Comparing health service usage of different immigrant groups with Australian and New Zealanders: Evidence from the Household Income and Labour Dynamics Survey of Australia

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Abstract

Background

We explored differences in primary and secondary health care usage across migrants from different regions in Australia.

Methods

Data comes from the Household Income and Labour Dynamics of Australia survey from waves 9, 13, and 17 (2009, 2013, and 2017). Zero inflated Poisson regressions and non-linear decompositions were estimated.

Results

Younger women from South Asia, Latin America and Eastern and Southern Europe and younger men from Eastern and Southern Europe had lower rates of GP visits compared to the host population. Older African men have higher rates of nights in hospital and younger Eastern and Southern European women, older women from the Rest of Asia, and younger African men and women have lower rates of nights in hospital compared to the host population

Discussion

Migrants are a heterogenous group and health policy needs to consider these differences to ensure the effectiveness and efficiency of service provision.

Background

Migration levels are increasing as our world continues to become more connected. In Australia, migrants comprise almost 30% of the total population [1]. Migrants are a heterogenous group. There are economic migrants and those who migrate for humanitarian reasons [2]. Humanitarian migrants may have experienced traumatic or dangerous events which have the potential to cause a range of health issues, both physical and mental. The United Nation's (UN) 2030 Sustainable Development Goals (SDGs) highlight the importance migration plays in sustainable development, with over half the goals relevant to migrant wellbeing [3].

Migration can provide many benefits. In Australia, managed labour migration plays an important role in creating a flexible labour market [4]. In the UK, migrants provide a solution to staff shortages [5]. Economic migrants on average contribute more through taxes than they cost a host country [4]. Migration can impact on the demographic composition of the host and source countries. Migration can contribute to addressing the aging population problem in high income countries. For source countries, remittance payments can promote economic development, but it may also cause brain drain which will have negative economic consequences [6].

Migration is a politically emotive topic. There is a common misconception that migration can put a strain on public services. The impact of migrants on public expenditure is dependent upon the assumptions of the model used and how migrants are defined. As migrants are such a heterogenous group, one cannot make conclusions a priori what the impact of migrants will be on the health system. The 'Healthy Migrant Effect' [7, 8] predicts that because migrants tend to be younger, fitter, and healthier than the host population. Thus, on average they will require fewer health care resources. To qualify as an economic migrant, in some countries such as Australia, there are health and age criterion for entry [9]. In further support of the concept that on average migrants are healthier is the 'Salmon Bias theory.' This suggests migrants return to their country of origin in later life or in poor health [10]. Thus, their impact on the health care system of the host country will be minimal. Conversely, there is the convergence theory which suggests that migrant's health and lifestyle tend to converge to that of the host population because of acculturation [11]. This would suggest that migrants in the long term would have similar service usage to the host population

The evidence supporting the above theories is mixed. This could be because of differences in how countries classify migrants [10]. For example, nationality, country of birth, and citizenship are all used to classify migrants [11]. Cheswick et al. [12] found for Australia that the self-reported health of economic migrants converged to the mean for native Australians, but the health of humanitarian migrants remained poor. These findings suggest that how migrants are defined is important for understanding their health and what this means for their use and need of health services.

It is cost-effective that migrants can access healthcare on demand. There is evidence suggesting that costs of healthcare increased when asylum seekers and refugees were initially unable to access treatments, in comparison to when healthcare was not restricted [13]. A systematic review of health service usage amongst migrants and host populations across several European countries identified various inequalities [14]. Emergency care was utilised more by migrants. However, outpatient departments recorded a lower use by migrants. This suggests there could be barriers which prevent migrants from accessing non-emergency medical care such as routine check-ups or preventative screenings. Another study analysing data from several European countries highlighted treating migrant populations' health issues promptly, out of hospital, is more economically effective than waiting until hospitalisation is required [15].

A gap in public health research on migrant health and their health service usage in Australia has been identified [8]. Additionally, there is a lack of evidence, looking at health service usage across the life course and across different migrant groups. Understanding this heterogeneity across the life course as well as across migrant groups is important for the cost-effective targeting of services to those most in need. Differences in primary and secondary service usage by migrant groups can provide clear evidence on which groups may have difficulty in accessing services.

We explored differences in primary and secondary care across migrants from different regions across the life course. Next, we identified how differences in observed characteristics and unobserved barriers in access such as cultural factors, inequities in access to services, or differences in quality of education for example, may explain any of the differences between migrant groups and the host population primary service usage [16]. We solely focus on differences in primary care as higher service usage of secondary care by migrant groups may reflect barriers to access for preventative/ basic care. We hypothesise that younger economic migrants are

likely to be healthier or have a similar level of health to the host population. Younger Humanitarian migrants are more likely to have worse health compared to the host population [17]. However, if there are barriers to accessing services then primary service usage may be lower for this group and secondary service usage will be higher. The composition of the migrant population (humanitarian or economic) will determine what the overall association will be for each region. For older migrants, we hypothesise that if they have had to engage in low skilled manual work throughout their adult life and have faced barriers to health care services as younger adults, they are likely to be in worse health than the host population. This may mean that older migrants use both more primary and secondary services. Conversely, depending on the nature of barriers to services, after being in Australia for a number of years because of acculturation these barriers may have decreased if migrants better understand the health care system. Acculturation would suggest that service usage for older migrants was similar to that of the host population. Overall, our results can be used to help plan the provision of health care resources for all to maximise health, reduce health care costs, and minimise health inequalities.

Methods

We use data from the Household Income and Labour Dynamics of Australia (HILDA) survey from waves 9, 13, and 17 (2009, 2013, and 2017) which contain information on health service usage. The HILDA survey began in 2001 and is a household longitudinal survey administered to approximately 17,000 participants asking individuals about their economic and personal well-being, employment and family life [18]. Design aspects include a representative sample population, yearly completion by individuals and flexibility to include household changes over time [19].. The survey has received ethical approval from the Human Research Committee at the University of Melbourne.

Outcome variables:

Our first outcome variable is a number of GP visits over the past 12 months. Our second outcome variable is number of nights in hospital over the past 12 months.. We have 40,888 observations for GP visits across the three waves and 40,960 observations for nights in hospital.

Control Variables

We identify migrants by country of birth. We create dummy variables that equal one if the respondent was born in Sub-Sahara or North Africa; South, South East Asia, and Oceania; the rest of Asia; Eastern and Southern Europe; and Central and South America. The base category is if the respondent was born in either Australia or New Zealand. New Zealand is combined with Australia because all New Zealand citizens have no entry barriers to move to Australia [20]. Migrants from Africa and Southern Asia are more likely to be humanitarian migrants. Those from Europe, the rest of Asia, and Latin America are more likely to be economic migrants.

We divide our sample into two age groups. Those who are between 16–50 and those who are older than 51 or older. We choose this grouping as it is likely that as individuals become middle aged (51+) they are more likely to have multiple chronic health conditions which will impact on service usage [21].

The determinants of health services usage are based upon individual and contextual factors that are likely to affect access [22]. The variables included in our analysis were marital status, educational attainment, area

level disadvantage, and employment. All equations are estimated separately by gender.

Statistical Analysis

To account for the large number of zeros in primary and secondary service usage as can be seen in Figs. 1 and 2, we employ a zero inflated Poisson regression. The model includes both a Poisson and logistic distribution. The model assumes with probability *p*, the only observation is zero and with probability, *1-p*, a Poisson (λ) random variable is observed [23]. We assume that health status is a function of the probability of reporting a zero. Those in excellent health are more likely to have zero usage which corresponds with the logit model. However, it is also likely that those with worse health may face barriers to health service usage and also have observed zero usage. The regression coefficients are estimated by maximum likelihood.

We start with a base model of the determinants of service usage which includes only a dummy variable for being an immigrant. Next, we estimate models with the different country of origin region dummies separately. This is because of multicollinearity issues when including all the migrant dummies in one equation. All models were estimated for younger and older age groups and gender separately.

To explore the factors explaining the association of lower health service usage of some migrant groups compared to the host population we employ a decomposition approach for non-linear models [24]. The non-linear decomposition approach derives the sample counterparts of the conditional expectations. Bootstrapping is used to obtain standard errors and confidence intervals. The model is sensitive to the reference group choice and regression specification [24].

Results

Table 1 shows descriptive statistics for the sample. The mean number of GP visits per year is 4.90 and the mean number of nights in hospital is just under one (0.98). Approximately 60% of the sample is between the ages of 16–50 and 38% of the sample is 51 or older. 52% of the sample is female. 63% of the sample is employed. Approximately 5% of the sample originates from the South of Asia, 3% of the sample emigrated from Eastern and Southern Europe, 2% emigrated from the Rest of Asia, and 1% of the sample emigrated from Africa and Latin American. Approximately 81% of the sample was born in either Australia or New Zealand. 41% of the sample lives in an area of high deprivation. This suggests that our sample on average lives in a more deprived area than mean of the Australian population. Approximately 25% of the sample has a university level education or higher.

Table 1
Descriptive Statistics

Variable	Number of Observations	Mean	Std Dev	Min	Max
Number of GP Visits in Past 12 Months	45,235	4.90	6.93	0	170
Number of Nights in Hospital in Past 12 Months	45,203	0.98	6.34	0	365
Age 16–50	45,235	0.60	0.49	0	1
Age 51+	45,235	0.38	0.49	0	1
Female	45,235	0.52	0.50	0	1
Married	45,234	0.62	0.49	0	1
Country of Birth: South Asia	45,221	0.05	0.22	0	1
Country of Birth: Africa	45,221	0.01	0.12	0	1
Country of Birth: Rest of Asia	45,221	0.02	0.15	0	1
Country of Birth: Caribbean/Latin America	45,221	0.01	0.09	0	1
Country of Birth: Eastern and Southern Europe	45,221	0.03	0.17	0	1
Country of Birth: Australian/New Zealand	45,221	0.81	0.39	0	1
Highest 4 Deciles of Relative Socioeconomic Status Advantage/Disadvantage	45,230	0.41	0.49	0	1
Education: Basic Qualifications	45,212	0.15	0.36	0	1
Education: Some higher education	45,212	0.31	0.46	0	1
Education: University	45,212	0.24	0.43	0	1
Employed	45,362	0.63	0.48	0	1

Next, Tables 2 and 3 show mean number of GP visits and nights in hospital by age and country of origin. In Table 2, for adults between 16–50, the mean number of GP visits for those born in Australia is 4.22. This number is smaller for those emigrating to Australia ranging from a mean of 4.14 for those from South Asia to 4.18 for those from Latin America. Whereas for adults age 51 or older the mean number of GP appointments is 6.22 for those born in Australia or New Zealand to a mean of 7.21 from those from South Asia to 7.27 for those from Latin America. In Table 3, for nights in hospital the mean number for younger adults between 16–50 is 0.62 for those from Australia or New Zealand to a mean of 0.63 for those from South Asia to 0.65 for those from Eastern and Southern Europe. For older adults aged 51 or older, the mean number of nights in hospital for those born in Australia is 1.72 and ranges from a mean of 2.34 for those from South Asia to a mean of 2.45 for those from Africa and Latin America.

Table 3

Mean Number of Nights in Hospital by age and country of origin

Region of Birth	Age Group	Number of Observations	Mean	Std Dev	Min	Max
South Asia	16–50	12472	4.14	6.67	0	170
	51+	50	7.21	7.82	0	150
Africa	16–50	12013	4.17	6.73	0	170
	51+	7589	7.22	7.82	0	150
Rest of Asia	16–50	12139	4.17	6.76	0	170
	51+	7665	7.24	7.87	0	150
Caribbean/Latin America	16–50	11951	4.18	6.73	0	170
	51+	7485	7.27	7.86	0	150
Eastern and Southern Europe	16–50	11974	4.17	6.72	0	170
	51+	7778	7.24	7.83	0	150
Australian/New Zealand	16–50	25649	4.22	6.60	0	170
	51+	14875	6.21	7.46	0	150

Region of Birth	Age Group	Number of Observations	Mean	Std Dev	Min	Max
South Asia	16–50	12482	0.63	5.15	0	356
	51+	7948	2.34	10.50	0	365
Africa	16–50	12022	0.64	5.22	0	356
	51+	7615	2.45	10.91	0	365
Rest of Asia	16–50	12148	0.64	5.20	0	356
	51+	7690	2.40	10.67	0	365
Caribbean/Latin America	16–50	11960	0.65	5.23	0	356
	51+	7509	2.45	10.79	0	365
Eastern and Southern Europe	16–50	11983	0.65	5.23	0	356
	51+	7804	2.40	10.66	0	365
Australian/New Zealand	16–50	25690	0.62	4.60	0	356
	51+	14906	1.72	8.71	0	365

GP Visits					Number of nights in hospital			
	16–50	51+	16–50	51+	16–50	51+	16–50	51+
VARIABLES	Males	Males	Females	Females	Males	Males	Females	Females
migrant	1.01	1.07**	0.91***	1.05*	0.90	1.17	0.94	1.10
	(0.03)	(0.03)	(0.03)	(0.03)	(0.12)	(0.15)	(0.10)	(0.13)
number of kids	1.01	0.99	0.94***	1.00	0.98	1.03	0.94*	0.95
	(0.01)	(0.02)	(0.01)	(0.02)	(0.04)	(0.10)	(0.03)	(0.08)
married	0.98	0.87***	0.98	0.83***	0.82*	0.78**	0.80**	0.72***
	(0.03)	(0.03)	(0.03)	(0.02)	(0.09)	(0.10)	(0.08)	(0.08)
basic qualifications	0.83***	0.90*	0.94	0.92*	0.89	1.58*	0.81	1.33
	(0.04)	(0.05)	(0.04)	(0.04)	(0.15)	(0.37)	(0.11)	(0.28)
some higher qualifications	1.00	0.97	0.99	0.92***	1.03	0.77**	0.90	0.75**
	(0.04)	(0.03)	(0.03)	(0.03)	(0.13)	(0.08)	(0.10)	(0.08)
university	0.79***	0.80***	0.80***	0.83***	1.14	0.96	0.95	1.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.20)	(0.17)	(0.12)	(0.15)
disadvantaged	1.27***	1.24***	1.20***	1.15***	1.15	1.03	1.00	0.96
	(0.04)	(0.04)	(0.03)	(0.03)	(0.13)	(0.12)	(0.09)	(0.11)
employed	0.58***	0.60***	0.63***	0.68***	0.54***	0.50***	0.61***	0.55***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.06)	(0.05)	(0.05)	(0.06)
Constant	6.89***	7.66***	8.36***	8.25***	7.82***	11.09***	8.99***	12.83***
	(0.26)	(0.25)	(0.28)	(0.25)	(1.25)	(1.40)	(1.47)	(1.56)
Observations	16,860	8,432	17,569	8,856	16,881	8,445	17,589	8,877

Notes: Incidence Risk Ratios are presented. Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1

Table 4 shows the base models estimating the determinants of primary and secondary service usage with only a dummy variable for being an immigrant. Incidence risk ratios are shown. Both older migrant men and women use more GP services than the host population. Younger migrant women use significantly less GP services than the host population. None of the migrant coefficients are statistically significant for nights in hospital. The other controls are in line with expectations and the literature on the determinants of health service usage [22, 25]

Next in Tables 5–9, we look at the results from primary and secondary service usage estimated separately for our four country of origin region dummies: South Asia, Rest of Asia, Africa, Latin America, and Eastern and Southern Europe. In Table 5 for South Asia, older men and women have a higher rate of GP usage (1.18 and 1.15 respectively). Younger women have lower rate of GP appointments than the host population. None of the nights in hospital incidence risk ratios are significant. In Table 6, older women from the rest of Asia have significantly lower rate of nights in hospital. In Table 7, for Africa, older African men have a marginally significantly higher rate of GP visits than the host population. Younger men and women from Africa compared to the host population have a significantly lower rate of nights in hospital and older men have a significant higher rate of nights in hospital (2.65). The results with the dummy from Latin America are presented in Table 8. Older men and women compared to the host population have a statistically significant higher rate of GP visits. Younger women have a marginally significant lower rate of GP visits compared to the host population. Finally, in Table 9, for Eastern and Southern Europe, younger men and women have statistically significant lower rate of GP visits (although it is only marginally significant for men). Older men and women from Eastern Europe compared to the host population have significantly higher rates of GP visits. Younger women compared to the host population have a significantly lower rate of nights in hospital. Older men from Eastern Europe have marginally significantly lower rate of nights in hospital. Across Tables 5–9, the other covariates in the model are similar to the base model.

Next in Tables 10, we decompose how much of the difference in GP visits, for those immigrant groups who use less health services stem from observable characteristics and how much stems from unobserved factors such as barriers to access etc. For young women from South Asia, observable characteristics explain 23% of the difference in GP service usage compared to women from the host population and unobserved factors explain 69% of the difference. For women from Latin America, there was no significant difference in observable and unobservable characteristic in GP service usage compared to the host population. For men from Eastern and Southern Europe, there was no statistically significant difference in observable characteristics. But unobservable characteristics explain 50% of the difference in GP service usage. For women from Eastern and Southern Europe, 32% of the difference in GP service usage compared to the host population can be explained by observable factors and 96% is explained by unobserved factors. Because of the reference group, the total raw difference for this group is greater than one.

Discussion

We explored differences in primary and secondary service by younger (aged 16–50) and older (51+) immigrants from different migrant groups compared to those born in Australia and New Zealand. We find that younger women migrants use less GP services and older migrants of both genders use more. However, when we separate the models by country of origin, we find that younger women from South Asia, Latin America, and Eastern and Southern Europe and younger men from Eastern and Southern Europe have lower rates of GP visits compared to the host population. Most of this difference is explained by unobserved characteristics related to factors such as inequity in access, cultural factors, etc. Older African men have higher rates of nights in hospital compared to the host population. Younger Eastern and Southern European women, older women from the Rest of Asia, and younger African men and women have lower rates of nights in hospital.

51% of Australians believe that immigration is causing an excessive burden on public health services [27]. Our results show that for migrants from a range of regions and across the life course this unlikely to be the case. There is some evidence that older immigrants have higher rates of GP visits but with the exception of older men from Africa this is not the case for nights in hospital. It is vital that data showing the benefits of migration is made available in the public domain to reduce negative misperceptions.

The heterogeneity we found across gender, migrant groups and across the life course is consistent with the literature [8, 14]. This means that our results do not provide strong evidence to support the 'healthy migrant effect'. Renzaho et al. [8] draw a similar conclusion that some migrants will be healthier than the host population and others especially humanitarian migrants are likely to be in worse physical and mental health.

Strengths and Weaknesses

A major strength is the large sample in the HILDA of migrants due to the structure of the Australian population which allows us to compare health service usage between different groups over time. A weakness is that health service usage is self-reported which may lead to recall bias. We also do not know the reason for the health service visit.

New Contribution to the Literature

Our results highlight show that migrant groups are different and have different needs so they should not be grouped together. Economic migrants bring many benefits to a country, but long-term planning regarding their health service usage in older ages is needed. This may include helping to promote greater knowledge/access to preventative services when migrants are young particularly for women migrants. We found lower usage of GP visits by migrants from some regions which is mostly explained by unobserved factors which could be related to access.

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Declarations

The authors declare no competing interests.

Figures

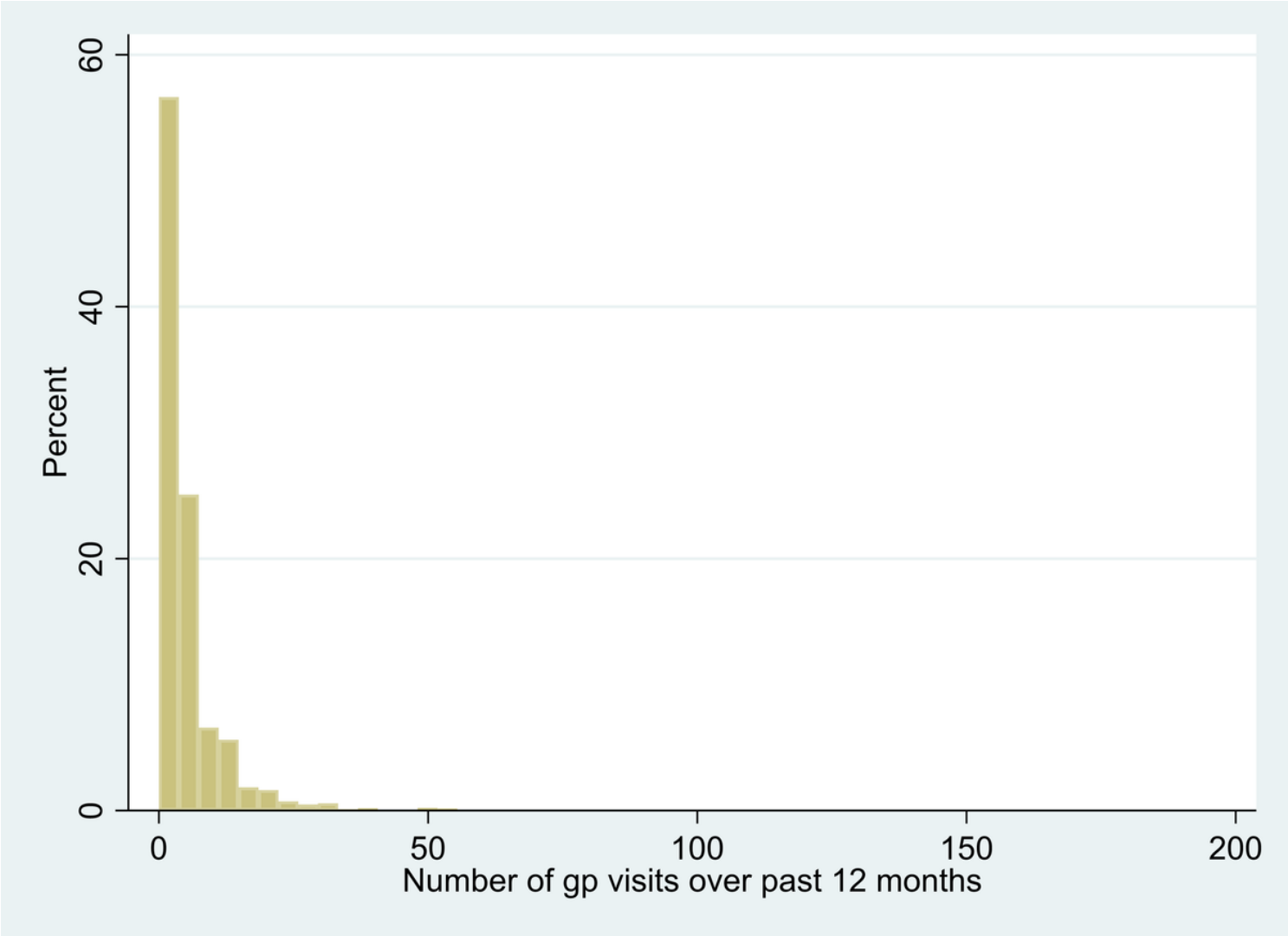

Figure 1

Histogram of Number of GP visits for the whole sample

Figure 2

Histogram of Number of Nights in Hospital for the whole sample