health economics and policy

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Income-Related Inequality in Health-Related Quality of Life Among Australian Adults: The Contribution of Chronic Conditions

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Abstract

Background: Chronic conditions are associated with poorer health-related quality of life (HRQoL) and are more common in socioeconomically disadvantaged groups. We examined income-related inequality in health-related quality of life and quantified the contribution of chronic conditions to inequality in HRQoL among Australian adults. **Methods**: We analysed pooled cross-sectional survey data from 4953 Australian adults recruited through a non-probability online panel. We measured HRQoL using EQ-5D-5L utility scores calculated with the Australian value set. We measured income-related inequality using the Erreygers-corrected concentration index. Multivariable ordinary least squares regression estimated adjusted associations with utility, and decomposition analysis estimated the statistical contributions of chronic-condition burden and sociodemographic characteristics. **Results**: Higher EQ-5D-5L utility was modestly concentrated among participants in higher-income categories (Erreygers-corrected concentration index [ECI] = 0.0328; bootstrap SE = 0.0038; 95% bootstrap percentile CI 0.0251–0.0401; $p < 0.001$). Compared with participants reporting no chronic condition, those with multimorbidity had an adjusted utility score that was 0.151 points lower. Multimorbidity made the largest contribution to the observed inequality (27.63%), followed by not working (26.34%) and annual income above A$65,000 (19.27%). **Conclusions**: EQ-5D-5L utility was modestly concentrated among participants in higher-income categories. Multimorbidity and not working were the largest measured contributors. These cross-sectional findings describe statistical associations and do not establish cause and effect.

Keywords: Australia; chronic conditions; inequality; multimorbidity; quality of life

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Academic Editor: Gulzar H. Shah

Received: 6 June 2026
Revised: 8 September 2026
Accepted: 6 October 2026
Published: 4 November 2026

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1. Introduction

Chronic conditions are a major cause of illness, disability, and premature death, thus contributing to a substantial burden of health and socioeconomic costs at the individual, national, and international levels [1,2]. In 2023–24, A$98.5 billion of Australian healthcare expenditure was attributable to chronic conditions [3]. Chronic conditions are long-lasting and arise from a variety of environmental, physiological, genetic, and behavioural factors. Those with chronic conditions may experience higher healthcare costs, psychological distress, pain, fatigue, disability and social isolation [4–7].

An estimated 47% of Australians had at least one of the selected 10 chronic conditions, ranging from physical to mental and behavioural conditions, in 2020–21 [8], increasing from

42% in 2007–2008 [9]. This increase has been attributed to Australia's ageing population, improvements in healthcare that have extended life expectancy, and social and behavioural risk factors. Given the persistent nature of chronic conditions, the shift from cure to care underscores the need to investigate how these conditions affect health-related quality of life (HRQoL). HRQoL is a multidimensional indicator of health status that captures an individual's physical, mental, emotional, and social functioning [10]. Hence, HRQoL is a useful patient-centred outcome for guiding health policies. Previous studies have found that chronic conditions are associated with poorer HRQoL [11]. Additionally, chronic conditions disproportionately affect low- and middle-income earners compared with higher-income earners [12]. Most studies agree that socioeconomic status (SES) is a key determinant of an individual's health status [13–15] and HRQoL [16].

Socioeconomic position is commonly measured using income, education and occupation [17]. Key elements of SES, including education level, occupation, and geographic location, are major contributors to health and HRQoL inequality [18,19]. Other studies have identified income as strongly associated with health inequality across rural and urban settings [20–22]. However, the distribution of socioeconomic resources varies across sociodemographic characteristics (e.g., age, gender, education, SES). This may explain the socioeconomic inequalities observed in HRQoL. The extent to which chronic conditions and socioeconomic inequality contribute to differences in HRQoL remains unclear.

The literature on the association between socioeconomic inequalities and HRQoL is well established, showing that higher income/SES is associated with higher HRQoL across a variety of samples and countries, including the USA [23], Spain [24], and Greece [25]. Consistent findings were observed after adjusting for risk factors, including chronic disease [12,26]. This association may be mediated through several mechanisms, as SES influences an individual's daily work and living environment and, in turn, access to health services [27]. SES may influence an individual's behaviour and exposure to risk factors that adversely affect their health [28]. Therefore, addressing the impact of SES on HRQoL through health promotion and preventive healthcare may reduce public health inequalities across the SES gradient.

However, significant HRQoL differences across sociodemographic groups, such as age, gender and self-reported chronic medical conditions, have been reported [29,30]. Lower HRQoL scores have been reported in older groups compared with younger counterparts, in women compared with men, and in those of lower SES compared with those of higher SES [31–33]. Of concern is the strong link between chronic conditions and physical health and quality of life, with chronic conditions being substantially more detrimental to lower-income groups [12].

Evidence from several studies is inconsistent on the extent to which chronic conditions and sociodemographic characteristics contribute to HRQoL inequality. For example, in patients with chronic obstructive pulmonary disease, low HRQoL was associated with low education level but not with occupational status [34]. Furthermore, greater reductions in HRQoL were observed among people with hypertension or diabetes in the low SES group than in the high SES group. However, this was not observed for angina, stroke, or heart attack [35].

In contrast, another study found that diabetes was more common in higher SES groups than in lower SES groups, while hypertension was more prevalent in lower SES groups than in higher SES groups [36]. Nonetheless, the results suggest that these 'lifestyle' diseases are becoming more evenly distributed across SES groups, consistent with international evidence [37–39]. These findings highlight both inconsistencies and nuance in understanding the relationship between socioeconomic inequality and HRQoL. They also underscore the need for further research on the overall burden of chronic conditions, rather than on

specific chronic conditions. Additionally, a systematic review of HRQoL in chronic conditions found that few studies have examined young adults, as these conditions primarily affect older adults. It also highlighted a lack of research originating from Australia, South America, and Africa [11].

Evidence on income-related inequality in HRQoL and the contribution of chronic-condition burden remains limited in Australia. This study addresses this gap by using EQ-5D-5L utility scores derived from an Australian value set. The objectives were to: (1) estimate adjusted associations between chronic-condition burden and EQ-5D-5L utility; (2) quantify the magnitude and direction of income-related inequality in HRQoL using a corrected concentration index for a bounded outcome; and (3) decompose the Erreygers-corrected concentration index into contributions associated with chronic-condition burden and measured sociodemographic characteristics.

2. Methods

2.1. Study Design and Population

This study was a secondary cross-sectional analysis of pooled data from two rounds of an Australian valuation study of the AD-5D instrument. Australian adults were recruited via a non-probability online panel and completed an online survey that included sociodemographic questions, self-reported chronic conditions, the EQ-5D-5L, and discrete choice experiment tasks for the AD-5D valuation. The original sample size was determined for the discrete choice experiment, not for the present inequality analysis. Participants were not followed longitudinally, and no population weights were applied. Further details of the source study are reported elsewhere [40,41]. Australian adults were recruited via PureProfile (Pureprofile Ltd., Surry Hills, Australia), an online survey participant provider with over a million members worldwide that rewards participants with small cash payouts for completing online surveys. Participant recruitment was structured to approximate Australia's age, gender, and geographic distribution, reducing sampling bias as much as possible. However, the nature of surveys makes some level of selection bias unavoidable, as certain populations may be more likely to complete surveys based on unknown characteristics [42].

The survey was delivered to participants via LimeSurvey (LimeSurvey GmbH, Hamburg, Germany), open-source survey software, as part of a health preference valuation project. Two survey rounds were conducted. In the first round, a study sample of 2003 was selected. This sample was powered for the main study's primary outcome, i.e., developing a choice model to estimate preferences for the quality-of-life instrument in dementia, AD5D [41]. The follow-up validation survey collected 3408 responses. Of the 5411 survey responses received, 458 were incomplete or duplicates and were excluded, leaving 4953 participants. Before imputation, item non-response was observed for age (n = 33; 0.67%), labour-market status (n = 12; 0.24%) and annual income (n = 226; 4.56%). Missing values for these categorical variables were replaced with the modal category for each variable. Following imputation, all 4953 participants were included in the descriptive, regression, concentration-index and decomposition analyses.

2.2. Key Exposure Variables

2.2.1. Income

Annual personal income was used as the measure of socioeconomic position. Participants reported their income in three ordered categories: up to A$31,199, A$31,200–A$64,999, and more than A$65,000. These categories were used both as a covariate in the regression model and to construct the socioeconomic rank for the concentration index and decomposition analyses. The lowest income category served as the reference group in the regression

model. The measure represented personal rather than household income and was not equivalised for household size.

2.2.2. Chronic Conditions

Data on chronic conditions were obtained by asking survey participants whether they had one or more of the 15 prespecified self-reported chronic conditions: angina pectoris, anxiety, asthma, stroke, blood clot in the heart, cancer, chronic obstructive pulmonary disease, deep vein thrombosis, dementia, depression, diabetes (all types), metabolic disorder, multiple sclerosis, osteoarthritis, and Parkinson's disease. Data were collected in binary format, with 0 indicating individuals without the specific chronic disease and 1 indicating those with the disease. We summarised responses across all chronic conditions and categorised individuals by the number of chronic conditions: none, one, or multiple (two or more).

2.3. Outcome Variable

Health-related quality of life was measured using the five-level EuroQol five-dimension questionnaire (EQ-5D-5L). The instrument assesses health across five dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has five response levels, ranging from no problems (level 1) to extreme problems or an inability to perform the activity (level 5). The five responses were combined to form a five-digit health profile, such as 11111 for no problems in any dimension. Utility scores were calculated using the Australian EQ-5D-5L value set [43]. Starting from 1, the relevant decrement for each dimension and severity level was subtracted. A further decrement of 0.153 was applied when at least one dimension was reported at level 5.

The derived utility index takes a finite set of values determined by the possible EQ-5D-5L response profiles and is therefore not strictly continuous. However, it was treated as approximately continuous in the regression and decomposition analyses. Under the Australian value-set algorithm, the theoretical bounds are −0.301 and 1.000. In the analytical sample, the mean utility score was 0.881 (SD = 0.167). Observed scores ranged from −0.288 to 1.000, and 12 (0.24%) participants had a score below zero.

2.4. Other Covariates

We selected covariates a priori from variables available in the source surveys, including age, gender, relationship status, highest level of education attained, labour market status, and chronic conditions. We used annual personal income to rank socioeconomic position. We included the remaining variables because previous evidence links them to HRQoL, chronic conditions, or socioeconomic patterning. A categorical breakdown of the other listed covariates is provided in Table 1.

2.5. Concentration Index and Statistical Analysis

We used annual personal income to rank participants across three ordered income categories, from lowest to highest. We estimated the Erreygers-corrected concentration index directly because EQ-5D-5L utility is bounded and can take negative values [44]:

$$E = \frac{1}{n}\sum_{i=1}^{n} \frac{4y_i}{b-a}(2R_i - 1) \quad (1)$$

where E is the Erreygers-corrected concentration index, n is the number of participants, yi is the EQ-5D-5L utility score for participant i, and Ri is the income rank generated by the command. The theoretical lower and upper bounds were a = −0.301 and b = 1.000, respectively. We estimated the index in Stata using the truezero, erreygers, and bounded limits (−0.301 to 1) options. A positive value indicates that higher utility is concentrated

among higher-income participants, whereas a negative value indicates concentration among lower-income participants.

We based our statistical inference primarily on 2000 individual-level non-parametric bootstrap replications. In each replication, we sampled participants with replacement and re-estimated the full Erreygers index. We reported the bootstrap standard error and the 95% percentile bootstrap confidence interval.

Adjusted associations between EQ-5D-5L utility and the study covariates were estimated using ordinary least squares regression.

$$y_i = \alpha + \sum_{k=1}^{K} \beta_k x_{ki} + \varepsilon_i \quad (2)$$

where yi is the EQ-5D-5L utility score, α is the intercept, βk is the coefficient for covariate xki, and εi is the error term. The model included age, gender, relationship status, highest education level attained, annual personal income, labour-market status, and chronic-condition burden. Categorical variables were entered as indicator variables relative to their respective reference categories. Two-sided *p*-values below 0.05 were considered statistically significant. Analyses were conducted using Stata/SE version 17.0 (StataCorp LLC, College Station, TX, USA).

2.6. Decomposition Analysis

The Erreygers-corrected concentration index was decomposed into components associated with the covariates in the linear regression model.

$$E = \frac{4}{b-a}\left[\sum_{k=1}^{K} \beta_k GC_k + GC_\varepsilon\right] \quad (3)$$

where a and b are the theoretical lower and upper bounds of the utility score, βk is the regression coefficient for covariate xk, GCk = 2cov(xki, Ri) is the generalised concentration index for covariate xk, and GCε = 2cov(εi, Ri) is the generalised concentration index for the regression residuals.

Because EQ-5D-5L utility was treated as approximately continuous, coefficients from the ordinary least squares model were used in the decomposition. The Erreygers-corrected contribution of covariate k was calculated as $E_k = 4\beta_k GC_k/(b-a)$. Each contribution therefore reflected both the covariate's association with EQ-5D-5L utility and its distribution across the income ranking.

Percentage contributions were calculated by dividing each Erreygers-corrected component by the total Erreygers index and multiplying by 100.

$$\text{Percentagecontribution}_k = \frac{E_k}{E} \times 100$$

Because the income-category indicators in the regression fully determined the income ranking generated by Stata, the residual contribution was numerically zero. This was a mathematical consequence of the model specification, not an indication of perfect model fit.

The decomposition partitions the observed Erreygers index into components attributable to the included covariates. These contributions are statistical associations and should not be interpreted as causal effects or as evidence of temporal direction.

3. Results

Table 1 summarises the distribution of the analytical sample across sociodemographic and health characteristics. Approximately 79% were under 65 years, 47% were female, 63% were in a relationship, 30% held university qualifications, 46% reported an annual income of up to A$31,199, 71% were working or studying, and 29% reported multimorbidity.

Compared with national population benchmarks, males comprised 53.18% of the analytical sample, compared with 49.3% of the Australian population in the 2021 Census [45]. Almost half of participants (46.13%) reported an annual personal income of A$31,199 or less. For context, the median weekly personal income among Australians aged 15 years and over in the 2021 Census was A$805, equivalent to approximately A$41,860 annually. However, this benchmark is not directly comparable with the income categories used in the present study [45]. Multimorbidity was reported by 29.21% of participants, compared with 38% of Australians reporting two or more of 72 selected chronic conditions in 2022 [46]. However, the present study defined multimorbidity using 15 self-reported chronic conditions. Therefore, these prevalence estimates should be considered contextual rather than directly comparable.

Table 1. Characteristics of the analytic sample.

Variables	n	% or Mean (SD)
Sociodemographic characteristics		
Age group		
18–24 years	504	10.18
25–34 years	948	19.14
35–44 years	913	18.43
45–54 years	698	14.09
55–64 years	839	16.94
65 and above years	1051	21.22
Gender		
Female	2319	46.82
Male	2634	53.18
Marital Status		
In a relationship	3096	62.51
Never-married/widowed/divorced/separated	1857	37.49
Highest education level attained		
Up to year 12	1829	36.93
Trade or other post-school qualifications	1625	32.81
University qualifications	1499	30.26
Income		
Up to A$31,199	2285	46.13
A$31,200 to A$ 64,999	1353	27.32
More than A$65,000	1315	26.55
Labour-market status		
Working including student	3521	71.09
Not working	843	17.02
Retired	589	11.89
Chronic conditions		
No selected chronic condition	2248	45.39
Single chronic condition	1258	25.40
Multimorbidity	1447	29.21
EQ-5D-5L utility value, mean (SD)	4953	0.88 (0.17)

Note: SD = standard deviation.

Table 2 presents the bivariate, unadjusted Erreygers concentration index for EQ-5D-5L utility. A positive Erreygers concentration index indicated modest income-related inequality in EQ-5D-5L utility, with higher utility values concentrated among participants in higher-income categories (ECI = 0.0328; bootstrap SE = 0.0038; 95% percentile bootstrap CI: 0.0251–0.0401; $p < 0.001$). The heteroskedasticity-robust and bootstrap approaches yielded similar standard errors and confidence intervals.

Table 2. Bivariate unadjusted Erreygers concentration index for income-related inequality in EQ-5D-5L utility.

Measure	Erreygers-Corrected Concentration Index			
	Index Value (Robust SE)	**Robust 95% CI**	**Bootstrap Index Value (Bootstrap SE)**	**95% Bootstrap CI**
Income-related inequality	0.0328 *** (0.0038)	0.0254–0.0402	0.0328 *** (0.0038)	0.0251–0.0401

Notes: 1. SE, standard error; CI, confidence interval. 2. The bootstrap standard error and percentile confidence interval were based on 2000 individual-level non-parametric bootstrap replications. 3. A positive index indicates that higher EQ-5D-5L utility values were concentrated among participants in the higher-income categories. *** $p < 0.001$.

Table 3 presents the multivariable regression results. Compared with adults aged 18–24 years, those aged 45–54 and 55–64 years had utility scores 0.028 and 0.026 points lower, respectively. Trade or other post-school education was associated with a 0.014-point higher utility score. Not being in a relationship, not working, retirement, a single chronic condition, and multimorbidity were associated with lower utility; the largest adjusted difference was observed for multimorbidity (β = −0.151, SE = 0.0051; $p < 0.001$). Male gender ($p = 0.054$) and annual income above A$65,000 ($p = 0.070$) were not significant at the 5% level.

Table 3. Multivariable ordinary least-squares regression results for EQ-5D-5L utility.

Variables	EQ-5D-5L Utility Values
	β [SE]
Sociodemographic characteristics	
Age group	
18–24 years (ref)	
25–34 years	0.001 [0.0086]
35–44 years	0.003 [0.0087]
45–54 years	−0.028 ** [0.0090]
55–64 years	−0.026 ** [0.0087]
65 and above years	−0.013 [0.0086]
Gender	
Female (ref)	
Male	0.008 [0.0043]
Marital Status	
In a relationship (ref)	
Never married/widowed/divorced/separated	−0.024 *** [0.0046]
The highest education level attained	
Up to year 12 (ref)	

Table 3. *Cont.*

Variables	EQ-5D-5L Utility Values
	β [SE]
Trade or other post-school	0.014 ** [0.0053]
University qualifications	0.005 [0.0054]
Income	
Up to A$31,199 (ref)	
A$31,200 toA$64,999	−0.001 [0.0054]
More than A$65,000	0.011 [0.0058]
Labour-market status	
Working, including a student (ref)	
Not working	−0.057 *** [0.0062]
Retired	−0.024 *** [0.0072]
Chronic conditions	
No selected chronic condition (ref)	
Single chronic condition	−0.054 *** [0.0053]
Multimorbidity	−0.151 *** [0.0051]

Notes: 1. *** $p < 0.001$, ** $p < 0.01$ and * $p < 0.05$. 2. SE = standard error; ref = reference category.

Table 4 presents the decomposition of the Erreygers-corrected concentration index. Multimorbidity made the largest contribution to the observed inequality (27.63%), followed by not working (26.34%) and annual income above A$65,000 (19.27%). Other notable contributions were not being in a relationship (11.01%) and retirement (6.27%). Negative contributions from the middle-income category (−0.38%), adults aged 45–54 years (−3.94%), and male gender (−0.43%) partially offset the pro-rich inequality. The component contributions summed to 100%, with a residual of zero. These estimates are statistical contributions and do not indicate causal effects.

Table 4. Decomposition of the Erreygers-corrected index for income-related inequality in HRQoL.

Variables	EQ-5D-5L Utility Scores			
	Elasticity	CI	Contribution to Erreygers-Corrected Index (ECn)	Percentage Contribution
Sociodemographic characteristics				
Age group				
25–34 years	0.0002	0.1343	0.0001	0.2390
35–44 years	0.0006	0.1307	0.0002	0.6105

Table 4. *Cont.*

Variables	EQ-5D-5L Utility Scores			
	Elasticity	**CI**	**Contribution to Erreygers-Corrected Index (ECn)**	**Percentage Contribution**
45–54 years	−0.0045	0.1061	−0.0013	−3.9417
55–64 years	−0.0049	−0.0258	0.0003	1.0493
65 and above years	−0.0032	−0.1823	0.0016	4.7694
Gender				
Male	0.0050	−0.0104	−0.0001	−0.4350
Marital Status				
Never-married/widowed/divorced/separated	−0.0103	−0.1298	0.0036	11.0126
Highest education level attained				
Trade or other post-school	0.0053	0.1169	0.0017	5.1225
University qualifications	0.0017	0.0645	0.0003	0.9289
Income				
A$31,200 to A$64,999	−0.0002	0.1958	−0.0001	−0.3817
More than A$65,000	0.0032	0.7345	0.0063	19.2726
Labour-market status				
Not working	−0.0110	−0.2886	0.0086	26.3399
Retired	−0.0032	−0.2344	0.0021	6.2719
Chronic conditions				
Single chronic condition	−0.0156	−0.0117	0.0005	1.5125
Multimorbidity	−0.0501	−0.0668	0.0091	27.6294

Notes: 1. CI is the standard concentration index of the row variable ranked by income. 2. ECn is the contribution to the Erreygers-corrected concentration index. 3. The percentage contributions were calculated using the unrounded estimates and sum to 100%. The residual was numerically equivalent to zero. Minor differences from 100% may arise when the individually rounded percentage contributions are summed.

The corrected contributions summed to the total Erreygers concentration index, and the percentage contributions summed to 100%.

4. Discussion

This cross-sectional study examined income-related inequality in HRQoL among Australian adults, focusing on the statistical contribution of chronic-condition burden. The positive Erreygers concentration index indicated a pro-rich distribution of HRQoL, with higher EQ-5D-5L utility values concentrated among participants in higher-income categories. The bootstrap confidence interval remained entirely above zero and was similar to that based on the heteroskedasticity-robust standard error. A recent study of Chinese adults using the EQ-5D-5L, household income ranking and the Erreygers index reported an ECI of 0.0275, compared with 0.0328 in the present study [47]. This suggests that the magnitude observed in our sample was slightly higher but broadly comparable. Nevertheless, direct cross-country comparisons should be made cautiously because concentration-index esti-

mates may be affected by differences in population composition, sampling and weighting, income measurement and country-specific EQ-5D-5L value sets.

The decomposition assessed the relative contributions of sociodemographic characteristics and chronic-condition burden to the Erreygers-corrected index. Multimorbidity, not working and annual income above A$65,000 were the largest positive contributors (27.63%, 26.34% and 19.27%, respectively). Other positive contributions included not being in a relationship (11.01%), retirement (6.27%), trade or other post-school education (5.12%) and age 65 years or older (4.77%).

It is well established that socioeconomically disadvantaged groups are more likely to develop chronic conditions. A decomposition analysis of Canadian adults showed that income itself accounted for 69% of income inequality in multimorbidity prevalence, followed by age (21.7%), marital status (15.2%), and physical inactivity (10.9%) [48]. Disease complications and limitations associated with chronic conditions have been proposed as a mechanism by which HRQoL worsens [12,49]. These findings do not suggest that multimorbidity is less important in socioeconomically advantaged populations. Prevention and coordinated management of multimorbidity are required across the socioeconomic gradient. However, disadvantaged populations may need additional attention to address barriers related to finance, healthcare access, and disease management.

5. Strengths and Limitations

This study adds to the limited Australian evidence on income-related inequality in HRQoL. It used an Australian EQ-5D-5L value set and quantified the contributions of chronic-condition burden and several sociodemographic characteristics.

However, this study has some limitations that need to be acknowledged. Income was measured using three broad categories, resulting in tied fractional ranks and preventing the identification of socioeconomic differences within each category. Geographical location, race or ethnicity, English-language proficiency, and several other social determinants of health were not available in the source surveys. Therefore, the decomposition does not provide a comprehensive assessment of all social determinants associated with income-related HRQoL inequality.

Further, this study considered only 15 pre-specified chronic conditions. Whilst these are relevant and common chronic conditions, the true impact of the number, type, and clustering of chronic conditions on an individual's HRQoL may vary. Indeed, this opens an avenue for future endeavours to examine this impact in Australian adults. Furthermore, self-reporting may be subject to measurement error. Finally, the cross-sectional design precludes causal conclusions. In particular, the analysis cannot determine whether socioeconomic disadvantage preceded chronic conditions, whether chronic conditions affected income or employment, or whether both pathways operated simultaneously. The decomposition analysis should therefore be interpreted as an accounting of observed associations rather than as an explanation of causal mechanisms. The study's findings describe income-related inequality in the pooled analytical sample and should not be interpreted as population-representative estimates for Australian adults. The non-probability recruitment method and the absence of survey weighting mean the sample composition may differ from that of the broader Australian population.

6. Conclusions

EQ-5D-5L utility was modestly concentrated among participants in higher-income categories. Multimorbidity and not working made the largest measured contributions to this inequality. Because the data were cross-sectional and drawn from an unweighted online panel, the findings describe associations within the study sample and do not establish

causality or population-level inequality. Longitudinal research is needed to examine how income, employment and chronic conditions influence HRQoL over time.

Author Contributions: Conceptualisation: S.A.K. and T.C. Formal analysis: S.A.K., R.P. and V.L. Methodology: S.A.K., R.P. and V.L. Writing—original draft: S.A.K., R.P. and V.L. Writing—review & editing: S.A.K., R.P., V.L. and T.C. All authors have read and agreed to the published version of the manuscript.

Funding: This study was supported by funding provided by the National Health and Medical Research Council (NHMRC) Partnership Centre on Dealing with Cognitive and Related Functional Decline in Older People (Grant no. GNT9100000). Professor Tracy Comans is supported by an NHMRC Boosting Dementia Research Fellowship. The contents of the published materials are solely the responsibility of the University of Queensland and the individual authors identified and do not reflect the views of the NHMRC or any other funding bodies or the funding partners.

Institutional Review Board Statement: The Griffith University Human Research and Ethics Committee (approval number 2016/626, 12 December 2016) and the University of Queensland Human Research and Ethics Committee (approval number 2017001481, 15 November 2018) granted ethical approval.

Informed Consent Statement: Informed Consent was obtained during the original research which permits use of the data for future research of a similar nature. Authors used the existing data without recontacting participants, as their previously obtained extended consent covered this secondary analysis.

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors on request.

Acknowledgments: The authors thank all respondents who participated in this study. Thanks are also given to the anonymous referees for their comments and suggestions, which helped produce the manuscript in its current form.

Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

CI	Concentration index
ECI	Erreygers-corrected concentration index
EQ-5D-5L	The EuroQol five-dimension five-level
HRQoL	Health-related quality of life
SES	Socioeconomic status

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