds, which influenced their choice of rural practise. Other important factors keeping them in rural areas were: having a good environment to raise a family; professional satisfaction; to engage with the community; and to
serve it. However, they found there were also drawbacks, including being too much on-call, insufficient providers and a lack of family and professional life balance.

The study of Gardiner, Sexton and Marshall (2006) (also discussed under professional networks interventions, WHO) aimed to evaluate the impact of the ‘Dr Doc program’, a rural doctor workforce support program which consists of social and psychological support and practical interventions, on the wellbeing and retention of rural GPs in South Australia. The initial study suggested that improving psychological wellbeing might influence rural GPs’ intentions to leave rural practice, the study demonstrating that programs targeted at psychological and physical wellbeing do indeed impact on rural GPs’ intentions to leave. The results of this study highlight the role of psychological wellbeing in retaining rural GPs and emphasise the value of developing psychologically based programs to boost the physical and mental health of GPs.

2.2 SUMMARY OF RESEARCH

Many qualitative and survey-based studies have identified major barriers to rural practice retention (Wise et al., 1992, 1994, 1996; Alexander, 1997; 1998; Hays et al., 1997; Kamien, 1987, 1998; MacIsaac et al., 2000; Strasser, 1992; Strasser et al., 1997, 2000; RWAV, 1999, 2000). However, few have attempted to measure scientifically sound predictors of retention. Predicting retention appears to be a more difficult task for researchers than predicting entry into rural practice. Entering rural practice is invariably easier to measure than retention, as the former has a clear definition. Despite this, a number of studies have attempted to predict retention, with mixed results (Pathman et al., 1992; Adikhari et al., 1993; Horner et al., 1993; Pathman et al., 1994; 1999; Forti et al., 1995; Rabinowitz et al., 1999; Rabinowitz et al., 2001).
Policy responses have been largely doctor-centric (Humphreys et al., 2001; Hays et al., 2003; Wilkinson et al., 2003; Jones et al., 2004a; Chan et al., 2005; Han & Humphreys, 2006; Veitch et al., 2006). Rural doctors consistently ranked on-call arrangements, professional support and variety of rural practice as the top three issues, followed by local availability of services and geographical attractiveness (Humphreys et al., 2002). Lack of flexibility over job content and working hours adversely affected employee retention (Secombe & Smith, 1997; Graham et al., 1998; Arnold, 2005). In a study measuring the relative strength, significance and contribution of factors associated with rural and remote medical workforce retention, the most important factors were found to be primary income source, registrar status, hospital work and restrictions on practice location (which are linked to geographic location). Less important factors included geographic location; procedural skills, annual leave, workload and practice size (Russell et al., 2011).

In Australia, the focus has been much more on identifying the barriers to retention than factors that may predict longer tenure of GPs in rural and remote areas. Only one Australian study has attempted to measure predictors of retention in rural practice (Adikhari et al., 1993), although many have examined influences on the retention process (Strasser, 1992; Wise et al., 1992; Alexander, 1997; 1998; Hays et al., 1997; Strasser et al., 1997/2000; Kamien, 1998; RWAV, 1999; 2000; MacIsaac et al., 2000). One such study found that rural GP spouses who grew up in a rural area were significantly happier to stay than those who did not (South Australian Health Commission Report, 1992). Kamien and Buttfield (1990) described a loss of social anonymity in rural communities, for health professionals and their families. In small rural communities health professionals are more likely to come into contact with colleagues and clients during non-work hours, thus there is less distinction between professional and personal life (Wills & Case-Smith, 1996). For some this is welcomed as valuable community
involvement (Elliot-Schmidt & Strong, 1995) while for others it may represent an unwanted intrusion into personal life (Hays et al., 1997).

Mills and Millsteed (2002) in a study relating to the retention of occupational therapists in Western Australia observed that six themes emerged from the participants’ experiences, from when they first considered rural practice to reflections following their departure from it. These themes were initial appeal, facing the challenge, rural practice issues, the social sphere, reasons for leaving and the value of rural experience. A broad, integrated rural retention strategy is required to address on call arrangements, provide professional support and ensure adequate time off for continuing medical education and recreation.

Active engagement in activities and community integration, the latter of which has been defined in terms of successful engagement in occupational, social and community activities (e.g. Dijkers, 1999; Felce & Emerson, 2001), have been identified as important factors predicting QOL (e.g. Huebner et al., 2003; Schonherr et al., 2005). In addition to the relationships between engagement in leisure activity and QOL, previous literature has demonstrated that community integration is an important factor for the experience of life satisfaction and high QOL. Some researchers reported a statistically significant relationship between community integration and life satisfaction (e.g. Dijkers, 1999; Stancliffe et al., 2001; Bramstonet al., 2002; Reistetter et al., 2005; Stalnacke, 2007). Keeping all these studies in view, this research investigates the relationship between the domains of community integration of GPs in rural and remote areas and the specific resultant QOL of GPs, to build a new interactive model.
2.3 CONCLUSION

This literature review has broadly looked at what is known about various significant factors impacting the shortage of general practitioners in rural and remote Australia. This review found limited research and literature regarding the interlinking relationship among the three variables used in the study; namely, community integration, QOL and retention.

Based on this review, the overall implications for this study are twofold. First, the study will add to the existing body of knowledge of basic retention issues faced by GPs in rural and remote Australia; secondly, by propagating a new model linking community integration with quality of life, it will seek to provide solutions to policymakers for addressing shortage problems of GPs in rural and remote Australia. Various interventions and strategies based on community integration and better QOL in rural and remote areas can lead to partial solutions to this overwhelming and complex problem. Armed with this knowledge, the remaining chapters of the study converge on the research questions and research methodology to understand the shortage of GPs in the Australian context.
CHAPTER 3
RESEARCH DESIGN
3.0 INTRODUCTION

This chapter explains the rationale for the methodology employed to establish the relationship between community integration and the retention of GPs in rural and remote Australia with QOL of GPs as the intervening variable. The chapter includes a discussion of the research questions, research design, population and sampling plan, questionnaire design, data collection procedure, data analysis methodology and ethical aspects of this research.

As discussed in the literature review, scholarly research in the field of doctor shortages in underserved areas and lack of retention of GPs identifies a need for further locally contextualised research in the rural and remote regions of Australia. Extending the notion of experiential place integration (Cutchin, 1997b), this study acknowledges the overarching influence of this notion on QOL and its impact on retention. Retention of GPs is viewed in the context of this study as heavily influenced by community integration and resultant QOL.

The study examined the experiences of two groups of GPs not explicitly represented in rural and remote research; namely immigrant GPs who are not Australian medical graduates, Overseas Trained Doctors (OTDs), and their counterparts, Australian Trained Doctors (ATDs). A model of research was developed linking QOL as the intervening variable between community integration (the independent variable) and retention (the dependent variable) of both types of GPs in rural and remote Australia (as shown in Figure 1.8, p: 14).

3.1 RESEARCH QUESTIONS

The research questions focused on the living experience of GPs (both OTDs and ATDs) in rural and remote Australia, so as to determine the factors influencing their community integration and QOL in these areas. Once these factors were identified, further analysis was
undertaken to assess the impact of community integration on QOL of GPs (OTDs and ATDs) and the resultant effect on their retention in rural and remote areas.

The research questions that were pursued in this study are:

1. What are the factors that influence GPs’ (ATDs and OTDs) community integration in rural and remote Australia?
2. What are the factors that impact the QOL of GPs (ATDs and OTDs) in rural and remote Australia?
3. How does the community integration of GPs (ATDs and OTDs) in rural and remote areas affect on their QOL?
4. How does the resultant QOL affect the potential retention of GPs (ATDs and OTDs) in rural and remote Australia?

Research question #1: What are the factors that influence GPs’ (ATDs and OTDs) community integration in rural and remote Australia?

This question addressed the various factors that influence the broader experience of community integration of GPs in rural and remote Australia. Community integration will be measured using the ‘Experiential Place Integration’ framework designed by Cutchin (1997b). The framework represents integration as an active developmental process based on the enhancement of security, freedom, identity and meaning in place. The 27 dimensions representing security, freedom and identity used by Cutchin in his research were used as the basis for the questionnaire, to explore the factors influencing GPs’ community integration in rural and remote Australia. This is the first study, which has used the concept of ‘Experiential
Research question #2: What are the factors that impact the QOL of GPs (ATDs and OTDs) in rural and remote Australia?

This research question was framed to understand the factors that impact the QOL of GPs in rural and remote Australia. For QOL the Comprehensive Quality of Life scale (ComQol A-5) developed by Cummins (1997), a valid and reliable measure for measuring QOL of adults, was adapted and modified to be applicable to the GPs in rural and remote settings. The modifications aimed to improve its clarity and appropriateness for the target group.

The QOL construct has a complex composition; there is neither an agreed definition nor a standard form of measurement (Cummins et al., 1997). It has been demonstrated that the ComQol A-5 (Cummins 1997), which is a quick and simple scale to administer, yields a great deal of information reflecting the complexity of the QOL construct (Cummins et al., 1994). A paramount consideration for choosing ComQol A-5 as the basis for this study was that the ComQol A-5 scale comprised both objective and subjective variables. Moreover the patterns of data are consistent with the QOL literature, thus supporting the validity of the scale. The questionnaire was modified mainly to address a broader spectrum for analysing experiences of GP respondents in rural and remote settings. The detailed ‘Quality of Life’ construct is discussed further in Section 3.4.3.
Research question #3: How does the community integration of GPs (ATDs and OTDs) in rural and remote areas affect on their QOL?

This question extends the previous two research questions by establishing a potential link between community integration and QOL through statistical analysis. Statistical inference were drawn to establish a link between the community integration and QOL of GPs (OTDs and ATDs) working in rural and remote Australia. The hypothesis that the level of community integration of GPs (OTDs and ATDs) in rural and remote areas impacts their QOL was tested, which further extended the research analysis towards ascertaining a link between resultant QOL and likely retention.

Research question #4: How does the resultant QOL affect the potential retention of GPs (ATDs and OTDs) in rural and remote Australia?

Based on the inferences drawn from previous research questions, the resultant retention impact was explored and statistically verified. This research question focused on addressing the retention probabilities of both kinds of GPs (OTDs and ATDs), by working on the inferences drawn from establishing a link between community integration and QOL, thus encapsulating the main objective of research.

3.2 RESEARCH HYPOTHESIS

The objective of this section is to explain the hypotheses regarding the sample to determine the link between the two key variables, QOL and community integration of GPs (ATDs and OTDs), and their resultant impact on retention in rural and remote Australia. These two key
variables were used as the basis for testing the hypothesis. This procedure helped in getting more concrete and crisper results.

In hypothesis testing, two hypothesis were stated, that is, a null hypothesis – HO (the sample results are due to chance alone) and an alternative hypothesis–H1 (the sample results reflect what is happening in the population). Based on the sample results, test statistic was calculated enabling us to either accept the null hypothesis (that means the results can be attributed to chance) or reject the null hypothesis (this reflected what was happening in the chosen population). Along with the test statistic, a probability known as exceedance probability or p-value was calculated. The p-value is the probability that a result was due to chance alone. If the p-value is small (less than 0.05) it implies that it is highly unlikely that the result is due to a chance alone, that is, we can reject the null hypothesis. If the p-value is large (larger than 0.05) we have to accept the null hypothesis.

Keeping in view the research questions, following seven hypotheses were set:

**Hypothesis I**

H₁–The level of community integration of GPs (OTDs and ATDs) in rural and remote areas impacts their QOL.

H₀–The level of community integration of GPs (OTDs and ATDs) in rural and remote areas does not affect their QOL.

**Hypothesis II**

H₁–OTDs (Overseas Trained Doctors) and ATDs (Australian Trained Doctors) face different types of community integration issues.

H₀–Both OTDs and ATDs face the same types of community integration issues.

**Hypothesis III**
H$_1$–There is a difference between the level of community integration of OTDs and ATDs.

H$_0$–There is no difference between the level of community integration of OTDs and ATDs.

**Hypothesis IV**

H$_1$–Resultant QOL affects potential retention of GPs in rural and remote areas.

H$_0$–Potential retention of GPs is not affected by QOL in rural and remote areas.

**Hypothesis V**

H$_1$–There is difference between the mean score of satisfaction with QOL of GP respondents (ATDs and OTDs)

H$_0$–There is no difference between the mean score of satisfaction with QOL of GP respondents (ATDs and OTDs)

**Hypothesis VI**

H$_1$–QOL varies according to gender.

H$_0$–There is no difference of QOL according to gender.

**Hypothesis VII**

H$_1$–Community integration varies according to gender.

H$_0$–There is no difference of community integration according to gender.

### 3.3 RESEARCH FRAMEWORK

The nature of the study's major variables lends itself to the use of quantitative methods (i.e. community integration, QOL and retention), leading to a non-experimental quantitative research design. Research is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions or problems. The plan is the complete scheme or program of the research. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data (Kerlinger, 1986:279).
A traditional research design is a blueprint or a detailed plan for how a research study is to be completed – operationalising variables so they can be measured, selecting sample of interest to the study, collecting data to be used as a basis for testing hypotheses, and analysing the results (Thyer, 1993:943)

**Quantitative research**

“Quantitative research is a formal, objective, systematic process in which numerical data are used to obtain information about the world” (Burns & Grove 2005:23).

The quantitative research method is used:

- to describe variables
- to examine relationships among variables
- to determine cause-and-effect interactions between variables.

Quantitative research is empirical, using numeric and quantifiable data. Conclusions are based on experimentation and on objective and systematic observations. Quantitative research may be divided into two general categories: experimental and non-experimental. A primary goal for experimental research is to provide strong evidence for cause-and-effect relationships. This is done by demonstrating that manipulations of at least one variable called the treatment or independent variable (IV), produce different outcomes in another variable, called the dependent variable (DV). An experimental study involves at least one IV that is manipulated or controlled by the researcher, random assignment to different treatment conditions and the measurement of some DV after treatments are applied. Any resulting differences in the DV across the treatment groups can then be attributed to the differences in the treatment conditions that were applied (Belli, 2008).
On the other hand, non-experimental research involves variables that are not manipulated by the researcher and instead are studied, as they exist. One reason for using non-experimental research is that many variables of interest in social science cannot be manipulated because they are attribute variables, such as gender, socioeconomic status, learning style or any other personal characteristic or trait (Belli, 2008).

Classifying non-experimental research

Non-experimental research can be categorised into two basic dimensions, each with three categories. The first dimension represents a characterisation of the basic goal or main purpose for conducting the non-experimental quantitative study. The second dimension allows the research to be classified according to the timeframe in which data were collected (Johnson, 2001).

Classification based on purpose (dimension 1)

The categories of the first dimension for classifying non-experimental studies, which are based on the main purpose of the study, are:

1. Descriptive non-experimental research, in which the primary focus for the research is to describe some phenomenon or to document its characteristics. Such studies are needed in order to document the status quo or do a need assessment in a given area of interest.

2. Predictive non-experimental research, in which the primary focus for the research is to predict some variable of interest (typically called the criterion) using information from other variables (called predictors). The development of the proper set of predictors for a given variable is often the focus of such studies.
3. **Explanatory non-experimental research**, in which the primary focus for the research is to explain how some phenomenon works or why it operates. The objective is often to test a theory about the phenomenon. Hypotheses derived from a given theoretical orientation are tested in attempts to validate the theory.

*Classification based on time (dimension 2)*

The categories of the second dimension for classifying non-experimental research, which refer to time, are:

1. **Cross-sectional research**, in which data are collected at one point in time, often in order to make comparisons across different types of respondents or participants.

2. **Prospective or longitudinal research**, in which data are collected on multiple occasions starting with the present and going into the future for comparisons across time. Data are sometimes collected on different groups over time in order to determine subsequent differences on some other variable.

3. **Retrospective research**, in which the researcher looks back in time using existing or available data to explain or explore an existing occurrence. This backwards examination may be an attempt to find potential explanations for current group differences.

In this study, the descriptive research method was employed so as to measure the community integration, QOL and retention issues of GPs in rural and remote Australia. The time horizon of the research was cross-sectional. The responses and observations of GPs were observed at a particular point of time.
3.4 RESEARCH INSTRUMENTATION

The purpose of this section is to discuss the selection, adaptation and initial refinement of the scales used in the operationalisation of community integration, QOL and retention issues of GPs in rural and remote areas in Australia. A survey questionnaire was used as the main data-gathering instrument for this study (See Appendix 1). Questionnaires are the most frequently used data collection method in educational and evaluation research. Questionnaires help gather information on knowledge, attitudes, opinions, behaviours, facts, and other information (Radhakrishna, Leite & Baggett, 2003). Development of a valid and reliable questionnaire is essential to reduce measurement error which Groves (1987) defined as the "discrepancy between respondents' attributes and their survey responses" (p. 162). Systematic development of the questionnaire for data collection is important to reduce measurement errors--questionnaire content, questionnaire design and format, and respondents. Not following appropriate and systematic procedures in questionnaire development, testing, and evaluation may undermine the quality and utilisation of data (Esposito, 2002).

3.4.1 Questionnaire Conceptualisation

The questionnaire was divided into two main sections: a respondent profile and the survey proper. The profile contained socio-demographic characteristics of the GPs such as age, gender, living situation, the country where they completed their medical degree and present residential status, as well as their assigned job position in the rural and remote organisation. The survey proper explored the objective experiences of GPs for community integration, QOL and retention issues. The questions were structured using the Likert format. Five choices were provided for each question or statement. The choices represent the degree of agreement or disagreement each respondent had with the given question. The Likert survey was the selected questionnaire type as this enabled the respondents to answer the survey easily. In addition,
this research instrument allowed the research to carry out the quantitative approach effectively with the use of statistics for data interpretation (Likert, 1932).

3.4.2 Community Integration Construct (CIC)

Community integration was measured using the ‘Experiential Place Integration’ framework first used by Cutchin in 1997. In his paper, ‘Physician retention in rural communities: the perspective of experiential place integration’ (Cutchin, 1997). In his paper, Cutchin proposed a theoretical perspective of retention called ‘Experiential Place Integration’ (Cutchin, 1997b). The framework represented integration as an active developmental process based on the enhancement of security, freedom, identity and meaning in place, Experiential Place Integration facilitates retention in a location by providing significant meanings in place, thereby providing effective reasons to stay in the current setting (see Figure 3.1 below).

Figure 3.1: A framework for the physician integration process


Place integration occurs for rural primary care physicians as an active developmental process. The place integration process is characterised by three primary domains—security, freedom and identity – and their 27 component dimensions (Table 2.1, p-64). These domains express
more than simple ‘motives’, which drive physician action and integration. This study has extended the notion of ‘Experiential Place Integration’ (Cutchin, 1997b) and its dimensions for measuring community integration satisfaction levels of GPs in rural and remote areas. The 27 dimensions representing security, freedom and identity used by Cutchin in his research were used as the basis for the questionnaire. The questionnaire contained specific questions relating to these dimensions of ‘Experiential Place Integration’ and the GPs responses were recorded on the basis of these dimensions on a five-point Likert scale to assess their perceptions regarding community integration.

It is commonly accepted that shorter questionnaires are more likely to encourage respondents to complete the survey. One major problem with very long questionnaires is the likelihood of participants skim reading them, which increases the likelihood of participants misinterpreting complex questions (Adams, Anne & Anna, 2008). While shorter instruments are more limited than longer measures, they have obvious benefits for both research and policy in terms of reduced burden and costs, and ease of interpretation (Bowling, 2005). Keeping in view the overlapping of certain dimensions in the experiential place integration construct, the questionnaire grouped together certain dimensions under a common thread so that respondents could contextualise the questions easily. This is also true for obvious question repetition with respondents biased towards simply repeating what they said before whether it is accurate or not. Repeated use of the same dimension under different domains could have added more work for the already busy GPs in rural and remote areas. A detailed mapping exercise, ensuring that none of the dimensions were duplicated and that all identified dimensions in Cutchin’s’ experiential place integration have at least one question in the questionnaire, was conducted to link all the dimensions with the key domains of security, freedom and identity. The security domain was measured using 9 dimensions, which were
analysed by 15 questions, the freedom domain was measured using 10 dimensions by 18 questions, and the identity domain was measured using 8 dimensions by 15 questions. A total of 48 questions were used to measure these dimensions. The full mapping of all community integration dimensions representing different questions is summarised in detail in Appendix 2.

3.4.3 Quality of Life Construct

As discussed in Research question 2; p.76, for this study the ‘Comprehensive Quality of Life scale (ComQol A-5)’ developed by Cummins (1997) was adapted and modified for measuring satisfaction with QOL of GPs in Australia. Cummins (1996) has developed well over 100 instruments, which purport to measure life quality in some form, but each of these contains an idiosyncratic mixture of dependent variables (Comprehensive Quality of Life Scale fifth edition, 1997). It is also notable that many QOL instruments have been developed for highly selected groups in the population; particularly in regard to scales devised to monitor medical conditions or procedures. Because of this, they are often unsuitable for use with the general population. However, even the more general scales, which have been devised, cannot be used for the whole of the population. Those created for the general adult population cannot be used with some population subgroups such as people with cognitive impairment or children. This is an important limitation since it means that the QOL experienced by such groups cannot be norm-referenced back to that of the general population (Personal Wellbeing Index –Cummins et al., 2004). In order to remedy this situation, the Comprehensive Quality of Life Scale (ComQol) was developed by Cummins (Comprehensive Quality of Life Scale fifth edition, 1997).

This instrument is based on the following propositions:

- Quality of life (QOL) can be described in both objective (O) and subjective (S) terms.
• Each objective (OQOL) and subjective (SQOL) axis is composed of 7 domains:

<table>
<thead>
<tr>
<th>1</th>
<th>Material wellbeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Health</td>
</tr>
<tr>
<td>3</td>
<td>Productivity</td>
</tr>
<tr>
<td>4</td>
<td>Intimacy</td>
</tr>
<tr>
<td>5</td>
<td>Safety</td>
</tr>
<tr>
<td>6</td>
<td>Place in community</td>
</tr>
<tr>
<td>7</td>
<td>Emotional wellbeing</td>
</tr>
</tbody>
</table>

(Source: Comprehensive Quality of Life Scale- fifth edition, Cummins 1997)

• The measurement of each SQOL domain is achieved by obtaining a satisfaction score of that domain which is weighted by the perceived importance of the domain for the individual. Thus,

\[ \text{SQOL} = \sum (\text{Domain satisfaction} \times \text{Domain importance}) \]

Keeping in mind the validity and applicability of the ComQol scale in health sciences research, the questionnaire for this study contained a specific section of QOL measurement of GPs (ATDs and OTDs) in rural and remote Australia, based on the 7 domains of ComQol (Cummins, 1997).

In order to address a broader spectrum for analysing experiences of GPs in rural and remote settings, the ComQol A-5 domains were modified to improve its appropriateness for the target group. The domain of ‘Material Wellbeing’ was replaced by ‘Material Possessions’ to attach an aspect of tangibility to it. The ‘Productivity’ domain was rechristened as ‘Professional
Achievements’ to incorporate fulfilment of GP respondents with their career aspirations and the contribution of rural and remote area to their career advancement plans. The domain of ‘Intimacy’ was renamed as ‘Relationship with Family & Friends’ to measure the quality of relationship of GP respondents with their family and friends in terms of adequacy of their disposable time for their families as well as for frequent interactions with friends in rural and remote settings. The ‘Safety’ domain was retitled as ‘Sense of Security’ to probe the anxiety faced by these GPs during their job performance (especially after hours and on-call) and their security at home while working in rural and remote settings. The domain of ‘Place in community’ was overextended and renamed as ‘Level of Social Interaction in the Community’ so as to incorporate the social participation of GPs in rural and remote communities. Lastly, the domain of ‘Emotional Wellbeing’ was replaced by ‘Acceptance by the Community’ to measure the sense of acceptance levels of GP respondents in the rural and remote communities.

Table 3.2 exhibits the modified version of ComQol A-5 for this study, followed by the rationale for these modifications:

<table>
<thead>
<tr>
<th>S.No</th>
<th>ComQol domains</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Material wellbeing</td>
<td>Material Possessions</td>
</tr>
<tr>
<td>2</td>
<td>Health</td>
<td>Health</td>
</tr>
<tr>
<td>3</td>
<td>Productivity</td>
<td>Professional Achievements</td>
</tr>
<tr>
<td>4</td>
<td>Intimacy</td>
<td>Relationship with family &amp; friends</td>
</tr>
<tr>
<td>5</td>
<td>Safety</td>
<td>Sense of security in the community</td>
</tr>
<tr>
<td>6</td>
<td>Place in community</td>
<td>Level of social interaction in the community</td>
</tr>
<tr>
<td>7</td>
<td>Emotional wellbeing</td>
<td>Acceptance by the community</td>
</tr>
</tbody>
</table>
Further, several dimensions of community integration scale were analysed by observing the responses of GPs to community integration scale (Section 3.4.2) as well as on comparable modified ComQol domains. Various dimensions of security (commitment to aspiration & goals, ability to meet family needs, social culture network available), freedom domain (involvement in community affairs) and identity (fulfilling aspirations in the workplace, awareness of self in time and place, creation of future goals in place, seeing as self-belonging to the community) domains were analysed by observing the responses of GPs to community integration scale (Section 3.4.2) as well as on similar modified ComQol domains. The following table (3.3) exhibits the additional community integration dimensions covered by the modified ComQol scale:

Table 3.3: Modified scale for QOL & additional community integration dimensions

<table>
<thead>
<tr>
<th>S.No</th>
<th>Modified ComQol domains</th>
<th>Community integration dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Material Possessions</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Health</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Professional Achievements</td>
<td>Commitment to aspiration &amp; goals (Security)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fulfilling aspirations in the workplace (Identity)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Awareness of self in time and place (Identity)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Creation of future goals in place (Identity)</td>
</tr>
<tr>
<td>4</td>
<td>Relationship with family &amp; friends</td>
<td>Ability to meet family needs (Security)</td>
</tr>
<tr>
<td>5</td>
<td>Sense of security in the community</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Level of social interaction in the community</td>
<td>Social Culture network available (Security)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Involvement in community affairs (Freedom)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seeing as self-belonging to the community (Identity)</td>
</tr>
<tr>
<td>7</td>
<td>Acceptance by the community</td>
<td>6</td>
</tr>
</tbody>
</table>

3.4.4 Retention Measurement

The concept of retention has been variably operationalised by different authors. Retention has been defined in a variety of ways; as an arbitrary number of years of service (Adikhari et al.,
as an indefinite or unknown length of stay (Alexander, 1998; Waldman, 2006); as staying for a fixed period associated with indenture (Pathman et al., 1996); or as staying for as long as or longer than the physician intended (Kamien 1998). The author shares the view that retention does not imply indefinite practice in one location. Rather retention in this context refers to a minimum length of stay within a particular rural community.

Operationally, retention reflects the time between engagement to a practice or community and separation or departure from that practice or community. Thus, it can be seen as a measure of length of service (commonly measured as a survival rate). On the other hand, measures of turnover (commonly separation rates) reflect the degree of movement of individuals coming into or leaving a practice or community (Australian Department of Labor and Immigration 1974; Penman 1975). Exactly what constitutes this minimum is unclear, and is likely to vary according to whether it is defined by the practitioner, community or health authority, and depending on the location and characteristics of the community which affect the ease with which the practitioner can be replaced. Retention, then, implies some notion of adequacy or sufficiency of length of service, possibly measured in terms of a return on the investment (Humphreys et al., 2002). For measuring the retention of GPs in rural and remote communities the following criteria was used in this study:

i) A GP who has served less than 2 years and has shown the intention to leave in the next 2 years, he/she is termed as ‘not retained’.

ii) A GP who has served more than 2 years and has shown an intention to stay in the rural and remote community for more than two years, he/she is termed as ‘retained’.
3.4.5 Validity of the questionnaire

Validity is the amount of systematic or built-in error in measurement (Norland, 1990). Validity is defined as the extent to which an instrument measures what it purports to measure (Kimberlin & Winterstein, 2008). Much of the research conducted in health care involves quantifying attributes that cannot be measured directly. Instead, hypothetical or abstract concepts (constructs), such as severity of disease, drug efficacy, drug safety, burden of illness, patient satisfaction, health literacy, quality of life, community integration and adherence to medical regimens, are measured. Hypothetical constructs cannot be measured directly and can only be inferred from observations of specified behaviours or phenomena that are thought to be indicators of the presence of the construct (Crocker & Algina, 1986). Measurement of a construct requires that the conceptual definition be translated into an operational definition. An operational definition of a construct links the conceptual or theoretical definition to more concrete indicators that have numbers applied to signify the “amount” of the construct. The ability to operationally define and quantify a construct is the core of measurement (Kimberlin & Winterstein, 2008). As indicated earlier in this chapter, this study used the dimensions of community integration (Cutchin) and domains of quality of life (Cummins) as basic indicators to measure the satisfaction levels of GPs in rural and remote areas.

To validate the present study, the author sought comments on the questionnaire scale from various scholars, exponents and researchers who had already done research or were in the process of carrying out research on similar issues. They were contacted personally and through emails, and their views were taken into account in modifying the questionnaire. The specific questions addressed in the pre-test study were:

a) Does the study provide a contribution to existing knowledge?
b) Is the probable technique/intervention/data mining exercise feasible for the study?

c) How much data do I need to justify doing further studies related to this hypothesis?

d) Does the mapping of community integration dimensions against representative questions and moderations of generic domains of ComQol justified?

Community integration scale validity

In order to test the validity of the newly constructed community integration scale and a modified ComQol scale, the questionnaire was pretested with experts in the field of rural and remote healthcare research and a pilot test was conducted in rural Victoria to ensure reliability of the questionnaire. The questionnaire and the concept paper were e-mailed to the General Manager - RWAV(Rural workforce agency, Victoria), the Director - Centre for Remote health, the Director - Centre for Rural & Remote Area Health and to different researchers working at professorial levels in Gippsland Medical School, University of Southern Queensland, University of South Australia and James Cook University. On the basis of their observations and recommended research by them, the sampling techniques, method of drawing sample size, process of covering the ASGC-RA to select and draw the sample and various statistical tests to be used for this study were finalised.

The rationale for putting different dimensions under similar headings and the structure of the questions representing all dimensions were discussed with the abovementioned researchers for any suggestions or any necessary corrections to ensure further improvement and validity of the instrument. The researcher revised the survey questionnaire based on the suggestions of these experts. The researcher then excluded irrelevant questions and simplified vague or difficult terminologies in order to ensure comprehension.
ComQol validity

A paramount consideration for choosing ComQol A-5 (Cummins, 1997) as the basis for this study was that the ComQol scale comprised both objective and subjective variables, each axis being the aggregate of seven domains: material well-being, health, productivity, intimacy, safety, community, and emotional well-being. Objective domains comprise culturally relevant measures of objective well-being. Subjective domains comprise domain satisfaction weighted by their importance to the individual (Cummins, 1997). Moreover the patterns of data are consistent with the QOL literature (Brown & Cummins, 2000; Hagerty et al., 2001; Schalok et al., 2002; Cummins & Lau, 2005, 2006), thus supporting the validity of the scale.

Evidence for the construct validity of the scale has been demonstrated by significant positive correlations with a sense of personal control (Petito & Cummins, 2000; Marriage & Cummins, 2004) and significant predictions with self-esteem (Marriage & Cummins, 2004). Evidence for the validity of the instrument has also been supported by negative correlations with measures of anxiety and fear (Gullone & Cummins, 1999). In summary, the ComQol appears to yield adequate reliability and stability estimates for both domain specific and total scores (Huebner et al., 2007).

3.4.6 Reliability of the questionnaire

In this final step, the reliability of the questionnaire was tested by means of a pilot study. Reliability refers to random error in measurement. Reliability indicates the accuracy or precision of the measuring instrument (Norland, 1990). The pilot study was conducted so as to refine the questionnaire and determine the probable sample size for the study. A pilot, or feasibility study, is a mini version of a full-scale study as well as the specific pre-testing of a
particular research instrument to test logistics and gather information prior to a larger study, in order to improve the latter’s quality and efficiency (Teijlingen & Hundley, 2001). It can refer to so-called feasibility studies, which are "small scale versions, or trial runs, done in preparation for the major study" (Polit et al., 2001: 467). However, a pilot study can also be the pre-testing or 'trying out' of a particular research instrument (Baker, 1994: 182-3). Pretesting, the final stage, is the use of a questionnaire in a small pilot study to ascertain how well the questionnaire works (Shelby et al., 1982).

Pre-testing is the administration of the data collection instrument with a small set of respondents from the population for the full scale survey. The purpose of pre-testing is to identify problems with the data collection instrument and find possible solutions. Pretesting involves checking of any ambiguity present in questionnaire from perspective of researcher and respondent (Office of the Auditor General of Canada, 1998).

In the case of this study, pretesting was done to seek answers to the question - Would the questionnaire, which contained newly constructed community integration scale and modified ComQol scale, consistently measure what it proposed to measure? To ensure validity 15 GPs practicing in Victorian rural suburbs were interviewed and their suggestions were incorporated into the research questionnaire which included reframing of questions, changing of wordings, changing order of questions, inclusion of questions related to demographic to meet specific objectives.

The reliability analysis was carried out for entire community integration scale and individual dimensions in terms of the internal consistency and the inter-rater reliability. Cronbach’s alpha coefficients were calculated to determine the internal consistency of the overall
community integration scale and modified ComQol scale and each of their respective subscales. Inter-rater reliability was assessed using the interclass correlation coefficient on 15 interviewed GP respondents (from rural Victoria) to evaluate the agreement on ratings between raters.

Following table shows the pretesting reliability analysis for community integration scale and ComQol scale:

**Table 3.4: Pretesting reliability analysis for community integration and ComQol scale**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>No.of Statements</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Security Dimension</strong></td>
<td>15</td>
<td>9</td>
<td>32.53</td>
<td>7.03</td>
<td>.873</td>
</tr>
<tr>
<td><strong>Freedom Dimension</strong></td>
<td>15</td>
<td>10</td>
<td>36.20</td>
<td>7.19</td>
<td>.897</td>
</tr>
<tr>
<td><strong>Identity Dimension</strong></td>
<td>15</td>
<td>8</td>
<td>27.14</td>
<td>7.02</td>
<td>.936</td>
</tr>
<tr>
<td><strong>Community Integration Scale</strong></td>
<td>15</td>
<td>27</td>
<td>95.87</td>
<td>20.70</td>
<td>.966</td>
</tr>
<tr>
<td><strong>ComQol</strong></td>
<td>15</td>
<td>7</td>
<td>27</td>
<td>7.05</td>
<td>.913</td>
</tr>
</tbody>
</table>

Cronbach’s Alpha for entire scale was observed to be .966, whereas Cronbach’s Alpha for security, freedom and identity dimensions were .873, .897, and .936. Cronbach’s Alpha for CommQol, scale measuring quality of life was .913 as shown in Table 3.4. As Cronbach’s Alpha for each dimension and individual scale was greater than .85, it indicated overall higher internal consistency among the individual dimensions and scales, thus making the questionnaire reliable.

After pretesting the questionnaire the Statistical Consulting Service of the School of Mathematical and Geospatial Sciences at RMIT University was consulted. The researcher was granted access to an online repository containing information resources and examples of different statistical methods, which assisted immensely in the research. It was important to get
that service in the initial phase, especially before designing, experimenting and starting the collection of data. This visit saved huge amounts of time and effort in the long run. Two statisticians reviewed the research problems and questionnaire and their subsequent advice and suggestions were incorporated into the research. The consultants guided the researcher towards the best methods for analysing the data; helped regarding the usage of statistical software relating to the research questions; and showed how the results could be interpreted in the best possible ways.

As a result of this pilot study and subsequent meetings with statisticians from the Statistical Consultancy Service various adjustments and minor modifications were made to the questionnaire. These changes were aimed at improvising the questionnaire structure, several items and scales in so as to get best possible results. The probable sample size for the study was estimated at about 1,200 GPs Australia wide.

3.5 RESEARCH METHODOLOGY

Hypotheses analysis

The majority of the hypotheses of this study (Hypotheses I, III, IV and VII) warranted the use of the chi-square test of independence, as it involved the measurement of association of three variables i.e. community integration, QOL and retention. The chi-square test of independence is used as a measure of association between variables to determine whether they are associated or not. A chi-square is called significant if there is an association between two variables and non-significant if there is no association.

The chi in chi-square is the Greek letter \( \chi \), pronounced ‘ki’ as in kite. Chi-square (\( \chi^2 \)) procedures measure the differences between observed (O) and expected (E) frequencies of
nominal variables, in which subjects are grouped in categories or cells. There are two basic
types of chi-square analysis, the goodness of fit test, used with a single nominal variable, and
the test of independence, used with two nominal variables. Both types of chi-square use the
following formula:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

where the letter O represents the observed frequency – the actual count – in a given cell. The
letter E represents the expected frequency – a theoretical count – for that cell. Its value must
be computed. The formula reads as follows: ‘The value of chi-square equals the sum of O-E
differences squared and divided by E’. The more O differs from E, the larger $\chi^2$ is. When $\chi^2$
exceeds the appropriate critical value, it is declared significant (Ang, 1984).

The chi-square test of independence tells whether two nominal variables are related or not, but
it does not tell how strong the relationship is. Once the association was established among the
variables of the study, the next step was to check the strength of the association. Three
procedures are known to provide such measures: the phi coefficient ($\phi$), the contingency
coefficient (C) and Cramer’s V. The phi ($\phi$) statistic is used when both of the nominal
variables under consideration have exactly two possible values. When this is true, the data
matrix will always have a simple 2x2 design. Phi ($\phi$) can be calculated using the following
formula:

$$\phi = \sqrt{\frac{\chi^2}{N}}$$

The phi-coefficient varies from 0 to 1 (0.10-.030 is weak; 0.31 to .060 is moderate; 0.61 or
more is strong). If chi-square is significant, phi is significant.
The contingency coefficient (C) is used when there are three or more values for each nominal variable, as long as there are an equal number of possible values, leading to the construction of a data matrix that have an equal number of rows and columns (3x3, 4x4 etc).

\[ C = \sqrt{\frac{\chi^2}{n + \chi^2}} \]

where \( \chi^2 \) is the Chi-square value and \( n \) is the sample size.

The contingency coefficient (C) varies from 0 to 1; the closer to 1, the stronger the association between variables. If chi-square is statistically significant, C will be statistically significant.

Cramer’s V is used when the number of possible values for the two variables is unequal, yielding a different number of rows and columns in the data matrix (2x3, 3x5 etc). Formula for Cramer’s V:

\[ V = \frac{\chi^2}{\sqrt{(N)(\min r - 1, c - 1)}} \]

where \( N \) is the total number of cases and \( \min r - 1, c - 1 \) is the minimum value of either the # rows–1 or the # columns–1.

This research used the chi-square test of independence for Hypotheses I, III, IV and VI to check the association and the phi coefficient (\( \phi \)), the contingency coefficient (C) and Cramer’s V were used to check the strength of association among the three variables (Garson, 1998; Siegel & Castellan, 1988; Daniel, 2004).
For Hypothesis II, as it involved analysis of variances in the perception levels of ATDs and OTDs regarding the domain of community integrations, t-test was used. The t-test compared the actual difference between ATDs’ and OTDs’ perception levels in terms of the different domains of integration i.e. security, freedom and identity, in relation to the variation in the data. Further, Levene’s test was used to assess the variance homogeneity in the context of each domain of community integration. Levene's test works by testing the null hypothesis that the variances of the group are the same. The underlying notion was to check the probability that at least one of the domains of community integration (security, freedom and identity) in the test had a significantly different variance. Similarly in Hypothesis VI, Levene’s test for equality of variance was used to check the probability of whether there was a significant difference in context of male and female perception levels pertaining to the domain of QOL.

Correlation among variables

As mentioned in Chapter 1, the purpose of this study is to explore the impact of the community integration of ATDs and OTDs in rural and remote communities on their QOL and its resultant effect on their retention by developing a model of research linking QOL as with community integration and retention, to establish this relationship among these three variables, the concept of statistical mediation analysis was used. A mediation model is one that seeks to identify and explicate the mechanism that underlies an observed relationship between an independent variable and a dependent variable via the inclusion of a third explanatory variable, known as a mediator variable. Rather than hypothesizing a direct causal relationship between the independent variable and the dependent variable, a mediational model hypothesizes that the independent variable influences the mediator variable, which in turn influences the dependent variable. Thus, the mediator variable serves to clarify the nature of the relationship between the independent and dependent variables (MacKinnon, 2008).
Once a relationship between two variables is established, it is common for researchers to consider the role of other variables in this relationship (Lazarsfeld, 1955).

Figure 3.2(a): A simple statistical mediation model (MacKinnon, 2008)

In the case of this research, the Mediation Hypothesis can be developed according to the following Figure:

Figure 3.2 (b): Research model

A variable may be considered a mediator to the extent to which it carries the influence of a given independent variable (IV) to a given dependent variable (DV). In psychology, the X →
I → Y relation is often termed ‘mediation’ (Baron & Kenny, 1986), sociology originally popularised the term ‘indirect effect’ (Alwin & Hauser, 1975) and in epidemiology, it is termed the ‘surrogate’ or ‘intermediate endpoint effect’ (Freedman & Schatzkin, 1992).

The first general approach, the causal steps approach, specifies a series of tests of links in a causal chain. This approach can be traced to the seminal work of Judd and Kenny (1981a, 1981b) and Baron and Kenny (1986) and is the most commonly used approach in the psychological literature. The second general approach has developed independently in several disciplines and is based on the difference in coefficients such as the difference between a regression coefficient before and after adjustment for the intervening variable (e.g. Freedman & Schatzkin, 1992; Olkin & Finn, 1995; McGuigan & Langholtz, 1988). The difference in coefficients procedures are particularly diverse, with some testing hypotheses about intervening variables that diverge in major respects from what psychologists have traditionally conceptualized as mediation. The third general approach has its origins in sociology and is based on the product of coefficients involving paths in a path model i.e. the indirect effect (Alwin & Hauser, 1975; Fox, 1980; Bollen, 1989; Sobel, 1982).

In the case of this research the causal steps approach was used, which called for establishing three conditions in order to determine whether mediation occurred. These three conditions were:

1. The IV predicts the DV
2. The IV predicts the mediator
3. The mediator predicts the DV
In other words, community integration predicts the retention of GPs, QOL is affected by community integration and the resultant QOL impacts on the retention of GPs.

### 3.6 LOCALE OF THE STUDY

The study was conducted in Australia. To make it more representative, all the states and territories of Australia were covered. As the recruits had to be GPs working in rural and remote areas, it was important to ascertain the geographical classification to assess the rural and remote characteristics of a particular city or suburb. The ASGC-RA (Australian Geographical Classification–Remoteness Areas) classification was used to identify the rural and remote areas.

**Geographical classifications in Australia**

Rural Australia, which contains approximately one-third of the population, is extremely heterogeneous, comprising vast regions of sparsely populated and mostly uninhabitable areas along with small isolated rural towns and larger regional centres. Vast distances separating many of these localities, often in combination with their small population base, mean that the delivery of healthcare services to most of rural and remote Australia requires funding assistance through the allocation of resources to compensate for disadvantages associated with geography (Humphreys et al., 2006).

Australia has always been a key player in the development of geographical classifications designed to capture or measure comparative degrees of rurality and remoteness (Lonsdale & Holmes, 1981; Logan et al., 1975). Three classifications, the Rural, Remote and Metropolitan Area (RRMA), the Accessibility/Remoteness Index of Australia (ARIA) and the Australian Standard Geographical Classification Remoteness Areas (ASGC-RA, originating from ARIA), have dominated recent rural health policy in Australia:
1. The RRMA classification had its origins in the Department of Primary Industries and Energy and the Department of Community Services and Health, and was released in 1994. This classification divides all Statistical Local Areas (SLAs) of Australia into three zones, namely metropolitan, rural and remote, and a total of seven categories across these zones.

2. The ARIA classification was released in 1999 (Department of Health and Aged Care, 1999). The ARIA classification, intentionally designed to measure geographical remoteness, is calculated using road distances separating localities from four levels of service centres distinguished by population size. The final ARIA score is determined by aggregating these four measures of remoteness, which are then separated into five hierarchical (‘natural break’) categories.

3. In 2001, the Australian Bureau of Statistics (ABS) adopted a slightly altered methodology, referred to as ARIA+, with one key difference being the addition of a fifth service centre level. From this, a new classification known as ASGC-RA superseded ARIA (DHAC, 2001; ABS, 2003)

The Australian Standard Geographical Classification (ASGC) is a hierarchical geographical classification, defined by the Australian Bureau of Statistics (ABS), which is used in the collection and dissemination of official statistics. The ASGC provides a common framework of statistical geographical and thereby enables the production of statistics, which are comparable and can be spatially integrated. The purpose of the structure is to classify data from census CDs into broad geographical categories, called Remoteness Areas (RAs). RAs are aggregations of ABS Collection Districts (CDs), which share common characteristics of remoteness. The RA classification includes all CDs, thereby covering the whole of geographical Australia.
The ASGC-RA essentially divides Australia into five regions – major cities, inner regional, outer regional, remote and very remote – for comparative statistical purposes.

<table>
<thead>
<tr>
<th>ASGC RA</th>
<th>ASGC RA 1</th>
<th>ASGC RA 2</th>
<th>ASGC RA 3</th>
<th>ASGC RA 4</th>
<th>ASGC RA 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>Major cities</td>
<td>Inner regional</td>
<td>Outer regional</td>
<td>Remote</td>
<td>Very remote</td>
</tr>
</tbody>
</table>

Source: www.health.gov.au

The significance of geographical classifications for this study

In Australia and internationally, the supply of healthcare practitioners is problematic in many rural areas. Rural populations generally experience decreased accessibility and diminished availability of healthcare services, particularly as distance from capital or major cities increases and local population size decreases. This occurs most notably in the case of GPs because of their critical role within the healthcare system (Starfield, et al., 2005: DoHA, 2005).

In response, over the last twenty years the Australian Government has provided additional incentives and resources to rural and remote areas characterised as difficult to recruit to or retain services within. At last count (mid-2009), the DoHA managed approximately 66 current programs along with a number of additional state-based programs, largely because mainstream programs do not adequately meet the needs of practitioners in rural and remote communities. In order to target the distribution of these limited resources, some variant of the RRMA, ARIA or ASGC-RA classifications have frequently been used as the basis for differentiating both entitlement to, and nature of, financial and support incentives.
A critical question is whether these classifications are the most appropriate bases for the distribution of these important but limited resources. Given that there is no ‘natural’ rural-urban classification, it follows that decisions made about where to draw the boundary differentiating ‘urban’ from ‘rural’ or ‘rural’ from ‘remote’ directly affect the eligibility and amount that different rural communities receive and consequently how well the problem of workforce shortages in rural areas is addressed. All classifications have weaknesses (McGrail & Humphreys, 2009). The Australian Government has recognised, to some degree, the inappropriateness of currently used classifications recognised for rural health policy decisions (Australian Labor Party: Media release, 2008; AMA: Review of the Rural, Remote and Metropolitan Areas (RRMA) classification, 2005), although their recent response of selecting ASGC-RA highlights the lack of any explicit rationale for their adoption of what is arguably a sub-optimal solution (McGrail & Humphreys, 2009).

Keeping in view the above criticism and in order to stay clear of controversies, only the RA3, RA4 and RA5 classifications of ASGC-RA were used to provide an appropriate framework for the collection, dissemination and analysis of data for GPs working in rural and remote Australia.

3.7 SOURCES OF DATA

The respondents had to be GPs working in rural and remote Australia. To obtain the contact details of these GPs, the main source used was the Medical Directory of Australia (MDA). The MDA is the most accurate and comprehensive database of contact, career and profile details in Australian health. Its the ‘who’s who and where’ in medicine for over 62,000 doctors plus many other health professionals in Australia (Australasian Medical Publishing Company; 2006). In the initial step, with the help of ASGC-RA classification system, the
RA3, RA4 and RA5 locations were found throughout seven states of Australia. The rural and remote classification of a particular area was determined on the basis of the ASGC remoteness area map (www.doctorconnect.gov.au). Caution was taken to find only those areas in different states, which came under the jurisdiction of RA3, RA4 and RA5. Once the suburbs pertaining to RA3, RA4 and RA5 were confirmed, and then the next step was to check the contact details of all the GPs in that area with the help of MDA online.

3.8 POPULATION SAMPLING

A sample is considered to be representative of the population, and to obtain a good sample it is essential that it should represent the population it is coming from. The study population consisted of a total sample size of 1,200 GPs, whose contact addresses were extracted from MDA online on the basis of stratified random sampling. Stratified sampling is a probability sampling technique wherein the researcher divides the entire population into different subgroups or strata, then randomly selects the final subjects proportionally from the different strata (Trochim, 2006). Researchers also employ stratified random sampling when they want to observe existing relationships between two or more subgroups. As the present study dealt with perceptions of two subgroups of GPs (OTDs and ATDs) in rural and remote Australia, stratified random sampling was considered most appropriate.

The basis of stratification was the ASGC-RA classification. Deliberate care was taken to select appropriate GPs’ contact addresses only from the RA3, RA4 and RA5 classifications. In order to maintain consistency regarding numbers, proportionate stratification was used. The number of GPs selected for the survey was according to the geographical size of the states. The highest number (232) was selected from New South Wales and the least was selected from the Northern Territory (96).
3.9 DATA COLLECTION PROCEDURE

Data were collected through a mailed questionnaire. The questionnaire included questions pertaining to GPs’ community integration, QOL and retention issues in rural and remote settings in Australia (see Appendix 1).

Data collection

Of the 1,200 GPs’ contact addresses extracted from MDA online, 1,186 were considered suitable for inclusion in the study and were mailed a package:

(i) a cover letter on University letterhead using personalised participant information

(ii) a copy of the survey questionnaire, printed in color

(iii) an explanatory statement providing information about the study, in color; and


The questionnaire sought responses to questions relating to community integration, QOL and retention issues of GPs in rural and remote Australia. To encourage a high response rate for this and later data collections, telephone contacts were made with many of the recruits after posting the package. Some of the recruits were called four weeks after posting the questionnaires and some were contacted after five weeks. The main purpose of calling them was to request them to complete the questionnaire and return it as soon as possible. The main bottleneck for contacting them was their obsolete numbers, as many of the contact phone numbers supplied in MDA online were obsolete or not available. Still about 15% of the contact addresses were contacted and encouraged to complete the questionnaire in spite of their busy schedules.
3.10 DATA COLLECTION RESPONSE RATES

As mentioned earlier, 1,186 GPs were mailed the questionnaire package. Following is the break-up of mailed GP numbers according to states.

<table>
<thead>
<tr>
<th>State/territory</th>
<th>Number of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales(NSW)</td>
<td>232</td>
</tr>
<tr>
<td>Queensland(QLD)</td>
<td>210</td>
</tr>
<tr>
<td>Western Australia(WA)</td>
<td>201</td>
</tr>
<tr>
<td>Victoria(VIC)</td>
<td>200</td>
</tr>
<tr>
<td>Tasmania(TAS)</td>
<td>141</td>
</tr>
<tr>
<td>South Australia(SA)</td>
<td>106</td>
</tr>
<tr>
<td>Northern Territory(NT)</td>
<td>96</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,186</strong></td>
</tr>
</tbody>
</table>

Of the 1,186 GPs who were mailed a questionnaire, 279 responded (24%). 53 contact addresses were declared non-respondents because of the change of address or transfer of doctors. The maximum response of 35.8% (38 out of 106) was recorded from South Australia, followed by 32.2% (31 out of 96) from the Northern Territory. New South Wales GPs’ response rate came third with 27.5 % (64 out of 232). Victoria and Queensland’s GPs’ response rate came fourth and fifth respectively, with Victorian GPs accounting for 24.5 % (49 out of 200) and Queensland GPs 24.2% (51 out of 210) of the questionnaire survey. Tasmania was in sixth place with 15.6% (22 out of 141). Western Australia was pitched last as only 12.4% of GPs (25 out of 201) chose to return the survey.

The following is the percentage composition of total responses (279) according to different states.
Table 3.7: Statewise composition of total respondents

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIC</td>
<td>49</td>
<td>17.5</td>
<td>17.5</td>
<td>17.5</td>
</tr>
<tr>
<td>NSW</td>
<td>64</td>
<td>22.9</td>
<td>22.9</td>
<td>40.4</td>
</tr>
<tr>
<td>QLD</td>
<td>51</td>
<td>18.2</td>
<td>18.2</td>
<td>58.6</td>
</tr>
<tr>
<td>WA</td>
<td>25</td>
<td>8.9</td>
<td>8.9</td>
<td>67.5</td>
</tr>
<tr>
<td>SA</td>
<td>38</td>
<td>13.6</td>
<td>13.6</td>
<td>81.1</td>
</tr>
<tr>
<td>NT</td>
<td>31</td>
<td>11.1</td>
<td>11.1</td>
<td>92.1</td>
</tr>
<tr>
<td>TAS</td>
<td>21</td>
<td>7.9</td>
<td>7.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>279</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

3.11 Response rate

Although maintaining high response rates is always desirable, research evidence indicates that health professionals, in particular GPs are considered to be a problematic population from which to collect survey data (Jedrziewski & Christakis, 1997). Response rates among GPs average about 10% lower than studies with the general population. There is some evidence that physician response rates have been falling in more recent years (Cummings, Savitz & Konrad, 2001; Kellerman & Herold, 2001; Cook, Dickinson & Eccles, 2007; Thorpe et al., 2009). This is also consistent with survey response rates from many other management disciplines.
A number of authors (McAvoy & Kaner, 1996; Moore, Post & Smith, 1999; Price, 2000; Stocks & Gunnell, 2000; Flanigan, McFarlane & Cook, 2008) attribute declining response rates to the increased workload GPs are experiencing, along with reluctance to an increasing number of requests to complete surveys as part of the ever-growing research culture.

While moderate response rates are known to reduce statistical power and result in higher costs per completed survey, the impact of these response rates on non-response bias may not be as strong as previously thought. Due to the growing evidence that response rate is not necessarily correlated with response bias, these calls simultaneously call for systematic examination of non-response bias as is undertaken herein this study (Groves, 2006). Nonetheless, the potential limitation of this phenomenon on the study’s generalisability has been acknowledged elsewhere in the thesis.

Direct examinations of response bias for health care professional groups have generally found only minimal amounts of response bias in surveys (Barton et al., 1980; Hovland, Romberg & Moreland, 1980; Locker & Grushka, 1988; McCarthy, Koval & MacDonald, 1997; Thomsen 2000; Kellerman & Herold, 2001; McFarlane, Murphy, Olmsted, and Hill, 2007). This finding holds true for studies conducted after 2001 (Barclay, 2002; Cull et al., 2005; Menachemi et al., 2006; McFarlane et al., 2007). This is consistent with the practice of justifying response rates by citing other articles with lower response rates (Roth and BeVier, 1998).

This study recorded a response rate of 23.5%. Keeping in view this response rate, due care was taken while analysing the data, that extrapolation well beyond the scope was not undertaken.
3.12 ETHICAL CONSIDERATIONS

The study required the participation of human respondents, specifically GPs from rural and remote Australia; therefore certain ethical issues were addressed. The consideration of these ethical issues was necessary for the purpose of ensuring the privacy as well as the safety of the participants. Formal application for identifying the level of risk associated with the project was completed and submitted to the concerned authority, RMIT Human Research Ethics Committee (HREC). This study was categorised as a “negligible risk project”. Among the significant ethical issues that were considered in the research process were consent and confidentiality. In order to secure the consent of the selected participants, the researcher relayed all important details of the study, including its aim and purpose. By explaining these important details, the respondents were able to understand the importance of their role in the completion of the research. The participants were not forced to participate in the research. The confidentiality of the participants was also ensured by not asking their names in the research. Only relevant details that helped in answering the research questions were included.

3.13 CONCLUSION

This chapter has focused on the research design and methodology used for this research. A framework of research questions was introduced, on the basis of which seven different hypotheses were formed. The motive for framing the research questions as well as the hypotheses was discussed in the context of this study. Further, research instrumentation for three variables i.e. community integration, QOL and retention, was discussed. It also included details about the locale of the study, sources of data, population sampling, data collection procedure and various ethical considerations involved in this research project. The next chapter will analyse and present the data with the help of SPSS software.
4.0 INTRODUCTION
The previous chapter provided the baseline methodology for data gathering. In this chapter, the collected data are analysed and presented. Research analysis involves drawing together and comparing discussions of similar themes, and examining how these relate to the variation between individuals and groups (Barbour & Kitzinger, 1999: 16). This chapter will focus on the analysis and interpretation of the data that were collected for the study. The data will be linked systematically to the format of the questionnaire attached in the appendix 1.

The aim of research analysis is to look for trends and patterns that reappear within a single focus group or among various focus groups (De Vos et al., 2005: 311) Data were analysed to describe the perceptions and experiences of GPs (OTDs and ATDs) regarding community integration and quality of life in rural and remote settings. The hypothesis mentioned in Chapter 3 (Section 3.2) was used to further analyse and interpret the findings of the study.

As mentioned in Chapter 1 (Section 1.5) and Chapter 3 (Section 3.11), this study recorded a moderate response rate of 23.5%. Due care was taken in analysing the data to ensure that there are no instances of extrapolation beyond the scope of the response rate.

4.1 DEMOGRAPHIC PROFILES OF GP RESPONDENTS
As discussed in the first chapter, the main aim of this research was to explore the impact of the community integration of ATDs and OTDs in rural and remote communities on their QOL and its resultant effect on their retention by developing a model of research linking QOL as with community integration and retention, a questionnaire was used comprising questions pertaining to GPs’ community integration, quality of life and retention issues in rural and remote settings in Australia. The third chapter covered the research methodology, the study population and the response rate. The following section summarises the demographic profiles
of 279 respondents concerning their county of qualification, gender, age, country of origin, living & professional situation and income levels in rural and remote areas.

4.1.1 Country of origin

Table 4.1 (a) shows that out of 279 GPs who responded to the survey, about 58% (161) graduated within Australia itself, thus terming them Australian Trained Doctors (ATDs), whereas 42% (118) of respondents had overseas qualifications, thus the term Overseas Trained Doctors (OTDs).

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid ATDs</td>
<td>161</td>
<td>57.7</td>
<td>57.7</td>
<td>57.7</td>
</tr>
<tr>
<td>Valid OTDs</td>
<td>118</td>
<td>42.3</td>
<td>42.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>279</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.1(b): Country of basic medical degree actual figures (2009)*

<table>
<thead>
<tr>
<th></th>
<th>Total Australia</th>
<th>Percent</th>
<th>Rural and remote Australia</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATDs</td>
<td>17076</td>
<td>66.37</td>
<td>4438</td>
<td>60.09</td>
</tr>
<tr>
<td>OTDs</td>
<td>8650</td>
<td>33.63</td>
<td>2947</td>
<td>39.91</td>
</tr>
<tr>
<td>Total</td>
<td>25725</td>
<td>100</td>
<td>7385</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DoHA, 2010, General Practitioner Statistics

The actual distribution of ATDs and OTDs in rural and remote Australia also parallels these statistics. The GP statistics according to DoHA Report, 2010 put ATDs at around 60% and OTDs around 40% in rural and remote areas (Table 4.1(b)), thus making this sample of 279 respondents a good representation of the actual distribution of ATDs & OTDs in rural and remote Australia.

Chapter 4: Research findings
4.1.2 Gender distribution of GP (ATDs/OTDs) respondents

The following Table summarizes the gender distribution of the 279 respondents. The table indicates that there were 176 (63%) male respondents and 103 (37%) female respondents. As the study was able to generate numerically adequate numbers of female respondents, it was possible to derive statistically reliable results for gender distribution.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Male</td>
<td>176</td>
<td>63.1</td>
<td>63.1</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>103</td>
<td>36.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>279</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2 (b): Gender distribution of rural and remote GP workforce
(Actual figures (2010))

<table>
<thead>
<tr>
<th></th>
<th>Total Australia</th>
<th>Percent</th>
<th>Rural and remote Australia</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Male</td>
<td>24136</td>
<td>55.3</td>
<td>10243</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>19497</td>
<td>44.7</td>
<td>7775</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>43633</td>
<td>100</td>
<td>18018</td>
</tr>
</tbody>
</table>

Source: Australian Bureau of Statistics Healthcare Services, 2011

Table 4.2(b) shows the actual gender distribution figures in rural and remote Australia, where males account for approximately 57% of GPs and females GPs are around 43%. The sample thus, broadly represents the actual gender distribution of GPs in rural and remote areas. Some of the earlier studies (Hill et al., 2001; Tausig & Fenwick, 2001) have demonstrated that gender difference also needs to be accounted for GPs in country areas. As the number of female GPs is increasing in rural and remote Australia (Medical Training Review Panel Fourteenth Report, 2011), this study formulated two additional hypotheses (VI & VII; Chapter-3) to explore whether the QOL and community integration of GPs varies according to gender in rural and remote areas.
Further, the result of the survey exhibits only small differences in male numbers, 97 (55%) for ATDs and 79 (45%) for OTDs, on the other hand the number of female OTDs (38%) was less as compared to the female ATDs (62%).

The following Table shows the gender differences of GP (ATDs and OTDs) respondents:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATDs</td>
<td>97</td>
<td>64</td>
<td>161</td>
</tr>
<tr>
<td>OTDs</td>
<td>79</td>
<td>39</td>
<td>118</td>
</tr>
<tr>
<td>Total</td>
<td>176</td>
<td>103</td>
<td>279</td>
</tr>
</tbody>
</table>

### 4.1.3 Age profile of GPs (ATDs/OTDs) respondents

Table 4.3 (a) presents the age range and age distribution of 276 respondents out of 279 total respondents.

<table>
<thead>
<tr>
<th>Age range</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>25–35 yrs</td>
<td>25</td>
<td>9.0</td>
<td>9.1</td>
<td>9.1</td>
</tr>
<tr>
<td>36–60 yrs</td>
<td>199</td>
<td>71.3</td>
<td>72.1</td>
<td>81.2</td>
</tr>
<tr>
<td>61–85 yrs</td>
<td>52</td>
<td>18.6</td>
<td>18.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>276</td>
<td>98.9</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3 (b): Age in years (actual figures –2010)

<table>
<thead>
<tr>
<th>Age range</th>
<th>Total Australia</th>
<th>Percent</th>
<th>Rural and remote Australia</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 46yrs</td>
<td>23491</td>
<td>38.1</td>
<td>7417</td>
<td>41.1</td>
</tr>
<tr>
<td>More than 46yrs</td>
<td>38161</td>
<td>61.9</td>
<td>10602</td>
<td>58.9</td>
</tr>
<tr>
<td>Total</td>
<td>61652</td>
<td>100</td>
<td>18019</td>
<td>100</td>
</tr>
</tbody>
</table>

Out of the 279 respondents for this study, 3 people did not respond about their age. The age range of the respondents was from 26 to 83 years. The younger GP respondents (25–35 years) working in rural and remote area were fewer in numbers; as only 25 (9%) respondents fell into this category. Middle-aged GPs represented the largest proportion of respondents (36–50 years). Their count 199 (72%) was more than the older GP respondents (61–85 years), whose number was limited to 52 (19%). The national trend also showed similar trends (Table 4.3b), as statistics from ABS (2011) reported that about 62% of GPs were aged more than 46 years and the number of GPs below 46 was around 38%.

Table 4.3 (c) further highlights the age distribution of ATDs and OTDs according to gender of the 279 respondent GPs. Male GPs outnumber the female GPs in rural and remote areas.

Table 4.3 (c): Composition of age of GP respondents according to gender

<table>
<thead>
<tr>
<th>Country of basic medical degree</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATDs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36–60</td>
<td>63</td>
<td>34</td>
<td>161</td>
</tr>
<tr>
<td>61–85</td>
<td>26</td>
<td>5</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>97</td>
<td>49</td>
<td>161</td>
</tr>
<tr>
<td>OTDs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36–60</td>
<td>55</td>
<td>29</td>
<td>84</td>
</tr>
<tr>
<td>61–85</td>
<td>18</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>36</td>
<td>115</td>
</tr>
<tr>
<td>Total</td>
<td>173</td>
<td>103</td>
<td>276</td>
</tr>
</tbody>
</table>

Further analysis of the 279 respondents shows that younger and older ATDs (both male and female) outnumber OTDs, whereas middle-aged OTD respondents (both male and female) outnumber ATDs.
4.1.4 Composition of OTD respondents according to country of origin

The analysis of the data from 279 respondents suggested evidence of reliance on Europe (35%), Asia (34%) and South Africa (24%) for recruiting OTDs in rural and remote areas.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>27</td>
<td>24.1</td>
<td>24.1</td>
<td>24.1</td>
</tr>
<tr>
<td>Asia</td>
<td>38</td>
<td>33.9</td>
<td>33.9</td>
<td>58.0</td>
</tr>
<tr>
<td>Australia</td>
<td>5</td>
<td>4.5</td>
<td>4.5</td>
<td>62.5</td>
</tr>
<tr>
<td>Europe</td>
<td>39</td>
<td>34.8</td>
<td>34.8</td>
<td>97.3</td>
</tr>
<tr>
<td>North America</td>
<td>2</td>
<td>1.8</td>
<td>1.8</td>
<td>99.1</td>
</tr>
<tr>
<td>South America</td>
<td>1</td>
<td>0.9</td>
<td>0.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>112</td>
<td>94.9</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing system</td>
<td>6</td>
<td>5.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>118</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.5 Living situation of respondents

Table 4.5 corresponds to the living situations of 279 respondents. It clearly indicates that 46% of GP respondents (ATDs and OTDs) tend to be living with their spouse and children in rural and remote settings, the instance being almost equal for both ATDs and OTDs.

<table>
<thead>
<tr>
<th>Count</th>
<th>Country of basic medical degree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATD</td>
<td>OTD</td>
</tr>
<tr>
<td>Living Situation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Spouse/partner</td>
<td>71</td>
<td>35</td>
</tr>
<tr>
<td>Spouse/children</td>
<td>66</td>
<td>62</td>
</tr>
<tr>
<td>Children only</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>With friends</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>161</td>
<td>118</td>
</tr>
</tbody>
</table>

Chapter 4: Research findings
A similarly higher percentage (38%) was noticed in the case of GP respondents (ATDs and OTDs) who were living with a partner or a spouse.

### 4.1.6 Income levels of respondents

The earning power of GPs is excellent in rural and remote areas. Table 4.6 (a) shows the minimum salaries of GPs as provided by General Practice Registrars Australia, 2011.

**Table 4.6 (a): 2011 GPs training year minimum salaries plus 9% superannuation**

<table>
<thead>
<tr>
<th>Training stage</th>
<th>Location</th>
<th>On call</th>
<th>Average patient consultations (hours/week)</th>
<th>Annual salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP term 1</td>
<td>ANY</td>
<td>N/A</td>
<td>60</td>
<td>$120,000</td>
</tr>
<tr>
<td>GP term 2</td>
<td>Remote</td>
<td>1 in 2–3 days</td>
<td>28–30</td>
<td>$160,000</td>
</tr>
<tr>
<td>GP term 3</td>
<td>Rural</td>
<td>1 in 6 days</td>
<td>38–40</td>
<td>$145,000</td>
</tr>
<tr>
<td>Locum (Immediately after completing training)</td>
<td>Rural</td>
<td>N/A</td>
<td>45</td>
<td>$187,200</td>
</tr>
<tr>
<td>Established GPs</td>
<td>Rural or urban</td>
<td>N/A</td>
<td></td>
<td>$269,100</td>
</tr>
</tbody>
</table>

Source: General Practice Registrars Australia, 2011

The data analysis reflected higher levels of income for both kinds of GP respondents in rural and remote areas. The following Table 4.6 (b) demonstrates that more than 82% of the GP respondents (ATDs and OTDs) are getting more than six-figure salaries, although the ATDs (88%) outnumber the OTDs (74%) in this regard.
Table 4.6(b): Income levels of GP (ATDs/OTDs) respondents

<table>
<thead>
<tr>
<th>Income</th>
<th>ATDs</th>
<th>OTDs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$50000</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>$50000–$65000</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>$65000–$80000</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>$80000–$100000</td>
<td>13</td>
<td>16</td>
<td>29</td>
</tr>
<tr>
<td>&gt;$100000</td>
<td>141</td>
<td>86</td>
<td>227</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>161</td>
<td>116</td>
<td>277</td>
</tr>
</tbody>
</table>

4.2 SUMMARY OF RESULTS FOR 7 QOL DOMAINS

For QOL measurement of 279 GP respondents working in rural and remote Australia, the QOL scale was developed using ComQol (Cummins, 1997), keeping in view the following definition of quality of life:

“Quality of life is both objective and subjective, each axis being the aggregate of seven domains: material well-being, health, productivity, intimacy, safety, community, and emotional well-being. Objective domains comprise culturally relevant measures of objective well-being. Subjective domains comprise domain satisfaction weighted by their importance to the individual” (Cummins & Lau, 2006).

As discussed in Chapter 3 (Section 3.4.3; p.86) for QOL measurement, ComQol (Cummins, 1997) was used as the basis for constructing the QOL scale for this study. The experiences of GPs (ATDs and OTDs) were measured along the seven domains of ComQol (Table 3.1; p.87), which were generalised in more practical terms to address a broader spectrum for analysing experiences of GPs in rural and remote settings. The wording of several items in ComQol was
simplified but the sense of the items remained the same (Chapter 3; Section 3.4.3; Table 3.2; p.88). For each QOL domain, the range was achieved by obtaining a satisfaction score of that domain according to the Likert range.

The following section analyses the satisfaction of 279 GP respondents with 7 QOL domains separately and in the end provides a snapshot of comprehensive QOL satisfaction of these GPs (ATDs and OTDs) in rural and remote communities:

Domain I: Material possessions satisfaction of GP respondents in rural and remote Australia

Table 4.7 exhibits the satisfaction with material possessions of 279 GPs.

<table>
<thead>
<tr>
<th>Count</th>
<th>Country of basic medical degree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATDs</td>
<td>OTDs</td>
</tr>
<tr>
<td>Material possessions</td>
<td>Very dissatisfied</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Moderately dissatisfied</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Not sure</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Moderately satisfied</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Very satisfied</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>161</td>
<td>118</td>
</tr>
</tbody>
</table>

The ‘material possessions’ of GPs pertain to salary levels, belongings and to some extent standard of accommodation for GPs working in rural and remote areas. When it comes to salary, country doctors seem to have the perfect prescription for a rewarding career. There is a range of incentives for rural GPs since July 2011, including new payments of up to $120,000 for city doctors to relocate to rural and remote areas, and eligibility for retention payments of between $12,000 to $47,000 per annum after five years. The analysis of the present data of
279 GP respondents suggested that satisfaction levels with material possessions were quite high in the cases of both ATDs and OTDs. An interesting point of observation, which can be further discussed, is the considerable disparity in the satisfaction levels of ATDs and OTDs. The data demonstrated that the ATD respondents are more satisfied with the materialistic aspects of their job in rural and remote areas as compared to OTD respondents.

**Domain II: Health satisfaction of GP respondents in rural and remote Australia**

Table 4.8 presents a snapshot of 279 GP respondents’ satisfaction levels with their self-reported health. The ‘Health satisfaction’ of GPs in rural and remote Australia related to the self-assessed health of GPs in rural and remote communities.

<table>
<thead>
<tr>
<th>Health</th>
<th>Count</th>
<th>Country of basic medical degree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ATDs</td>
<td>OTDs</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Moderately dissatisfied</td>
<td>15</td>
<td>17</td>
<td>32</td>
</tr>
<tr>
<td>Not sure</td>
<td>11</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Moderately satisfied</td>
<td>71</td>
<td>55</td>
<td>126</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>61</td>
<td>35</td>
<td>96</td>
</tr>
<tr>
<td>Total</td>
<td>161</td>
<td>118</td>
<td>279</td>
</tr>
</tbody>
</table>

The analysis of the data collected for 279 GP respondents suggested that both kinds of GP respondents demonstrated a high level of perceived healthiness in rural and remote settings. The ATD respondents reflected a higher satisfaction level with their health and related issues (82%) as compared to OTDs (76%). Approximately 17% of ATD respondents felt that they suffered health-related issues in rural and remote Australia and 24% of OTDs felt the same. Overall this study recorded higher satisfaction levels for both type of GP respondents (ATD and OTDs) in rural and remote areas.
Domain III: Professional achievements of GP respondents in rural and remote Australia

Following table highlights the findings of professional achievement of GPs (ATDs and OTDs) in rural and remote Australia

<table>
<thead>
<tr>
<th>Count</th>
<th>Country of basic medical degree</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATDs</td>
<td>OTDs</td>
<td>Total</td>
</tr>
<tr>
<td>Professional achievements</td>
<td>Very dissatisfied</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Moderately dissatisfied</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Not sure</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Moderately satisfied</td>
<td>81</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Very satisfied</td>
<td>61</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>161</td>
<td>118</td>
</tr>
</tbody>
</table>

The ‘professional achievements’ domain of quality of life covered the fulfilment of GPs’ career aspirations and the contribution of rural and remote area to their career advancement plans. Both GP respondents (ATDs and OTDs) showed a perceived high level of satisfaction with professional achievements in the rural and remote settings. Only a few GPs reported lower levels of satisfaction with their professional achievement in rural and remote areas—12% of ATD respondents and 14% of OTD respondents.

Domain IV: Relationship (with family & friends) of GP respondents in rural and remote Australia

The following table represents the findings of the collected data regarding satisfaction of 279 GPs’ relationship satisfaction with family & friends in rural and remote settings.
Table 4.10: Relationship (with family & friends) satisfaction of GP respondents

<table>
<thead>
<tr>
<th>Count</th>
<th>Country of basic medical degree</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ATDs</td>
<td>OTDs</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>Relationship satisfaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td></td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Moderately dissatisfied</td>
<td></td>
<td>20</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>Not sure</td>
<td></td>
<td>5</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Moderately satisfied</td>
<td></td>
<td>79</td>
<td>49</td>
<td>128</td>
</tr>
<tr>
<td>Very satisfied</td>
<td></td>
<td>55</td>
<td>39</td>
<td>94</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>161</td>
<td>118</td>
<td>279</td>
</tr>
</tbody>
</table>

The ‘relationship satisfaction’ domain refers to the quality of relationship of GPs (ATDs and OTDs) with their family and friends in rural and remote settings. It encompasses the adequacy of GPs’ disposable time for their families as well as for frequent interactions with friends. This domain plays an important role in GPs’ satisfaction with QOL in rural and remote settings. The analysis of the 279 respondent GPs clearly indicate that 83% of ATDs and 74% of OTDs are more than satisfied with this domain. The number of GPs with a low level of satisfaction is less, around 17% of ATDs and 25% of OTDs. Further, in the next chapter the influence of this domain will be discussed vis-à-vis community integration and retention.

Domain V: Security level satisfaction of GP respondents in rural and remote Australia

The following table represents the analysis of 279 GPs regarding satisfaction with security level in rural and remote settings.
Table 4.11: Security level satisfaction of GP respondents

<table>
<thead>
<tr>
<th>Count</th>
<th>Country of basic medical degree</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATDs</td>
<td>OTDs</td>
</tr>
<tr>
<td>Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Moderately dissatisfied</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Not sure</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Moderately satisfied</td>
<td>61</td>
<td>52</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>86</td>
<td>42</td>
</tr>
<tr>
<td>Total</td>
<td>161</td>
<td>118</td>
</tr>
</tbody>
</table>

The survey questions for this domain of QOL included the sense of security of GPs in rural and remote areas and the respondents were asked to rate their level of satisfaction with this issue. The ‘security’ domain intended to probe the anxiety faced by GPs during their job performance (especially after hours and on-call) and their security at home while working in rural and remote settings. The analysis of the 279 GP respondents demonstrated that high security levels were observed among GP respondents (ATDs and OTDs) in rural and remote areas, ATDs (90%) feeling more secure as compared to OTDs (80%) in these settings. The number of GPs with a low level of satisfaction with security was observed to be comparatively less –around 9% for ATDs and 20% for OTDs.

**Domain VI: GP respondents’ satisfaction with levels of social interaction in rural and remote Australia**

The following table presents the findings of the collected data regarding satisfaction of GPs with levels of social interaction in the rural and remote communities.
Table 4.12: GP respondents’ satisfaction with levels of social interaction

<table>
<thead>
<tr>
<th>Count</th>
<th>Country of basic medical degree</th>
<th>ATDs</th>
<th>OTDs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Social Interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very dissatisfied</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Moderately dissatisfied</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Not sure</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Moderately satisfied</td>
<td>80</td>
<td>56</td>
<td>136</td>
</tr>
<tr>
<td></td>
<td>Very satisfied</td>
<td>72</td>
<td>44</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>161</td>
<td>118</td>
<td>279</td>
</tr>
</tbody>
</table>

Retention of GPs is a complex interplay of personal, professional and ‘place’ factors in a rural and remote community. The involvement in ‘place’ impacts the decision of GPs to stay or leave the rural and remote community (School for Social and Policy Research, 2009). The satisfaction of GPs with levels of ‘social interaction’ concerns with the social participation of GPs in rural and remote communities. Social participation can be defined as “daily activities and social roles that ensure the survival and development of a person in society throughout his or her life” (Noreau et al., 2004, 346–352). The social participation of GPs relies heavily on colleagues, family, friends and joining various activities in the rural and remote community. The interpretation of the data suggest that most of 279 respondent GPs felt well-adjusted and see themselves as part of the medical community and the community at large in rural and remote Australia. Of the 279 respondents, approximately 94% of ATDs and 85% of OTDs felt comfortable with this domain. Only a small number of GP respondents, 6% of ATDs and 15% of OTDs, are not satisfied with this domain. Given that most of the 279 GP respondents responded with higher satisfaction levels with this QOL domain, it will be further investigated in the next chapter whether this results in actual retention of GPs in rural and remote communities.
Domain VII: Acceptance of GP respondents in rural and remote Australia

Table 4.13 presents the results of the collected data regarding the satisfaction of 279 GPs with their acceptance levels in the rural and remote community.

Table 4.13: Acceptance of GP respondents

<table>
<thead>
<tr>
<th>Acceptance levels</th>
<th>Country of basic medical degree</th>
<th>ATDs</th>
<th>OTDs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very dissatisfied</td>
<td></td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Moderately dissatisfied</td>
<td></td>
<td>21</td>
<td>19</td>
<td>40</td>
</tr>
<tr>
<td>Not sure</td>
<td></td>
<td>21</td>
<td>26</td>
<td>47</td>
</tr>
<tr>
<td>Moderately satisfied</td>
<td></td>
<td>70</td>
<td>48</td>
<td>118</td>
</tr>
<tr>
<td>Very satisfied</td>
<td></td>
<td>46</td>
<td>20</td>
<td>66</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>161</td>
<td>118</td>
<td>279</td>
</tr>
</tbody>
</table>

This domain encompassed the GPs’ sense of perception of their acceptance levels based on vital interconnections with the medical community and the community at large in rural and remote environments. Table 4.13 shows that of 279 respondents, 72% of ATDs feel satisfied with their acceptance level; whereas OTDs’ satisfaction level with this was comparatively lower (58%). Another important point, which came to the fore, was the uncertainty of both ATDs and OTDs regarding this domain, that meant they were still not clear whether they felt accepted in rural and remote settings. Thirteen percent of ATDs and 22% of OTDs responded that they were unsure about their acceptance level in these communities. This uncertainty can further result in leaving the rural and remote practice in favour of working in an urban area, whenever given the chance.
4.2.1 Comprehensive QOL satisfaction of GP respondents (ATDs and OTDs) with different domains in rural and remote Australia

Table 4.14 and Figure 4.1 demonstrate the comprehensive satisfaction levels of 279 GP respondents (ATDs and OTDs) with different domains of QOL in rural and remote communities.

**Table 4.14: Comprehensive QOL satisfaction of GP respondents with different domains**

<table>
<thead>
<tr>
<th>QOL domains</th>
<th>Very dissatisfied</th>
<th>Moderately dissatisfied</th>
<th>Not sure</th>
<th>Moderately satisfied</th>
<th>Very satisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATDs</td>
<td>OTDs</td>
<td>ATDs</td>
<td>OTDs</td>
<td>ATDs</td>
<td>OTDs</td>
</tr>
<tr>
<td>1. Material possessions</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>12</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>2. Health</td>
<td>3</td>
<td>2</td>
<td>15</td>
<td>17</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>3. Professional achievements</td>
<td>3</td>
<td>1</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>4. Relationship with family &amp; friends</td>
<td>2</td>
<td>0</td>
<td>20</td>
<td>14</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>5. Sense of security</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>10</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>6. Level of social interaction</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>5</td>
<td>9</td>
<td>80</td>
</tr>
<tr>
<td>7. Acceptance by the community</td>
<td>3</td>
<td>5</td>
<td>21</td>
<td>19</td>
<td>21</td>
<td>26</td>
</tr>
</tbody>
</table>

**Figure 4.1: Comprehensive QOL satisfaction of GP respondents with different domains**
The analysis exhibited high levels of satisfaction of 279 GP respondents (ATDs and OTDs) with almost all the domains of QOL. Another prominent feature that came to the fore was that a significant percentage of ATD respondents were ‘very satisfied’ or ‘moderately satisfied’ with their QOL as compared to the corresponding satisfaction levels of OTDs. The satisfaction levels of OTD respondents were also observed to be moderately high, but their satisfaction levels were moderate as compared to ATDs. It will be exciting to analyse the resultant impact of these varying levels of satisfaction on the retention of both kinds of GPs in rural and remote communities in the next chapter.

4.3 RESULTS FOR THE 27 DIMENSIONS OF COMMUNITY INTEGRATION OF GP RESPONDENTS

This section analyses the perceptions of the various factors that influence the broader experience of community integration of 279 GP respondents (ATDs and OTDs) in rural and remote Australia. Community integration was measured using the Experiential Place Integration framework developed by Cutchin in 1997. The framework represents integration as an active developmental process based on the enhancement of security, freedom, identity and meaning in place. The 27 dimensions (Table 2.1–Chapter 2, p.64) representing security, freedom and identity used by Cutchin in his research were used as the basis for the questionnaire to explore the factors influencing GPs’ (ATDs and OTDs) community integration in rural and remote Australia. As mentioned in Chapter 3 (Section 3.4.2), in view of certain overlapping dimensions in the experiential place integration construct, the questionnaire grouped together certain dimensions under a common thread so that respondents could contextualise the questions easily. The full mapping of all community integration dimensions representing different questions is summarised in detail in Appendix 2. The security domain was measured using 9 dimensions, which were analysed by 15 questions,
the freedom domain was measured using 10 dimensions by 18 questions, and the identity domain was measured using 8 dimensions by 15 questions. A total of 48 questions were used to measure these dimensions. The overall score, which represents a summation of the scores from individual questions, ranged from 48 to 240. A high score indicated greater integration, and a low score reflects less integration. Following is the detailed analyses of dimension in detail:

**Dimension of security**

The following Table (4.15) and Figure (4.2) show the analysis of the data for the satisfaction of 279 GP respondents (both ATDs and OTDs) with the different dimensions of security in rural and remote Australia.

<table>
<thead>
<tr>
<th>Dimensions of security</th>
<th>Very dissatisfied</th>
<th>Moderately dissatisfied</th>
<th>Not sure</th>
<th>Moderately satisfied</th>
<th>Very satisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATDs</td>
<td>OTDs</td>
<td>ATDs</td>
<td>OTDs</td>
<td>ATDs</td>
<td>OTDs</td>
</tr>
<tr>
<td>1. Confidence in medical abilities</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>2. Commitment to aspiration and goals</td>
<td>1</td>
<td>4</td>
<td>15</td>
<td>8</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>3. Ability to meet family needs</td>
<td>2</td>
<td>2</td>
<td>17</td>
<td>19</td>
<td>34</td>
<td>30</td>
</tr>
<tr>
<td>4. Comfort with medical community and institutions</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>7</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>5. Degree of on-call coverage</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>24</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>6. Practice group environment</td>
<td>3</td>
<td>4</td>
<td>12</td>
<td>20</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>7. Community and medical institution development</td>
<td>2</td>
<td>2</td>
<td>22</td>
<td>28</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>8. Social culture network available</td>
<td>2</td>
<td>8</td>
<td>36</td>
<td>29</td>
<td>37</td>
<td>33</td>
</tr>
<tr>
<td>9. Respect of medical and at-large community</td>
<td>3</td>
<td>12</td>
<td>111</td>
<td>19</td>
<td>26</td>
<td>79</td>
</tr>
</tbody>
</table>

*Out of 279 respondents, 79% GPs were required to be on call
Figure 4.2: Satisfaction level of GP respondents by dimensions of security

It can be observed that on almost all the dimensions of security, the 279 GP respondents (both ATDs and OTDs) demonstrate high satisfaction levels. The dimensions of ‘ability to meet family needs’, ‘degree of on-call average’ and ‘social culture network available’ recorded comparatively lesser levels of satisfaction in the case of both types of GP respondents. Another noteworthy fact, which was discovered by this study, was that, that ATD respondents were more secure than OTD respondents in rural and remote communities.

**Dimension of freedom**

The following Table (4.16) and Figure (4.3) show the analysis of the data for the satisfaction of 279 GP respondents (both ATDs and OTDs) with the different dimensions of freedom in rural and remote Australia.
Table 4.16: Satisfaction level GP respondents by dimensions of freedom

<table>
<thead>
<tr>
<th>Dimensions of freedom</th>
<th>Very dissatisfied</th>
<th>Moderately dissatisfied</th>
<th>Not sure</th>
<th>Moderately satisfied</th>
<th>Very satisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Challenge and diversity in workplace</td>
<td>ATDs 3 OTDs 0</td>
<td>ATDs 5 OTDs 7</td>
<td>ATDs 11</td>
<td>ATDs 51 OTDs 48</td>
<td>ATDs 91 OTDs 52</td>
<td>279</td>
</tr>
<tr>
<td>2. Ability to consult with more patients</td>
<td>ATDs 5 OTDs 2</td>
<td>ATDs 48 OTDs 30</td>
<td>ATDs 15</td>
<td>ATDs 92 OTDs 64</td>
<td>ATDs 1 OTDs 3</td>
<td>279</td>
</tr>
<tr>
<td>3. Cooperation with medical and community at large</td>
<td>ATDs 1 OTDs 2</td>
<td>ATDs 9 OTDs 12</td>
<td>ATDs 13</td>
<td>ATDs 78 OTDs 50</td>
<td>ATDs 60 OTDs 43</td>
<td>279</td>
</tr>
<tr>
<td>4. Respect of medical and at large</td>
<td>ATDs 3 OTDs 1</td>
<td>ATDs 12 OTDs 11</td>
<td>ATDs 19</td>
<td>ATDs 79 OTDs 50</td>
<td>ATDs 48 OTDs 31</td>
<td>279</td>
</tr>
<tr>
<td>5. Power in medical relations</td>
<td>ATDs 3 OTDs 1</td>
<td>ATDs 5 OTDs 7</td>
<td>ATDs 11</td>
<td>ATDs 51 OTDs 48</td>
<td>ATDs 91 OTDs 52</td>
<td>279</td>
</tr>
<tr>
<td>6. Ability to develop healthcare resources</td>
<td>ATDs 2 OTDs 2</td>
<td>ATDs 5 OTDs 10</td>
<td>ATDs 12</td>
<td>ATDs 63 OTDs 55</td>
<td>ATDs 79 OTDs 43</td>
<td>279</td>
</tr>
<tr>
<td>7. Diversity in social interactions</td>
<td>ATDs 2 OTDs 8</td>
<td>ATDs 36 OTDs 29</td>
<td>ATDs 37</td>
<td>ATDs 67 OTDs 43</td>
<td>ATDs 19 OTDs 5</td>
<td>279</td>
</tr>
<tr>
<td>8. Involvement in community affairs</td>
<td>ATDs 2 OTDs 8</td>
<td>ATDs 36 OTDs 29</td>
<td>ATDs 37</td>
<td>ATDs 67 OTDs 43</td>
<td>ATDs 19 OTDs 5</td>
<td>279</td>
</tr>
<tr>
<td>9. Personal and family activities</td>
<td>ATDs 2 OTDs 2</td>
<td>ATDs 17 OTDs 19</td>
<td>ATDs 34</td>
<td>ATDs 57 OTDs 40</td>
<td>ATDs 51 OTDs 27</td>
<td>279</td>
</tr>
<tr>
<td>10. Developed perspective of self and place</td>
<td>ATDs 1 OTDs 4</td>
<td>ATDs 15 OTDs 8</td>
<td>ATDs 15</td>
<td>ATDs 82 OTDs 63</td>
<td>ATDs 48 OTDs 33</td>
<td>279</td>
</tr>
</tbody>
</table>

Figure 4.3: Satisfaction level of GP respondents by dimensions of freedom
Similar to trends observed in satisfaction levels with the ‘security’ dimension of community integration, the 279 GP respondents (ATDs and OTDs) portrayed high satisfaction levels with the ‘freedom’ dimension also. Only the dimensions of ‘ability to consult with more patients’, ‘diversity in social interactions’, ‘involvement in community affairs’ and ‘personal and family activities’ recorded lesser satisfaction levels in the case of both type of GPs. Another trend similar to the observations in the security dimension is noted in this dimension also i.e., ATD respondents were more satisfied with freedom levels as compared to OTD respondents in rural and remote communities.

**Dimension of identity**

The following Table (4.17) and Figure (4.4) show the analysis of the data for the satisfaction of 279 GP respondents (both ATDs and OTDs) with the different dimensions of identity in rural and remote Australia.

**Table 4.17: Satisfaction level of GP respondents by dimensions of identity**

<table>
<thead>
<tr>
<th>Dimensions of identity</th>
<th>Very dissatisfied</th>
<th>Moderately dissatisfied</th>
<th>Not sure</th>
<th>Moderately satisfied</th>
<th>Very satisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Loss of anonymity</td>
<td>ATDs</td>
<td>OTDs</td>
<td>ATDs</td>
<td>OTDs</td>
<td>ATDs</td>
<td>OTDs</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>8</td>
<td>31</td>
<td>25</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>2. ‘Like-minded’ practice group</td>
<td>4</td>
<td>3</td>
<td>10</td>
<td>13</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>3. Roles played and responsibilities taken</td>
<td>3</td>
<td>1</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>4. Respect of the medical and community at large</td>
<td>3</td>
<td>1</td>
<td>12</td>
<td>11</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>5. Fulfilling aspirations in the workplace</td>
<td>1</td>
<td>4</td>
<td>15</td>
<td>8</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>6. Seeing as-self - belonging to the community</td>
<td>2</td>
<td>8</td>
<td>36</td>
<td>29</td>
<td>37</td>
<td>33</td>
</tr>
<tr>
<td>7. Awareness of self in time and place</td>
<td>1</td>
<td>4</td>
<td>15</td>
<td>8</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>8. Creation of future goals in place</td>
<td>3</td>
<td>1</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>
The dimension of ‘identity’ also exhibited high satisfaction levels in the case of both types of GP respondents (ATDs and OTDs). The only dimension which showed a lesser satisfaction level was that of ‘seeing self as belonging to the community’, which meant there were present some areas of concern for both types of GPs in identifying themselves as part of the rural and remote community.

4.3.1 Post hoc tests

Further, post hoc analysis was done to check whether significant difference existed in three dimensions of community integration for 279 GP respondents. Post hoc tests are designed for situations in which the researcher has already obtained a significant omnibus F-test with a factor that consists of three or more means and additional exploration of the differences among means is needed to provide specific information on which means are significantly different from each other (Stevens 1999). The statistical conclusion after these analyses is whether the groups, taken together, are homogenous, or whether they differ significantly from each other. Post hoc test for community integration dimensions for 279 GP respondents was
conducted on the basis of a significant F-test that indicated that means of the three dimensions differ significantly.

**Table 4.18: Post hoc tests**

<table>
<thead>
<tr>
<th>Multiple Comparisons</th>
<th>Mean difference (I – J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence interval Lower bound</th>
<th>Upper bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community integration score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between groups</td>
<td>52224.633</td>
<td>2</td>
<td>26112.317</td>
<td>571.154</td>
<td>.000</td>
</tr>
<tr>
<td>Within groups</td>
<td>38129.226</td>
<td>834</td>
<td>45.718</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>90353.859</td>
<td>836</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ANOVA**

Dependent Variable: Community integration score

<table>
<thead>
<tr>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>52224.633</td>
<td>2</td>
<td>26112.317</td>
<td>571.154</td>
</tr>
<tr>
<td>Within groups</td>
<td>38129.226</td>
<td>834</td>
<td>45.718</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>90353.859</td>
<td>836</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Results and Interpretation**

The results from the analysis (Table 4.18) indicates that the community integration score of 279 GP respondents varies across dimensions, F (2,834) = 571.154, p < .005. The highly significant F-ratio (p < .05) indicated that the means of the three dimensions differed significantly, but it did not indicate the location of this difference. To test for differences among specific dimensions, Scheffé test was used. In the multiple comparisons table, in the column labeled ‘mean difference (I – J)’, the mean difference values accompanied by asterisks indicated that which dimension differ significantly from each other at the 0.05 level of significant. The results indicated that three dimensions were significantly different from...
each other for the 279 GP respondents. These results show that the overall difference in the dimension cannot be attributed to one single dimension, but all dimensions contribute to it.

4.4 Hypothesis analysis
The last two sections (Section 4.2 & 4.3) analysed the satisfaction levels of 279 GPs with quality of life and experience of community integration in rural and remote communities respectively. In this section the link between these two key variables quality of life and community integration of GPs (ATDs and OTDs) and their resultant impact on retention in rural and remote Australia is analysed. To establish a link among these, seven hypotheses were developed in Chapter 3 (Section 3.2); this section analyses the results based on these seven research hypotheses.

Hypothesis I
This hypothesis’ main aim was to understand the association between the community integration and quality of life of 279 GPs in rural and remote communities. The following hypothesis was presented in Chapter 3:

\[ H_1 \text{- The level of community integration of GPs (OTDs and ATDs) in rural and remote areas impacts their QOL.} \]

\[ H_0 \text{- The level of community integration of GPs (OTDs and ATDs) in rural and remote areas does not affect their QOL.} \]

As mentioned in Chapter 3, the chi-square test of independence was used to analyse the association between community integration and QOL of 279 GP respondents. Further, the phi coefficient (\( \phi \)), the contingency coefficient (\( C \)) and Cramer’s V were used to check the strength of association between these two variables.
Table 4.19 represents the analysis in tabular form:

<table>
<thead>
<tr>
<th>Community integration (CI)</th>
<th>Quality of life (QOL)</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low score</td>
<td>Count</td>
<td>13</td>
<td>95</td>
<td>19</td>
<td>127</td>
</tr>
<tr>
<td></td>
<td>Expected count</td>
<td>7.3</td>
<td>63.3</td>
<td>56.4</td>
<td>127.0</td>
</tr>
<tr>
<td></td>
<td>% within community Integration</td>
<td>10.2%</td>
<td>74.8%</td>
<td>15.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within QOL</td>
<td>81.3%</td>
<td>68.3%</td>
<td>15.3%</td>
<td>45.5%</td>
</tr>
<tr>
<td>High score</td>
<td>Count</td>
<td>3</td>
<td>44</td>
<td>105</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>Expected count</td>
<td>8.7</td>
<td>75.7</td>
<td>67.6</td>
<td>152.0</td>
</tr>
<tr>
<td></td>
<td>% within community Integration</td>
<td>2.0%</td>
<td>28.9%</td>
<td>69.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within QOL</td>
<td>18.8%</td>
<td>31.7%</td>
<td>84.7%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>16</td>
<td>139</td>
<td>124</td>
<td>279</td>
</tr>
<tr>
<td></td>
<td>Expected count</td>
<td>16.0</td>
<td>139.0</td>
<td>124.0</td>
<td>279.0</td>
</tr>
<tr>
<td></td>
<td>% within community Integration</td>
<td>5.7%</td>
<td>49.8%</td>
<td>44.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>% within QOL</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

**Chi-square tests**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Df</th>
<th>Asymp. sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>83.034a</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>89.343</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-linear association</td>
<td>76.227</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of valid cases</td>
<td>279</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5.
b. The minimum expected count is 7.28.

**Hypothesis I: Analysis**

The results have demonstrated that the expected count frequency in each of the six cells generated by the factorial combination of community integration and QOL is greater than 5. This means that the analysis did not violate a main assumption underlying the chi-square test.

The Pearson chi-square statistic was used to determine whether there was a relationship between community integration and QOL. The Pearson chi-square value was statistically
significant, df = 2 = 83.034, p < 0.05. This demonstrates that QOL of 279 GP respondents was dependent on community integration. The community integration, QOL cross-tabulation showed that the majority of GPs of 279 respondents who scored low on community integration also experienced low QOL (count=7.3, % within quality of life 81.3%) and the majority of GPs who scored high on community integration also experienced higher QOL (count=67.6, % within QOL 84.7%). The p-value was less than 0.05, which indicates a relationship between community integration and QOL i.e. the null hypothesis was rejected, and community integration and quality of life of 279 GP respondents were not independent. For this data, Cramer’s V- statistic was found to be 0.546 out of a possible value of 1, which was an indicator of the strength of relationship. This represented a moderate association between community integration and QOL.

Hypothesis II

This hypothesis set out to determine the difference in perception of satisfaction levels of 279 GP respondents (ATDs and OTDs) along the three domains of community integration i.e. security, freedom and identity. The collection of data and questions regarding satisfaction levels of these GPs with security, freedom and identity dimensions offered scope to understand the varying levels of satisfaction along these community integration domains. The following hypothesis was set for analysing the data regarding these varying levels:

\[ H_1 \text{– OTDs (Overseas Trained Doctors) and ATDs (Australian Trained Doctors) face different types of community integration issues.} \]

\[ H_0 \text{– Both OTDs and ATDs face the same types of community integration issues.} \]

For checking variances in the perception levels of 279 GP respondents regarding the domains of community integration, the t-test was used. This was useful to determine whether ATDs
and OTDs face different types of community integration issues in rural and remote areas or their perceptions of community integration issues are the same. Further, Levene’s test was used to assess variance homogeneity in the context of each domain of community integration. Table 4.20 (a & b) expresses the data in tabular form:

Table 4.20 (a): Mean, standard deviation, standard error mean for GPs (ATDs and OTD)

<table>
<thead>
<tr>
<th>Country of basic medical degree</th>
<th>N</th>
<th>Mean</th>
<th>Std deviation</th>
<th>Std error mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATDs</td>
<td>161</td>
<td>46.2981</td>
<td>6.41760</td>
<td>0.50578</td>
</tr>
<tr>
<td>OTDs</td>
<td>118</td>
<td>44.5085</td>
<td>6.98441</td>
<td>0.64297</td>
</tr>
<tr>
<td>Freedom</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATDs</td>
<td>161</td>
<td>55.9814</td>
<td>7.13133</td>
<td>0.56203</td>
</tr>
<tr>
<td>OTDs</td>
<td>118</td>
<td>55.0254</td>
<td>7.55319</td>
<td>0.69533</td>
</tr>
<tr>
<td>Identity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATDs</td>
<td>161</td>
<td>36.6273</td>
<td>5.94540</td>
<td>0.46856</td>
</tr>
<tr>
<td>OTDs</td>
<td>118</td>
<td>35.6949</td>
<td>6.55354</td>
<td>0.60330</td>
</tr>
</tbody>
</table>

Table 4.20 (b): Levene’s test for equality of variance and t-test for equality of means

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Levene's Test for equality of variances</th>
<th>T-test for equality of means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Security</td>
<td>1.328</td>
<td>0.250</td>
</tr>
<tr>
<td></td>
<td>2.188</td>
<td>0.030</td>
</tr>
<tr>
<td>Freedom</td>
<td>0.486</td>
<td>0.486</td>
</tr>
<tr>
<td></td>
<td>1.069</td>
<td>0.286</td>
</tr>
<tr>
<td>Identity</td>
<td>0.604</td>
<td>0.438</td>
</tr>
<tr>
<td></td>
<td>1.221</td>
<td>0.223</td>
</tr>
</tbody>
</table>

Chapter 4: Research findings
Hypothesis II: Analysis

Security
The t-test was applied to check whether the variables of the study were related and further Levene’s test for the equality of variances was applied to check the strength of association among the variables of the study. Levene’s statistic was found to be $F = 1.32$ and the corresponding level of significance was $0.25$ (i.e. $p>0.05$) (see Table 4.20(b)). Thus, the assumption of homogeneity of variance was not violated, and the equal variances assumed that the t-test statistic could be used for evaluating the null hypothesis of equality of means. The result from the analysis indicated that there was a significant difference between the ATD and OTD samples of 279 respondents in regard to the security dimension of community integration, $t (df = 277) = 0.027, p<0.05$. The mean values indicated that ATD respondents felt more secure (ATDs = 46.29) than OTDs (OTDs = 44.50).

Freedom
Levene’s statistic was observed to be $F = 0.486$ and the corresponding level of significance was also noted to be $0.486$ (i.e. $p>0.05$) (see Table 4.20(b)). Thus, the assumption of homogeneity of variance was violated and the equal variances assumed that the t-test statistic was used for evaluating the null hypothesis of equality of means. The result from the analysis indicated that there was no significant difference between the ATD and OTD respondents’ perceptions regarding the freedom dimension of community integration, $t (df = 277) = 0.282, p>0.05$.

Identity
For the identity domain Levene’s statistic was found to be $F = 0.604$ and the corresponding level of significance was $0.438$ (i.e. $p > 0.05$) (see Table 4.20(b)). Thus, the assumption of homogeneity of variance was not violated and further equal variances assumed that the t-test
statistic could be used for evaluating the null hypothesis of equality of means. The result from
the analysis indicated that there was no significant difference between the ATD and OTD
respondents’ perceptions regarding the identity dimension of community integration, t (df =
277) = 0.216, p > 0.05.

The above analysis concluded that out of 279 GP respondents, the OTDs felt more insecure as
compared to the ATDs in rural and remote areas. For the dimensions of freedom and identity,
there were insignificant differences between ATD and OTD respondents working in rural and
remote Australia, but the study found a significant degree of difference the in perceptions of
satisfaction of ATD and OTD respondents with the security dimension of community
integration.

**Hypothesis III**

The last section dealt with determining the varying levels of community integration of the 279
GP respondents. This hypothesis analyses the corresponding difference between the levels of
community integration of both types of GP respondents (ATDs and OTDs). It was interesting
to see whether there is an association between community integration and country of basic
degree. The following hypothesis was set out in Chapter 3:

\[ H_I – There\ is\ a\ difference\ between\ the\ level\ of\ community\ integration\ of\ OTDs \\
and\ ATDs. \]

\[ H_O – There\ is\ no\ difference\ between\ the\ level\ of\ community\ integration\ of\ OTDs \\
and\ ATDs. \]

The chi-square test of independence was used to analyse the association between the
community integration of GPs and the country of basic medical degree, Further, The phi
coefficient (\( \varphi \)), the contingency coefficient (C) and Cramer’s V were used to check whether
the community integration of GPs in rural and remote areas varied according to the country of basic medical degree.

Tabular representation of these analyses is shown on the next page:

**Table 4.21: Crosstab (country of basic medical degree vs community integration)**

<table>
<thead>
<tr>
<th>Country of basic medical degree</th>
<th>Low Score</th>
<th>High Score</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATDs</td>
<td>Count</td>
<td>70</td>
<td>91</td>
</tr>
<tr>
<td>Expected count</td>
<td>73.3</td>
<td>87.7</td>
<td>161.0</td>
</tr>
<tr>
<td>% within community integration</td>
<td>55.1%</td>
<td>59.9%</td>
<td>57.7%</td>
</tr>
<tr>
<td>OTDs</td>
<td>Count</td>
<td>57</td>
<td>61</td>
</tr>
<tr>
<td>Expected count</td>
<td>53.7</td>
<td>64.3</td>
<td>118.0</td>
</tr>
<tr>
<td>% within community integration</td>
<td>44.9%</td>
<td>40.1%</td>
<td>42.3%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>127</td>
<td>152</td>
</tr>
<tr>
<td>Expected count</td>
<td>127.0</td>
<td>152.0</td>
<td>279.0</td>
</tr>
<tr>
<td>% within community integration</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>45.5%</td>
<td>54.5%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

**Chi-square tests**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. sig. (2-sided)</th>
<th>Exact sig. (2-sided)</th>
<th>Exact sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>0.640a</td>
<td>1</td>
<td>0.424</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity correctionb</td>
<td>0.460</td>
<td>1</td>
<td>0.498</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>0.639</td>
<td>1</td>
<td>0.424</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher’s exact test</td>
<td></td>
<td></td>
<td></td>
<td>0.466</td>
<td>0.249</td>
</tr>
<tr>
<td>Linear-by-linear assoc.</td>
<td>0.637</td>
<td>1</td>
<td>0.425</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5; the minimum expected count is 53.71.
b. Computed only for a 2x2 table
Chapter 4: Research findings

Hypothesis III: Analysis

As mentioned earlier (Section 3.4.2) community integration was divided on three domains i.e. security, freedom and identity on the basis of Cutchins’ ‘Experiential place integration’ model. The security domain was measured using 9 dimensions, which were analysed by 15 questions, the freedom domain was measured using 10 dimensions by 18 questions, and the identity domain was measured using 8 dimensions by 15 questions. A total of 48 questions were used to measure these dimensions. The overall score, which represents a summation of the scores from individual questions, ranged from 48 to 240. A high score indicated greater integration, and a low score reflects less integration. Out of 279 GP respondents 127(45.5%) were found to have scored less, which reflected less integration, and 152(54.5%) were found to have scored high score, which reflected higher integration.

The results show that the expected count frequency in each of the four cells generated by the factorial combination of community integration and country of basic degree was greater than 5. This meant that the analysis didn’t violate the main assumption underlying the chi-square test. The Pearson chi-square statistic was used to determine whether there existed a relationship between community integration and country of basic degree of 279 GP respondents. The Pearson chi-square value is not statistically significant, chi-square statistics (df = 1 = 0.640), and the corresponding level of significance is 0.438, p>0.05. This meant that community integration of 279 GP respondents was independent of country of basic degree.

<table>
<thead>
<tr>
<th>Symmetric measures</th>
<th>Value</th>
<th>Approx. sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal by nominal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phi</td>
<td>-0.048</td>
<td>0.424</td>
</tr>
<tr>
<td>Cramer’s V</td>
<td>0.048</td>
<td>0.424</td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>0.048</td>
<td>0.424</td>
</tr>
<tr>
<td>N of valid cases</td>
<td>279</td>
<td></td>
</tr>
</tbody>
</table>
For this data, Cramer’s V statistics was noted to be 0.048 out of a possible value of 1, which indicated of the strength of the relationship. This represented a very low association between community integration and country of basic degree.

**Hypothesis IV**

Based on the resultant QOL based on community integration of 279 GPs from the analyses of Hypothesis I, this hypothesis further checks the impact on retention of these GPs in rural and remote Australia.

Following was the hypothesis:

- **H$_1$**—Resultant QOL affects potential retention of GPs in rural and remote areas.
- **H$_0$**—Potential retention of GPs is not affected by QOL in rural and remote areas.

As mentioned earlier (Chapter3), retention was calculated using the following criteria:

i) A GP who has served less than 2 years and has shown the intention to leave in next 2 years, he/she is termed as ‘not retained’.

ii) A GP who has served more than 2 years and has shown intention to stay in the rural and remote community for more than two years, he/she is termed as ‘retained’.

For checking the association of QOL of GPs in rural and remote areas with the resultant retention, the chi-square test of independence was used. The phi coefficient ($\varphi$), the contingency coefficient (C) and Cramer’s V were used to check the strength of association between quality of life and the resultant retention.
Following is the tabular representation of the analyses of this hypothesis:

**Table 4.22: Crosstab (QOL vs Retention)**

**Case processing summary**

<table>
<thead>
<tr>
<th>Cases</th>
<th>Valid</th>
<th>Missing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percent</td>
<td>N</td>
</tr>
<tr>
<td>QOL* Retention</td>
<td>279</td>
<td>100.0%</td>
<td>0</td>
</tr>
</tbody>
</table>

**QOL * Retention cross tabulation**

<table>
<thead>
<tr>
<th>QOL</th>
<th>Retention calculation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Retained</td>
<td>Retained</td>
</tr>
<tr>
<td>Low</td>
<td>Count</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>4.2</td>
</tr>
<tr>
<td>Medium</td>
<td>Count</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>36.4</td>
</tr>
<tr>
<td>High</td>
<td>Count</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>32.4</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>73.0</td>
</tr>
</tbody>
</table>

**Retention**

<table>
<thead>
<tr>
<th>Retention</th>
<th>Not Retained</th>
<th>Retained</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>9</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Medium</td>
<td>44</td>
<td>95</td>
<td>139</td>
</tr>
<tr>
<td>High</td>
<td>22</td>
<td>102</td>
<td>124</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>172</td>
<td>279</td>
</tr>
</tbody>
</table>

**Chi-Square Tests**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>9.283a</td>
<td>2</td>
<td>.010</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>9.326</td>
<td>2</td>
<td>.009</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>9.233</td>
<td>1</td>
<td>.002</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>279</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a.1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.19.
Hypothesis IV: Analysis

The results demonstrated that the expected count frequency in each of the six cells generated by the factorial combination of QOL and retention is greater than 5. This meant that the analysis did not violate the main assumption underlying the chi-square test. The Pearson chi-square statistic was used to determine whether there was a relationship between quality of life and retention. The Pearson chi-square value was noted to be statistically significant, \( df = 2 \) = 9.283, \( p < 0.05 \). This illustrated that the retention of 279 GP respondents was positively associated with quality of life i.e. the higher the QOL of the 279 GP respondents correspondingly higher retention was observed.

Hypothesis V

Further, univariate analysis was done to check whether there existed a difference between the mean score of satisfaction with QOL of 279 GP respondents (ATDs and OTDs)

Following was the hypothesis:

\[ H_1 \text{— There is difference between the mean score of satisfaction with QOL of GP respondents (ATDs and OTDs)} \]

\[ H_0 \text{— There is no difference between the mean score of satisfaction with QOL of GP respondents (ATDs and OTDs)} \]

The following Table 4.23 explores the univariate analysis of 279 GP respondents’ (ATDs and OTDs) satisfaction levels with different QOL domains in rural and remote Australia.
Hypothesis V: Analysis

The result from the univariate analysis of 279 GP respondents indicated that there was a significant difference between the ATDs and OTDs in rural and remote communities regarding satisfaction with QOL domains, $t$ (df = 12) = 2.320, $p < .05$. The mean values indicate that ATDs’ satisfaction with QOL is more (Mean =4.17) as compared to OTDs (Mean = 3.8). The major differences were observed in the domain of ‘material possessions’ followed by ‘acceptance by community’ and ‘sense of security’ domain respectively.
Hypothesis VI

Another hypothesis, which was formed in addition to the main focus of the study (as mentioned in Section 4.2.1 (Gender distribution)), was to assess the difference in perception levels of QOL satisfaction according to gender. The following hypothesis was set:

\( \text{H}_1 \) – QOL varies according to gender.

\( \text{H}_0 \) – There is no difference of QOL according to gender.

Levene’s test for equality of variance was used to check the probability whether there was a significant difference in the context of male and female (GPs) perception levels pertaining to the domains of QOL. Following is the tabular analyses of this hypothesis:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Gender</th>
<th>Mean</th>
<th>Std deviation</th>
<th>Levene’s test for equality of variances</th>
<th>Independent sample t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Material possessions</td>
<td>Male</td>
<td>4.15</td>
<td>0.985</td>
<td>0.298</td>
<td>0.585</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4.25</td>
<td>0.884</td>
<td>0.298</td>
<td>0.585</td>
</tr>
<tr>
<td>Health</td>
<td>Male</td>
<td>3.97</td>
<td>1.027</td>
<td>0.023</td>
<td>0.879</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4.03</td>
<td>1.009</td>
<td>0.023</td>
<td>0.879</td>
</tr>
<tr>
<td>Your professional achievement</td>
<td>Male</td>
<td>4.2</td>
<td>0.86</td>
<td>0</td>
<td>0.998</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4.09</td>
<td>0.913</td>
<td>0</td>
<td>0.998</td>
</tr>
<tr>
<td>Your relationship between family and friends</td>
<td>Male</td>
<td>3.92</td>
<td>1.065</td>
<td>8.097</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4.14</td>
<td>0.809</td>
<td>8.097</td>
<td>0.005</td>
</tr>
<tr>
<td>Your sense of security</td>
<td>Male</td>
<td>4.23</td>
<td>0.884</td>
<td>0.377</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4.3</td>
<td>0.806</td>
<td>0.377</td>
<td>0.54</td>
</tr>
<tr>
<td>Your level of social Interaction</td>
<td>Male</td>
<td>3.65</td>
<td>1.093</td>
<td>0.643</td>
<td>0.423</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>3.77</td>
<td>1.033</td>
<td>0.643</td>
<td>0.423</td>
</tr>
<tr>
<td>Your acceptance by community</td>
<td>Male</td>
<td>4.226</td>
<td>0.9013</td>
<td>5.311</td>
<td>0.022</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4.314</td>
<td>0.629</td>
<td>5.311</td>
<td>0.022</td>
</tr>
<tr>
<td>List of leisure activities</td>
<td>Male</td>
<td>0.8588</td>
<td>1.01542</td>
<td>0.051</td>
<td>0.821</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>0.6961</td>
<td>0.74181</td>
<td>0.051</td>
<td>0.821</td>
</tr>
<tr>
<td>Overall quality</td>
<td>Male</td>
<td>29.1977</td>
<td>5.25707</td>
<td>2.024</td>
<td>0.156</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>29.5882</td>
<td>4.23412</td>
<td>2.024</td>
<td>0.156</td>
</tr>
</tbody>
</table>

*The t and df were adjusted because variances were not equal
Hypothesis VI: Analysis
Levene’s test for equality of variances tests the hypothesis that the two population variances are equal. The Levene statistic for the various dimensions of QOL and overall QOL of 279 GP respondents was observed to be significant i.e. \( p > 0.05 \). Thus, the assumption of homogeneity of variance was not violated and the equal variances assumed that the t-test statistic could be used for evaluating the null hypothesis of equality of means, except the dimension of acceptance by the community and relationship between friends and family i.e. \( p < 0.05 \); the assumption that the population variances were equal was rejected and the equal variances did not assume that the t-test statistic could be used. Table 4.24 shows that males were not significantly different from females on the different dimensions of QOL and overall quality (\( t = -0.640, df = 277 \)) since all \( p \) values were less than 0.05 (\( p > 0.05 \)) as shown in the above table. Inspection of the two group means indicated that the average overall quality score for female practitioners (29.58) was almost equal to that for males (29.19).

Hypothesis VII
The previous sections analysed whether there were differences in satisfaction levels of 279 GP respondents with quality of life experience. This hypothesis furthers the scope of the study by assessing the difference of perception levels of community integration of these 279 GPs according to gender.

\[ H_I \text{– Community integration varies according to gender.} \]

\[ H_0 \text{– There is no difference of community integration according to gender.} \]

The chi-square test of independence was used to analyse the association between community integration and gender of GPs. Further, the phi coefficient (\( \phi \)), the contingency coefficient (C) and Cramer’s V were used to check the strength of association between community
integration and gender of GPs in rural and remote areas. The following is the tabular analysis of this hypothesis:

### Table 4.25 – Crosstab (gender vs. community integration)

**Case processing summary**

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Valid</td>
<td>Missing</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Percent</td>
<td>N</td>
<td>Percent</td>
</tr>
<tr>
<td>Gender * community</td>
<td>279</td>
<td>100.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community integration</th>
<th>Below average</th>
<th>Above average</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender * community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>80</td>
<td>97</td>
<td>177</td>
</tr>
<tr>
<td>Expected count</td>
<td>80.6</td>
<td>96.4</td>
<td>177.0</td>
</tr>
<tr>
<td>% within Community</td>
<td>11%</td>
<td>63.8%</td>
<td>63.4%</td>
</tr>
<tr>
<td>integration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>47</td>
<td>55</td>
<td>102</td>
</tr>
<tr>
<td>Expected count</td>
<td>46.4</td>
<td>55.6</td>
<td>102.0</td>
</tr>
<tr>
<td>% within integration</td>
<td>37.0%</td>
<td>36.2%</td>
<td>36.6%</td>
</tr>
<tr>
<td>Total</td>
<td>127</td>
<td>152</td>
<td>279</td>
</tr>
<tr>
<td>Expected Count</td>
<td>127.0</td>
<td>152.0</td>
<td>279.0</td>
</tr>
<tr>
<td>% within integration</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

**Chi-square tests**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. sig. (2-sided)</th>
<th>Exact sig. (2-sided)</th>
<th>Exact sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>.020a</td>
<td>1</td>
<td>.887</td>
<td>.901</td>
<td>.493</td>
</tr>
<tr>
<td>Continuity correctionb</td>
<td>.000</td>
<td>1</td>
<td>.986</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>.020</td>
<td>1</td>
<td>.887</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's exact test</td>
<td></td>
<td></td>
<td></td>
<td>.901</td>
<td>.493</td>
</tr>
<tr>
<td>Linear-by-linear association</td>
<td>.020</td>
<td>1</td>
<td>.887</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of valid cases</td>
<td>279</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 0 cells (.0%) have expected count less than 5; the minimum expected count is 46.43.
b. Computed only for a 2x2 table
Hypothesis VII: Analysis

The results demonstrated that the expected count frequency in each of the six cells generated by the factorial combination of community integration and gender is greater than 5. This meant that the analysis did not violate the main assumption underlying the chi-square test.

The Pearson chi-square statistic was used to determine whether there was a relationship between community integration and gender of 279 GP respondents. The Pearson chi-square value was noticed to be statistically insignificant, df = 1) = 0.02, p > 0.05. This meant that gender was independent of community integration. Looking at the community integration, gender cross-tabulation table, it was observed that the percentages of male and female GPs who scored below average on community integration were 68.4% and 37% respectively and those of the GPs who scored above average on community integration were 63.8% and 36.2% respectively, thus indicating the absence of a relationship between gender and community integration of these 279 GP respondents. For this data, Cramer’s V statistics is 0.009 out of a possible value of 1, which indicated the strength of the relationship. This suggested no association between community integration and gender.
4.5 Correlation among variables

As outlined in Chapter 3, statistical mediation analysis was used to prove the correlation with the three variables of the study, namely, QOL, community integration and retention. In order to test whether these three conditions were met, the correlation coefficients for these three relationships were obtained.

<table>
<thead>
<tr>
<th>Table 4.26(a): Correlations among QOL, community integration and retention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retention</strong></td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td><strong>Retention</strong></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td><strong>QOL</strong></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td><strong>Community integration</strong></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
</tbody>
</table>

**Statistically significant at 0.05 level

Table 4.26(b): Coefficients & Anova tests

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>1.423</td>
<td>.099</td>
<td>14.382</td>
</tr>
<tr>
<td></td>
<td>Communitycal</td>
<td>.624</td>
<td>.061</td>
<td>.524</td>
</tr>
</tbody>
</table>
The correlation coefficients for each path i.e. the links between each of the variables were statistically significant. These results indicated that, at the bivariate level, each of the conditions necessary to test for the possible role of a mediator was met:

- Quality of life was significantly correlated with retention, \( r = 0.18 \).
- Community integration was significantly correlated with QOL, \( r = 0.524 \).
- The partial effect of QOL on retention, holding community integration constant, was statistically significant, \( \beta = 0.0167, p = 0.02 \).
- The direct effect of community integration on retention (removing the effect of QOL) was found to be short of statistical significance, \( \beta = 0.025, p = 0.717 \).

As expected, community integration of 279 GP respondents was significantly correlated with retention, \( r = 0.18, p < 0.001 \). Regression analysis was employed to investigate the involvement of QOL as a possible mediator of the relationship between community integration and retention of these 279 GP respondents.
Community integration of 279 GP respondents was found to be significantly related to QOL, \( r = 0.524, p<0.001 \), retention was significantly related to a linear combination of community integration and QOL, \( F(2, 276) = 4.69, p <0.02 \), community integration (\( \beta = 0.025, p =0.717 \)) did not have significant effect but QOL (\( \beta = 0.167, p = 0.017 \)) had a significant partial effect on retention.

Sobel, Aroian and Goodman’s tests of mediation indicated that QOL significantly mediated the relationship between the community integration and retention, as shown in the following table 4.27:

Table 4.27: Sobel, Aroian & Goodman’s tests of mediation

<table>
<thead>
<tr>
<th>Input:</th>
<th>Test statistic:</th>
<th>Std. Error:</th>
<th>( p )-value:</th>
</tr>
</thead>
<tbody>
<tr>
<td>( a )</td>
<td>0.624</td>
<td>Sobel test: 2.34740626</td>
<td>0.01099864</td>
</tr>
<tr>
<td>( b )</td>
<td>0.041</td>
<td>Aroian test: 2.33685222</td>
<td>0.01094806</td>
</tr>
<tr>
<td>( s_a )</td>
<td>0.061</td>
<td>Goodman test: 2.3581046</td>
<td>0.01084939</td>
</tr>
<tr>
<td>( s_b )</td>
<td>0.017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The test statistic for the Sobel test is 2.34, with an associated \( p \)-value of 0.018. The fact that the observed \( p \)-value does fall below the established alpha level of 0.05 indicates that the association between the IV and the DV (in this case, community integration and retention) is
affected significantly by the inclusion of the mediator (in this case, QOL) in the model; in other words, there is evidence of mediation.

4.6 CONCLUSION
This chapter has presented the detailed analyses of the data with the help of SPSS software. Of the 1186 GPs who were mailed a questionnaire, 279 responded (23.5%). The first section provided the demographic profiles of these respondents. The second section analysed the satisfaction levels of these GPs with seven domains of QOL. Similarly, with the community integration domains of security, freedom and identity, high levels of satisfaction were observed for the 279 GP respondents. The major part of the chapter was devoted to the hypothesis analysis proposed in Chapter 3. All the seven hypotheses were analysed with the help of tables. Lastly, statistical mediation analysis was done to establish any correlation among the three main variables of the study. This chapter thus analysed the gathered data and extracted inferences from it. In the next chapter these inferences will be discussed in detail and analysed against the recent literature.
5.0 INTRODUCTION
This study links community integration and QOL of GPs in rural and remote communities in Australia in order to assess the challenges in retaining ATDs and OTDs in rural and remote Australia. The outcomes of this study will assist in the development of a policy framework that can be used to reinforce the need to acknowledge the different domains of community integration of GPs, so as to increase their satisfaction with their practice in rural and remote Australia. Further, this may influence them to choose to stay in rural and remote practices, resulting in sustained growth in their numbers through to 2020.

This chapter provides a detailed discussion of the research data reporting demographic profiles and the experiences of 279 GP respondents (ATDs and OTDs) with QOL and dimensions of community integration in rural and remote communities in Australia. The relationships between 279 respondents’ community integration, QOL and retention are explored in detail and compared to the current literature. Following these discussions, an emerging theory is presented, bringing all of these themes together to address the retention issue of GPs in rural and remote Australia.

5.1 DEMOGRAPHIC PROFILES OF GPs
This section discusses the demographic profiles of 279 GP respondents:

5.1.1 Country of origin
The analysis of respondents showed that a small majority of 279 GP respondents working in rural and remote Australia were ATDs (58%) and the rest were OTDs (42%). The findings mirror the current situation where OTDs make up major of the GP workforce in rural and remote Australia (DoHA, 2010). Though the study generated a moderate response rate (24%), it does display the
reliance of the Australian healthcare system on OTDs. The Australian GP workforce would have been at risk of absolute decline between 2000–01 and 2008–09 if not for OTD recruitment. Moreover, according to a recent report by Rural Health Workforce Australia (RHWA), 2011, 73% growth was recorded for OTDs in rural and remote areas from 2000 to 2009. It is important to understand the factors, which make contribution to retention of theses GPs. The study seeks to contribute to these objectives.

5.1.2 Gender distribution of GP (ATDs/OTDs) respondents

Some of the earlier studies (Hill et al., 2001; Tausig & Fenwick, 2001) have demonstrated that there is a significant gender difference within the rural and remote GP workforce. The total female medical workforce is growing in Australia at a much faster rate than the male medical workforce (Australian Medical Workforce Advisory Committee, 1996). These differences become all the more important in wake of the fact that female physicians are somewhat less likely than their male counterparts to practice in rural areas and tend to concentrate in major urban areas (Williams et al., 1990; American Medical Association, 1991; Kelly & Percales, 1995). Moreover, it has been consistently found that female GPs work fewer hours than their male counterparts (Hojat et al., 1995; Woodward et al., 1995; Reamy & Pong, 1998; White & Ferguson, 2001). Given the shortage of GPs in rural and remote Australia and increasing number of female medical workforce in Australia, the retention policies must take into account the above discussed characteristics of female GPs, so as to address the retention problems of rural and remote Australia.

The gender distribution division of the 279 respondents suggested that proportion of male GPs was higher (63%) than that of female GPs (37%). This can partly be explained by the fact that women comprise less than one quarter of all rural and remote GPs and are significantly less
likely than men to take up full-time practice in these areas (AIHW, 1995). Although there is an evidence of more male respondents from this survey, the number of female GPs is sufficiently large to give a balanced projection and analysis of the issues associated with QOL and community integration in rural and remote Australia. Between 1999 to 2009 the number of female doctors in Australia rose by more than three-quarters (11,471) while the number of male doctors rose 31% (11,045). This can be expected to continue as from 2000 to 2010 more than half of all medical students were female (Medical Training Review Panel Fourteenth Report, 2011). It has been observed that female GPs tend to have different practice patterns, priorities and expectations, and are less likely to practise in rural and remote communities where their expectations cannot be met (White & Fergusson, 2001). Tolhurst, while observing rural female GPs as ‘change agents’ identified that rural female GPs are committed to rural life and work but there is a need for changes to work and training structures based on principles of flexibility and fairness (Tolhurst, 2002).

In regard to the gender differences between ATDs and OTDs, there was little difference between the proportions of males between the two groups, 97 (55%) for ATDs and 79 (45%) for OTDs, but the number of female ATDs (64) was higher than that of female OTDs (39). This could be related to the fact that female ATDs practising in remote areas were more likely to accompany a male partner when locating to a rural and remote destination. Earlier research has demonstrated that female OTDs have similar practice patterns to female ATDs in rural and remote Australia, except in the provision of standard consultations and short consultations per patient. Both male and female OTDs provided fewer standard consultations per patient than their ATD equivalents (Lawrence, 2007). This fact might be having an impact on the satisfaction levels of ATDs (males and females) with QOL. In light of these findings, the next
Chapter 5 will discuss the comparative impact of consultations of GPs (ATDs and OTDs) on their QOL and resultant retention in rural and remote communities across Australia.

5.1.3 Age profile of GPs (ATDs/OTDs) respondents

The data indicate that most GP respondents (72%) were in mid-career (36–60 years); a smaller number (18%) was in the older group (61–85 years) and even fewer (9%) in the younger category (25–35 years). This is consistent with the findings of the Minimum Data Set Report (MDS, 2010), which suggested that the rural and remote medical workforce in Australia is ageing. That report concluded that there was an urgent need to expose more young people to rural general practice during their training and even early in their careers and to provide them with the experience of rural and remote general practice. The rural exposure should be built into existing training programs where the trainee can add some value to the rural practice, rather than starting afresh in rural and remote settings after their graduation. The analysis of 279 GP respondents exhibited that the male GPs outnumber the female GPs in rural and remote areas. Another factor, which comes to the fore from this study, though it cannot be generalised in wake of moderate response rate of 24%, is that more younger GPs workforce in rural and remote Australia are ATDs (both male and female). On the other hand, older GPs are from the ATD category (both male and female) as compared to OTDs, whereas middle-aged OTDs (both male and female) outnumber ATDs.

5.1.4 Composition of OTDs according to country of origin

The analysis (Table 4.4, Chapter 4, p-118) indicated that the majority of OTD respondents were from European, Asian and African countries, the percentages being 35% (European), 34% Asian) and 24% (African) respectively. In 1997–98, most OTDs arriving in Australia under temporary resident visas were from the United Kingdom and Ireland, and by 2002–03
this had dropped to under 50% with OTDs now coming from a greater diversity of countries (Birrell, 2004). The recent figures from Australia’s Health Workforce Series, 2012 report suggested that six of the top ten countries’ temporary GP visa applicants were from India, Malaysia, Sri Lanka, Pakistan, Iran and South Africa, which are considered to be developing countries (World Economic Outlook Report, 2011). Citizens from these countries accounted for over one-third of visa grants in 2009–10 for OTDs in Australia.

The analysis of the data for this research suggested evidence of reliance on South Africa (24%) for the international recruitment pipeline, but on the other hand it demonstrated that there is an equal mix of European (35%) and Asian (34%) countries as well.

5.1.5 Living situation of respondents

The data further demonstrated that OTD respondents were more typically living with their spouse and children as compared to ATDs, who were living with a spouse or partner only. Only 12% of GP respondents (ATDs and OTDs) were living alone. Given the high percentage of respondents being partnered and living with children, it would be interesting to analyse the various issues i.e. spouse employment, childcare access, better education opportunities for children, role conflict (balancing work and family) and recreational facilities in context of the present study of determining the influence of community integration and experience of QOL on the resultant retention in rural and remote Australia.

5.1.6 Income levels of respondents

The Department of Health and Ageing (DoHA), to encourage more GPs provides an array of federal government incentives to go to areas where they are most needed, in addition to their
minimum salary based on their rural and remote locations. These include the possibility of subsidised rental accommodation and additional incentives based on the General Practice Rural incentives Program (GPRIP) in rural and remote areas. The recent research by Medicine in Australia: Balancing Employment and Life (MABEL) also suggest that GPs in outer regional, rural and remote Australia earn 11.5 per cent more than GPs working in major cities (Mabel, 2010). The MABEL study confirmed the fact that GPs’ remuneration is based on the principle that the more remote they go, the higher salaries they get. These extra incentives have been ‘well received’ by many GPs but their impact on retention has not yet been calculated. As demonstrated by the significantly high level of income offerings to GPs in rural and remote Australia, the data analysis of this study for 279 GP respondents also reflected higher levels of income for both kinds of GPs in rural and remote areas. More than 82% of the GP respondents (ATDs and OTDs) are getting more than six-figure salaries, although there are more ATDs (88%), than OTDs (74%).

5.2 DISCUSSION OF RESULTS FOR 7 QOL DOMAINS
This study hypothesises that the QOL of GPs is an outcome of their satisfaction or dissatisfaction with their community integration in rural and remote communities as measured by the QOL scale described in Chapter 3, Section 3.4.3 There is evidence that this satisfaction level with QOL increases or decreases the chances of GPs’ decision to stay or leave rural or remote communities (Gardiner et al., 2006; Kimball & Crouse, 2007).

The QOL of GPs was measured on the basis of Comprehensive Quality of Life Scale (ComQol-A5) developed by Cummins (1997). That scale has been shown to be internally consistent (Cummins et al., 1994) and its content validity has been similarly reported as adequate (McVilly, Burton-Smith & Davidson, 2004). These seven domains have formed the
basis for the personal wellbeing index (Cummins, 1997). Cummins recommended the personal wellbeing index as a measure of subjective QOL. It is the most reliable, valid and sensitive instrument available (McVilly, Burton-Smith & Davidson, 2004). These domains were originally intended as the first-level deconstruction measure of ‘life-as-a-whole’ and they have performed well in this regard (Cummins, 1996, 1997).

As discussed in Chapter 3 (Section 3.4.3) the ‘Comprehensive Quality of Life scale (ComQol A-5)’ developed by Cummins (1997) was adapted and modified for measuring QOL of GPs in Australia. The questionnaire was refined mainly to address range of variables as discussed in Chapter 3 (Table 3.2). The modifications aimed to improve its clarity and appropriateness for the target group. The domain of ‘Material possessions’ was used to measure the satisfaction of 279 GP respondents with their accommodation, possessions and estimated income. The ‘Health’ domain dealt with the healthiness of these 279 GP respondents in rural and remote areas in term of their medical conditions and medications. The ‘Professional achievements’ domain of QOL was meant to measure the fulfilment of these 279 GPs’ career aspirations and the contribution of rural and remote area to their career advancement plans.

The ‘Relationship with family & friends’ domain of QOL was used to measure the quality of relationship of 279 GPs (ATDs and OTDs) with their family and friends in terms of adequacy of GPs’ disposable time for their families as well as for frequent interactions with friends in rural and remote settings. The ‘Security’ domain intended to probe the anxiety faced by these 279 GPs during their job performance (especially after hours and on-call) and their security at home while working in rural and remote settings. The domain of ‘Level of social interaction in the community’ was used to measure the social participation of GPs in rural and remote...
communities. Lastly, the domain of ‘Acceptance by the Community’ was used to measure the sense of acceptance levels of 279 GPs’ in the rural and remote communities.

Responses were scored on a 5-point Likert scale for satisfaction dimensions. The findings of the study indicated that on most of the domains of QOL, the 279 GPs (both ATDs and OTDs) were moderately satisfied. The instances of dissatisfaction levels were very low in the case of all domains, except the domain of ‘Acceptance by the community’. Though, the study generated a moderate response rate of 24% the satisfaction levels corroborated earlier studies (Ulmer & Harris, 2002; Harris et al., 2007), which indicated that rural GPs were more satisfied with their jobs than their urban counterparts. The detailed findings of the satisfaction and dissatisfaction levels of GPs in each of seven QOL domains is as follows:

Domain I: Material possessions satisfaction of GP respondents in rural and remote Australia

The study found that out of 279 GP respondents, ATDs (91%) were more satisfied as compared to OTDs (74%), as illustrated in Table 4.7 (Chapter 4, p.121). A recent study by MABEL (Medicine in Australia: Balancing Employment and Life-Wave 1, July 2010) reported that GPs in outer regional, rural and remote Australia earn 11.5% more than GPs working in major cities, thus resulting in higher satisfaction with remuneration. The findings of MABEL study demonstrated how much of the ‘bad press’ about a rural GP posting was unfounded, as Australia’s rural and remote GPs reported feeling just as professionally satisfied as their city-based peers and were happier about their material possessions. This study also reported that the GP respondents were happy about their material possessions in rural and remote areas.
Domain II: Health satisfaction of GP respondents in rural and remote Australia

This study recorded high levels of satisfaction in health domain for all the 279 GP respondents. The ATDs’ (82%) perceived satisfaction level with their health issues was greater than OTDs’ (76%). Only 17% of ATDs and 24% of OTDs reported dissatisfaction with health-related issues (Table 4.8, Chapter 4, p.122). Low job satisfaction and resultant stress are recognised to be closely correlated with poor mental health (Sutherland & Cooper, 1993) and it is also believed that poor mental health has negative consequences for patient care and ultimately for the GPs themselves (Arnetz, 2001; Ulmer & Harris, 2002). In rural and remote settings, to meet the health needs of GPs and their families, they must be provided with the means to access a GP of their own to provide ongoing support (NT Health Workforce Proposal, 2011). The high levels of satisfaction recorded with health issues of these 279 GP respondents suggested that these rural and remote GPs are in a better state of mind to offer good care to their patients, and have sufficient access to mental healthcare services in the rural and remote locations.

Domain III: Professional achievements of GP respondents in rural and remote Australia

As reported in Table 4.9 (Chapter 4, p.123), the domain of ‘Professional achievements’ also recorded high levels of satisfaction for all GP respondents in this study, which was more than 80%, treading along the lines of MABLE study. The perceived level of satisfaction of OTD respondents (86%) was marginally higher than that of ATD respondents (80%).

There is a perception that professional satisfaction is less likely to be achieved as a “rural” doctor. This may lead recent medical graduates to avoid a career in rural practice, and the delivery of medical services in rural areas becomes more dependent on OTDs, who are
mandated to work in “areas of workforce shortage” for a stipulated period of time (Birrell & Hawthorne, 2004). However, a recent study based on Medicine in Australia: Balancing Employment and Life (MABEL, 2010) reported contrary evidence to the prevailing perception that rural practice is associated with lower professional satisfaction for GPs. It reported that professional satisfaction with rural and remote practice is at least as high as in metropolitan areas (McGrail et al., 2010). The same study observed that there is greater scope to promote rural practice as a highly satisfying professional career path.

**Domain IV: Relationship (with family & friends) of GP respondents in rural and remote Australia**

Eighty-three per cent of ATD respondents and 75% of OTD respondents were satisfied with the domain of ‘Relationship with family & friends’ in rural and remote communities (Table 4.10, Chapter 4, p.124). The literature review indicated that isolation from family and friends and geographical isolation from social and cultural activities are important problems associated with rural practice (McDonald et al., 2002). Due to this isolation, rural GPs might be feeling dissatisfaction with the domain of intimacy. The high rates of satisfaction with this domain for 279 GP respondents can be attributed to the recent efforts of Australian Government to establish networks, such as the Rural Physician Spousal Network (MacDonald et al., 2002), the Rural Medical Family Network 2009 and various initiatives such as ‘meet and greet’ sessions and ‘GP and family support weekends’ (Northern Territory General Practice Education Brief, 2011). These efforts have been successful in aiding the integration of GPs and their families within the community by creating social networks and lessening the feelings of loneliness and isolation experienced by some families (Northern Territory General Practice Education Brief, 2011). These initiatives may have contributed to the results reported here, though a further study may be warranted to affirm a direct relationship.
Domain V: Security level satisfaction of GP respondents in rural and remote Australia

The analysis of the results suggested that 90% of ATD respondents and 80% of OTD respondents felt satisfied with the ‘Security’ domain (Table 4.11, Chapter 4, p.125). The number of GP respondents with low levels of satisfaction with the ‘Security’ domain was comparatively less, 9% for ATD respondents and 20% for OTD respondents. Previous research during the 1990s pointed out that female rural GPs were more apprehensive about the possibility of violence during the course of their work than their male counterparts (Tollhurst et al., 2003). They were concerned for their safety associated with their involvement in after-hours work and difficulty accessing health services for themselves, particularly gynaecological services (AMWAC, 1996).

It has been argued that take personal safety should be taken into consideration regardless of the gender of the GPs (Hegney et al., 2004). RDAA realised the necessity of providing safety to GPs in rural and remote communities by developing a ‘working safe’ framework to assist health and other professionals based in rural communities. Development of the framework was funded by the Australian Government, followed by a ‘working safe in rural and remote Australia roundtable convened by RDAA and other organisations in 2009. This roundtable was collaboration between the RDAA, Australian College of Rural and Remote Medicine, Australian Nursing Federation, Police Federation of Australia, Queensland Teachers’ Union and Council of Remote Area Nurses Australia (RDAA, 2010). The results of this study demonstrated that various initiatives started by the Australian Government to stamp out violence in rural and remote workplaces have worked well and, that might have reflected in a positive way for 279 GP respondents, as they demonstrated high satisfaction levels with this domain.
Domain VI: GP respondents’ satisfaction with levels of social interaction in rural and remote Australia

Community attachment involves social interactional ties and extends to attachments focused on physical attributes of the local environment (Brehm et al., 2004). It appears to be most strongly associated with social integration that develops over time through interpersonal associations and localized social networks (Brehm, 2007). Hummons (1992) noted that community attachment appears to be most strongly rooted in involvement in local social relations, ranging from family to the broader community. Moreover, beyond the immediate circle of family and friends, participation in the broader community has been cited as an indicator of successful place attachment (Kasarda & Janowitz, 1974). This domain of QOL aimed to measure the levels of satisfaction of 279 GP respondents regarding their interactions with family, friends and participation in the broader community in rural and remote areas.

As mentioned earlier, the response rate of this study was moderate and it would be unwarranted to apply these results in their entirety to the whole GP population at large, but analysis of the perception of satisfaction level of 279 GP respondents with this domain demonstrated that 94% of ATD respondents felt comfortable with their social interaction levels and 93% of OTD respondents showed satisfaction with their social interaction levels in the rural and remote communities (Table 4.12, Chapter 4, p.126). Only a small number of GP respondents (6% of ATDs and 15% of OTDs) were not satisfied with this domain.

Domain VII: Acceptance of GP respondents in rural and remote Australia

Rural GPs are more likely to experience professional and social isolation than their peers in urban contexts (Gill D., 2011). Isolation from family and friends, and geographical isolation from social and cultural activities in the city are important problems associated with rural practice (McDonald et al., 2002). Community and family/social relationships are increasingly
influential in the decision to remain in the country (Ozolins et al., 2004). The pressures of rural medical practice mean that GPs themselves are occupied with their professional role and meet others within their work environment. GPs’ families will often feel the impact of physical and social isolation more acutely than the doctors themselves. Furthermore, the impact of isolation is felt more by OTDs because of the lack of contact with people from their own cultural, social or religious background (ARRWAG Report, 2005). These all reasons may lead to GPs feeling that they are not accepted in the community.

The results of this study demonstrated that ATD respondents were more satisfied with the domain of ‘Acceptance by the community’ domain as compared to OTD respondents, with 58% of OTD respondents felt satisfied with their ‘Acceptance by the community’ as compared to 72% of ATD respondents (Table 4.13, Chapter 4, p.127). A survey in South Australia found that 45% of rural GPs have virtually no other person, other than their spouse, with whom they feel comfortable discussing personal or professional problems. For those who are in crisis and reluctant to seek help, having a trusted confidante is considered essential for their emotional wellbeing (Gardiner et al., 2005). Considering the lower level of OTD respondents’ satisfaction with ‘Acceptance by the community’ recorded in this study, the reasons could be related to the issues of discrimination (both overt and covert), the lack of meeting ethnic, cultural and religious needs, and the lack of appropriate educational and spouse requirements (Han & Humphreys, 2005: 239).

5.2.1 Summary of the above Results
The above analysis has established that the majority of 279 GP respondents (both ATDs and OTDs) were satisfied with their QOL in rural and remote communities. Both type of GP respondents (ATDs and OTDs) demonstrated high perceived levels of satisfaction on the domains of ‘Levels of social interaction’, ‘Professional achievements’, ‘Material...
possessions’ and ‘Health’ aspects of their job in rural and remote Australia. The noticeable observation was that on all the major domains of QOL except ‘Professional achievements’ and ‘Acceptance by the community’, the OTD respondents depicted lower satisfaction than their ATD counterparts. The major differences were in the domains of ‘Acceptance by the community’ and ‘Security’. Only 58% of OTD respondents were satisfied with the domain of ‘Acceptance by the community’ as compared to 72% of ATD respondents. In the case of the ‘Security’ domain, 90% of ATD respondents felt safe as compared to 80% of OTD respondents. Overall, it can be concluded that ATD respondents were more satisfied with the domains of QOL as compared to OTD respondents. The domain of ‘Acceptance by the community’ was the main area of concern for 279 GPs. Isolation from family and friends, and geographical isolation from social and cultural activities could be the important reasons for the low satisfaction levels of 279 GP respondents (ATDs and OTDs) with the domain of ‘Acceptance by the community’. Comprehensive support measures to assist GPs’ families to meet their personal and family needs, spouse and family happiness, including the availability of employment for spouses, organised professional support mechanisms, as well as good educational facilities for their children and work opportunities for their partners could be significant factors contributing to GPs remaining in rural and remote practice (McDonald, 2002).

5.3 SATISFACTION OF GP RESPONDENTS WITH DIMENSIONS OF COMMUNITY INTEGRATION

Community integration was measured using the ‘Experiential Place Integration’ framework developed by Cutchin (1997b). The ‘Experiential Place Integration’ process is characterised by three primary principles – security, freedom and identity – and their 27 component dimensions (as discussed in Chapter 3). The analysis of satisfaction levels of GPs in rural and
remote areas with these 27 dimensions representing the domains of security, freedom and identity is discussed in the following sections.

5.3.1 Satisfaction of GP respondents with dimensions of security
Security as used in this study refers to GPs’ levels of safety, stability and confidence achievable in a rural and remote situation. For new rural and remote physicians, security arises as an issue before they locate to a rural place. Insecurity is a common by-product of new incumbents. A GP’s security depends on the configuration of the dimensions of security that pertain to the person and place (Cutchin, 1997b). Following is the analysis of Table 4.15(Chapter 4, p.130) regarding the satisfaction levels of GPs with the dimensions of security in rural and remote communities.

Confidence in medical abilities
The present study has demonstrated that 88% of ATD respondents and 83% of OTD respondents were satisfied with the dimension of ‘Confidence in medical abilities’. Confidence in one’s medical skills comes with time and perhaps with guidance in a rural location (Cutchin, 1997b). Because of their small size, many rural communities have limited access to specialist services, diagnostic services and the wide range of support systems which cater for the needs of specific groups in society such as women, the aged and the disabled. This in turn has come to mean that rural and remote area GPs are usually required to deal with a wider range and sometimes greater complexity of cases than their urban counterparts (AMWAC report, 1996). As a consequence, rural GPs generally work longer hours and require a greater range of procedural skills than urban GPs. This can be accredited to the increased levels of confidence of these 279 GP respondents in rural and remote areas. A MABEL (Medicine in Australia: Balancing Employment and Life) study (Wave 1, 2010) produced by the Melbourne Institute of Applied Economic and Social Research in a survey of
532 junior doctors, also highlighted the fact that GPs in rural areas often undertake more procedural work than their urban counterparts. A recent study (Robinson & Slaney, 2013) observed that GPs considered procedural work essential for skills development and provided far greater levels of job satisfaction than they would have if they worked in general practice in a metropolitan environment. Thus, procedural work becomes as an additional bonus and contributing factor for GPs’ retention in rural and remote areas Moreover, rural hospitals have been regarded as being more efficient, flexible and friendly, with a more caring and accommodating approach to providing good quality procedural care (Hayes et al., 2005).

A study by Hayes et al (2005) noted that where staff and facilities in rural hospitals are accredited for procedural care, and rural hospitals are maintaining a standard necessary to support quality service provision, it results in improved GP recruitment and retention (Stanley-Davies et al. 2005). However the number of rural GPs offering procedural services and the complexity of these services has been in gradual decline over the last three decades (Stratigos & Nichols, 2002; Pashen, 2007; Robinson et al., 2010; Campbell, 2011) The reasons for this decline include: increasing specialisation, centralisation of services, inadequate caseload, staff shortages, access to and expense associated with continuing medical education and locum relief, credentialing processes, fear of litigation and insurance expenses, family and social considerations and an ageing rural workforce(Dunbabin, 2002;Stratigos & Nichols, 2002; Davie, 2006; Glazebrook & Harrison, 2006; Robinson et al., 2010).

**Commitment to aspiration and goals**
The GPs’ decision to stay in the rural and remote communities takes place from within the practice setting and arises from the stream of experience there (Cutchin, 1997). For fulfilling their aspirations and goals in a rural community, GPs consider, good hospital care, a match
between their skills and patient needs, access to specialists, enough time for each patient, patient access to needed treatments and services, and a breadth of clinical challenges. If they can’t satisfy this aspiration, they will not stay in the rural community (Love et al., 2007). Further, an institution’s commitment to rural health and rural medicine programs and policies is associated with an increase in rural GPs satisfaction with these aspirations and goals (Wheat et al, 2005). This study has found a significantly higher level of satisfaction for 279 GP respondents, 81% of GPs (both ATDs and OTDs) were satisfied with this domain of community integration. There were some interesting findings on the basis of gender segregation of 279 GP respondents regarding this dimension. Male ATD respondents’ (84%) satisfaction level was greater than that of female ATD respondents (75%), thus making the findings consistent with the studies which noted that women rural GPs, in particular, have greater stress regarding the conflict between their career and their personal life (Tolhurst et al., 1998; Kilmartin et al., 2002) as they most often carry the main responsibility for the care and rearing of children (Levitt & McEwin, 2001). However, there was a marked difference in satisfaction levels of this dimension in the case of OTD respondents; females being more satisfied (89%) as compared to their male counterparts (77%).

**Ability to meet family needs**
The satisfaction level of both types of GP respondents was quite moderate for this dimension. Only 62% of 279 GP respondents were satisfied with this dimension of security. The OTD respondents recorded a low satisfaction level (57%) than the ATD respondents (67%). In an increasingly uncertain social, political and economic climate in which health professionals now work, the decision to move to rural and remote general practice may seem unattractive for many GPs and their spouses, given their professional or employment aspirations and their children’s educational needs (Durey, 2005). The ability to obtain the kind of housing needed
to accommodate the spouse and children and securing the best education for their children is important for their security (Cutchin, 1997b). The lack of good educational facilities for their children, the unavailability of employment for spouses and a lack of suitable housing could be the factors which accounted for the low satisfaction of GP respondents with this domain.

**Comfort with medical community and institutions**

In the context of the present study, more than 87% of 279 GP respondents felt comfortable (professional autonomy and support of colleagues) with the medical community and institutions in rural and remote communities. In terms of the level of professional autonomy, both ATD and OTD respondents scored satisfaction levels above 84%; however, regarding support from colleagues, the perception of satisfaction levels were 87% for ATD respondents and 84% for OTD respondents. Considering that professional autonomy, support of colleagues, responsibility and variety have been identified as positive aspects of rural practice (Perkins et al., 2007), this study found that 279 GP respondents were comfortable with the community health centre and its employees and were well integrated into these communities.

**Degree of on-call coverage**

Prolonged periods on-call is a characteristic of rural general practice which has been found in other countries (Bowman et al., 1997; Cuddy, 2001). This study found that 79% of 279 GP respondents who were required to be on call, 43% (51% of OTDs and 44% of ATDs) of GPs were having moderate to extreme stress relating to on-call arrangements. On-call arrangements are the one of the most important factors determining GP retention in rural and remote areas (Humphreys et al., 2002). Studies have directly linked levels of stress with increased intentions to leave (Cuddy et al., 2001). The reported levels of stress indicated in a study (Iversen et al., 2002) found that GPs had difficulties finding cover for heavy on-call commitments and resultant pressures arose from sustained periods of being on-call, resulting
in workload stress. Further, the large proportion of time committed to out-of-hours care could be a possible reason for infringement on their social and family life, resulting in strains on their marriage and family life.

**Practice group environment and the anchorperson**

Respondents’ perceived level of satisfaction with the practice group environment domain was assessed on the basis of professional autonomy, support from colleagues, and the availability of resources in the medical institution and in the rural and remote communities. More than 79% of ATD respondents were satisfied with all these ingredients, which comprised this dimension. Seventy-four per cent of OTD respondents demonstrated satisfaction with autonomy and support from colleagues, but there was a lower satisfaction level with the availability of resources, 67% as compared to ATDs (78%). Australian government policies must recognise the resource needs of rural and remote practice and support programs that attract, recruit and retain rural doctors. It is almost impossible for rural GPs to keep up with knowledge due to professional isolation and lack of access to information resources which are a part of the environment in which rural GPs work (Strasser, 2001). Information Technology can offer solutions to overcome some of the problems rural GPs face in providing healthcare such as insufficient professional support, scarcity of information resources, lack of access to continuing medical education, the wide variety of procedures undertaken and long hours worked (Strasser, 2001).

**Community and medical institution development**

Seventy-four per cent of the GP respondents in the study reported satisfaction with community and medical institution development issues. The satisfaction was higher for ATD respondents (78%) as compared to OTD respondents (67%). The dimension of community and medical institution development comprised the involvement of rural and remote
communities in recruiting GPs, maintaining a general practice through their local hospital boards, community service organisations, local government, and hospital auxiliaries (Veitch & Crossland, 2002).

The possible reason for lower level of satisfaction recorded for 279 GP respondents in this dimension as compared to other dimensions of security could be due to lack of sufficient depth of management and governance experience for many rural and remote communities. For sustainable community participation, rural communities through their local hospital boards and organisations should contribute their time, financial resources, housing assistance and practice infrastructure, and even provide governance for the practice (Veitch & Grant, 2004). Moreover, partnerships with university departments of general practice or rural health and rural medical workforce agencies would go a long way in satisfying GPs in these communities.

**Social culture network availability**

Only 47% of 279 GP respondents were satisfied with the dimension of social network availability in rural and remote communities. The satisfaction level of ATD respondents (52%) was higher than that of OTD respondents (40%). Rural and remote health is not just health in a rural setting but health in a complex web of social relations, cultural history and socio-political networks (Bourke et al., 2004). Experience has shown that simply recruiting individual GPs by increasing financial incentives is a necessary but inadequate response (Cheney et al., 2004). Professional and community support through social and cultural network encourages rural practice (Lehmann et al, 2008). When people receive guided practice, and constructive feedback through their social support networks, they achieve a higher level of work efficacy and satisfaction (Bandura, 1997). Other research has shown that constructive social support networks can foster innovation and retention of newcomers (Jones,
1986). Thus, keeping in view the low levels of satisfaction of both kind of GPs with this domain more research in this direction may provide us with insights into the nature of meaningful, supportive interactions, and the social obstacles and challenges that influence a GP’s abilities to function successfully in a rural and remote environments.

**Respect of medical community and community at large**

Seventy-four per cent of 279 GP respondents in this study were satisfied with this dimension in rural and remote communities. Eighty per cent of ATD respondents and 68% of OTD respondents were satisfied with the level of respect they got from the medical community and the community at large. To build effective relationships, a physician must have the respect of patients and those working with her or him, as if a physician does not have the respect of those with whom she or he must cooperate to achieve goals, integration will not be enhanced (Cutchin, 1997b). Typically in rural areas, patients lack an understanding of the demands of GPs’ role and expect them to be available around the clock (AMWAC report 2005: 2). A greater access to contextual information through the internet and the media to rural and remote patients can actually help them to understand the intricacies of GPs’ lives and help in respect of the levels of GPs in rural and remote areas.

**5.3.2 Satisfaction of GP respondents with freedom dimensions**

As with security, ‘freedom’ has many dimensions in the process of rural and remote GPs’ integration. Freedom for GPs is always in relation to the other domains of integration in place. Freedom relates to the transactions, interactions and self-actions of medical communities, communities-at-large and selves (Cutchin, 1997b). The following section analyses Table 4.16 (Chapter 4, p.132) for the perceived levels of satisfaction of 279 GP respondents with the various dimensions of freedom in rural and remote communities.
Challenge and diversity in the workplace

Eighty-six per cent of ATD respondents and 84% of OTD respondents reported positively to finding rural and remote medical work diverse and challenging. This supports the findings of Cartwright & Anderson (1981) that GPs enjoy the diversity of their work and appreciate their freedom and independence. Similarly, a study of 1817 GPs selected at random by 20 family practitioner committees in England found that the highest levels of satisfaction were reported for the amount of responsibility given, amount of freedom in choosing working methods, and amount of variety in the job (Cooper et al., 1989). This demonstrates that GPs like challenges and diversity in the workplace. The excitement and challenge of rural practice provides breadth, stimulation and fulfilment for GPs who integrate in rural locations (Cutchin, 1997b). General practice in rural and remote Australia is characterised by clinical diversity, professional autonomy and a strong sense of belonging to the community (Strasser et al., 2000). It is a rewarding experience for those GPs who are sufficiently prepared, and can be a very fulfilling career. It also poses many personal and professional challenges in the form of a strong multidisciplinary approach, a cross-cultural context, and the requirement for GPs with public health, emergency and extended clinical skills (Morgan, 2006).

Ability to consult with more patients

The present study has reported that 59% of GP respondents were satisfied with consultation times and 29% of GPs responded with lower levels of satisfaction. There was no significant difference observed in the satisfaction and dissatisfaction of ATD and OTD respondents. Fifty-seven per cent of ATD respondents and 56% of OTD respondents reported satisfaction, whereas 32% of ATD respondents and 27% of OTD respondents reported dissatisfaction with the consultation times available in rural and remote communities. Length of consultation is an important characteristic of general practice care and, in Australia general practitioners are remunerated on the basis of consultation time. The debate is centred on the argument that
short consultations do not provide sufficient time to deal with complex patient issues, particularly psychosocial issues and preventive or health promotion activities (Britt et al., 2000). Longer consultations are associated with higher patient satisfaction (Baker 1991; Wilson 1991). Martin et al. (1997) also demonstrated that longer consultations are more likely to include the management of psychological problems and multiple problems than shorter consultations irrespective of GP gender. Factors such as easier access for patients, longer consultations, and less stress and pressure on GPs may provide for better health outcomes and less pressure on hospital emergency facilities (AMWAC report 2005: 2).

**Cooperation within the medical community and the community at large**

The freedom of GPs can be enhanced in the rural and remote community by the support of the clinic and the community in which they are working (Cutchin, 1997b). Due to small number of GP’s in many rural and remote locations, cooperation and collaboration between individual providers is often essential in order to provide adequate services and continuity of care for the communities they serve (White, 2002). In this regard the favored work environment for GPs should include models of service that foster cooperative and valued relationships within the medical community and the community at large. It has been reported in literature that GPs and other health professionals working in collaborative and cooperative arrangements are important as a means of reducing their workload and increase lifestyle satisfaction (Peterson & Willis, 2008).

This study recorded high levels of satisfaction with this dimension. Over 90% of 279 GP respondents showed satisfaction with this dimension. The level of satisfaction of ATD respondents was quite high (85%) as compared to 72% of OTD respondents. The moderate levels of satisfaction of OTD respondents were also recorded in the AMWAC Survey.
In this AMWAC survey of 144 of OTDs, 77.6% were satisfied with support from allied health professionals; and 62.2% of respondents were satisfied with support from GPs and 68.8% were satisfied with support from other specialist medical staff (AMWAC Report 2004.1). Issues of exploitation and discrimination were cited as the main reason for moderate levels of satisfaction in the same study.

**Respect of medical community and community at large**

In addition to being an aspect of security, respect plays a role in freedom too. To build effective relationships, physicians must have the respect of patients and those working with them (Cutchin, 1997). Respect and appreciation is one of the factors that contribute to career satisfaction for GPs (Mawardi, 1979). Moreover, GPs suffer from high levels of stress and low job satisfaction if they are not respected by their patients (Ulmer & Harris, 2002). The perception of being respected is developed in rural GPs through friendliness of people, the relationships between professionals and the hospital and the ability of rural and remote community groups and other healthcare professionals to work well together (MacDowell et al., 2010). Strasser’s study of rural GPs in Victoria (1992) observed that enjoyment of community respect was enlisted as one of the main reason for remaining in rural and remote areas. The analysis of the data from 279 GP respondents for this study reported that 74% of were satisfied with the levels of respect gained form their medical community and community at large in the rural and remote areas. Eighty percent of ATD respondents and 68% of OTD respondents were satisfied with the level of respect they got from the medical community and the community at large. Thus, the results demonstrated that ATD respondents were in a better position as compared to the OTD respondents in terms of respect gained from medical community and community at large.
Power in medical relations

Power in the medical relations dimension refers to GPs’ influence in the medical community and community at large in terms of the control of key resources, social status in the general community and ideology. The key resources can be referred to as control of patients, control of the hospital appointment system and control of local medical organisations (Freeborn & Darsky, 1974). Eighty-six per cent of 279 GP respondents reported high levels of satisfaction with power in medical relations in rural and remote settings; 86% of ATD respondents and 84% of OTD respondents showed satisfaction with the power structure inherent in rural and remote set-ups. Recent studies on the influence and power structure of the medical community are lacking. One earlier study indicated that the power structure was unitary and dominated by a power elite (Hall, 1946). Other evidence suggests that certain changes, conflicts and stresses in medical care have resulted in a differentiation and fragmentation of power within the medical profession (Kendall, 1965). High levels of satisfaction of 279 GP respondents have suggested that these GPs might be feeling in control of key resources.

Ability to develop healthcare resources

Areas with the highest levels of health professional shortage are most often the least attractive practice locations due to remoteness, poverty, and lack of other health care resources (Conte et al., 1992). Thus few GPs remain in their placements beyond the service obligation (Brown et al., 1990). This study found that 85% of 279 GP respondents were satisfied with this domain of freedom; 90% of ATD respondents and 82% of OTD respondents felt satisfied with the ability to develop healthcare resources. The reason for higher levels of satisfaction of 279 GP respondents could be attributed to the shift towards need based formulae for resource allocation decisions for healthcare planning instead of traditional funding mechanism (Humphreys, 1998).
Diversity in social interaction possibilities

This research recorded lower levels of satisfaction with this dimension of freedom. Only 48% of 279 GP respondents were satisfied with the diversity available in rural and remote practices. The ATD respondents’ perceived satisfaction level was 52%; whereas OTD respondents’ satisfaction level was even lower (40%). This showed that about 50% of 279 respondents had lesser degree of satisfaction with social interactions, which might be because of dearth of time considering their busy schedule in rural and remote community. Moreover OTD respondents might be feeling the anxieties of social and cultural difference, resulting in lesser satisfaction with this domain. A durable network of more or less institutionalized relationships of mutual acquaintance and recognition based on social interactions within the rural and remote community can help improving the satisfaction level of GPs in these rural and remote communities (Bourdieu, 1983; Putnam, 1993).

Rural and remote Australia comprises a diverse range of environments and communities characterised by significant social, economic and geographical differences (Humphreys & Wakerman, 2008). A growing body of research focuses on how diverse contexts – and particularly the composition of neighbourhood environments – influence generalized trust and other attitudinal indicators of social cohesion. Most studies reveal that increasing levels of diversity pose a challenge to civic and redistributive values (Alesina & La Ferrara, 1999; 2000; 2002; Rice & Steele, 2001; Uslaner, 2002; Costa & Kahn, 2003; Hero, 2003; Delhey & Newton, 2005; Soroka et al., 2006; Putnam, 2007). A diverse rural or remote context with regular social interaction possibilities with the community members may pose lesser problems for GPs in rural and remote areas (Stolle et al., 2008) and eventually may help in their transition from urban to a rural context.
Involvement in community affairs

The primary health care model encompasses the community as well (Abramson, 1988). Community focus has been linked to improved access to care, improved patient outcomes, and improved GP satisfaction and retention (Mullan, 1982; American College of Physicians, 1985; Abramson, 1988; Russel & Jewell, 1992; Pathman et al., 1994; Cutchin, 1997; Henry et al., 2007). Community-related activities that a GP may pursue can be defined to include 4 domains (Pathman et al., 1998):

- paying attention to sociocultural aspects of patient care,
- coordinating a community’s health resources in the care of patients,
- identifying and intervening in a community’s health problems, and
- assimilating into a community and participating in its organizations

Community involvement is particularly valued by rural physicians (Parker & Tuxill, 1967; Irby, 1995). Integration, teamwork and involvement are not separate components of Australian rural and remote practice but interact with each other. A survey of GPs working in South Australia recommended increased GP involvement in planning and needs assessment for local communities to facilitate healthcare teams (Raupauch et al., 2001). This study reported that only 39% of 279 GP respondents were satisfied with their involvement in community affairs and 35% of 279 GP respondents were dissatisfied with this dimension. ATD respondents’ satisfaction level was recorded as 43% and OTD respondents’ satisfaction level was around 39%. In a study concerning community involvement (Steiner et al., 1999), GPs’ that received training in content relevant to a given community involvement domains were significantly more involved in that domain as practicing GP. The same study reported that the participation in a rural rotation during residency was associated with greater current familiarity with community health resources, participation in health activities of the community, and assimilation into the community. Thus it can be concluded that formal
training experiences can influence how actively GPs will later interact with their communities (Steiner et al., 1999).

**Personal and Family Activities**

GPs in rural and remote settings struggle to find a balance between their perceived duty to be involved with community and their quality of life with their families or personal respite time (Fraser, 2009). Remoteness from family and friends is a commonly worrying issue in rural professional life (Hays et al., 1997). This study used diverse range of activities, in which 279 GP respondents were involved in rural and remote settings, to measure their satisfaction level with this domain. Visits to family or friends ranked highest in term of utilising their disposable time; 65% of ATD respondents and 53% of OTD respondents visited their family or friends in their disposable time. Fifty one per cent of ATD respondents and 41% of OTD respondents were health conscious and spent their disposable time by going to a gym or doing exercise regularly. Chatting with neighbours (40% of ATD and 34% of OTD respondents) was the next best alternative to engage in for the rural and remote communities. Both ATD and OTD respondents (over 80%) recorded lower levels of satisfaction regarding this domain. Some of the GP respondents listed absence of service clubs, bars, cinemas and live events as possible reasons for lower levels of satisfaction with this domain. Similar trends were witnessed in a study involving 1600 primary care physicians who moved to nonmetropolitan areas (Pathman et al., 1996), it was observed that physicians were generally dissatisfied with absence of access to cultural activities, access to the amenities of city living and having adequate personal time away from work.

**Developed perspective on self and place**

The process of community integration is a type of progress that builds bonds with ‘place’, in turn encourages retention (Cutchin, 1997a). Retaining ATDs and OTDs in rural and remote
locations requires an understanding of place as a context rather than a mere location. ‘Place’ in this context commonly refers to the multidimensional nature of a given rural or remote location, including both the ‘natural’ and ‘social’ aspects of that site (Tuan, 1977; Buttimer & Seamon, 1980). The 279 GP respondents’ perspective on self and place was determined on the basis of perceived contribution that rural and remote practice made to their professional development in the field of medicine. It was assumed that more satisfied the GP respondents were with ‘Place- the rural and remote community’ regarding its contribution to professional development, they had a clearer perspective on self and place. 80% of 279 GP respondents (both ATDs and OTDs) reported higher levels of satisfaction with this domain.

5.3.3 Satisfaction of GP respondents with dimensions of identity

The third integrative domain is identity. Identity is the coherence of GPs’ self in relation to another person, social group, community or environment. Strength of identity requires a certain level of security and freedom in place. The rural and remote GPs appear to develop much of their place attachment via the practice to which they belong, resulting in coherence within the rural and remote community (Cutchin, 1997b). Table 4.17(Chapter 4, p.133) illustrated the satisfaction of 279 GP respondents (both ATDs and OTDs) with the different dimensions of identity in rural and remote Australia. The following section analyses table 4.17 in detail.

Loss of anonymity

Lack of privacy and anonymity are considered as barriers to retention (Lippert, 1991; Hays, 1997; Wallis & Heywood, 2002; Charles et al., 2005; Crockett et al., 2007). A lack of privacy and anonymity puts particular strains on social relationships within the community in which the GP works and lives (McDonald, Bibby & Carroll 2002). High visibility and the
consequent lack of anonymity and privacy makes these GPs highly visible as they often must live, socialise and work within the same community. Whereas urban GPs may be able to maintain anonymity by living in different suburbs to those in which they work (Green et al., 2003). Moreover, due to loss of privacy and anonymity, GPs are more likely to come into contact with colleagues and clients during non-work hours, thus there is less distinction between professional and personal life (Kamien & Butterfield, 1990; Wills & Case-Smith, 1996; Bourke, 2001; Hays, 2002). For some this is welcomed as valuable community involvement (Elliot-Schmidt & Strong, 1995) while for others it may represent an unwanted intrusion into personal life (Hays et al., 1997). This research analysed the satisfaction levels of GP respondents regarding the impact of rural and remote community practice on their privacy as well as the privacy of their family. The study found that 32% of 279 GP respondents were dissatisfied with the amount of privacy levels i.e., they were not happy with more visible aspects of the rural and remote practice, resulting in being losing anonymity in rural and remote settings. Twelve percent of ATD respondents and 27% of OTD respondents reflected that it was difficult to maintain privacy in such a small setting. As reported in earlier studies, (Kamien & Butterfield, 1990; Wills & Case-Smith, 1996; Bourke, 2001; Hays, 2002) the results of this study also suggested that a fair amount of GP respondents (32%) had the same concerns regarding their privacy and lack of anonymity. The dissatisfaction level of ATD respondents was noticed to be more as compared to OTD respondents.

‘Like-minded’ practice group

The practice of medicine has long been a collaborative activity involving multi-professional teams. Effective collaboration within multidisciplinary teams is needed for provision of optimal patient care, education and research (CanMEDS Project, 2000). The dimension of ‘like-minded practice group’ emphasises the depth required of GPs in rural and remote
contexts in relation to their negotiation skills, being willing to share and accept responsibility when making decisions, learning to understand and appreciate others' strengths and weaknesses, open-mindedness, valuing each other’s' opinions, being prepared to evaluate and assess their own behaviour as well as the function of the team, and recognizing the contributions of different professionals within the team (Green et al., 1996; ACRRM report, 2009). This study analysed the satisfaction levels of 279 GP respondents on the basis of support of their colleagues in rural and remote settings.

Overall, 81% of 279 GP respondents felt satisfied with the support levels from their colleagues thus portraying high levels of satisfaction with like-minded practice group aspects of rural and remote medical practice. Eighty three percent of ATD respondents and 77% of OTD respondents felt that they were working in a like-minded practice group thus demonstrating comfort within a multidisciplinary cross cultural team.

**Roles played and responsibilities taken**

Various roles and responsibilities are entrusted to GPs based on the recognition of their professional practice. Recognition of professional practice is achieved through focused training, continuing medical education to transfer best practices, and repetition to enhance skill. This training and repetition lead to expertise, which improves outcomes and then enhances reputation (Carroll & Edmondson, 2002). Reputation provides opportunities for more repetition and even greater expertise—thus instrumental in taking more responsibilities and roles. As GPs take on more roles and responsibilities, their identity begins to merge with place, as attachment is developed through assumption of responsibility for plans, commitments and projects. The identity becomes more tied to the integrative domains of their place and ultimately contributes to GP retention (Cutchin, 1997). For checking satisfaction levels of this domain of ‘identity’, the GPs’ satisfaction levels with recognition of their
professional expertise were assessed. Eighty seven percent of 279 GP respondents were satisfied with the ambit of roles and responsibilities, which were entrusted upon them on the basis of recognition of their professional expertise. Eighty seven percent of ATD respondents and 86% of OTD respondents reported satisfaction with this dimension, thus signifying the creation of identity in the rural and remote community. The high level of satisfaction with various roles played and responsibilities taken meant that these 279 GPs had developed ‘identity’ in the rural and remote community.

**Respect of medical community and community at large**

Respect plays a role in identity domain also. As discussed under the security and freedom domains, 74% of 279 GP respondents were satisfied with this dimension in rural and remote communities. Eighty per cent of ATD respondents and 68% of OTD respondents were satisfied with the level of respect they got from the medical community and the community at large.

**Fulfilling aspirations in place**

This domain of identity is closely associated with the domain of ‘commitment to aspiration and goals’ of the security dimension. The more committed the GPs found themselves to the rural and remote community, the more they saw their aspirations being fulfilled in that place. As discussed earlier, higher levels of satisfaction were observed regarding commitment to aspirations and goals of both kinds of GPs in rural and remote communities. Similarly, high levels of satisfaction were recorded regarding fulfilling aspirations in the place. Over 90% of ATD respondents and 80% of OTD respondents indicated that the “place” (Tuan, 1977; Buttimer & Seamon, 1980) is contributing to their professional development, thus depicting high levels of satisfaction with the dimension of fulfilling aspiration in the workplace.
Seeing the self belonging to the community

The satisfaction level of this dimension was calculated on the basis of the active involvement of the GPs in the community. This domain is also closely related to the ‘involvement in community affairs’ of the freedom dimension. The more the GPs are involved in their community, the greater the chance of seeing themselves as belonging to the rural and remote community. Incidentally, that domain recorded lower satisfaction levels for both types of GP respondents. Only 47% of 279 GP respondents perceived themselves to be the part of the rural and remote community. ATD respondents’ satisfaction level was recorded as 52% and OTD respondents’ satisfaction level was around 40%.

Awareness of self in time and place

The awareness of self and time in place includes those roles, attributes, behaviours and associations that one considers most important about themselves. The awareness of self can be based on the combinations of occupation, social relationships and affiliations in the place. This dimension of identity was treated as similar to the ‘developed perspective on self and place’ dimension of freedom. As discussed in the above dimension, 80% of 279 GPs (both ATDs and OTDs) had developed a perspective of integration with the place, thus demonstrating that they had a sense of self or sense of personal identity with the place.

Creation of future goals in place

Eighty-seven per cent of 279 GP respondents perceived that the ‘place’ in which they were working could contribute to their future career. Eighty percent of ATD respondents and 86% of OTD respondents reported satisfaction with this dimension.
Summary of the above results

Satisfaction with dimensions of security

The 279 GP respondents showed maximum levels of satisfaction with the dimensions of ‘Confidence in medical abilities’, ‘Commitment to aspirations and goals’, ‘Comfort with the medical community and institutions’ and ‘The Practice group environment’. In all these dimensions, the perceived satisfaction level was around 80% for both types of 279 GPs (ATDs and OTDs). For the dimensions of ‘Community and medical institution development’, and ‘Respect of medical community and community at large’, ATD respondents’ reported higher levels of satisfaction, 74% and 80% respectively. OTD respondents’ levels of satisfaction were moderate, 67% for the dimension of ‘Community and medical institution development’ and 68% for the dimension of ‘Respect of medical community and community at large’. Both type of GP respondents portrayed lower levels of satisfaction with the dimensions of ‘Social cultural networks’, ‘On call stress’ and the ‘Ability to meet family needs’. The OTD respondents’ perceived levels of satisfaction with these dimensions were lower than the ATD respondents. Only 52% of ATD respondents and 40% of OTD respondents were satisfied with the dimension of ‘Social cultural networks’, while 51% of OTD respondents felt stressed as compared to 44% of ATD respondents on the dimension of the ‘Degree of on-call coverage’. For the dimension of ‘Ability to meet family needs’, the perceived levels of satisfaction were 67% for ATDs and 57% for OTDs.

Satisfaction with dimensions of freedom

‘Challenge and diversity in the workplace’, ‘Power in medical relations’, ‘Ability to develop healthcare resources’ and ‘Developed perspectives of self and place’ were the dimensions of freedom in which both types of GP respondents demonstrated more than an 80% satisfaction level. There was a difference observed in the perceived satisfaction levels of ATD
respondents and OTD respondents regarding the dimensions of ‘Cooperation with the medical community & community at large’ and ‘Respect of the medical community and community at large’; 90% of ATD respondents and 74% of the OTD respondents respectively were satisfied with these dimensions. The OTD respondents displayed less satisfaction, 72% for ‘Cooperation with the medical community & community at large’ and 68% for ‘Respect of the medical community and community at Large’. The lowest satisfaction level was recorded on the dimension of ‘Involvement in community affairs’, which was only 39%; 43% of ATD respondents and 39% of OTD respondents were satisfied with this dimension. The lack of ‘Diversity in the Social Interactions’ dimension also recorded lower levels of satisfaction for ATD respondents (52%) and OTD respondents (41%). Only 56% of 279 GP respondents (ATDs and OTDs) were satisfied with the dimension of ‘Ability to consult with more Patients’. Sixty three percent of 279 GP respondents were satisfied with the dimension of ‘Personal and Family Activities’ and 80% recorded lower levels of satisfaction regarding this domain. Absence of service clubs, bars, cinemas and live events were listed as possible reasons for lower level of satisfactions with activities in rural and remote community.

**Satisfaction with dimensions of identity**

Both types of 279 GP respondents (ATDs and OTDs scored high levels of satisfaction on all the dimensions (more than 80%), except on the dimensions of ‘Seeing-as-self-belonging to the Community’ and ‘Loss of Anonymity’. Only 47% of 279 GP respondents were satisfied with ‘Seeing-as-self-belonging to the Community’, the reported level of satisfaction was 52% for ATD respondents and 40% for OTD respondents. The ‘Loss of Anonymity’ dimension also recorded lower satisfaction levels; only 68% of 279 GP respondents were satisfied with this dimension: 70% of ATD respondents and 60% of OTD respondents.
5.4 RESEARCH HYPOTHESIS DISCUSSION

As mentioned and analysed in the previous chapter, there were seven hypotheses based on the four research questions of the study. The analysis of Hypothesis I as illustrated in Table 4.19 (Chapter 4, p.137) has demonstrated that the majority of 279 GP respondents (ATDs and OTDs) who scored below average on community integration experienced low QOL, and the majority of 279 GP respondents who scored above average on community integration experienced higher QOL, thus representing, a moderate association between community integration and the QOL. The study has demonstrated that community integration and QOL were not independent.

Leven’s test was applied to test differences in the ATDs’ and OTDs’ perceptions of satisfaction along the three domains of community integration in Hypothesis II(Table 4.20 (a &b), Chapter 4, p.139). The results have indicated that there was a significant difference between the ATD respondents and OTD respondents regarding the security dimension. The mean values indicated that ATD respondents felt more secure as compared to OTD respondents in rural and remote communities, whereas the analysis for the freedom and identity domains indicated that there was no significant difference between the ATD and OTD respondents’ perceived satisfaction levels.

Hypothesis III was intended to check the difference between the levels of community integration of 279 GP respondents (Table 4.21, Chapter 4, p.142). The results have depicted a very low association between community integration and country of basic degree, thus ruling out the possibility that integration in rural and remote community was easier for ATD respondents as compared to OTD respondents.
The Pearson chi-square statistic was used to determine in Hypothesis IV whether there was a relationship between QOL and retention (Table 4.22, Chapter 4, p.145) of these 279 GP respondents. The Pearson chi-square value was statistically significant, thus establishing that retention is positively associated with QOL i.e. higher the QOL, the greater the retention. In Hypothesis V, the result from the univariate analysis of 279 GP respondents indicated that there was a significant difference between the ATDs and OTDs in rural and remote communities regarding satisfaction with QOL domains.

The results derived from Hypothesis VI have indicated that perceived levels of satisfaction of male GP respondents were not significantly different from those of female GP respondents on different domains of QOL (Table 4.24, Chapter 4, p. 148). Similarly the Pearson chi-square statistic was used in Hypothesis VII to determine whether there was a relationship between community integration and gender of the respondents. The results have indicated the lack of a relationship between gender and community integration (Table 4.25, Chapter 4, p.150) of these 279 GP respondents.

5.4.1 Correlation among QOL, community integration and retention

Statistical mediation analysis was used to prove the correlation among the three variables of the study, namely, QOL, community integration and retention (Table 4.26, Chapter 4, p.152). A mediation model is one that seeks to identify and explicate the mechanism that underlies an observed relationship between an independent variable and a dependent variable via the inclusion of a third explanatory variable, known as a mediator variable. Rather than hypothesizing a direct causal relationship between the independent variable and the dependent variable, a mediational model hypothesizes that the independent variable influences the mediator variable, which in turn influences the dependent variable (MacKinnon, 2008). The statistical mediation analysis has proved that the community integration of these 279 GP respondents...
respondents (ATDs and OTDs) was significantly correlated with retention and QOL in rural and remote communities and further results have proved that retention was significantly related to a linear combination of community integration and QOL of 279 GP respondents.

Sobel, Aroian and Goodman’s tests of mediation have indicated that QOL of 279 GP respondents (ATDs and OTDs) significantly mediated the relationship between community integration and retention of GPs. The research study has proved that community integration of 279 GP respondents (ATDs and OTDs) and retention were affected significantly by the inclusion of the mediator, their QOL in rural and remote communities; in other words, there is evidence of mediation.

5.5 CONCLUSION

The main results of the research study based on the analysis of 279 GP respondents’ (ATDs and OTDs) levels of satisfaction with QOL and community integration and further correlation with retention are summarised as follows:

- Higher satisfaction levels of GP (ATDs and OTDs) respondents with their integration in rural and remote communities enhanced their QOL, resulting in possible retention.
- QOL of GP (ATDs and OTDs) respondents in rural and remote communities was dependent on community integration
- Retention of rural and remote of these GP (ATDs and OTDs) respondents was significantly related to QOL and community integration.
- The study has demonstrated that community integration and QOL were dependent for these of GP (ATDs and OTDs) respondents.
- Retention of GP (ATDs and OTDs) respondents was positively associated with QOL i.e. the higher the QOL, the greater the retention.

- The ATD respondents felt more secure as compared to the OTD respondents in rural and remote communities.

- There were no differences in levels of community integration of GP (ATDs and OTDs) respondents on the basis of country of basic degree.

- Perceived levels of satisfaction with domains of QOL of male GP respondents were not significantly different from those of female GP respondents.

- The results have indicated the lack of a relationship between gender and 279 GPs’ community integration levels.

This chapter discussed the research data pertaining to the experiences of GP (ATDs and OTDs) respondents in rural and remote communities in Australia. The relationships between all the variables of the study namely community integration, QOL and retention were explored in detail and compared to the literature available. The next chapter would summarise the findings of this research and further elaborate on implications for the policy makers to address the retention problem of GPs in rural and remote Australia.
CHAPTER 6

CONCLUSION AND IMPLICATIONS
6.0 INTRODUCTION

As indicated in the opening chapter retention has been a persistent issue facing health policy makers for some years. A review of the literature on factors influencing the retention of practitioners in such areas suggested that the influence of community integration, a factor identified in several north American studies as important for the QOL and retention of medical practitioners in rural and remote areas, could be a factor of importance in explaining the experience of practitioners located in Australia’s rural and remote communities. This thesis applies these ideas in the Australian context. As has been shown the research has demonstrated moderate relationships between community integration and QOL and from these results it is proposed that attention to such factors would be a good indicator of retention.

This study has explored the impact of the level of community integration of OTDs and ATDs in rural and remote communities on their QOL and its resultant effect on retention. This study examined the experiences of two groups of GPs those who immigrate from overseas and who have completed their medical training outside Australia – (OTDs); and their counterparts, doctors trained in Australia (in-migrants) – ATDs. The literature suggested several factors that influence retention in rural and remote practice. The themes and subthemes that have emerged in this study mirror the literature and extend the scope. Though the study generated a moderate response rate of 24%, noticeable correlations were found regarding experiences of GP respondents with the community integration and resulting QOL and the resultant retention in rural and remote Australia.

As indicated in Chapter 2 a majority of studies of GPs in rural and remote areas have focused on financial incentives (Lehmann et al, 2005). There is a plethora of evidence that financial
incentives can contribute to the retention of health workers, but are successful only in the short term and for recruiting health personnel (Jackson, 2003; Pathman et al., 2003; Reid, 2004; Mantler et al., 2006; Sempowski, 2004; Barnighausen & Bloom, 2009). Moreover financial incentives alone are not sufficient for retaining workers in the health sector whereas a lack of non-financial incentives contributes significantly to the intentions of health workers to leave their jobs (Stilwel et al., 2004; Vujicic et al., 2004; WHO, 2004). To be sustainable, financial incentive schemes must be complemented by non-financial incentives (WHO, 2006).

Only a small number of studies have focused on QOL and social needs of immigrant and in-migrant families in rural and remote set-ups. Moreover, these studies were more related to in-migrants (ATDs) than immigrants (Hawthorne, et al., 2002; Carlier, et al., 2005; Durey, 2005; Han & Humphreys, 2005, 2006; Heal & Jacobs, 2005; Alexander & Fraser, 2007; Rural Health Workforce Australia, 2011). Nevertheless, Alexander and Fraser (2007) argued in their Australia-specific research that there was scope for research to further investigate whether the non-professional needs of OTDs in rural and remote context were any different to those of Australian medical graduates (ATDs). Similarly, a Dutch study of social interaction between in-migration and immigration and their communities-of-place in rural areas (Vergunst, 2009) has gone further to argue that immigrants and in-migrants face similar issues in their contact with people belonging to the communities-of-place in the localities to which they have moved. Thus in the case of both type of GPs, ATDs as well as OTDs, it was worthwhile to take a closer look into the non-professional needs comprising QOL and communities-of-place integration in rural and remote Australia.

The research included both type of GPs’ (ATDs and OTDs) in rural and remote Australia and has yielded important insights into the different dimensions that influence the retention of both kinds of GPs in rural and remote areas. The research has explored the perceptions and
experiences of both ATDs and OTDs in rural and remote Australia along the domains of community integration and QOL and has further established an association with retention. This ultimately affects ATDs’ and OTDs’ health and wellbeing as they live and work in rural and remote Australia, where very little comparable research between both types of GPs (ATDs and OTDs) has been conducted. The following section elaborates the major findings of the study.

6.1 SUMMARY OF FINDINGS OF THE STUDY

The research reported in this thesis pursued the influence of non-professional needs of GPs in rural and remote areas through a focus on the psychosocial indicators of successful integration, settlement and QOL satisfaction of GPs. These indicators included the security, freedom and identity domains of community integration as well as the different domains of QOL of GP respondents and their resultant impact on retention in rural and remote communities. Given the ongoing efforts of Australian policy makers to retain both ATDs and OTDs in rural and remote Australia, this research identifies the social and community factors which might contribute to greater retention. In particular, research on retention of GPs in rural and remote areas and its ensuing importance for healthcare services, remains open as to how to retain more GPs in these settings and at the same time look after their psychosocial needs. It is essential to identify the key issues of community integration and QOL of ATDs and OTDs that affect retention of GPs in rural and remote settings. This research has probed questions relating to these vital issues.

This research has demonstrated that community integration and QOL issues of both types of GPs are of particular relevance to policymakers as possible solutions to improve rural and remote retention. These include many important factors which GPs in urban areas take for granted, such as proximity to family and friends, more avenues for social interaction through
the availability of social culture network, looking after their family needs, better practice
group environment, more anonymity and better prospects of career progression. Moreover,
OTD respondents recorded lower levels of satisfaction as compared to ATD respondents with
both QOL and community integration domains, signifying that better efforts are needed by the
policy makers to look after the specific needs of OTDs regarding their acceptance in the rural
and remote community; better mechanism to raise their community awareness; and, an ability
to embrace rural and remote cultural differences.

The study found that perceived levels of satisfaction of the GP respondents were high for both
community integration and for QOL in rural and remote Australia along most of the domains.
Further the higher satisfaction levels of GP respondents with their integration in rural and
remote communities were associated with higher QOL, resulting in probable retention. The
results of the study has indicated that the retention of rural and remote GP respondents was
moderately related to QOL based on community integration i.e. the higher the QOL, the
greater the chance of potential retention and vice versa. This has suggested that the majority
of the GP respondents were satisfied with their QOL and they were well integrated into their
rural and remote community. This suggests that the efforts taken by Australian authorities
during the last decade have been in the right direction. Descriptions in this study, from the
perspectives of both ATDs and OTDs, support the literature that found that rural and remote
GPs are generally satisfied with their QOL in rural and remote Australia (Ulmer & Harris,
2002; MABEL, 2010; McGrail, 2010). This research study has also improved knowledge
about the possible differences between the perceptions of OTDs as against OTDs. The
research has revealed that ATD respondents are more satisfied with the domains of QOL and
community integration as compared to OTD respondents. The comparatively lower
satisfaction levels of OTD respondents regarding both community integration and QOL as
compared to those of ATD respondents are also a major area of concern found by this study.

6.1.1 Demographic findings

Traditionally, rural and remote general practice has been male dominated and there are fewer GPs relative to the population distribution. Female GPs in rural and remote communities face a number of additional issues as difficulties. These include role conflict occasioned by the pressure to work longer hours to meet rural and remote practice needs, family responsibilities, especially childcare, employment opportunities for spouses, concerns about personal safety and lack of social support (White & Fergusson, 1998). Moreover, female OTDs have to face additional issues in terms of integration into new community cultures and work cultures. These tend to relate to their adjusting to patient attitudes, new environments and new health conditions, the influence of culture and communication and the differences found between their current rural practice and their urban practice in their home country.

The increase in female participation in the medical workforce in Australia – particularly in general practice – is a well-documented phenomenon. It is well known, for instance, that female GPs work approximately 70% of the hours worked by their male colleagues (AMWAC, 2005). The study has found that of 279 GP respondents, 63% were male and about 37% were female. The earlier research also pointed in that direction. Rural areas have shown the largest growth in the proportion of female GPs between 1995 and 2002, with a 5.3% increase in outer regional areas and 7.1% in remote areas – compared with 4.1% in major cities (AMWAC, 2005). This report although females were underrepresented in rural and remote locations, it was forecast that by 2010, 42% of all GPs and 37% of rural GPs in Australia would be women (Kilmartin et al., 2002). Current statistics show that males form the greatest proportion of working doctors in Australia (64% or 46,750) as compared to
females (36% or 25,989); these statistics support the findings of this study. The number of GP females is still increasing at a greater rate than that of males (Australia’s Health Workforce Series report, 2009) and, given this projected growth of female GPs all over Australia and especially in rural and remote areas, the retention of female GPs will therefore become increasingly important.

The results of this research have shown the reliance of Australia on OTDs. Out of 279 GP respondents, 58% were ATDs and 42% OTDs. This is consistent with the latest projections of the AIWA report (2010) and ACCRM report (2011), which recorded 40% OTDs in rural and remote Australia. Keeping in view the continuing difficulty in recruiting Australian trained medical graduates, the medical workforce remains heavily dependent on OTDs in regional, rural and remote settings (Durey, 2005; Han & Humphreys, 2005, 2006; Liaw & Kilpatrick, 2008; Han, 2010; Deloitte Access report, 2011). The existing research has indicated that in spite of the large numbers of OTDs in rural and remote areas, their retention remains difficult. OTDs relocate into more metropolitan areas once they have completed their compulsory scheme obligations (Harvey & Faunce, 2005; Lim, 2010). Yet the continued recruitment of OTDs is an implausible long-term solution for the rural doctor shortage (Van Der Weyden & Chew, 2004; Han & Humphreys, 2005; Han, 2010; Lim, 2010). Keeping in mind this continued reliance on OTDs as an important part of the Australian workforce and their contribution in rural and remote Australia, one of the most powerful means of securing their stay is to retain current OTDs. The findings of this study could direct the initiatives of policymakers to concentrate on the community integration and QOL issues of these OTDs and make them stay in rural and remote Australia.
Another prominent demographic finding of this study, which corroborates existing literature, is that the GP workforce is ageing and service gaps are increasingly difficult to fill, particularly in rural and remote areas. The ageing of GPs, along with a decline in younger entrants into general practice overall and rural and remote medicine in particular, is a potent combination that is straining the already burdened rural healthcare system (Thistlethwaite & Topps, 2009). According to National Minimum Data Set (MDS) report 2010, the rural and remote medical workforce is ageing, with the average age of rural GPs now 49 years (50.53 years for male GPs and 45.75 years for female GPs). This study reported 72% of the respondent GPs were in the middle-aged group. The proportions of male and female GP respondents in the younger age groups were lower, as found in the Australian Medical Workforce Advisory Committee (AMWAC report, 2005).

**6.1.2 Quality of Life (QOL) Findings**

In almost all of the domains of QOL, GP respondents (both ATDs and OTDs) recorded higher satisfaction levels (more than 70%) in rural and remote settings, as demonstrated by most studies of job satisfaction among Australian GPs (McGlone & Chenoweth, 2001; Ulmer & Harris, 2002; Harris et al., 2007; Walker & Pirotta, 2007; Joyce et al., 2011). OTDs were able to register higher satisfaction levels with the domain of ‘Professional achievements’ only, where they recorded 86% satisfaction as compared to 80% satisfaction of ATDs. The ATDs exhibited higher satisfaction levels (more than 80%) along almost all the domains except the domain of ‘Acceptance by the community’, the satisfaction level being 72% in this particular domain. OTDs also responded with high levels of satisfaction (more than 70%) and a lower satisfaction level in case of the same domain (Acceptance by the community), which was recorded to be around 58%. As discussed in Chapter 4, ‘Acceptance by the community’ domain encompasses the GPs’ sense of perception of their acceptance levels based on vital
interconnections with the medical community and the community at large in rural and remote environments. GPs working in rural and remote locations found acceptance by the local community as one of the key factors associated with satisfaction with practice location (Kearns et al., 2006; Durey et al., 2008; Laurence, 2008; Le Q, 2008; McFayden, 2008). The positive impact of being accepted by the local community and favorable supportive community integration arrangements can have a settling impact on GPs in rural and remote areas. Especially for OTDs', the need for socio-cultural support and proximity to ethnic community has been shown to be very important and it can give them a feeling of acceptance in these isolated areas (Arkles, 2006).

Another domain of concern regarding the satisfaction levels of OTDs was satisfaction with ‘Material possessions’ in which OTDs’ satisfaction level was 74% as compared to ATDs’ 91%. Though, this study never explored the details regarding possible reasons for the same, but the OTDs’ lesser level of satisfaction with the ‘Material possessions’ domain can be related to the implementation of Section 19AB and 10-year moratorium period due to the amendment of the Health Insurance Act 1973. Section 19AB amendments restricted access to Medicare benefits for OTDs who did not have medical registration prior to 1 January 1997. The Act also set a minimum of ten years, commencing on the date they are recognised as a medical practitioner, before OTDs are eligible to provide services that attract Medicare benefits. This restricts OTDs’ work capacity outside the hospital system, putting curbs on their earning capacity. Before gaining vocational registration, OTDs cannot go for paid employment and establish their own practice. Moreover, they are not eligible for Medicare benefits, obtaining loans, purchasing real estate and eligibility of their children for Higher Education Contribution Scheme university places (that is, non-fee-paying places). These reasons could have an impact on recording lower satisfaction levels of OTD respondents as compared to ATD respondents in rural and remote Australia.
6.1.3 Community integration findings

Both the GP respondents (ATDs and OTDs) reported high levels of satisfaction with most of the domains of the experiential place integration framework. A couple of dimensions for the security and freedom domains recorded comparatively lower levels of satisfaction, whereas only one dimension of the identity domain recorded lower levels of satisfaction for both kinds of GP respondents. The highest satisfaction levels for the security domain was recorded in the dimensions of ‘confidence in medical abilities’ and ‘comfort with medical community’ followed by ‘commitment to aspirations and goals’, the underlining fact being the almost negligible difference in perception levels of both ATD and OTD respondents concerning the abovementioned dimensions. This demonstrated that majority of GP respondents in rural and remote Australia felt confident, comfortable and committed to their role in rural and remote Australia. Moreover, they felt working in these areas was a pathway for their future aspirations and goals. The major dissatisfaction levels for GP respondents were observed in the dimension of ‘social culture network available’ and ‘degree of on call coverage’ followed by ‘ability to meet family needs’.

The foremost area of concern regarding the security domain was the dimension of ‘social culture network available’ in rural and remote settings. Only 52% of ATD respondents and 40% of OTD respondents were satisfied with this aspect of community integration. As noted in a study by Adams and Hicks (2000) urban areas almost invariably have a higher concentration of GPs than rural areas, because most professionals prefer to reside in urban areas where there are better social, cultural and professional advantages. The medical students from a rural background are more likely to take up rural medical practice than their peers with city origins and demonstrate more evidence of retention on the basis of their already established family and social network (Magnus & Tollan, 1993; Rolfe et al., 1995; De Vries
& Reid, 2003; Wilkinson et al., 2003; Curran & Rourke, 2004; Richards et al., 2005; Kamien & Cameron, 2006; Rabinowitz et al., 2008; Matsumoto et al., 2008; Worley et al., 2008; Hutten-Czapski., 2010). For OTDs and for ATDs from urban backgrounds, it becomes difficult to maintain QOL balance based on a demanding job in areas where there are fewer social and community resources. Although it might be easier for ATDs to become accustomed to these challenges because of their native background, on the other hand for OTDs and their families these challenges may be inhibitory to their retention in rural and remote communities. The difference in the satisfaction levels of ATDs and OTDs regarding this domain can be possibly related to the fact that a number of rural communities have had little experience with people from different cultures and may be less welcoming when cultures, customs and religious beliefs are unfamiliar (Crompvoets, 2010; Durey et al., 2008; Han, 2010; Han & Humphreys, 2005; Harvey & Faunce, 2005).

The study has further indicated high levels of on-call stress for both ATD and OTD respondents; 51% of OTD respondents and 44% of ATD respondents were dissatisfied with on call arrangements in rural and remote settings. GPs in rural and remote areas often face high on-call demands This is undesirable from both the perspective of patient safety as well as effective service delivery. Added to these on-call obligations are difficulties with arranging recreational leave or time-off (AMA position statement, 2012). The frequency of being on-call increases with the decrease in community size. While the average GP is rostered on-call for 24–36 hours per week, this figure increases to 50–75 hours for GPs in communities of < 10,000 residents. Actual on-call hours worked and the numbers of callouts per week are also significantly higher for GPs in all rural communities. Previous studies have found that on-call work can increase GP stress (French et al., 2006), is often not financially rewarding for rural GPs (Murdoch, 2006), is disliked by many doctors’ spouses (O’Brien et al., 2005) and is a
major deterrent to ‘new generation’ doctors seeking a more balanced work-life combination (Laurence et al., 2010). The resultant stress amounting from on-call coverage can be associated with increased intention to leave rural and remote communities and result in poor retention (Cuddy et al., 2001; Humphreys et al., 2002; Iversen et al., 2002). Keeping in trend with these studies, this research has also reported higher levels of on call stress for both ATD and OTD respondents.

This study has reported low levels of satisfaction with the ‘Ability to meet family needs’ of the security domain. Sixty seven per cent of ATD respondents and 57% of OTD respondents were satisfied with this dimension of security. Family issues have been recognised as major contributors to both rural GP retention and loss to rural practice (Veitch & Crossland, 2005). Work opportunities for partners, access to good educational facilities for their children, availability of good housing, social and cultural facilities have a bearing on retention of rural and remote GPs (Hoyal, 1995; Hays et al., 1997; Humphreys et al., 2002; Hans & Humphreys, 2005). GPs relocating from larger population centres or from overseas have probably enjoyed a relatively good financial and social position. Spouses are often accustomed to working in professional, well-paid positions. However, many small rural communities cannot offer the range of employment opportunities the family may be accustomed to. In order to find employment locally, spouses may need to undertake training for new types of work or take lower paid positions. In other cases, spouses may travel long distances or live away from home in order to pursue their professional interests. Moreover, due to the limited employment opportunities in rural and remote areas, the spouses and families of GPs may need professional development in order to take up employment. In the case of OTDs, spouses may need to do further study in order to ensure that their qualifications are accepted in Australia. However, study opportunities in rural areas may be very limited, so
that spouses and families may need to travel in order to take up appropriate study programs. In addition, postgraduate study or upgrading of qualifications may be associated with considerable costs. Temporary Resident OTDs (TROTDs) may be required to pay full fees for TAFE or university courses.

Another important factor concerning meeting GPs’ family needs is limited professional childcare facilities and education facilities for children in rural and remote communities. Female doctors in particular may need to rely on childcare in order to fulfil their responsibilities as medical professionals. If spouses are successful in finding employment or choose to pursue educational opportunities, the need for childcare support becomes even greater. Families with school or university-aged children will often be deterred from taking up employment in rural communities because of a lack of good educational opportunities. For families of TROTDs these problems are compounded by the fact that they may need to pay full fees to attend private schools or universities. OTDs, particularly those who have recently arrived in Australia, face significant financial pressures when moving to a rural community. They may be faced with purchasing and furnishing a home, purchasing a car, new school uniforms, clothing suited to the local climate and a host of other necessary items when they arrive. For families of TROTDs, there may be additional hurdles, as they may have to pay fees to attend private schools, colleges or universities. Particularly for those with more than one child, the cost of education may put the family under unreasonable financial pressure. These same families may also be unable to access Medicare benefits or even private medical insurance, further increasing the financial pressures they face.

In the freedom domain of community integration, the maximum level of satisfaction was observed in the dimensions of ‘ability to develop healthcare resources’ and ‘challenge and
diversity in the workplace’. Both ATD respondents and OTD respondents recorded the lowest levels of satisfaction with the dimensions of ‘involvement in community affairs’ and ‘diversity in social interactions’ of the freedom domain.

Only 43% of ATDs and 39% of OTDs were satisfied with their involvement in community affairs. The GPs respondent’s satisfaction with ‘Involvement in community affairs’ was measured along community-related activities that a GP may pursue in rural and remote settings. These community related activities range from assimilating into rural and remote community and participating in its organisations, coordinating community’s health resources, identifying and intervening in rural community’s health problems and at the same time paying attention to sociocultural aspects of patient care in these communities (Pathman et al., 1998). Earlier research has reported that an increase in balance between work and home (including community-based activities) was a need reported by GPs and their spouses (Boles & Yuterzenka, 2000; Tolhurst et al., 2000).

This research has recorded that only 52% of ATD respondents and 40% of OTD respondents were satisfied with the ‘Diversity in social interactions’ dimension of freedom. Rural and remote areas often convey a sense of isolation, from both a professional and a personal point of view (WHO, 2010). This can be perceived on a personal level, where issues are related to social interaction with their colleagues in the medical institution, and on a professional level, opportunities to advance careers and to communicate and consult with peers through networks, telehealth or other approaches are equally important. Isolation can exacerbate the problems experienced by GPs in rural and remote areas. They also need support in maintaining their own physical and emotional health, through opportunities for respite and social interaction and exercise where possible (Fran et al., 2008). GPs may tend to get
depressed in the absence of flexible thinking and social competence in such rural and remote settings.

This study has recorded higher levels of satisfaction for both kinds of GP respondents in almost all the dimensions of the identity domain of community integration, except ‘Seeing-as-self-belonging to the community’; 52% of ATD respondents and only 40% of OTD respondents felt satisfied with this dimension. The notion of GPs’ ‘Self-belonging to the community’ incorporates congruity between the self and the rural and remote community where they are living (Cutchin, 1997). It reflects the idea that the community is in some way similar to, or matches, the values and personality of the individual GP. This can also be referred to as congruity between self and place. Place-self-congruity has been examined in relation to residents’ attachment to their geographical area (Twigger-Ross & Uzzell, 1996). Both types of GP respondents exhibited lower levels of satisfaction with this dimension of identity.

6.1.4 Comparative differences amongst dimensions of experiential place integration model

For most dimensions of the experiential place integration model, the professional satisfaction level evidence showed no observed difference between ATD and OTD respondents. The differences became increasingly more significant between ATD respondents and OTD respondents involving dissatisfaction with the experiential place integration dimensions. The main reason for the dissatisfaction of GP respondents, as noted in this study, were related to on-call stress, lack of recreational and infrastructure available for social and cultural networks, lack of diversity in social interactions, lack of community involvement, loss of anonymity and status of medical institution development in rural and remote communities. On
the basis of the Leven’s test for homogeneity of variance, the study has concluded that noticeable differences existed between the satisfaction levels of ATD and OTD respondents in regard to the security domain of community integration, whereas the analysis for the freedom and identity domains yielded no significant differences. The results have indicated that ATD respondents felt more secure than OTD respondents in rural and remote communities. In an earlier study by Veitch et al., (2002), which incidentally used the same theoretical construct of ‘dimensions of integration’ as used in this study, it was found that in case of medical practitioners who left the rural and remote areas before they originally intended, many of 27 dimensions of ‘dimension of integration’ construct were missing. Dimensions related to practitioners’ security were generally more missing. Though Veitch’s study never differentiated between ATDs and OTDs, but it postulated that GPs’ who lost a sense of security in rural practices left the practice. Thus, it is evident that ‘security’ domain of rural and remote GPs must be probed into more detail so as to develop various measures to improve a sense of security in rural and remote GPs, especially OTDs.

6.1.5 Establishment of relationship between quality of life (QOL), community integration and retention

The major finding of this research was the establishment of correlation among the three variables of the study, namely, QOL, community integration and retention. As discussed in Chapter 3; Section 3.4.4, the retention of GPs in rural and remote communities was measured using the following criteria:

i) A GP who has served less than 2 years and has shown the intention to leave in the next 2 years, he/she is termed as ‘not retained’.
ii) A GP who has served more than 2 years and has shown an intention to stay in the rural and remote community for more than two years, he/she is termed as ‘retained’.

Further statistical mediation analysis was used to establish the correlation among all the three variables of the study. The results have shown that community integration of GP respondents and retention were correlated significantly by the inclusion of the mediator, their QOL in rural and remote communities. In-depth analysis of the various hypotheses and subsequent interpretation suggests that higher satisfaction levels with the domains of community integration could lead to higher levels of satisfaction with QOL and this could positively affect retention of GPs in rural and remote areas. There have been numerous studies, which have discussed separately the impact of community integration and effect of QOL satisfaction on the retention of rural and remote GPs, but this is the first study, which establishes a correlation among all these three variables.

6.2 IMPLICATIONS FOR THE POLICY MAKERS

The following suggestions are made to address the retention problem of GPs in rural and remote Australia. These recommendations are based on earlier research and also on the basis of the experiences of GP respondents with community integration and QOL in rural and remote settings:

6.2.1 More support for OTDs

For years Australia has relied on the immigration of doctors to work in a healthcare system suffering workforce shortages. OTDs are becoming the new mainstay of the GP workforce in regional centres, and rural and remote settings. OTD numbers are indicated to increase significantly during the years 2011 to 2020 (Deloitte Access Economics report, 2011). In the
wake of this ground reality, it will be a huge challenge for policymakers to retain these GPs in rural and remote areas. The registration process for OTDs is notoriously complex and historically fraught with inconsistencies. The constant changes in rules bewilder migrating doctors and locals organising their employment. There is certainly a need for an adequate and fair registration system to assess OTDs’ qualifications to work in Australia. The system must retain flexibility, greater clarity about regulations, greater transparency of process and realistic opportunities for OTDs clearly outlined. Moreover, doctors leaving their country of origin face a different range of challenges as compared to ATDs, in order to practice medicine in a rural and remote geographical and cultural setting. In Australia there is no national approach to support the integration of OTDs into the workforce (McGrath, 2004). The foremost need is to extend assistance to these OTDs with orientation, learning and ongoing professional education about the allied health system, a process they consider difficult to do on their own (Sullivan et al., 1999). More resources should be made available to orientate, support, educate and train OTDs.

As noted earlier in this study, the OTDs recruitment strategy and the 10-year moratorium period have resulted in increasing the number of GPs practising in rural and remote Australia. The 10-year moratorium remains the key policy instrument by which OTDs are directed to regions that suffer the highest levels of health disadvantage. But in the wake of continuous criticism of the 10-year moratorium from the Australian Medical Association (AMA) and other professional medical bodies, the Australian Government has come up with a new 5-Year Overseas Trained Doctors Scheme. This scheme is related to the 10-year moratorium in that it ‘discounts’ the moratorium period for those locations where recruitment and retention are found to be particularly problematic. A recent study conducted by Rural Health Workforce Australia in late 2010 to check the effectiveness of this scheme suggested positive results.
This study, involving five states/territories, showed that of the 168 OTDs who have completed the 5-Year Overseas Trained Doctors Scheme, 118 (70%) continued to work in rural areas. These 118 doctors, having completed their reduced moratorium requirements, have elected to stay in rural practice. This suggests that proper measures taken specifically for OTDs can help the Australian Government to retain OTDs in rural and remote areas.

Further, keeping in view the dissatisfaction levels of OTD respondents with the various dimensions of community integration, the following strategies must be implemented to boost their retainment in rural and remote areas:

**Professional support**

Overall, OTDs working in Australia’s rural and remote areas need more professional support than they are currently getting. This is especially true for those who are not from English-speaking backgrounds and whose cultural norms are therefore quite distinct from Australia’s. These OTDs, most of whom are Australian citizens, pose particular challenges for Australia as a host nation and for a rural and remote town as a host community. Integration into the community in which they are working, and preferably a subjective feeling of ‘belonging’, are critical to their achievement of satisfactory personal and professional outcomes. Proper professional support contributes to OTDs’ integration and retention in a rural and remote community (Han & Humphreys, 2005). This includes colleagues’ clinical support and supervision, which remains a vital factor to assist OTDs’ integration in the practice and connectivity with the community. OTDs may face contrasting issues, ranging from animosity to being welcomed nicely, into rural and remote communities. The professional support provided by a practice, whether positive or negative, contributes to the camaraderie or isolation experienced and the ultimate acculturation of OTDs in the community (Durey,
The professional support to OTDs must incorporate the following:

(i) Providing OTDs with accurate, comprehensive information about available opportunities for practice, particularly in rural and remote areas.

(ii) Immigration laws should be reviewed with a view to removing any unnecessary obstacles to appropriately trained OTDs working in Australia.

(iii) Increasing access to community, cultural, language and practice orientation for OTDs and their immediate families who are working (or planning to work) in rural and remote Australia.

(iv) Once they are in practice, ensuring OTDs know about and have access to all of the normal support needed by health professionals in rural and remote areas, including adequate remuneration, access to locums and CPD, time off and good IT connections.

Community support

The community’s connectivity with OTD families has been cited as the most significant factor to influence integration in rural settings (Carlier et al., 2005; Han & Humphreys, 2006). Community support is essential for OTDs and their families to ensure proper acculturation in rural and remote communities. The higher levels of dissatisfaction with the dimensions of ‘social culture network available’, ‘involvement in community affairs’ and ‘seeing as self-belonging to the community’ necessitate extensive community measures for OTDs. Addressing prevailing barriers through community orientation and knowledge of OTDs’ cultures and differences can assist integration and acculturation within the community. Positive community support may extend from renting a car and providing housing to being provided with information about the community and the available facilities (Durey, 2005; Han
& Humphreys, 2005). These positive support measures, along with capacity building and community ownership, can go a long way to retaining OTDs longer in these communities than required (Fleming, McRae & Tegen, 2001; Han, 2010). Community support initiatives aid the acceptance and wellbeing of GPs in rural and remote areas. Inclusion creates a sense of belonging and support, which may reduce the cultural dislocation many OTDs feel from family and friends (Durey, 2005).

Following are the various strategies that can lend considerable community support to OTDs in rural and remote areas:

(i) **Proper induction and transition**

To start with, arranging a proper induction and transition to medical practice in Australia for OTDs will pay dividends. It will make OTDs more comfortable in rural and remote settings and encourage them to stay as a longer-term member of our health system (AMA: 2005). Rural Workforce Agencies (RWAs) established in 1998 in each state and the Northern Territory (NT) to recruit and retain doctors for rural and remote communities through the Australian Government’s Rural and Remote General Practice Program (RRGPP) was a good step in providing proper community support to rural GPs. RWAs around Australia have taken various approaches to planning formal induction programs for OTDs currently working in rural and remote communities. Their combined experience highlights a number of strategies that have proven successful and provide part of a possible formula for future improvements. RWAs work closely with their respective state and territory governments to support recruitment, retention and professional development of rural doctors. The experience of jurisdictions including Tasmania, Western Australia and Victoria show that retention rates of OTDs improved when RWAs implemented structured programs which supported the OTDs in making the
transition into living and working in a rural and remote Australian community (ARRWAG, 2005). The RWAs can further design and implement various programs to provide proper community support to OTDs in rural and remote Australia.

(ii) **Supervision and mentorship**

Another area of concern where OTDs need proper support is in the case of lack of supervision and mentorship in their early stages in rural and remote areas (ARRWAG, 2005). Supportive supervision and mentoring are supposed to be complementary activities that are both necessary to build a continuum of care and support. Supervisors need to have comprehensive managerial and administrative knowledge and skills while mentors need to be practitioners and experienced in a specific service/intervention area (NACP, 2010). The rural and remote health workforce is ageing and in some professions retiring earlier than their city counterparts (Schofield et al., 2006). The ageing of the health workforce has serious implications for sustainable health service delivery and for the supervision and mentoring into the future of trainees and new graduates (Productivity Commission, 2005). It has been observed that supportive supervision is also a key element that contributes to improved job satisfaction, performance and subsequent retention and practise in rural areas (Couper et al., 2007). Australian government must initiate and strengthen leadership development programs to improve supervision capacity of GPs in rural areas and create a supportive workplace environment to attract and retain GPs.
One such program; ‘The John Flynn Placement Program’ (JFPP) was launched in 1997 by Department of Health and Ageing (DoHA). Once accepted on the JFPP, students are placed with a rural GP and a local contact person for a minimum of two full weeks per year, normally over a four-year period. Students are placed in the same community each year and are expected to complete the entire eight weeks of placements by the last holiday period following completion of their medical course. Students work closely with a rural doctor in a wide variety of health settings and experience one on one mentoring. These types of programs can actually provide level of mentoring for students in a unique way and help supplementing the experience of medical students in rural and remote medical services and make the transition into rural and remote independent practice easier and more successful.

(iii) Educational and training support

It is clear from the evidence that OTDs practicing in regional, rural and remote communities frequently do not have the same access to educational and training support opportunities as their city/metropolitan counterparts (Shanmugam, 2011). OTDs work in isolation in rural centres with limited case-load, without communication tools to form study groups or local tutors who could assist them in the preparation process (Australia Parliament House of Representatives Health and Ageing Standing Committee report, 2012). Moreover, they don’t have the access to educational supports. One of the challenges is the difficulty to leave rural and remote practice to attend training or support programs to complete one of the recognised pathways towards full registration as a medical practitioner in Australia. Strategies to provide exam workshops through each state faculty, tutoring the OTDs by experienced members, providing information and practice
opportunities together with exam preparation courses and seminars that OTDs are encouraged to attend can help them cover this deficit (RACGP, 2011). In addition to making increased use of new technologies (e.g. on-line training, tele/video-conferencing), offering locum services to OTDs is one way of addressing these issues. Providing locum services to OTDs in more isolated areas would allow them to attend education and training activities and assessment preparation programs provided by the Colleges (CPMC, 2011).

(iv) Community assistance

In Australia there is no national approach to support the integration of OTDs into the workforce (McGrath BP, 2004). Effective orientation can assist OTDs in the transition to practice in a new country, reduce isolation and enhance integration into new community (Nasmith, 1993). Proper community assistance for ensuring that OTDs’ families settle into new communities successfully by looking into the needs of the family and matching them with a particular rural and remote community. This may include availability of appropriate schools, social networks or sporting facilities.

(v) Role of local communities in integrating OTDs

A study of overseas trained doctors’ community integration and retention intentions in rural communities throughout Victoria found maintaining cultural and religious values as well as relationships to their respective ethnic communities to be important (Han and Humphreys 2005). The study noted the role of local community support in facilitating integration of overseas trained doctors and their families into the community as well as the converse, that discrimination and
indifference caused anxiety and discomfort and resulted in families leaving as soon as possible. Moreover, local government agencies have considerable influence in rural communities that could be utilised to highlight the positive contribution of OTDs and their families. These agencies can play an important role in highlighting the important role of OTDs in rural and remote communities and encouraging the local community to value, support and welcome OTDs and their families. Stronger connections between GPs and local agencies help to build a better understanding of the relationship between peoples’ health and the wider social, economic and physical environment, which will ultimately have a positive influence on overall health outcomes in that community (Standing council on health, 2011).

(vi) **Spreading good news of OTDs’ contribution**

Thousands of Australians experience good medical care from OTDs every day. However, bad news typically spreads more rapidly than good news. It is important to acknowledge that recent negative publicity has impacted upon recruiting and retaining OTDs. There is significant danger that OTDs will be made to feel unwelcome in Australia and will be encouraged to seek employment in other countries. If this negative publicity is not countered with positive accounts, celebrating the contribution of OTDs and confirming their competence and credibility, all other efforts to improve systems will be hampered (ARRWAG, 2005).

Spreading good news stories through letters to the editor and by talking about good experiences will help to balance some of the negative perceptions that currently exist. All members of the community should be encouraged to tell good news
stories about experiences with OTDs. This will encourage the media and others to provide a more balanced view of their contribution to medical care in Australia.

**Family needs**

Accessible or adequate schooling for children and employment for a spouse is pivotal to retain OTDs in rural communities (Heal & Jacobs, 2005; Stanley & Bennett, 2005; Han & Humphreys, 2006; Frehywot et al., 2010). With the simple provision of information about facilities and resources in the rural and remote town such as schools, employment possibilities for spouses and where to shop will assist OTDs and their families to flourish (Carlier et al., 2005).

**Cultural and religious needs**

OTDs come to work in Australia from diverse settings and have diverse cultural and religious backgrounds. The move to rural life can be more challenging due to cultural, language and religious differences. It is important to look after the cultural and religious needs of OTDs in rural and remote areas. These needs include the maintenance of cultural and religious values and connectivity with the respective culturally and linguistically diverse (CaLD) community. Conscious efforts to provide information on how to obtain cultural foods, linking OTDs’ with families from the same cultural or religious background or providing a local mentor family can assist OTDs acculturation in a big way (Carlier et al., 2005). Establishing community institutions such as local places of worship can also play a vital role in perpetuating traditional cultural values and facilitating the community cohesion and acculturation (Han & Humphreys, 2005) of OTDs in these settings. These institutions increase access to resources, which assist OTDs in adjusting to life in their new country and continuing many familiar aspects of their lifestyle and culture.
6.2.2 Improving psychological wellbeing of rural and remote GPs

A psychological approach to improving GPs’ emotional wellbeing in rural and remote areas is warranted. Improving psychological wellbeing and emphasising the value of developing psychologically based programs may boost the physical and mental health of GPs and might influence rural and remote GPs’ intentions to leave rural practice. Seeking ways to help rural and remote GPs and their families adapt to their new lives is also important and local communities must be encouraged to support and help them settle in (ARRWAG, 2003). Psychological wellbeing is most likely to be improved by providing better support structures and evidence-based coping and personal skills. Key components of social and emotional support should be implemented by policymakers linking GPs in a peer-support network, provision of health check-ups, crisis plans, distributing pamphlets, providing an emergency support line, organising rural retreats and the development of networks among GPs and other professionals.

An example of one such program that directly targeted the psychological wellbeing of GPs was implemented by the Foundation of Pennsylvania Medical Society under the Physicians Health Program (PHP). This program included counseling and training for GPs and advocated that physicians have to change the way they live and learn to balance their personal needs with those of their patients (Hoepfer, 1999). In South Australia, the Dr. DOC program, a rural GP health and wellbeing program instigated in 2000 by the Rural Doctors Workforce Agency (RDWA), was implemented in a statewide approach aimed at improving rural GPs’ health and wellbeing. The program supported rural and remote GPs and their families in maintaining their wellbeing through both physical and psychological health strategies, as well as providing timely support to those in crisis. Another good step in that direction is of establishing Rural Medical Family Networks (RMFNs) statewide by Australian authorities, which offer social
and emotional support to all rural medical families who are experiencing difficulties living and working in a rural and remote location in Australia. Moreover, appropriate training programs or interventions can be used to alter GPs’ reaction to demands in rural and remote areas, thereby reducing the level of stress experienced. Interventions such as reviewing boundaries between work and personal life, importance of management skills, communication skills, teamwork and stress-reduction strategies such as asking for help when required and saying no when already under pressure can help increase the emotional wellbeing of GPs in rural and remote areas.

6.2.3 More monetary incentives and abolition of 10-year moratorium

The Australian Government has recently (July 2010) increased the rewards and incentives for doctors to move to rural and remote areas to boost the rural health workforce. City doctors who move to regional or remote areas will receive up to $120,000 in relocation payments. Moreover, the Australian Government’s Rural Health Workforce Strategy will invest $134.4 million in incentives, including giving rural doctors access to retention payments of up to $47,000 a year - an increase from $25,000. More than 2,400 doctors around Australia will for the first time become eligible to receive retention payments and professional support to remain in rural and remote areas. Although these efforts are going to affect the satisfaction levels of OTDs with the ‘material wellbeing’ domain (Section 5.2.1) to some extent, certainly the abolition of the 10-year moratorium on access to Medicare for OTDs and replacing it with a package of incentives and support for OTDs to work in rural and remote settings and to work through the rural generalist training pathway would go a long way to ensure their satisfaction with this domain.
6.2.4 Establishment of social/professional networks in rural and remote areas

Professional support is an important factor in rural practice (Hays et al., 1997; Marshall, 1999; Rabinowitz et al., 1999; Hollins et al., 2000; Joyce et al., 2003). Support networks, both professional and personal, offer one potential avenue to address professional isolation and hence improve retention (Joyce et al., 2003). A study (Hays et al., 2003) observed that rural doctors who stayed for prolonged periods of time (10 or more years) established personal and professional support networks that provided them with protection from the more negative aspects of rural professional life.

The findings of the present study suggest that engendering a greater sense of supportive supervision, professional support, and community involvement projects may be useful strategies to assist in improving retention for rural GPs. Policy initiatives should be aimed at supporting the development of professional networks, rural health professional associations and so on, in order to improve the morale and status of rural and remote GPs and to reduce feelings of professional isolation. Another initiative that can go a long way to keep GPs interested in these rural and remote settings is to support GPs’ need to continue learning throughout their careers, particularly in isolated areas where access to knowledge and information is not easy. By providing CME delivered in rural areas and focusing on the expressed needs of rural and remote GPs, these programs are likely to improve the competence of rural and remote GPs and moreover make them feel they are a part of a professional group and increase their desire to remain and practise in those areas.

Rural and remote GPs may not have access to required health information and have to manually coordinate care with other providers. This can be exacerbated in rural and remote areas where health system access and equity issues have long been recognised. The RACGP,
2010 in their media release observed that a better way of dealing with these issues could be the establishment of an e-health network strategies to take these issues into account and find out how rural and remote GPs can receive the resources and support they will need. Rural and remote areas stand to benefit the most from e-health because of its potential for helping to overcome the effects of distance–health will allow better sharing of health information among multiple care providers, locally and at a distance, making rural and remote communities and their GPs major beneficiaries of a national e-health infrastructure (RACGP, 2010).

Targeted, planned and coordinated implementation of e-health in rural and remote Australia, making good infrastructure and working with healthcare providers and consumers to support their needs will achieve the desired benefits and equity in health outcomes for rural and remote Australians. It can allow access to services remotely to support care provided locally and will provide more accurate, timely and reliable transfer of clinical information resulting in a good social and professional network for GPs also (National E-Health Transition Authority, 2010).

6.2.5 Investing in rural infrastructure for family needs and community involvement

Community expectations of GPs and proactive targeted community support for GPs’ families should be ongoing strategies for the Australian Government to sustain rural and remote GPs (Veitch et al., 1999). Strategies aimed at rural GP retention should consider the rural medical family as a unit for support purposes. Support organisations and rural communities must recognise and cater for changing support needs over time. Given the importance of GPs for the health welfare of rural and remote areas, it becomes important for the Australian Government to start building adequate infrastructure in rural and remote areas, so as to attract GPs in rural and remote communities. Proper recreational facilities, educational infrastructure
for children and employment opportunities should be provided in these settings. Adequate schooling for children and employment for a spouse are pivotal to retain GPs in rural communities (Heal & Jacobs, 2005; Stanley & Bennett, 2005; Han & Humphreys, 2006; Frehywot et al., 2010). The following strategies can be implemented in rural and remote settings to meet the family needs of GPs:

(i) **Professional needs of spouses**

   Availability of jobs for spouses, whether they want to work full time or in more flexible arrangements, is of particular concern for potential professionals, particularly those with professional partners keen to continue in their own careers (Miles et al., 2006). Matching the professional needs of spouses with the placement of doctors in rural communities, as well as providing assistance while seeking employment, is an important way of meeting the needs of rural doctors and their families (ARRWAG, 2005). Another recruitment strategies may include seeking out professional couples in conjunction with other employers in need of professional services (Miles et al., 2006).

(ii) **Study grant for spouses**

   Providing study grants or other support for further study will provide meaningful support to the spouses of rural doctors who need further training or retraining in their chosen field.

(iii) **Flexible practice models**

   Flexibility in professional training and practice structures has been identified consistently as a major issue for female doctors (Tolhurst et al., 1997; McEwin, 2001, Wainer, 2001). Providing flexible practice models for female GPs and job-
sharing opportunities and locum cover for all GPs will help to relieve the pressure of long working hours and the subsequent impact on families.

(iv) Access to quality care

Ensuring that doctors and their families who require childcare support have access to quality care and extending childcare services for before/after hours care will help to ensure that doctors can focus on the demands of their profession and the needs of the community (Cheney, 2003).

(v) Educational needs of children

Children’s education concerns are strong influences in preventing a return to a rural and remote practice (Macisaac et al., 2000). Planning for the educational needs of children when placing a GP in a rural community will make it more feasible for doctors to consider working in those communities. Waiving fees for private schools or universities would also provide relief for families of TROTDS (ARRWAG, 2005).

(vi) Engaging in social networks

Providing GP families with information and support for pursuing social interests and helping them to become part of local social networks will significantly assist GPs’ families in feeling at home in rural communities. Programs such as the Rural Medical Family Support Scheme (RMFSS) and Rural Medical Family Network (RMFN) have proven valuable in the past and should be considered on an ongoing basis (ARRWAG, 2005).

(vii) Housing and other facilities

Lack of infrastructure such as housing, sporting facilities, shopping centres, movie theatres or public transport is one of the most significant barriers for families in rural communities. In many situations, this represents a significant contributor to
social and physical isolation (ARRWAG, 2005). Providing information about infrastructure and housing prior to employing a GP in a rural community will help families to prepare for these challenges and ensure that these issues can be addressed adequately.

6.2.6 Providing locum relief and flexible rosters

Various initiatives such as mutually supporting weekends, proper locum relief arrangements and allowing GPs to establish viable rostering arrangements, which include reasonable agreement over what fees would be charged can encourage rural and remote GPs to cooperate in order to provide their local community with better access to round-the-clock healthcare and address one of the major disincentives to rural/remote practice being a high on-call workload.

AMA also highlighted the above-mentioned suggestions in ‘Position Statement on Regional/Rural Workforce Initiatives 2012’. The Position Statement highlights five key priority areas for Government policy development that would help attract medical practitioners and students to regional and rural areas. The AMA urges the Government to:

(i) Provide a dedicated and quality training pathway with the right skill mix to ensure GPs are adequately trained to work in rural areas;

(ii) Provide a realistic and sustainable work environment with flexibility, including locum relief;

(iii) Provide family support that includes spousal opportunities/employment, educational opportunities for children’s education, subsidy for housing/relocation and/or tax relief;

(iv) Provide financial incentives including rural loadings to ensure competitive remuneration;
6.2.7 Female specific policies

Given the projected growth of female GPs in rural and remote areas in Australia, there is an expressed need for rural communities to offer incentives and attractive life options specifically with females in mind. Moreover, work-life balance has particularly been identified as a factor of prime concern for female GPs born after 1965 (also known as generation X GPs) (Reskia, 1993; Heiligers & Hingstman, 2000; Kilmartin et al., 2002; Jovic et al., 2006; Australian Medical Association, 2007; Buddeberg-Fischer et al., 2008). Earlier research indicated that female GPs working in rural areas often report higher levels of satisfaction than other GPs, with similar findings being reported internationally (Van Ham & Verhoeven, 2006), but there are gender differences that need to be accounted for among GPs while addressing their community integration and QOL satisfaction needs in country areas. For example, male GPs may favour practice factors as more important, while female GPs may rate relationship and community factors as dominant. Female practitioners give greater consideration to the impact of culture and working conditions on work life balance than their male counterparts (Wiskow, Albreht, & de Pietro, 2010). Access to flexible work arrangements, development of support networks and affordability of childcare were viewed as the most important incentive to luring female GPs into the rural medical workforce and to overcome the practice demands that were serious inhibitors to their retention (Rural Workforce Agency report, 2003). Although this research report was not specifically concerning female GPs, to boost overall retention of GPs in light of the increasing growth of female GPs in rural and remote Australia it becomes critical for policymakers and planners to be aware of the personal and professional needs of female GPs when considering the focus of future GP support programs.
6.3 IMPLICATIONS FOR FUTURE RESEARCH

This study points to four important questions for future research. First, what factors are responsible for the lower levels of satisfaction with QOL of OTDs as compared to ATDs in rural and remote Australia? The results of this study have indicated that in almost all the domains of QOL, OTDs were less satisfied. Further, in-depth study regarding QOL satisfaction of specifically OTDs may help determining the dimensions which can ultimately help retaining OTDs in rural and remote Australia for a longer duration of time.

Second, why do OTDs feel less secure in rural and remote areas? As the study has found, noticeable differences existed between the satisfaction levels of ATDs and OTDs in regard to the security domain of community integration, whereas the analysis for freedom and identity domains yielded no significant differences. It would be an interesting study to know the exact reasons for the insecurity of OTDs in rural and remote Australia.

Third, is there any linkage between the actual retention of GPs and their QOL based on community integration in rural and remote communities? The main limitation of the study was that it took into account the probable retention of GPs according to their future intentions; it was not based on actual retention. Thus, there was the possibility that those who intended to stay would actually leave the rural areas and vice versa. Further research taking into account the historical perspective of retention and satisfaction with QOL based on community integration can provide some interesting insights and solutions to the retention problem of the healthcare workforce in rural and remote areas.

Fourth, why is there a difference in the satisfaction levels of female ATDs and OTDs as compared to their male counterparts? The study has observed interesting findings on the basis
of gender segregation regarding the satisfaction levels with commitment and aspirations in rural and remote communities. Male ATDs’ satisfaction level was higher than that of female ATDs. However, there was a marked difference in the satisfaction level of this dimension in the case of OTDs; females being more satisfied as compared to their male counterparts. It would be interesting to explore the reasons for these differences in the context of the satisfaction levels of male and female GPs (ATDs and OTDs) in rural and remote communities.

6.4 CONCLUSION

Regional and national governments and academic and professional bodies have been active in attempting to address the GP shortages in rural and remote Australia. Shortage of GPs is of concern to the community because it can negatively affect healthcare quality and access to healthcare services in rural and remote locations. This has given rise to a range of initiatives and strategies being developed for GPs in rural and remote Australia. Retention of GPs is a critical factor in effectively addressing the well documented maldistribution of the medical workforce in rural and remote areas.

This study has explored the satisfaction levels of GPs (ATDs and OTDs) with community integration and the resultant QOL. The study has established that the retention of rural and remote GPs was significantly related to resultant QOL based on community integration i.e. higher the QOL the greater the chance of potential retention and vice versa. The findings of the study provide a substantive basis for developing policies and practices that successfully encourage and eventually retain GPs (ATDs and OTDs) in rural and remote Australia.
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APPENDIX 1
Community Integration/Quality of Life Questionnaire

Thank you for taking part in the Community Integration & Quality of Life (QOL) study.

This questionnaire will ask how you feel about various aspects of your life relating to your living situation and professional life in rural and remote communities during last 12 months.

(The information you provide will only be used to generate group statistics. At no time will your individual responses be referred to, nor will you be identified in any reports or correspondence relating to the study)

(Please tick the appropriate box)

1. How long have you been working in this community?
   - Less than 1 year
   - Between 1-2 years
   - Between 2-5 years
   - Between 5-9 years
   - More than 9 years

2. How many hours do you work on average in the medical clinic each week?
   - Less than 10 hours
   - Between 10-15 hours
   - Between 15-20 hours
   - Between 20-25 hours
   - More than 25 hours

3. How many patients do you treat in an average week?
   - Less than 20
   - Between 20-40
   - Between 40-60
   - Between 60-80
   - More than 100

4. How much time do you allow for each patient contact?
   - Less than 15 minutes
   - Between 15-20 minutes
   - Between 20-30 minutes
   - Between 30-40 minutes
   - More than 40 minutes

5. Is the time you have for each consultation adequate?
   - Very inadequate
   - Not adequate
   - Can’t Say
   - Adequate
   - More than adequate

6. Are you required to respond to on-call requests outside normal hours?
   - Yes
   - No

(If you answered “Yes” to this question move on to question 7. If you answered “No”, move to the question 8.)

7. To what degree do you feel stressed because you need to being on call?
   - Not at all
   - Somewhat
   - Moderately
   - Quite a lot
   - Extremely stressed
8. Please indicate your overall level of satisfaction with each of the various aspects of your work & life in this rural and remote community:

<table>
<thead>
<tr>
<th></th>
<th>Very Dissatisfied</th>
<th>Moderately Dissatisfied</th>
<th>Not Sure</th>
<th>Moderately Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Impact on the privacy of you and your family</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(ii) Amount of respect derived from your professional status</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(iii) Your professional standing in your local medical community</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(iv) Your professional standing in the broader medical community</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(v) Level of professional autonomy at your workplace</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(vi) Adequate resources to perform your job (e.g.; money, equipment, hospital access &amp; skilled practice staff)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(vii) Recognition of your professional expertise at your workplace</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(viii) The contribution that working in this practic makes to your professional development</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(ix) Level of support you get from your medical colleagues</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>(x) Level of respect as a member of this rural community</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

9. Below is a list of leisure activities. Tick the activities which you get involved in at least once a month:

☐ Go to a service club  ☐ Go to a hotel/bar/club  ☐ Watch live sporting events  ☐ Go to a place of worship  ☐ Chat with neighbors

☐ Eat out  ☐ Go to a movie  ☐ Visit family or a friend  ☐ Play sport or go to a gym

Please list any others:

________________________________________

________________________________________

Appendix 1: Community integration/Quality of life questionnaire
10. Do you get sufficient time to spend with your spouse/partner or children?
   - Never
   - Rarely
   - Occasionally
   - Sometimes
   - Often

11. How easy is it for you to develop good social relationships in this community?
   - Very Difficult
   - Difficult
   - Uncertain
   - Easy
   - Very Easy

12. Have you suffered any instance of racial discrimination since you joined this community?
   - Yes
   - No

   (If you answered “Yes” to this question move on to question 13. If you answered “No”, move to the question 14.)

13. Would this (racial discrimination) influence your intention to stay or not to stay in this community?
   - Very Unlikely
   - Unlikely
   - Uncertain
   - Likely
   - Very Likely

14. How long you are required to stay (contractual obligations) in this rural & remote community?
   - No Contractual Obligations
   - Less than 1 year
   - Between 1-2 years
   - Between 2-5 years
   - More than 5 years

15. How long do you intend to stay in this rural & remote community?
   - Unsure
   - Less than 1 year
   - Between 1-2 years
   - Between 2-5 years
   - More than 5 years

16. Please indicate the degree to which you are satisfied with the following:

   (i) Your Material Possessions
   (ii) Your Health
   (iii) Your professional achievements
   (iv) Your relationships with family & friends
   (v) Your sense of security in the rural community
   (vi) Your level of social interaction in the community
   (vii) Your acceptance by the community
17. **About you:**

(i) **Year of birth** ____________

(ii) **Gender:**  
- [ ] Male  
- [ ] Female

(iii) **Where is your main place of work?**

- [ ] Town/Suburb ______________ or Postcode ______________

(iv) **What is your living situation?**

- [ ] Living alone  
- [ ] With spouse/partner  
- [ ] With spouse & children  
- [ ] With children only  
- [ ] Living with friends

(v) **In which of the following professional situations are you working?**

- [ ] General Practice  
- [ ] Locum  
- [ ] Hospital  
- [ ] Clinic  
- [ ] Other (Specify)

(vi) **What is your household net annual income before tax?**

- [ ] Less than $50000  
- [ ] $50000-$65000  
- [ ] $65000-$80000  
- [ ] $80000-$100000  
- [ ] More than $100000

(vii) **In what year did you complete your basic medical degree?** ____________

(viii) **In which country did you complete your basic degree?**

- [ ] A medical school in Australia  
- [ ] A medical school outside Australia. Please specify: ____________

(ix) **If you did your degree at a medical school outside Australia, which components of AMC process you have successfully completed?**

- [ ] None  
- [ ] Language  
- [ ] MCQ  
- [ ] Clinical  
- [ ] All of these (IELTS)

(x) **Have you gained any postgraduate qualifications while in Australia (GP or Specialist)?**

- [ ] FRACGP  
- [ ] FACRRM  
- [ ] Other (Please Specify) ____________

(xi) **What is your residency status?**

- [ ] Australian Citizen  
- [ ] Permanent Resident  
- [ ] Temporary resident

(xii) **Do you have:**

- [ ] Full Medical registration  
- [ ] Conditional Medical registration  
- [ ] Other (Please Specify) ____________

18. **Thank you for completing the survey. Please provide any further comments below.**

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

Appendix 1: Community integration/Quality of life questionnaire
## APPENDIX 2

### MAPPING OF COMMUNITY INTEGRATION SCALE

#### Security Domain

<table>
<thead>
<tr>
<th>Security Dimensions</th>
<th>15 Corresponding questions in questionnaire</th>
</tr>
</thead>
</table>
| 1. Confidence in medical Abilities | Que.8 (vii)  
Recognition of Professional Expertise |
| 2. Commitment to aspiration & goals | Que.8 (viii)  
Recognition of Professional Expertise  
Que.16 (iii)  
Professional Achievements |
| 3. Ability to meet family needs | Que.10  
Sufficient time to spend with family  
Que. 16(iv)  
Relationship with family and friends |
| 4. Comfort with medical community and institutions | Que.8 (v)  
Level of Professional Autonomy  
Que.8 (ix)  
Support from Colleagues |
| 5. Degree of on-call coverage | Que.7  
Degree of on call coverage |
| 6. Practice group environment | Que.8 (v)  
Level of Professional Autonomy  
Que.8 (vi)  
Adequate Resource  
Que.8 (ix)  
Support from Colleagues |
| 7. Community and medical institution development | Que.8 (vi)  
Adequate Resource |
| 8. Social Culture network available | Que.11  
Developing good relationships in the community  
Que. 16 (vi)  
Level of social interaction in the community |
| 9. Respect of medical community at large. | Que.8 (iv)  
Professional standing in broader medical community |

#### Freedom Domain

<table>
<thead>
<tr>
<th>Freedom dimensions</th>
<th>18 Corresponding questions in questionnaire</th>
</tr>
</thead>
</table>
| 1. Challenge & Diversity in workplace | Que.8 (v)  
Level of Professional Autonomy |
| 2. Ability to consult with more patients | Que.3  
How many patients?  
Que.4  
How much time?  
Que.5  
Is the time adequate? |
| 3. Co-operation with medical and community at large | Que.8 (ix)  
Support from Colleagues  
Que.8 (x)  
Respect from rural community |
| 4. Respect of the medical and community at large | Que.8 (ii)  
Respect derived from professional status  
Que.8 (iii)  
Professional Standing |
<table>
<thead>
<tr>
<th>Appendix 2: Mapping of Community integration scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5. Power in Medical Relations</strong></td>
</tr>
<tr>
<td>Que.8 (i)</td>
</tr>
<tr>
<td>Respect derived from professional status</td>
</tr>
<tr>
<td>Que.8 (v)</td>
</tr>
<tr>
<td>Level of Professional Autonomy</td>
</tr>
<tr>
<td>Que.8 (vii)</td>
</tr>
<tr>
<td>Recognition of Professional Expertise</td>
</tr>
<tr>
<td><strong>6. Ability to develop health care resources</strong></td>
</tr>
<tr>
<td>Que.8 (i)</td>
</tr>
<tr>
<td>Professional Standing</td>
</tr>
<tr>
<td>Que.8 (v)</td>
</tr>
<tr>
<td>Level of Professional Autonomy</td>
</tr>
<tr>
<td>Que.8 (vii)</td>
</tr>
<tr>
<td>Recognition of Professional Expertise</td>
</tr>
<tr>
<td><strong>7. Diversity in social interactions</strong></td>
</tr>
<tr>
<td>Que. 16 (vi)</td>
</tr>
<tr>
<td>Level of social interaction in the community</td>
</tr>
<tr>
<td><strong>8. Involvement in community affairs</strong></td>
</tr>
<tr>
<td>Que.11</td>
</tr>
<tr>
<td>Developing good relationships in the community</td>
</tr>
<tr>
<td><strong>9. Personal and family activities</strong></td>
</tr>
<tr>
<td>Que.9</td>
</tr>
<tr>
<td>Various social activities.</td>
</tr>
<tr>
<td><strong>10. Developed perspective of self and place</strong></td>
</tr>
<tr>
<td>Que.8 (viii)</td>
</tr>
<tr>
<td>Contribution to Professional Development</td>
</tr>
</tbody>
</table>

**Identity Domain**

<table>
<thead>
<tr>
<th>Identity</th>
<th>15 Corresponding questions in questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Loss of anonymity</strong></td>
<td>Que.8 (i)</td>
</tr>
<tr>
<td></td>
<td>Privacy issues</td>
</tr>
<tr>
<td><strong>2.&quot;Like-Minded&quot; Practice group</strong></td>
<td>Que.8 (ix)</td>
</tr>
<tr>
<td></td>
<td>Support from Colleagues</td>
</tr>
<tr>
<td><strong>3.Roles played and responsibilities’ taken</strong></td>
<td>Que.8 (vii)</td>
</tr>
<tr>
<td></td>
<td>Recognition of Professional Expertise</td>
</tr>
<tr>
<td><strong>4.Respect of the medical and community at large</strong></td>
<td>Que.8 (ii)</td>
</tr>
<tr>
<td></td>
<td>Respect derived from professional status</td>
</tr>
<tr>
<td></td>
<td>Que.8 (iii)</td>
</tr>
<tr>
<td></td>
<td>Professional Standing</td>
</tr>
<tr>
<td></td>
<td>Que.8 (a)</td>
</tr>
<tr>
<td></td>
<td>Respect from rural community</td>
</tr>
<tr>
<td><strong>5.Fulfilling aspirations in the workplace</strong></td>
<td>Que.8 (viii)</td>
</tr>
<tr>
<td></td>
<td>Contribution to Professional Development</td>
</tr>
<tr>
<td></td>
<td>Que.16 (iii)</td>
</tr>
<tr>
<td></td>
<td>Professional Achievements</td>
</tr>
<tr>
<td><strong>6.Seeing as self-belonging to the community</strong></td>
<td>Que.9</td>
</tr>
<tr>
<td></td>
<td>Various social activities.</td>
</tr>
<tr>
<td></td>
<td>Que.11</td>
</tr>
<tr>
<td></td>
<td>Developing good relationships in the community</td>
</tr>
<tr>
<td></td>
<td>Que. 16 (vi)</td>
</tr>
<tr>
<td></td>
<td>Level of social interaction in the community</td>
</tr>
<tr>
<td><strong>7.Awareness of self in time and place</strong></td>
<td>Que.8 (viii)</td>
</tr>
<tr>
<td></td>
<td>Contribution to Professional Development</td>
</tr>
<tr>
<td></td>
<td>Que.16 (iii)</td>
</tr>
<tr>
<td></td>
<td>Professional Achievements</td>
</tr>
<tr>
<td><strong>8. Creation of future goals in place</strong></td>
<td>Que.8 (viii)</td>
</tr>
<tr>
<td></td>
<td>Contribution to Professional Development</td>
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<td>Que.16 (iii)</td>
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<td>Professional Achievements</td>
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