Journal of Developmental Origins of Health and Disease

www.cambridge.org/doh

Financial hardship and caregiver and child mental health during the 3 years of the COVID-19 pandemic in Australia

Anna M.H. Price[1,2,3], Mary-Anne Measey[4], Sharon Goldfeld[1,2,3] and Anthea Rhodes[2,3,5]

[1]Centre for Community Child Health, Royal Children's Hospital, Parkville, VIC, Australia; [2]Population Health, Murdoch Children's Research Institute, Parkville, VIC, Australia; [3]Melbourne Medical School, The University of Melbourne, Parkville, VIC, Australia; [4]Health Services Research Unit, The Royal Children's Hospital, Parkville, VIC, Australia and [5]Department of General Medicine, The Royal Children's Hospital, Parkville, VIC, Australia

Original Article

Cite this article: Price AMH, Measey M-A, Goldfeld S, and Rhodes A. (2024) Financial hardship and caregiver and child mental health during the 3 years of the COVID-19 pandemic in Australia. *Journal of Developmental Origins of Health and Disease* **15**: e31, 1–9. doi: 10.1017/S2040174424000321

Received: 10 April 2024
Revised: 22 August 2024
Accepted: 9 October 2024

Keywords:
Poverty; mental health; COVID-19; parent; child

Corresponding author:
Anna M. H. Price;
Email: anna.price@mcri.edu.au

Abstract

Household income and caregiver mental health are important drivers of children's health and development. The COVID-19 pandemic created huge economic and mental health disruptions. This study examines financial hardship and its relationship with caregiver and child mental health using Australia's only representative data spanning three years of the pandemic. Analysis of the repeated, cross-sectional National Child Health Poll included 12,408 caregivers and 20,339 children over six waves (June 2020–April 2023). Caregivers reported their income (dichotomised into low versus not) and deprivation (missing one or more of eight essential items, versus not) and mental health for themselves (Kessler-6, poor versus not) and each child (Self-Rated Mental Health, poor/fair versus good/very good/excellent). Binary logistic models were fitted to predict marginal probabilities of mental health measures by low income and deprivation, over time. Results show that while low income decreased from 41% to 34% over the study period, deprivation increased from 30% to 35%. Poor mental health peaked with stay-at-home orders in 2021 before recovering. Caregivers experiencing low income or deprivation had higher rates of poor mental health throughout the study and slower recovery compared to those without financial hardship. Children in families experiencing financial hardship had slightly higher proportions of poor/fair mental health in 2021–2022, but they were mostly equivalent in June 2020 and April 2023 (range 6–8%). Addressing financial hardship may offer an avenue for improving caregiver mental health. This has implications for post-pandemic recovery and addressing contemporary issues of increasing cost of living and limited mental health supports and services.

Introduction

The peer-reviewed literature on the developmental origins of health and development underscores the profound influence of household income and parental mental health on children's lifelong outcomes.[1–3] Increasing household income benefits children directly through better food, stable housing and healthcare (known as the 'investment' pathway), as well as indirectly through improved caregiver mental health and capacity (known as the 'family stress' pathway).[4–8] For reasons including limited access to resources, increased exposure to stress and reduced opportunities for enriching activities, children raised in households with low incomes face increased risks of psychological or socioemotional difficulties, behavioural problems, educational difficulties and poor mental health as they grow.[9,10] Parental mental health is also a critical determinant, with numerous studies showing that children of parents with mental health issues face higher risks of emotional and behavioural problems.[11] The interplay between low income and poor parental mental health creates a compounding effect, exacerbating the challenges faced by children.[1,3,8]

In 2020–21, the COVID-19 pandemic lockdowns generated enormous global financial disruption and, during the post-lockdown periods of 2022–23, cost of living and inflation rapidly increased, continuing after the end of pandemic was declared in May 2023.[12–14] The early pandemic literature hypothesised an exacerbation of health and developmental inequities for children,[15–17] and emerging data are substantiating these concerns. A meta-analysis of studies conducted during 2020–22 across 15 countries that investigated impacts on children's learning found an overall learning deficit (effect size $d = -0.14$) that arose early in the pandemic and persisted.[18] The deficit increased with increasing socio-economic disadvantage and was higher in lower-income than high-income countries.[18]

It is still early to measure the impacts of the pandemic, which will also be affected over time by new global events and national policies. What can be measured now are the mechanisms

underlying emerging inequities; that is, the financial experiences of families and how they related to the mental health of caregivers and children throughout the pandemic. As the translation of adverse experiences into later disorder or disease can take decades,[1] it is important to understand how if and how these mechanisms changed during the pandemic period, to consider how impacts may be offset in the future.

Studies during the lockdown periods of 2020–2021 typically examined socio-economic inequities using measures such as education, income and financial stress. While large studies in high-income countries such as Norway ($n = 58{,}982$ parents)[19] and the United Kingdom (UK, $n = 2{,}710$ young adults)[20] showed that negative financial and employment consequences in 2020 were more common for individuals experiencing lower socio-economic status, the mental health impacts were comparable. Similar patterns for children and young people were reported by a Finish study of adolescent mental health from 2019 to 2021 ($n = 87{,}283$ 14–16-year- olds),[21] and a German repeated cross-sectional study of 800 preschoolers from 2018 to 2022.[22]

Other research reports a more complex interplay. In an early childhood study from the United States ($n = 372$ parents surveyed in 2020), families' wealth was associated with a reduction in the number of stressful life events, including financial events, during the pandemic.[23] A European longitudinal birth cohort ($n = 4{,}575$ children aged 8–9 years in 2020) found that lower pre-pandemic socio-economic status was associated with a higher risk of emotional symptoms only for children whose families experienced a decline in income during the pandemic. A UK survey of young adults in 2021 ($n > 2000$ 16– 25-year-olds) also found that the relationship between socio-economic factors and mental health was partially mediated through financial strain and psychosocial factors such as optimism, self-efficacy and social support.[24]

In Australia, the federal and state governments established temporary economic supports to counter the negative financial impacts of the country's extensive lockdowns, which briefly offset poverty in 2020–2021.[25,26] Our earlier analyses of data from the Royal Children's Hospital National Child Health Poll, which is Australia's only representative, repeated, cross-sectional survey collected from families from June 2020 to April 2023 ($n = 12{,}408$ caregivers of 20,339 0–17-year-olds), showed a peak in poor caregiver and child mental health associated with Australia's lockdowns in 2021, followed by a substantial recovery in 2022–2023.[14,25–28] Throughout the pandemic, poor caregiver mental health (Kessler-6) was similar between female and male genders but more common for sole-caregivers, those with a home language other than English and lower education.[28] Perceived negative impacts were more common for female caregivers and more socially advantaged caregivers. Poor child mental health (a single 5-point item reported by caregivers) was similar between female and male children and increased with child age.[28]

While poverty is the traditional measure of financial hardship, it is indirect, calculated based on household income.[29] 'Deprivation' offers a more direct measure by considering whether a family can afford the material basics that are essential for health, such as food, housing and healthcare.[9,29–31] There is limited research into the experiences of deprivation during the pandemic period. In a Canadian, repeated, cross-sectional survey ($n = 12{,}091$ from May 2020 to December 2021), more than one in seven adults reported stress or worry about having enough food to meet their household's basic needs in the previous two weeks.[32] A similar study with adults in Nevada, United States (US, $n = 2{,}002$ in 2020 and 2021), found that food insecurity reduced while housing insecurity increased over time, and both were related to age, disability and certain categories of race/ethnicity and income.[33] In a survey across five US cities, one-third of $n = 1{,}395$ caregivers of young children reported household food insecurity and two in five reported being behind on rent, with disparities also differing relative to ethnicity.[34] A Japanese longitudinal study of over 700 adolescents in 2019 and 2021 revealed a widening of economic disparities related to physical activity before and during the pandemic, but a narrowing of disparities related to the proportion of children eating breakfast almost every day (although whether this assessed choice or deprivation was unstated).[35]

Despite the abundance of pandemic research, published population-representative data on the financial hardship and mental health of families and children are limited, and we could find none that spanned the three years of the pandemic.[28] To address this evidence gap, this study drew on the data from the aforementioned Australian RCH National Child Health Poll, and aimed to (1) describe household experiences of low income and deprivation (the investment pathway) overall and by demographic characteristics and (2) investigate the relationship of the two financial hardship measures (low income and deprivation) with caregiver and child mental health (the family stress pathway).

Methods

Design and procedure

The Royal Children's Hospital (RCH) National Child Health Poll comprises periodic cross-sectional surveys of approximately 2,000 Australian caregivers of children aged 0–17 years. To achieve high response rates and population representativeness, the surveys are intentionally brief and ask simple questions. Data collection was contracted to the Online Research Unit which obtains written informed consent and draws a nationally representative sample of caregivers using stratified random sampling from their panel of over 350,000 adults aged 18 years or older, composed of over 30% caregivers to children aged less than 18 years, who live in Australia and have internet access. Surveys are administered in English, with a reading level equivalent to sixth grade (the end of primary/elementary school). Responses are anonymous and respondents are remunerated with points exchangeable for department store gift vouchers.

The questions analysed in this study, about deprivation and mental health, were introduced after the COVID-19 pandemic began and collected in the six surveys conducted during the pandemic period. The first three surveys occurred during the 'lockdown period', when stay-at-home orders varied by jurisdiction and were the primary method to prevent virus spread: (1) 15–23 June 2020, after a first national lockdown (March–May 2020) eased; (2) 15–29 September 2020, when only metropolitan residents of Victoria were in a second, stricter lockdown (July–November 2020); (3) 20–29 July 2021, when multiple states/territories were in and out of lockdown (June to October 2021). The next three surveys occurred in the post-lockdown period of the pandemic: (4) 14–22 April 2022; (5) 19 September to 4 October 2022 and (6) 11–21 April 2023.

Patient and public involvement

The research questions and design were informed by previous RCH Poll surveys, which asked caregivers to identify child health issues of most concern and topics of future surveys. At the end of each survey, participants were informed of the study website where

https://doi.org/10.1017/S2040174424000321 Published online by Cambridge University Press

all research reports are accessible to the public. Respondents were not directly involved in the recruitment or conduct of each survey.

Measures

Table 1 describes the measures and demographic characteristics. Caregivers reported two measures of financial hardship, low household income and experience of material deprivation; their mental health with the Kessler-6 (K6);[36] and the mental health of each child in their care with the Self-Rated Mental Health (SRMH) item.[37] Table 1 describes the binary cut-points for analysis. Not all measures were collected at all six waves; these are described in Table 1 and denoted with a dash (-) in the Results Tables.

Analysis

Descriptive statistics (frequencies, weighted proportions and 95% confidence intervals) were used to describe the two financial hardship measures overall and by demographic characteristics and the mental health measures overall. To reduce effects of non-response and non-coverage and therefore approximate population distributions, caregiver measures were weighted using national population estimates for caregiver age, gender, family structure (sole-caregiving, number of children and proportions of families with children aged less than 5 years), regionality, state/territory and SEIFA. Child measures were weighted using the national population distributions of children aged less than 18 years for children's age, sex and state/territory.

We used binary logistic regression models to investigate whether the two financial hardship measures were associated with caregiver and child poor mental health over time, after adjusting for caregiver gender, sole caregiver status, education, home language other than English, regionality and SEIFA (Table 1). The child models were additionally adjusted for child age, sex, poor caregiver mental health (Kessler-6) and clustering at the level of family. The regression models were used to estimate marginal probabilities of the two mental health outcomes, by low income and any deprivation (yes versus no), at the six survey timepoints. The Results section describe the overall patterns of the sample estimates and evidence for group differences according to the 95% confidence intervals (CIs). Data were analysed using Stata/IC v18 (Stata, College Station, TX, USA).

Results

Participant characteristics

Across the six survey waves, a total of 17,099 caregivers were approached, and 12,408 (72.5%) provided data for themselves and 20,339 children. Supplementary Table S1 describes the sample sizes and characteristics for each survey. Overall, caregiver mean age was 42.5 years (standard deviation (SD) 9.8 years), ranging 18 to 92 years and 51.4% ($n = 6{,}191/12{,}048$) were female. Respondents cared for a median of 2 children, range 1–6. Just under a quarter ($n = 2{,}922$) were sole caregivers and 22.0% ($n = 2{,}648$) spoke a language other than English at home. Seventeen percent ($n = 2{,}082$) lived in regional/remote areas. No data were available to compare respondents and non-respondents. However, the socio-economic characteristics suggested a strong response bias towards more advantaged groups with 32.3% ($n = 3{,}890$) in the highest SEIFA quintile compared with 11.6% ($n = 1{,}402$) in the lowest. Overall, children's mean age was 9.6 years (SD 5.1 years) and 47.8% ($n = 9{,}721/20{,}339$) were female. The proportions of respondents in lockdown at the time of survey completion were 33.0% ($n = 473/1434$) in Wave 2 (September 2020) and 56.5% ($n = 1416/2508$) in Wave 3 (July 2021) and zero for Waves 1 and 4–6 (not tabulated). Supplementary Table S1 shows that there were differences between surveys in demographic characteristics, supporting the use of sample weights in analyses to adjust for these differences between surveys and the Australian population.

Financial hardship overall and by demographic characteristics (Aim 1)

Table 2 and Supplementary Fig. S1 show that low income and deprivation were common for Australian families and had different trajectories over time. Weighted proportions of low income were highest in September 2020 (44.7, 95% CI 40.9 to 48.6) and lowest in September 2022 (25.3, 95% CI 21.4 to 29.7%). In contrast, weighted proportions of caregivers experiencing any deprivation were lowest in September 2020 (27.4%, 24.2 to 30.9) and highest in April 2023 (34.5, 95% CI 31.5, 37.6). Of the eight deprivation items, food and utilities were the most commonly missed items throughout the pandemic. Food insecurity increased the most, from 17.2% (95% CI 14.8, 19.9) in June 2020 to 23.7% (95% CI 21.0, 26.6) in April 2023.

Supplementary Tables S2 and S3 present the weighted proportions of families experiencing low income and any deprivation by demographic characteristics, respectively. Low income and deprivation followed a socio-economic gradient and were more common for female caregivers, sole caregivers, those with lower education, living in rural and remote regions and lower SEIFA. The two financial hardship measures were similar between states and child sex and more common for families with younger children.

The cross tabulation of income and deprivation variables was similar across waves so Supplementary Table S4 presents the frequencies and weighted proportions for the total cohort. Overall, 56.8% of families experienced neither financial hardship; 14.9% experienced both; 16.6% reported deprivation but not low income and 11.8% reported low income without deprivation.

Financial hardship and mental health (Aim 2)

Table 1 shows that poor caregiver and child mental health peaked in July 2021, the survey that most closely corresponded with the peak of Australia's lockdown length, before recovering. This has previously been published in detail.[28] Briefly, the weighted proportions and 95% CIs of poor caregiver mental health (K6) were higher in the lockdown periods of 2020–2021 (estimated weighted proportions ranging 17–20%) than post-lockdown in 2022–2023 (estimated weighted proportions ranging 12–14%). Child poor/fair SRMH doubled from June 2020 to July 2021 (6 to 13%) before reducing to 6% in April 2023.

Table 3 and Figure 1 present the estimated probabilities of poor caregiver mental health (Kessler-6) by low income and any deprivation. For the low income measure, estimated probabilities were most similar in June 2020, experienced by 18.8% (95% CI 13.4 to 24.2) of caregivers reporting low income and 15.8% (95% CI 12.5 to 19.2) of caregivers above the low income threshold. Differences increased over time and were greatest in April 2023, when poor mental health had persisted and was estimated at 20.9% (95% CI 16.0 to 25.7) of caregivers with low income, compared with a reduction for caregivers above the threshold to 9.9% (95% CI 7.4 to 12.4).

https://doi.org/10.1017/S2040174424000321 Published online by Cambridge University Press

Table 1. Financial, demographic, and mental health measures

Measure	Description
Financial hardship	
Deprivation	Eight items adapted from the Household, Income and Labour Dynamics in Australia (HILDA) Survey Wave 18 Household Questionnaire Material Deprivation Module[50] asking 'In the last month, because of money pressure did you miss or put off' (binary response options: 'yes' compared with 'no'): mortgage or rent repayments; electricity, gas, water bills; food; healthcare; prescription medicines; home or car insurance; mobile phone bills; and internet. A total count, and a binary summary variable were created; the latter compared the inability to pay for one or more essential items 'any material deprivation; with 'none'.
Low income	A binary variable based on current total household income before tax, categorised into 10 options ranging from 'less than $500 p/week' to 'more than $3,000 p/week', plus 'prefer not to say'. Income was dichotomised as low versus not according to the thresholds for the Australian Government Low Income Card (LIC), a means tested benefit within Australia's social welfare system that defines low income. The primary purpose is to offer concessions for prescription medicines; however, the LIC entitles holders to access a limited range of health, education, recreational and transport expenses.[38] In 2020–22, all sole carers or couples with income up to $1250 per week (income variable categories 1–5) were LIC eligible; in 2023, all sole or couple families with income up to $1499 per week (categories 1–6) were LIC eligible. $n = 1500$ (12.5%) caregivers preferred not to report income, details in Supplementary Table S4.
Demographic	
Age	Collected for caregivers and children, reported in years. Child age was used as a proxy for educational level and categorised to represent pre-school (0–4 years), primary/elementary school (5–11 years) and high school (12–17 years).
Gender and sex	Gender collected for caregivers and sex for children. Response options for caregivers were 'male', 'female', 'other', noting 'other' was introduced in Waves 4–6 (identified by 7 caregivers in total). As this subgroup was too small to analyse separately, only the female and male categories are presented for the descriptive gender analyses. Child sex options were 'male' and 'female'.
Sole caregiver	Question 'Are you the sole (single) parent or carer of a child 17 years of age or younger?', binary response options 'yes' (one-caregiver household) compared with 'no' (multi-caregiver household).
Caregiver education	Question 'What is the highest level of schooling / education you have completed?'. Responses were trichotomised into categories that meaningfully represented education as a socio-economic measure for Australians: (1) 'Year 12 or less' (response options: less than year 10, Year 10 or equivalent (e.g. school certificate), Year 12 or equivalent); (2) 'vocational training certificate' (response options: trade/apprenticeship (e.g. carpenter), certificate/diploma (e.g. Cert IV Childcare)) or (3) 'university degree' (response options: undergraduate university degree, postgraduate university degree (e.g. Masters, Doctorate, PhD).
Home language	Question 'Do you speak a language other than English at home?', binary response options 'yes' (other than English) compared with 'no' (English).
Regionality	Australian Bureau of Statistics (Jul2021–Jun2026), Remoteness Structure, dichotomised into 'metropolitan' ('major cities') versus 'regional/remote' ('inner regional/outer regional/remote/very remote').[51]
Neighbourhood-level disadvantage	Families were assigned the Australian Bureau of Statistics' (ABS) Socio-Economic Indexes for Areas (SEIFA) Index of Relative Disadvantage,[52] a national area level index derived from census data for all individuals living in a postcode, with higher scores indicating greater advantage. Presented as quintiles: quintile 1 represents most disadvantage and quintile 5 represents least.
State as proxy for lockdown	Trichotomous variable based on total length of lockdown experienced by each state/territory (jurisdiction). By the end of COVID-19 lockdowns in October 2021, the total length was greatest for the state of Victoria ('Vic', total 37 weeks); followed by the state of New South Wales ('NSW', total 25 weeks) and then all 'other' states and territories (total range 8–15 weeks). The following geographical categories were used as a proxy for total length of lockdown: (1) Victorian (most), (2) NSW and (3) Other (least).
Mental health	
Caregiver mental health	6 items of the Kessler-6 (K6) assessing caregivers' self-reported anxiety and depressive symptoms encountered in the last 4 weeks. Scored on a 5-point Likert scale from 1 'none of the time' to 5 'all of the time'. Dichotomised into a binary variable indicating 'poor mental health' (total score 19 or more) compared with not (total score 6–18).[36] The K6 performs strongly for screening mood and anxiety disorders according to the WHO Composite International Diagnostic Interview and 30-day Diagnostic and Statistical Manual-IV disorders (area under the curve: 0.89, 95% confidence interval: 0.88–0.90), and outperforms the General Health Questionnaire-12.[36] The K6 was collected in all six surveys.
Child mental health	The single 5-point Self-Rated Mental Health (SRMH) scale,[37] scored on a 5-point Likert scale from 'poor' to 'excellent', dichotomized into 'poor/fair' versus 'good/very good/excellent'.[27] The poor and fair SRMH categories in adult studies have shown moderate correlations with validated mental health scales such as the Kessler Psychological Distress Scale, and Patient Health Questionnaire, and associations with physical health, social determinants of health, and health service use. Published psychometric data for children and young people are lacking. The child SRMH item was collected in four surveys (not September 2020 or September 2022).

Table 3 and Figure 1 show substantial differences in the estimated probabilities of caregivers experiencing poor mental health by deprivation status throughout the pandemic. The relative increase in poor mental health during the lockdown periods was greater for caregivers who were not experiencing deprivation, from 9.3% (95% CI 6.7 to 12.0) in June 2020 to 12.7% (95% CI 10.5 to

https://doi.org/10.1017/S2040174424000321 Published online by Cambridge University Press

Table 2. Financial hardship and poor mental health measures described with the number of respondents and weighted proportions (95% confidence intervals (CIs))

N caregivers	Jun 2020 (*N* = 2020)		Sep 2020 (*N* = 1434)		Jul 2021 (*N* = 2508)		Apr 2022 (*N* = 2035)		Sep 2022 (*N* = 2036)		Apr 2023 (*N* = 2015)	
Financial hardship	***n***	**% (95% CI)**	***n***	**% (95% CI)**	***n***	**% (95% CI)**	***n***	**% (95% CI)**	***n***	**% (95% CI)**	***n***	**% (95% CI)**
Low income	588	41.3 (37.7, 45.0)	482	44.7 (40.9, 48.6)	807	37.9 (34.1, 41.8)	528	32.6 (30.3, 35.0)	437	25.3 (21.4, 29.7)	598	33.7 (30.4, 37.1)
Deprivation												
Count (mean)		1.1 (0.95, 1.2)		1.1 (0.94, 1.3)		1.3 (1.0, 1.6)		1.3 (1.0, 1.4)		–		1.4 (1.2, 1.5)
Any	527	29.8 (26.8, 33.0)	400	27.4 (24.2, 30.9)	822	32.0 (28.5, 35.7)	591	30.5 (28.4, 32.7)		–	675	34.5 (31.5, 37.6)
Housing	264	15.1 (12.8, 17.8)	206	13.6 (11.2, 16.5)	358	14.7 (11.4, 18.8)	247	12.7 (11.2, 14.4)		–	277	14.7 (12.6, 17.2)
Utilities	272	15.9 (13.5, 18.5)	241	16.1 (13.5, 19.0)	504	19.1 (15.7, 23.0)	373	19.6 (17.7, 21.5)		–	398	19.4 (17.0, 22.1)
Food	287	17.2 (14.8, 19.9)	233	15.2 (12.8, 19.9)	487	19.6 (16.2, 23.6)	289	20.1 (18.2, 22.1)		–	458	23.7 (21.0, 26.6)
Healthcare	249	13.8 (11.7, 16.3)	199	13.1 (10.8, 15.8)	414	16.3 (13.0, 20.3)	303	15.4 (13.7, 17.1)		–	379	17.8 (15.6, 20.3)
Medicine	216	11.1 (9.3, 13.2)	180	12.8 (10.4, 15.7)	376	14.3 (11.0, 18.4)	251	12.8 (11.3, 14.4)		–	346	17.1 (14.8, 19.6)
Insurance	201	10.7 (8.8, 13.0)	189	13.3 (10.8, 16.2)	381	15.1 (13.5, 16.9)	293	15.1 (13.5, 16.9)		–	318	16.5 (14.3, 19.0)
Phone bill	230	13.4 (11.2, 16.0)	198	13.6 (11.1, 16.4)	416	16.3 (12.9, 20.3)	317	16.8 (15.0, 18.6)		–	331	15.5 (13.4, 17.9)
Internet	200	12.1 (10.1, 14.4)	208	14.1 (11.7, 17.0)	376	14.5 (11.2, 18.6)	295	15.7 (14.0, 17.5)		–	308	14.1 (12.1, 16.3)
Poor mental health												
Caregiver K6	264	17.4 (14.7, 20.4)	247	19.5 (16.5, 22.9)	541	18.9 (16.9, 21.2)	265	13.9 (12.3, 15.6)	250	11.7 (9.8, 14.0)	253	13.1 (11.1, 15.4)
Child SRMH	271	6.2 (4.9, 7.7)		–	528	13.4 (11.6, 15.5)	326	8.5 (7.1, 10.1)	–	–	297	6.3 (4.9, 8.2)
***N* children**	**Jun 2020 (*N* = 3411)**		**Sep 2020 (*N* = 2553)**		**Jul 2021 (*N* = 4327)**		**Apr 2022 (*N* = 3371)**		**Sep 2022 (*N* = 3352)**		**Apr 2023 (*N* = 3325)**	

N: Number, K6: Kessler 6 (dichotomized as suboptimal for total score 19+ versus not for score < 19), SRMH: self-rated mental health (dichotomized at poor/fair versus good/very good/excellent). Proportions and 95% CIs for the caregiver were weighted using national population distributions for caregiver age, gender, family structure (sole-caregiving, number of children and any under 5 years), regionality, state/territory and socio-economic indexes for areas index of relative disadvantage. Dash (-) denotes that measure was not collected in that survey wave. *n* = 1500 (12.5%) caregivers preferred not to report income. Note, the mental health data are previously published.[28]

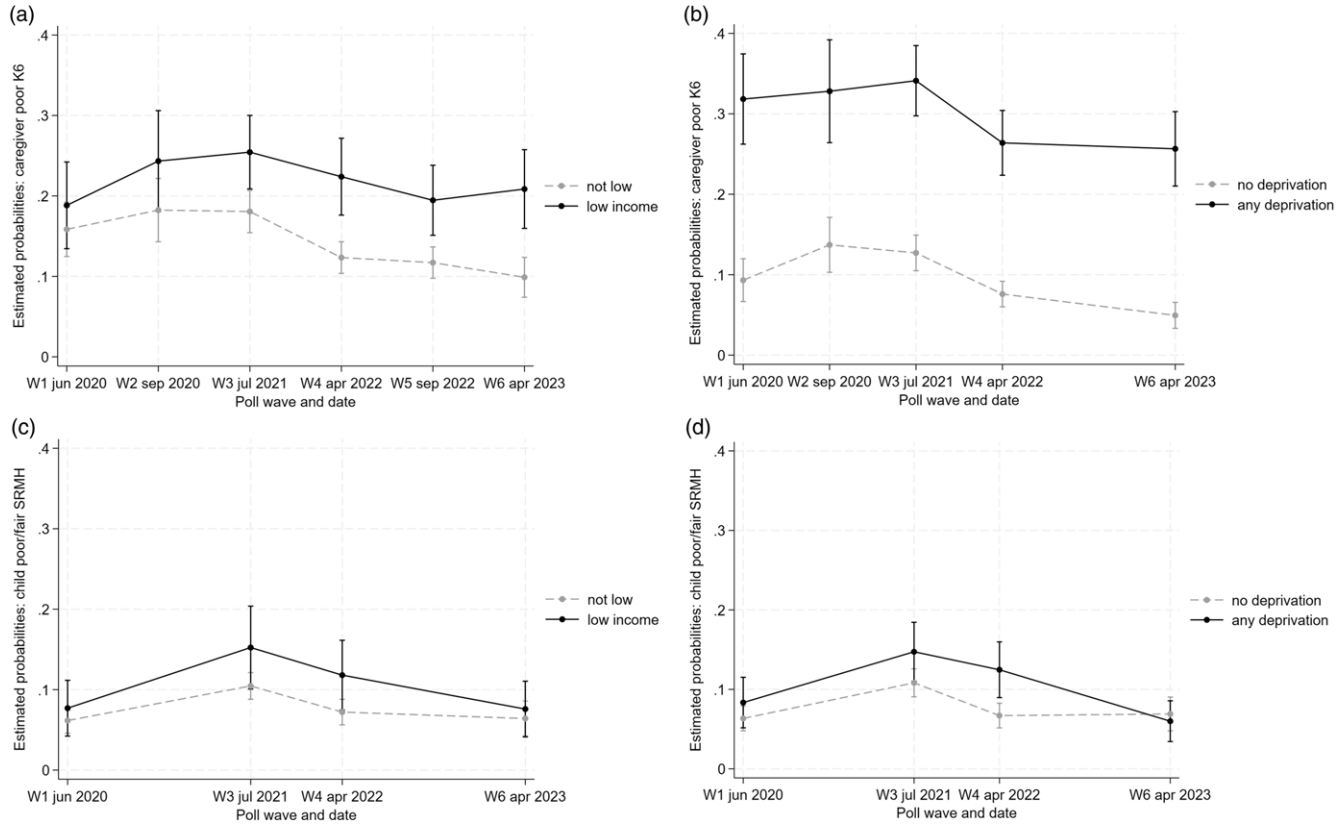

Figure 1. Adjusted* estimated probabilities of caregiver and child poor mental health over time, by survey, by financial hardship (a) caregiver poor mental health (Kessler-6) by low income, (b) caregiver poor mental health (Kessler-6) by any deprivation, (c) child poor/fair mental health (SRMH) by income, (d) child poor/fair mental health (SRMH) by any deprivation. N: Number, K6: Kessler 6 (dichotomized as suboptimal for total score 19+ versus not for score < 19), SRMH: Self-rated mental health (dichotomized at poor/fair versus good/very good/excellent). *All models were adjusted for caregiver gender, sole caregiver status, education, home language other than English, regionality, socio-economic indexes for areas and state as a proxy for lockdown. Child models were additionally adjusted for child age, sex, poor caregiver mental health (Kessler-6) and clustering at the level of family. $n = 1500$ (12.5%) caregivers preferred not to report income.

14.9) in July 2021, compared with caregivers who reported any deprivation, from 31.8% (26.2 to 37.4) in June 2020 to 34.1% (95% CI 29.7 to 38.5) in July 2021. However, like low income, the relative recovery in poor caregiver mental health was greater for those who did not report deprivation, more than halving to 5.0% (95% CI: 3.3 to 6.6) by April 2023. In contrast, the estimated probabilities had reduced by a third for caregivers who were experiencing deprivation, to 25.6% (95% CI: 21.0 to 30.3).

Table 3 and Figure 1 shows that, overall, the estimated probabilities of children's poor/fair mental health (SRMH) were slightly higher for families experiencing low income or any deprivation in 2021–2022. However, the distributions (95% confidence intervals) were similar, and estimates were mostly equivalent in June 2020 and again by April 2023, ranging 6–8%.

Discussion

This study investigated the financial hardship and related mental health experiences of Australian families during 3 years of the COVID-19 pandemic. These were captured with Australia's only nationally representative, repeated cross-sectional survey about families conducted during this period. Low income and deprivation (financial hardship) were common, experienced by between one-fifth and two-thirds of all caregivers depending on demographic subgroup. Low household income declined over the three-year period, whereas deprivation increased. Poor mental health was common for caregivers with low income and even more so for those experiencing deprivation. After a collective peak in poor mental health with lockdowns during the July 2021 survey, there was substantial recovery by April 2023 for caregivers who were not experiencing financial hardship. In contrast, poor mental health was more persistent for caregivers experiencing low income or deprivation, suggesting a widening of mental health disparities over time. Children in households with low income or deprivation were more likely to have poorer caregiver-reported mental health during 2021–2022 but distributions were similar, and mostly equivalent in June 2020 and April 2023.

The finding that low income increased while deprivation increased was somewhat counter-intuitive. It is likely that wage growth during the pandemic period outpaced the increase in the Australian government's low-income threshold, which was used to calculate the low income variable in this study. The base rate for the government threshold for a household with one child has varied with indexation and the pandemic income supplements.[38] However, payments for additional children have remained the same over time and not increased with inflation or wage growth. Alternatively, the finding that low income decreased over time may be a by-product of the measurement used. The income variable was relatively crude, collected using 11 categories (see Table 1), and the low-income variable was calculated according to the best fit of the income category to the low income threshold. This study shows the added value of measuring the lived experience of money (i.e. deprivation) and not just a measure of poverty or low income. The two measures of financial hardship followed different patterns over

https://doi.org/10.1017/S2040174424000321 Published online by Cambridge University Press

Table 3. Mental health measures by survey and by financial hardship measure, described with number of respondents and adjusted* estimated probabilities (95% confidence intervals (CIs))

	N caregivers	Jun 2020 (*N* = 2020)		Sep 2020 (*N* = 1434)		Jul 2021 (*N* = 2508)		Apr 2022 (*N* = 2035)		Sep 2022 (*N* = 2036)		Apr 2023 (*N* = 2015)	
	Financial	***n***	**% (95% CI)**	***n***	**% (95% CI)**	***n***	**% (95% CI)**	***n***	**% (95% CI)**	***n***	**% (95% CI)**	***n***	**% (95% CI)**
Caregiver poor mental health (K6)	Low income	100	18.8 (13.4, 24.2)	90	24.3 (18.1, 30.6)	224	25.4 (20.8, 30.0)	99	22.4 (17.6, 27.2)	87	19.5 (15.1, 23.8)	123	20.9 (16.0, 25.7)
	Not	134	15.8 (12.5, 19.2)	135	18.2 (14.3, 22.2)	273	18.1 (15.4, 20.7)	154	12.3 (10.4, 14.3)	147	11.7 (9.8, 13.7)	112	9.9 (7.4, 12.4)
	Deprivation	168	31.8 (26.2, 37.4)	156	32.8 (26.4, 39.2)	341	34.1 (29.7, 38.5)	170	26.4 (22.4, 30.4)	–	–	191	25.6 (21.0, 30.3)
	Not	96	9.3 (6.7, 12.0)	91	13.7 (10.3, 17.1)	200	12.7 (10.5, 14.9)	95	7.6 (6.0, 9.2)	–	–	62	5.0 (3.3, 6.6)
Child poor mental health (SRMH)	Low income	67	7.7 (4.2, 11.2)	–	–	132	15.2 (10.1, 20.4)	82	11.8 (7.5, 16.1)	–	–	79	7.6 (4.1, 11.0)
	Not	166	6.2 (4.6, 7.7)	–	–	325	10.5 (8.8, 12.1)	204	7.2 (5.6, 8.8)	–	–	167	6.4 (4.2, 8.6)
	Deprivation	100	8.3 (5.2, 11.5)	–	–	210	14.7 (11.0, 18.4)	138	12.5 (9.0, 16.0)	–	–	105	6.0 (3.4, 8.6)
	Not	171	6.4 (4.9, 7.9)	–	–	318	10.8 (9.1, 12.6)	188	6.7 (5.2, 8.2)	–	–	192	6.9 (4.8, 9.0)
	***N* children**	**Jun 2020 (*N* = 3411)**		**Sep 2020 (*N* = 2553)**		**Jul 2021 (*N* = 4327)**		**Apr 2022 (*N* = 3371)**		**Sep 2022 (*N* = 3352)**		**Apr 2023 (*N* = 3325)**	

N: Number, K6: Kessler 6 (dichotomized as suboptimal for total score 19+ versus not for score < 19), SRMH: Self-rated mental health (dichotomized at poor/fair versus good/very good/excellent).
*All models were adjusted for caregiver gender, sole caregiver status, education, home language other than English, regionality, socio-economic indexes for areas and state as a proxy for lockdown. Child models were additionally adjusted for child age, sex, poor caregiver mental health (Kessler-6) and clustering at the level of family. Dash (-) denotes that measure was not collected in that survey wave. *n* = 1500 (12.5%) caregivers preferred not to report income.

time, with deprivation experienced by a broader cross-section of the population than low income.

In our study, food insecurity and utility bills were the most common deprivations, consistent with other Australian data collected from adults[39] and parents[40] during the pandemic period. In a nationally representative Canadian study of adults in four survey rounds in 2020–2021, more than one in seven participants reported stress or worry related to having enough food for their household, and this was higher for subgroups including those with children or financial concerns. By December 2021, however, less than four percent reported accessing a food bank. A qualitative study of 24 Australians in 2020, who were using income support before the COVID-19 pandemic, found that food was often more insecure because it was deemed a flexible priority compared with housing, employment and education.[41] In our study, as is well-established across the literature, low income and deprivation followed social gradients. Our findings are also consistent with representative, longitudinal Australian data that show that high levels of poverty are disproportionately experienced by sole caregivers, and there are substantial drops in household income associated with the first five years of parenting, which are predominately borne by women.[42]

In our earlier analysis of mental health experiences,[28] the recovery in poor mental health (Kessler-6) during the post-lockdown periods was apparent across demographic subgroups including caregiver gender, home language, regionality and university educated and multi-caregiving households.[28] While poor mental health reduced overall for sole caregivers from 36% in June 2020 to 25% in September 2022, it had increased to 29% by April 2023.[28] This is similar to the trajectory for low income in the current study and may reflect the high proportion of sole parents who experience poverty relative to multi-caregiver households.[25,42] Unfortunately, deprivation was not collected by the RCH Poll in September 2022 to enable the same comparison. In our earlier analysis,[28] poor mental health increased for caregivers with high school education or less, from 16% in June 2020 to 26% in April 2023. When considered collectively with the current study, these findings highlight important subgroups such as sole caregivers, caregivers of younger children and those with lower education, who are experiencing the cumulative adversities of financial hardship and poor mental health.[43] Notably, the cut-point for suboptimal caregiver mental health on the Kessler-6 (19 or more) was higher than many international studies of adults.[44] While our scoring aligned with Australian normative data and previous studies using the same dataset,[28,36] this high scoring may mean the findings represent the most severe forms of distress, and that other relationships would be evident for lesser, but still important, levels of poor mental health.[44]

Strengths of this study included the large cross-sectional and nationally representative surveys, which employed a robust methodology (surveys piloted and included the validated Kessler-6); collected data on caregiver and child mental health; surveyed female and male caregivers and achieved good response proportions. The study also had limitations. There were no pre-pandemic data to evaluate changes in financial hardship and mental health from before to during the pandemic. In our study, poor caregiver K6 was higher in April 2023 (13%) than representative Australian adult data collected pre-pandemic (8% in 2017) or during the first national lockdown (11%),[45] which suggests that child rearing was associated with poorer mental health during the pandemic. Other studies demonstrated that, compared with pre-pandemic levels, there were reductions in

https://doi.org/10.1017/S2040174424000321 Published online by Cambridge University Press

financial hardship[25] and improvements in well-being for low-income households[46] related to the temporary income supports in 2020–2021, but rebounds in hardship subsequently. We could find no study that investigated whether the caregiver mental health disparities associated with financial hardship were increasing before the pandemic, to understand whether our findings were specific to the pandemic period, or whether the data collection period shone a light on a pre-existing pattern. The number of surveys was insufficient to conduct a time-series analysis, so future polls are necessary for evaluating whether mental health disparities related to financial hardship continue to increase in the post-pandemic period, and whether these translate into effects on children's health and development outcomes.

Further limitations included the reliance on caregiver-report, from only one caregiver per household, which means the child rating may be biased by caregiver perception. The RCH Poll eligibility criteria and sampling approach mean the findings are unlikely to generalise to caregivers without final-year primary/elementary school English, internet access or who are younger than 18, and 12.5% of families did not report income. However, the similarities in pandemic mental health experiences and increasing cost of living across high-income countries mean our findings are likely to generalise to families raising children in similar settings.

Inequities in children's learning and development existed before the pandemic in Australia,[47] and our study suggests that the pandemic exacerbated the causal pathways. We found a strong and persistent relationship between financial hardship and mental health for caregivers, over and above the mental health impacts of the pandemic. In Australia, the recent increase in cost of living has been met with increasing use of and pressure on social services and supports, such as financial counselling and hardship concessions, as well as reduced household savings.[48] It is important to consider whether addressing financial hardship can decrease the need for mental health services and explore policy opportunities for testing this, such as income supplements, and the integration of financial support into universal platforms such as primary healthcare.[30,48] This study has important implications for post-pandemic recovery including finding ways to accelerate prevention and early intervention pathways for addressing the contemporary issues of increasing cost of living and limited mental health supports and services.[12,43,49]

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S2040174424000321.

Acknowledgements. We thank all families who took part in the Royal Children's Hospital National Child Health Poll.

Financial support. The National Child Health Polls are funded by The Royal Children's Hospital Foundation. Research at the Murdoch Children's Research Institute (MCRI) is supported by the Victorian Government's Operational Infrastructure Support Program. Dr Price was supported by The Erdi Foundation Child Health Equity (COVID-19) Scholarship and an MCRI Emerging Leadership Award. Prof Goldfeld was supported by a NHMRC Practitioner Fellowship (#1155290). The other authors received no additional funding. The Murdoch Children's Research Institute (MCRI) administered research grants for the work and provided infrastructural support (as study sponsor) to its staff but played no role in the conduct or analysis of the research.

Competing interests. None.

Ethical standard. The authors assert that all procedures contributing to this work comply with the ethical standards of the National Statement on Ethical Conduct in Human Research (2023) in accordance with the National Health and Medical Research Council Act 1992 and with the Helsinki Declaration of 1975, as revised in 2008. This study was approved by The Royal Children's Hospital Human Research Ethics Committee (#35254).

References

1. Shonkoff JP, Boyce WT, McEwen BS. Neuroscience, molecular biology, and the childhood roots of health disparities: building a new framework for health promotion and disease prevention. *JAMA*. 2009; 301, 2252–2259. DOI: 10.1001/jama.2009.754
2. Duncan GJ, Ziol-Guest KM, Kalil A. Early-childhood poverty and adult attainment, behavior, and health. *Child Dev*. 2010; 81, 306–25. DOI: 10.1111/j.1467-8624.2009.01396.x
3. Heckman JJ, Masterov DV. The productivity argument for investing in young children. *Appl Econ Perspect P*. 2007; 29, 446–493. DOI: 10.1111/j.1467-9353.2007.00359.x
4. Cooper K, Stewart K. Does household income affect children's outcomes? A systematic review of the evidence. *Child Indic Res*. 2020; 14, 981–1005.
5. Brinkman S, Gregory T, Harris J, Hart B, Blackmore S, Janus M. Associations between the early development instrument at age 5, and reading and numeracy skills at ages 8, 10 and 12: a prospective linked data study. *Child Indic Res*. 2013; 6, 695–708.
6. Moore T, Arefadib N, Deery A, West S, Keyes M. *The First Thousand Days: An Evidence Paper*, 2017. Centre for Community Child Health, Murdoch Children's Research Institute, Parkville, Victoria. https://www.rch.org.au/ccch/first-thousand-days/
7. Gershoff ET, Aber JL, Raver CC, Lennon MC. Income is not enough: incorporating material hardship into models of income associations with parenting and child development. *Child Dev*. 2007; 78, 70–95. DOI: 10.1111/j.1467-8624.2007.00986.x
8. Conger RD, Donnellan MB. An interactionist perspective on the socioeconomic context of human development. *Annu Rev Psychol*. 2007; 58, 175–99. DOI: 10.1146/annurev.psych.58.110405.085551
9. Saunders P, Bedford M, Brown J, Naidoo Y, Adamson E. *Material deprivation and social exclusion among young Australians: A child-focused approach (SPRC Report 24/18)*. Social Policy Research Centre, UNSW Sydney; 2018. DOI: 10.26190/5bd2aacfb0112.2018, Available from: https://www.thesmithfamily.com.au/-/media/files/research/reports/material-deprivation-and-social-exclusion-among-young-australians-2018-full-report.pdf
10. Australian Institute of Health and Welfare. Australia's health 2018, Australia's health series no. 16. AUS 221, Canberra: AIHW; 2018. https://www.aihw.gov.au/getmedia/7c42913d-295f-4bc9-9c24-4e44eff4a04a/aihw-aus-221.pdf?v=20230605094401&inline=true
11. Scarlett H, Moirangthem S, van der Waerden J. The impact of paternal mental illness on child development: an umbrella review of systematic reviews and meta-analyses. *Eur Child Adolesc Psychiatry*. 2023; DOI: 10.1007/s00787-023-02261-1
12. The Senate. Select Committee on the Cost of Living. Paying the Price: The Cost of a Crisis on Australians' Standards of Living. Final Report, 2024 [https://parlinfo.aph.gov.au/parlInfo/download/committees/reportsen/RB000446/toc_pdf/PayingthePriceTheCostofaCrisisonAustralians'StandardsofLiving.pdf, accessed 15 November 2024].
13. ABC News Australia, Inflation's cost-of-living pinch hits mortgage borrowers, low-income and older households. 12 Nov 2022 [https://www.abc.net.au/news/2022-11-12/low-income-facing-highest-cost-of-living-inflation/101639080, accessed 19 Oct 2023].
14. World Health Organization (WHO). Director-General's opening remarks at the media briefing. 5 May 2023 [https://www.who.int/news-room/speeches/item/who-director-general-s-opening-remarks-at-the-media-briefing—5-may-2023, accessed Oct 19 2023] [press release].
15. Lange S, Altrock CM, Gossmann E, Fegert JM, Jud A. COVID-19-what price do children pay? An analysis of economic and social policy factors. *Int J Environ Res Public Health*. 2022; 19, 21. DOI: 10.3390/ijerph19137604
16. Goldfeld S, O'Connor E, Sung V, *et al.* Potential indirect impacts of the COVID-19 pandemic on children: a narrative review using a community child health lens. *Med J Aust*. 2022; 216, 364–72. DOI: 10.5694/mja2.51368

17. Zima BT. Editorial: Global widening of the inequitable child and adolescent mental health care chasm during COVID-19. *J Am Acad Child Adolesc Psychiatry*. 2023; 62, 965–966. DOI: 10.1016/j.jaac.2023.05.004
18. Betthäuser BA, Bach-Mortensen AM, Engzell P. A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic. *Nature Human Behaviour*. 2023; 7, 375–385. DOI: 10.1038/s41562-022-01506-4
19. Worn J, Reme BA, Skirbekk V. Job loss and psychological distress during the COVID-19 pandemic: A national prospective cohort study. *BMC Public Health*. 2023; 23, 1447. DOI: 10.1186/s12889-023-16303-5
20. Smith ML, Herbert A, Hughes A, Northstone K, Howe LD. Socioeconomic position and adverse childhood experiences as risk factors for health-related behaviour change and employment adversity during the COVID-19 pandemic: insights from a prospective cohort study in the UK. *BMC Public Health*. 2022; 22, 1820. DOI: 10.1186/s12889-022-14184-8
21. Kaltiala R, Aalto-Setala T, Kiviruusu O. Socioeconomic disparities in adolescent anxiety and depression in Finland have not increased during the COVID-19 pandemic. *Scand J Public Health*. 2023; 51, 656–663. DOI: 10.1177/14034948231166466
22. Weyers S, Rigo M. Child health and development in the course of the COVID-19 pandemic: are there social inequalities? *Eur J Pediatr*. 2023; 182, 1173–1181. DOI: 10.1007/s00431-022-04799-9
23. Thomas AS, Osbourne M, Appelhans BM, Roisman GI, Booth-LaForce C, Bleil ME. Disparities in COVID-19-related stressful life events in the United States: understanding who is most impacted. *Health Soc Care Community*. 2022; 30, 1199–1211. DOI: 10.1111/hsc.13671
24. Schoon I, Henseke G. Social inequalities in young people's mental distress during the COVID-19 pandemic: Do psychosocial resource factors matter? *Front*. 2022; 10, 820270. DOI: 10.3389/fpubh.2022.820270
25. Poverty in Australia 2022: A snapshot is published by the Australian Council of Social Service, in partnership with UNSW Sydney. ACOSS 2022. Available from: https://povertyandinequality.acoss.org.au/a-snapshot-of-poverty-in-australia-2022/ [accessed 23 Oct 2023]
26. Price A, Contreras-Suárez D, Zhu A, *et al.* Associations between ongoing COVID-19 lockdown and the financial and mental health experiences of Australian families. *Aust J Soc Issues*. 2022; 00, 1–18. DOI: 10.1002/ajs4.252
27. Price A, Measey M-A, Hoq M, Rhodes A, Goldfeld S. Child and caregiver mental health during 12 months of the COVID-19 pandemic in Australia: Findings from national repeated cross-sectional surveys. *BMJ Paediatrics Open*. 2022; 6, e001390. DOI: 10.1136/bmjpo-2021-001390
28. Price AMH, Measey M-A, Hoq M, Rhodes A, Goldfeld S. Caregiver and child mental health during 3 years of the COVID-19 pandemic. *Pediatrics*. 2024; 153, e2023064658. DOI: 10.1542/peds.2023-064658
29. Mack J. UK Economic and Social Research Council. Poverty and Social Exclusion, Defining, measuring and tackling poverty, Consensual method. 2017. https://www.poverty.ac.uk/definitions-poverty/consensual-method [accessed 8 December 2023]
30. Goldfeld SR, Price AM, Al-Yaman F. Having material basics is basic. *Med J Australia*. 2023; 219, S15–S9. DOI: 10.5694/mja2.52144
31. Sollis K. Measuring Child Deprivation and Opportunity in Australia, *Applying the Nest framework to develop a measure of deprivation and opportunity for children using the Longitudinal Study of Australian Children*, 2019. ARACY, Canberra.
32. Daly Z, Black J, McAuliffe C, Jenkins E. Food-related worry and food bank use during the COVID-19 pandemic in Canada: results from a nationally representative multi-round study. *BMC Public Health*. 2023; 23, 1723. DOI: 10.1186/s12889-023-16602-x
33. Coughenour C, Chien LC, Gakh M, *et al.* Food and housing insecurity in Nevada during the COVID-19 pandemic. *J Community Health*. 2023; 06, 06. DOI: 10.1007/s10900-023-01284-8
34. Le-Scherban F, Ettinger de Cuba S, Bovell-Ammon A, *et al.* Association between material hardship in families with young children and federal relief program participation by race and ethnicity and maternal nativity. *JAMA Health Forum*. 2023; 4, e230508. DOI: 10.1001/jamahealthforum.2023.0508.
35. Kyan A, Takakura M. Impact of the COVID-19 pandemic on the socioeconomic inequality of health behavior among Japanese adolescents: a 2-year repeated cross-sectional survey. *J Phys Act Health*. 2023; 20, 538–546. DOI: 10.1123/jpah.2022-0489
36. Furukawa TA, Kessler RC, Slade T, Andrews G. The performance of the K6 and K10 screening scales for psychological distress in the Australian national survey of mental health and well-being. *Psychol Med*. 2003; 33, 357–362.
37. Ahmad F, Jhajj AK, Stewart DE, Burghardt M, Bierman AS. Single item measures of self-rated mental health: a scoping review. *BMC Health Serv Res*. 2014; 14, 398. DOI: 10.1186/1472-6963-14-398
38. Australian Goverment Guides to Social Policy Law, Social Security Guide, Version 1.315 - Released 5 February 2024. 4.10.7.60 Historical income limits for LIC from 20/09/1996 [https://guides.dss.gov.au/social-security-guide/4/10/7/60#note_d accessed 19 March 2024]. Australian Government Social Policy Law 2024.
39. Botha F, Gamara A, Payne AA. Most Australians, not just the poor, are facing constraints in covering basic needs. Melbourne Institute Research Insight, No. 04/23. 2023. Available from: https://melbourneinstitute.unimelb.edu.au/publications/research-insights/search/result?paper=4636721
40. Price AMH, White N, Burley J, *et al.* Feasibility of linking universal child and family healthcare and financial counselling: findings from the Australian healthier wealthier families (HWF) mixed-methods study. *BMJ Open*. 2023; 13, e075651. DOI: 10.1136/bmjopen-2023-075651
41. Zorbas C, Browne J, Chung A, *et al.* Shifting the social determinants of food insecurity during the COVID-19 pandemic: the Australian experience. *Food Secur*. 2023; 15, 151–170. DOI: 10.1007/s12571-022-01318-4
42. Gamara A, Price A. Household income and the risk of poverty around the time of childbirth. Under review. Working paper published by the Life Course Centre at https://lifecoursecentre.org.au/working-papers/household-income-and-the-risk-of-poverty-around-the-time-of-childbirth/. 2024 (Preprint and under review).
43. Mental health Australia. Report to the Nation 2023 [https://mhaustralia.org/report/2023-report-nation, accessed 9 April 2024]
44. Prochaska JJ, Sung H-Y, Max W, Shi Y, Ong M. Validity study of the K6 scale as a measure of moderate mental distress based on mental health treatment need and utilization. *Int J Meth Psych Res*. 2012; 21, 88–97. DOI: 10.1002/mpr.1349
45. Biddle N, Edwards B, Gray M, Sollis K. Australian national university, centre for social research & methods. 2020. Hardship, distress, and resilience: The initial impacts of COVID-19 in Australia. https://csrm.cass.anu.edu.au/sites/default/files/docs/2020/6/The_initial_impacts_of_COVID-19_in_Australia_2020_4.pdf [accessed 29 Nov 2023].
46. Lycett K, Frkyberg G, Crowe M, Capic T. The conversation, Australians' satisfaction with life is at its lowest level in two decades, May 11, 2023 [https://theconversation.com/australians-satisfaction-with-life-is-at-its-lowest-level-in-two-decades-205008, accessed 11 April 2024]. 2023.
47. Australian Early Development Census. An Australian Government Initiative. AEDC 2021. https://www.aedc.gov.au/
48. The Senate Community Affairs References Committee. The extent and nature of poverty in Australia. Final report, February 2024. Senate Inquiry into Poverty, 2024.
49. Hall A. Statistics and Mapping. Australia's cost of living over the last decade. https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BriefingBook46p/CostLiving. Parliament of Australia.
50. Wilkins R, Lass I. *The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 16*, 2018. Applied Economic & Social Research, University of Melbourne, Melbourne Institute.
51. Australian Bureau of Statistics (Jul2021-Jun2026), Remoteness Structure, ABS Website, accessed 17 July 2023.
52. Australian Bureau of Statistics, Technical Paper Socio-Economic Indexes for Areas (SEIFA) Australia 2021 [https://www.abs.gov.au/statistics/people/people-and-communities/socio-economic-indexes-areas-seifa-australia/latest-release, accessed 9 April 2024]. Canberra: Australian Bureau of Statistics. https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/remoteness-structure/remoteness-areas

https://doi.org/10.1017/S2040174424000321 Published online by Cambridge University Press