Health Disparity between Immigrants and Natives and Its Contributing Factors: Evidence from A 21-year Longitudinal Survey in Australia

AUSTRALIAN RESEARCH COUNCIL DISCOVERY PROJECT
DEMOGRAPHIC AND SOCIAL DIMENSIONS OF MIGRANT AGEING AND WELLBEING IN AUSTRALIA

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Outline

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2-Methodology

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1.1-The 'healthy immigrant effect'

The 'healthy immigrant effect' indicates that international immigrants tend to be healthier than the population in their country of destination (Cho et al., 2004; Cunningham et al., 2008; Anikeeva et al., 2010; Ruiz et al., 2013; Vang et al., 2017).

This phenomenon is particularly prominent among immigrants migrating at a young age, upon arrival or migrating for occupational purpose, and holds even when some immigrant groups are socioeconomically disadvantaged compared with the native-born population (Ribble et al., 2001; Ruiz et al., 2013).

1.2-Inconsistent understanding of the 'healthy immigrant effect' in different health indicators

However, existing knowledge regarding this phenomenon has been **inconsistent in different health indicators.**

(1) The strongest evidence of migrants' health advantages lies on **migrants' lower mortality,** regardless of age, gender and country of birth (Cho et al., 2004; Cunningham et al., 2008; Anikeeva et al., 2010; Ruiz et al., 2013; Vang et al., 2017);

(2) Immigrants also have **lower prevalence in a number of specific chronic diseases**, such as

➤ Cardiovascular disease (Singh and Siahpush, 2001; Gray et al., 2007; Siddiqi et al., 2013),

➤ Asthma (Ponsonby et al., 2008; Siddiqi et al., 2013),

➤ Overweight/obesity (Abraido-Lanza et al., 2005; Cunningham et al., 2008), and

➤ Some cancers (such as colon, prostate and breast cancers) (McMichael et al., 1989; Mills and Yang, 1997; Singh and Siahpush, 2001; McDermott et al., 2011).

(3) However, findings on other health indicators have been **contradictive**, such as

- Perinatal health (Kelaher and Jessop, 2002; Shah et al., 2011),
- Self-rated health (Franzini and Fernandez-Esquer, 2004; Gagnon et al., 2013),
- Disabilities (Chen et al., 1996; Liddell et al., 2016; Sheftel, 2017),
- Suicide rate (Burvill, 1998; Forte et al., 2018), and
- Some chronic conditions (like arthritis) (Vang et al., 2017)

(4) Furthermore, migrants even show **largely worse health outcomes** regarding some other health indicators compared with native-born population, such as

- Injuries (Trajkovski and Loosemore, 2006, Dobson et al., 2004, Sinclair et al., 2006),
- Infectious diseases (e.g., AIDS) (DesMeules et al., 2005, Forna et al., 2003),
- Diabetes (Hodge et al., 2004, Araneta and Barrett-Connor, 2005), and
- Certain cancers (such as stomach, nasopharyngeal and brain cancer) (Grulich et al., 1995, McCredie et al., 1990, McDermott et al., 2011, Mills and Yang, 1997).
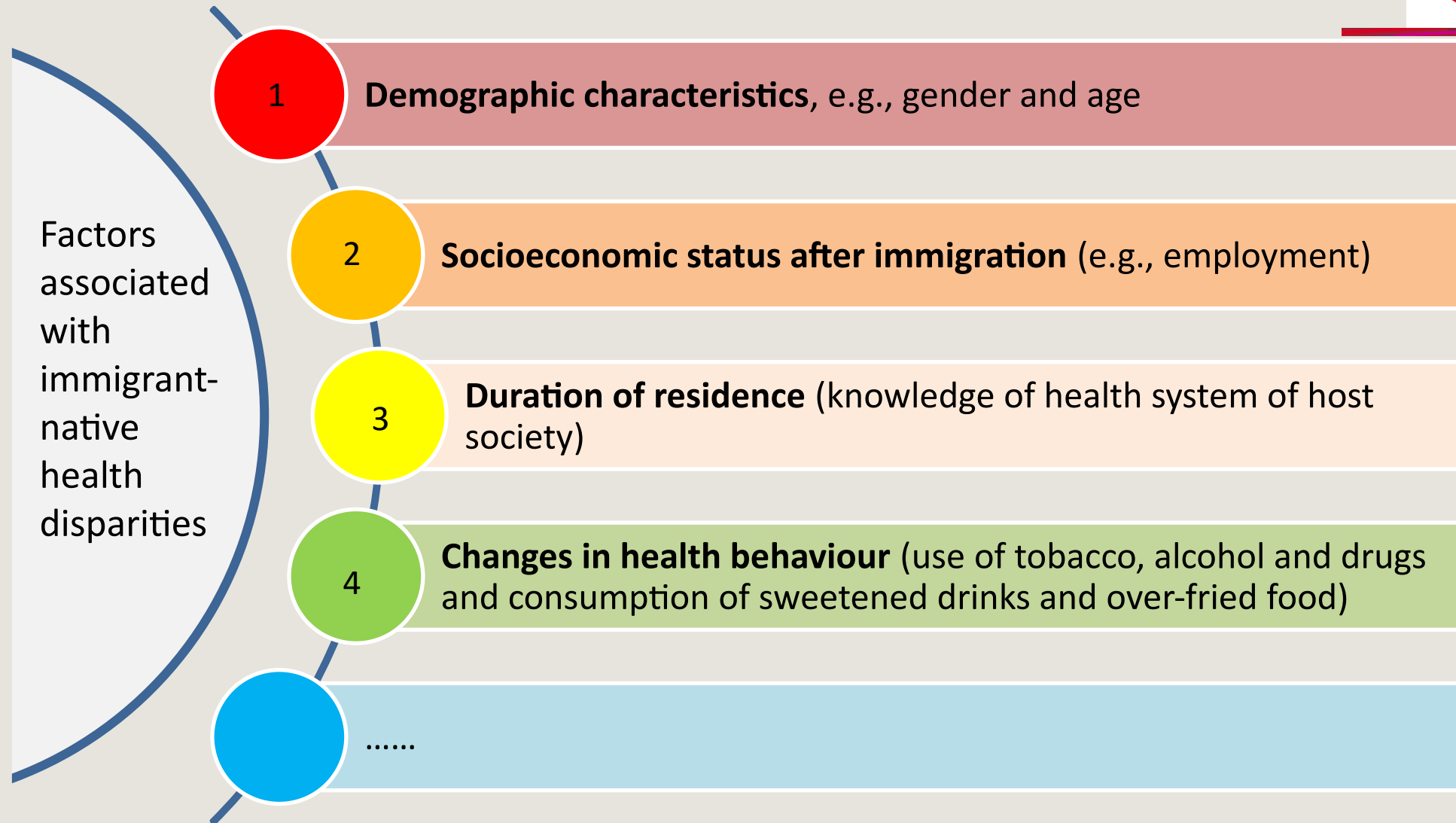
1.3-Gaps in the literature

The existing understanding regarding the immigrant-native health disparities has not been adequate.

First, currently, there is little evidence regarding the immigrant-native health disparities **using an integrated measure** considering that considers multiple aspects/dimensions of health.

Second, while a myriad of factors associated with immigrant-native health disparities have been researched, little is known about **to what extent** such factors affect the health disparities between immigrants and natives and what factors **play a relatively greater role** in this process.

Third, little is known about how far the immigrant-native health disparities is caused by **systematic-level factors** (e.g., be treated differently when accessing health system), which can inform effective policy interventions.

To fill these gaps and provide a more nuanced understanding on the healthy immigrant effect, this study presents <u>a comprehensive examination on the immigrant-native health disparities</u> using a more integrated health measure (i.e., SF-6D) and by decomposing the contributing factors of immigrant-native health disparity in the Australian context.

2-Methodology

2.1-Data

- Twenty-one-year longitudinal data of **the Household, Income and Labour Dynamics in Australia (HILDA)** from <u>2001 to 2021</u>.

- The study **excluded individuals younger than age 18 years (n=1,595, 0.6%) and those with incomplete data (n=11,642, 4.8%), yielding** a sample of <u>**246,687**</u> observations for subsequent analysis.

2.2-Health measure

- **The Short-Form Six Dimensions (SF-6D)** (Brazier et al., 2002) with 11 items measuring **six** dimensions of health.

- Total score of the SF-6D ranges from **0 (worst) to 1 (best).**
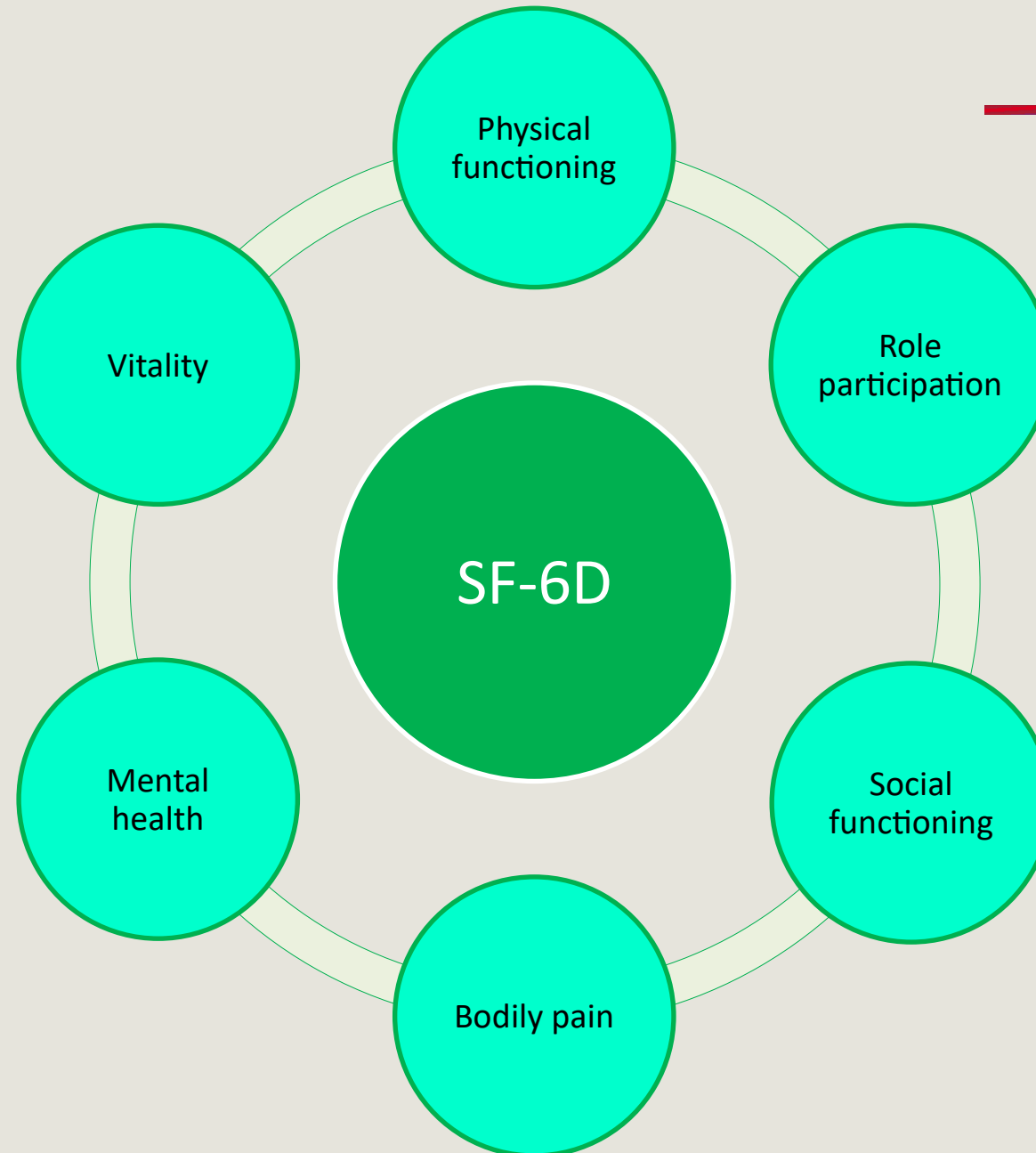
2.3-Methods

(1) **The random-effect linear regression model** to examine the effect of immigrant status on health outcomes at an overall level

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

(2) **The unconditional quantile regression** (Fortin et al., 2011) to investigation such effect at different points of health distribution

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

(3) **The Blinder–Oaxaca decomposition method** (Blinder, 1973; Oaxaca, 1973; Jann, 2008) to decompose the contribution of controlled variables to the immigrant-native health disparities, decomposed into explained differences (i.e., attributable to **differences in individual/personal characteristics**) and unexplained differences (i.e., attributable to **differences at group/system level**).

$$=E+C+CE\ldots(3)$$

2.4-Controlled variables

Demographic characteristics: age, gender, marital status (categorised into 'married', 'separated/divorce/widow' and 'single'), educational attainment (categorised into 'high school or less', 'diploma or certificate' and 'bachelor or above') and remoteness of residential place (categorised into 'urban', 'rural' and 'remote').

Economy-related features: labour market status (categorised into 'employed', 'unemployed' and 'not in labour market'), household income (categorised into '$0-29,999', '$30,000-59,999', '$60,000-89,999' and '≥$90,000') and socioeconomic advantage of neighbourhood (categorised into '1st quintile' [poorest], '2nd quintile', '3rd quintile', '4th quintile' and '5th quintile')

Immigration-related features: proportion of living in Australia and whether obtained Australian citizenship

Health behaviour: whether smoking or not (categorised into 'yes' and 'no').

3-Main Findings

3.1-Sample description

Among the 246,687 observations, Australia-born (**76.92%**) vs overseas-born (**23.08%**)

Compared with the Australian-born population, the overseas-born population was **older** and having a larger proportion of **being female**, **married**, **with a bachelor degree**, **living in major cities**, **being out of labour market**, **living in socioeconomically advantaged areas**, **being non-citizen** and **smoking.**

Table 1 Characteristics of Sample

	All (n=246,687)	Australia-born (n=189,747)	Overseas-born (n=56,940)	P value
Demographic characteristics				
Mean of age	49.41	48.39	52.79	<0.001
Gender (%)				<0.001
Male	54.34	54.65	53.31	
Female	45.66	45.35	46.69	
Marital status (%)				
Married	68.94	67.95	72.20	<0.001
Separated/divorce/widow	16.47	16.08	17.78	
Single	14.59	15.96	10.02	
Education attainment (%)				
Bachelor or above	25.91	23.91	32.55	<0.001
Diploma or certificate	32.30	33.10	29.63	
High school or less	41.80	42.99	37.82	
Remoteness (%)				
Major cities	64.59	60.01	79.85	<0.001
Regional areas	33.81	38.22	19.12	
Remote areas	1.60	1.76	1.03	
Economy-related features				
Labour force status (%)				
Employed	62.74	64.37	57.29	<0.001
Unemployed	2.87	2.89	2.84	
Not in labour market	34.39	32.74	39.87	
Household income (%)				
$0-29,999	24.10	24.18	23.81	<0.001
$30,000-59,999	30.29	30.59	29.29	
$60,000-89,999	21.03	21.04	20.98	
≥$90,000	24.58	24.18	25.92	
Mean of household income	69404.09	69002.8	70746.63	<0.001
Socioeconomic advantage of neighbourhood (%)				
1st quintile	20.01	20.10	19.71	<0.001
2nd quintile	20.02	20.52	18.36	
3rd quintile	19.90	20.56	17.70	
4th quintile	20.03	19.72	21.07	
5th quintile	20.04	19.10	23.17	
Immigration-related features				
Citizenship (%)				
Yes	91.38	97.00	72.63	<0.001
No	8.62	3.00	27.37	
Proportion of living in Australia (mean)	89.95	100.00	56.45	-
Health behaviour				
Smoking (%)				
Yes	82.61	81.45	86.51	<0.001
No	17.39	18.55	13.49	

3.2-Immigrant-native SF-6D differences

Figure 1 Nativity-specific Mean of SF-6D for the whole sample
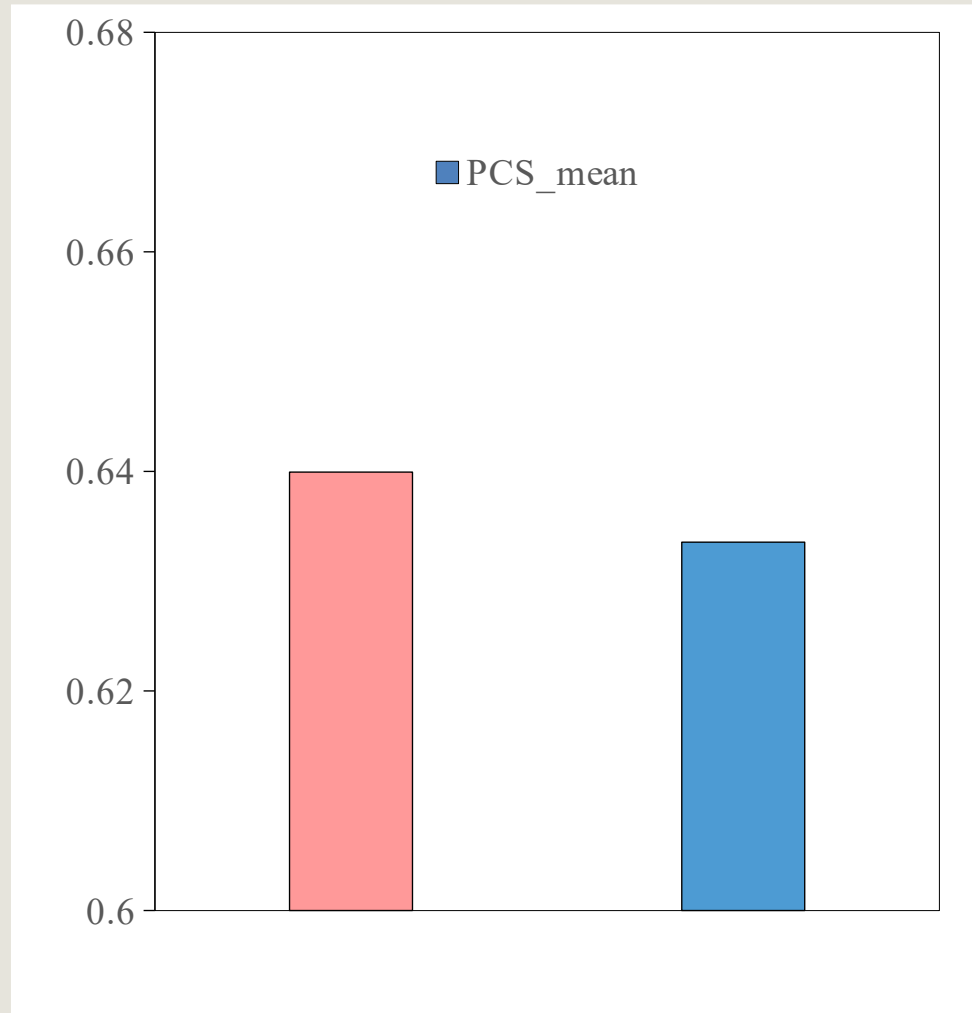
For the whole sample, the overseas-born population exhibited **<u>a significantly lower mean score</u>** of SF-6D (<u>0.6335</u>, 95% confidential interval:0.6357, 0.6313) compared with their Australia-born counterparts (<u>0.6399</u>, 95% confidential interval: 0.6411, 0.6388)

Figure 2 Yearly changes in mean of SF-6D by place of birth (based on annual cross-sectional HILDA data)

At an annual basis, the average score of SF-6D of the two groups both displayed an **overall declining trajectory**.

However, <u>during the period 2001–2011,</u> the mean of SF-6D of the Australia-born population was largely **higher** than that of the overseas-born population. Intriguingly, <u>since 2012,</u> the differences of SF-6D between the two groups narrowed and <u>became insignificant</u>.

Table 2 Results of the random-effect linear regression regarding the effect of place of birth on SF-6D score

	Random-effect regression All sample
Overseas-born (ref.=Australia-born)	-0.008*

After controlling the covariates, being an overseas-born person was significantly associated with a lower SF-6D score by **-0.008 (*p<0.05*),** suggesting a negative association between being an immigrant and wellbeing and health outcomes.

Table 3 Results of the unconditional quantile regression regarding the effect of place of birth on SF-6D score

	Unconditional quantile regression								
	Q(10)	Q(20)	Q(30)	Q(40)	Q(50)	Q(60)	Q(70)	Q(80)	Q(90)
Overseas-born (ref.=Australia-born)	-0.0046*	-0.0024*	-0.0009	-0.0034	-0.0015	0.0038	0.0012**	0.0115**	0.0093**

However, the effect of being an immigrant on wellbeing and health outcomes is heterogeneous among subgroups at different quantiles of the score of SF-6D.

The results suggest that the negative association between being overseas-born is largely contributed by the greater negative association among individuals with the most undesirable health conditions. In contrast, for those with a relatively high health level, immigrants might enjoy somewhat health advantage compared with the native-born.

	Difference of SF-6D between Australia-born and overseas-born	
	0.0064	
	Explained part (differences in personal characteristics)	Unexplained part (to differences at group level or discrimination)
	N (%)	N (%)
Overall	0.0054(83.8)***	0.0010(16.2)**
Age (ref.=18–29)		
30–39	-0.0008(-14.4)***	-0.0002(-18.6)
40–49	-0.0004(-7.3)***	-0.0031(-301.4)***
50–59	0.0016(30.6)***	-0.0022(-212.1)*
60–69	0.0021(39.8)***	-0.0003(-28.2)
≥70	0.0031(57.6)***	-0.0012(-117.4)
Gender (ref.=Female)	-0.0004(-7.7)***	-0.0036(-349.0)***
Marital status (ref.=Married)		
Separated/divorce/widow	0.0008(14.2)***	0.0022(207.9)***
Single	-0.0011(-19.8)***	-0.0019(-184.2)***
Education attainment (ref.=Bachelor or above)		
Diploma or certificate	-0.0003(-5.6)***	-0.0040(-389.2)***
High school or less	-0.0014(-27.0)***	0.0015(141.1)
Remoteness (ref.= Major cities)		
Regional areas	0.0024(45.6)***	-0.0030(-285.5)***
Remote areas	0.0002(4.6)***	-0.0002(-20.4)
Economy-related features		
Labour force status (ref.= Employed)		
Unemployed	0.0000(0.3)	-0.0006(-55.5)***
Not in labour market	0.0073(137.1)***	-0.0049(-469.4)***
Household income (ref.= $0-29,999)		
$30,000-59,999	0.0000(-0.4)	0.0023(220.3)***
$60,000-89,999	-0.0001(-1.3)*	0.0025(236.7)***
≥$90,000	0.0001(0.1)	0.0012(119.4)
Socioeconomic advantage of neighbourhood (ref.= 1st quintile)		
2nd quintile	0.0005(10.2)***	0.0012(117.1)
3rd quintile	0.0013(25.2)***	-0.0005(-44.8)
4th quintile	-0.0008(-14.8)***	-0.0013(-129.7)***
5th quintile	-0.0038(-71.3)***	-0.0024(-228.5)
Immigration-related features		
Proportion of living in Australia	-0.0035(-65.0)*	0.0081(779.2)*
Citizenship (ref.= No)	0.0002(3.6)	0.0172(1657.5)
Health behaviour		
Smoking (ref.= No)	-0.0018(-34.2)	-0.0017(-159.8)
Constant		-0.0040(-385.6)

Note: *=p<0.05, **=p<0.01, ***=p<0.001

The gap of SF-6D mean between the two groups was **0.0064**, of which **0.0054 (83.8%)** was attributed to the explained part, which refers to the **differences at individual level** or variations due to personal characteristics, while **0.0010 (16.2%)** was attributed to the unexplained part, which refers to **differences at group/system level,** implying differential treatment for immigrants and natives in the health system.

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Regarding the differences at individual level, the findings suggest that labour market status, duration of stay, socioeconomic advantage level and age importantly contribute to immigrant-native health disparities at individual level.

Regarding differences at group level, immigrants staying longer in Australia, being female, having a middle household income level, exiting marital relationships and having less educational attainment were more likely to be unhealthier than the Australia-born due to exposure to differential experience at system or macro level when accessing the health system.

4-Conclusions

(1) The findings from this study reveal a negative association between being an immigrant and health outcomes using a comprehensive health measure. This advances the existing general understanding of the healthy immigrant effect that was based on more general health outcome indicators (e.g., mortality).

- ➢ SF-6D includes dimensions such as social functioning, mental wellbeing and role participation that immigrants that tend to not have advantage.

- ➢ The negative association between being overseas-born is largely contributed by the greater negative association among **individuals with the most undesirable health conditions.**

(3) The immigrant-native health disparities, measured by SF-6D, gradually <u>decreased</u> over the 21-year of study period in the context of Australia.

➤ The theory of the age-as-a-leveler.

Table 4 Changes in mean age and percentage of older adults by place of birth in the sample, 2001-2021

		Australia-born	Overseas-born
Mean age	2001	44.5	48.2
	2021	52.6	56.1
	Changes	8.1 +	7.9 +
Proportion of age group ⩾ 65 (%)	2001	15.1	18.3
	2021	26.2	33.2
	Changes	11.1 +	14.9 +

(4) Immigrants' overall worse health status was majorly (i.e., 84%) attributed to the immigrant-native difference at the individual/personal level. Immigrants who are old, out of labour market, living in regional/rural areas or socioeconomically disadvantaged areas and have a long stay of residence are more likely to be unhealthier compared with the Australia-born.

➤ Policy interventions are suggested to target the old immigrants, female immigrants and those living in regional/rural Australia or socioeconomically disadvantaged areas.

(5) Immigrants' overall worse health status might be partly (i.e., 16%) attributed to the immigrant-native difference at the group level, implying a poor response of the Australian health system in addressing the healthcare need from the increasingly diverse populations.

➤ (e.g., insufficient health interpretation resources and multilinguistic health materials).

Thank You!

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