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Nicole Black: Centre for Health Economics, Monash Business School, Monash University (email: nicole.black@monash.edu); Danusha Jayawardana: Centre for Health Economics, Monash Business School, Monash University (email: danusha.jayawardana@monash.edu); David W. Johnston: Centre for Health Economics, Monash Business School, Monash University (email: david.johnston@monash.edu); Trong-Anh Trinh: Centre for Health Economics, Monash Business School, Monash University (email: Trong-Anh.Trinh@monash.edu).

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The Growing Divide: Income Inequities in Access to Mental Healthcare in Australia

Nicole Black* Danusha Jayawardana* David W. Johnston* and Trong-Anh Trinh*

20 August 2025

Abstract

Rising out-of-pocket costs for psychotherapy in Australia have heightened concerns about financial barriers to mental healthcare, particularly for lower-income households, who disproportionately experience psychological distress. Using nation-wide linked administrative records of income and healthcare use, we estimate the magnitude of income-related inequity in psychotherapy use among 5.4 million individuals diagnosed with a mental health condition, and examine how such inequity has evolved over the decade from 2014 to 2023. Our findings show that income-related inequity is substantial, consistently higher among children than among adults, and has nearly doubled over the decade. By 2023, only 32% of low-income children and 40% of low-income adults accessed psychotherapy within three months of receiving a mental health treatment plan, compared with 55% among both high-income children and adults. We rule out changes in complexity of mental health disorders and the introduction of telehealth services as key drivers. We find no discernible difference by gender or age subgroups. Examination of antidepressant use reveals a growing gap in the opposite direction, with lower-income individuals increasingly reliant on medication without psychotherapy, relative to higher-income individuals. This suggests a shift towards lower-cost treatment pathways among disadvantaged groups. Our findings highlight the need for policies to address the increasing costs and other barriers to accessing psychotherapy, especially for lower-income households.

Key words: mental health, income inequity, unmet mental health need, horizontal inequity
JEL codes: I12; I14

*Centre for Health Economics, Monash Business School, Monash University, 900 Dandenong Road, Caulfield East, VIC 3145, Australia. Email: nicole.black@monash.edu; danusha.jayawardana@monash.edu; david.johnston@monash.edu and Trong-Anh.Trinh@monash.edu

1 Introduction

Access to mental healthcare remains a significant challenge. Even in high-income countries with well-developed healthcare systems, about half of those experiencing mental disorders do not receive professional treatment (Bijl et al., 2003; Bruffaerts et al., 2015; Kovess-Masfety et al., 2017; Merikangas et al., 2010). This 'treatment gap' is more common among economically disadvantaged individuals (Bartram and Stewart, 2019; Black et al., 2025; Lopes et al., 2023), who are not only more likely to experience psychological distress (Enticott et al., 2016; Lam et al., 2019), but also face greater financial and other barriers to accessing care (Knapp et al., 2006; Rosenberg, Park and Hickie, 2022; Yang and Zhang, 2025). However, there is limited evidence on income-related inequities at the population level, particularly studies that cover both children and adults. Existing research often relies on small survey samples or focuses on a single age group, limiting the ability to assess system-wide patterns and to compare how inequities manifest across the life course. Moreover, very little is known about how these inequities have changed over time. This is surprising given the concerted efforts by many countries, including Australia, the United Kingdom and Canada, to make mental healthcare more accessible and affordable by subsidising psychotherapy (Bartram, 2019). Measuring trends in income-related inequities over time is important for evaluating whether such policies have improved equity in access or whether disparities have persisted or even widened despite increased investment.

We contribute to these evidence gaps by estimating the magnitude of income-related inequity in psychotherapy use among Australian children and adults. Our analysis is based on observed healthcare use among individuals formally diagnosed with a mental disorder by a GP, providing a policy-relevant view of how income shapes access to treatment within the current referral and funding system. We examine how these inequities have evolved over the decade from 2014 to 2023. To explore potential mechanisms, we document changes in average out-of-pocket costs, waiting times, and the number of psychotherapy providers over the study period, and assess whether trends in inequity are associated with rising rates of complex mental disorders or the expansion of telehealth services. We further investigate income-related inequities in the use of antidepressants, to assess whether lower-income individuals may be increasingly substituting medication for therapy. Our analysis draws on whole-of-population linked administrative records

of income and healthcare use from the Australian Taxation Office and Medicare, Australia's universal health insurance provider.

Australia is an important setting for this study. Approximately one in five Australians experience mental illness in any given year (Australian Bureau of Statistics, 2023), a prevalence rate comparable to that in the United States, Canada, the United Kingdom, and many European countries (NHS Digital, 2016; National Institute of Mental Health, 2022; Statistics Canada, 2023). Despite a universal health care system and subsidised psychologist services since 2006, affordability remains a significant barrier to mental healthcare. Psychologists in Australia are free to set their own fees, while the Medicare subsidy is fixed annually and applies uniformly to all patients. In 2024, the Medicare subsidy covered only 46% of the Australian Psychological Society's recommended fee of $311 for a 50-minute session with a clinical psychologist (Australian Psychological Society, 2025), leaving a sizable out-of-pocket cost for many patients. According to the 2023–24 Patient Experiences Survey, 26% of those who needed to see a psychologist delayed or did not see one due to cost. By comparison, only 10% delayed or missed needed care from General Practitioners (GPs), and the rate for other health professionals was 18% (Australian Bureau of Statistics, 2024*b*).

Our study builds on the well-established literature that examines horizontal inequity in healthcare, which is the principle that individuals with equal health needs should have equal access to care, regardless of their socioeconomic status or ability to pay. Much of this literature focuses on inequities in access to GPs, hospital care, and specialist services. Most studies find that GPs and hospital services are accessed roughly in proportion to need or exhibit a slight pro-poor bias, while specialist services tend to have persistent pro-rich inequities (Arnault, Jusot and Renaud, 2024; Cookson et al., 2016; d'Uva, Jones and Van Doorslaer, 2009; Jui-fen et al., 2007; Morris, Sutton and Gravelle, 2005; Pulok, van Gool and Hall, 2020; Watanabe and Hashimoto, 2012). However, relatively few studies have examined how horizontal inequities evolve over time. Two exceptions are Watanabe and Hashimoto (2012), who found increasing pro-rich inequities in physician visits in Japan between 1986 and 2007, and Arnault, Jusot and Renaud (2024), who showed that while pro-rich inequity persisted in Europe following the COVID-19 pandemic, it did not widen.

Much less is known about inequities in access to mental healthcare. Recent evidence that adjusts for mental health needs at an individual level suggest there are inequities in accessing mental health care favouring more highly educated adults in Australia (Black et al., 2025), and higher income adults in the Netherlands (Lopes et al., 2023). Studies focused on children have found that in Ontario, Canada, low-income children are less likely to be prescribed first-line psychiatric medication for depression and anxiety, conditional on diagnosis (Currie, Kurdyak and Zhang, 2024), and in Australia, low-income children are less likely to see a psychologist than high-income children, conditional on either a GP diagnosis or poor reported emotional health (Black et al., 2024).

One study that has examined trends in inequity in access to mental healthcare in Australia over time is Hashmi et al. (2023). Using panel survey data from 2009 and 2017, they found that need-standardised inequity in psychiatric service use increased over this period. The study also reported rising inequity for both males and females, and for rural and urban residents. These findings suggest that disparities in access to psychiatric care have worsened over time. We build on this contribution by using administrative records of Medicare-subsidised services, which allow us to examine inequities in both psychotherapy and medication use with greater precision and national coverage than self-reported service use. Using similar data to our study, a commissioned report, which evaluated Australia's initiative to subsidise psychological services also examined income inequities in adults accessing psychological services in 2017 and 2020, conditional on a mental health diagnosis (Pirkis et al., 2022). They found evidence of a socioeconomic gradient, which appeared to have worsened over the two time points. We extend this study by using data that spans a full decade, enabling year-by-year estimates of inequity and allowing us to capture trends through the COVID-19 period. Importantly, we explore inequities in access to care for both children and adults, and we explore possible explanations for the trends that we find.

2 Institutional Setting: Australia's Mental Health System

Australia's universal public healthcare system, Medicare, provides subsidies for a wide range of medical services and prescription medications. Since 2006, the Better Access initiative (BAI)

has extended Medicare coverage to include psychotherapy (also known as psychological therapy or talk therapy) provided by general and clinical psychologists, as well as eligible occupational therapists and social workers. Psychotherapy is considered an effective treatment for reducing the burden of depression and anxiety (Cuijpers et al., 2023). The main distinction between general and clinical psychologists is in their training: clinical psychologists complete at least eight years of accredited specialist training, compared to six years for general psychologists. Medicare subsidies reflect these differences, with higher rebates for clinical psychology services than for general psychology services. Social workers and occupational therapists attract a lower subsidy than general psychologist services.

Access to Medicare-subsidised psychotherapy in Australia typically begins with a GP assessment. If the patient is diagnosed with a mental disorder, such as anxiety or depression, the GP may prepare a Mental Health Treatment Plan (MHTP), which outlines a structured approach to managing the patient's mental health. A MHTP is required to access subsidised psychotherapy and entitles patients to up to 10 individual and 10 group sessions per calendar year with eligible psychologists, occupational therapists, or social workers. Clinical guidelines recommend psychotherapy as the first-line treatment for mild to moderate mental health disorders, while more severe conditions may require a combination of therapy and medication (Hazell, 2022; Malhi et al., 2021). GPs are the most common prescribers of psychiatric medications, such as antidepressants and anxiolytics. These can be prescribed either independently or alongside a MHTP and subsequent psychotherapy. For more complex conditions, such as bipolar disorder and severe depression, or for childhood conditions, such as ADHD and autism, patients are typically referred to a psychiatrist or paediatrician for specialist care and medication management.

3 Data and Measures

3.1 Person Level Integrated Data Asset (PLIDA)

The primary data source for our analysis is the Person Level Integrated Data Asset (PLIDA) (Australian Bureau of Statistics, 2025). PLIDA is a comprehensive longitudinal dataset covering

a wide range of domains, including demographics, healthcare, income and taxation for the Australian population (Biddle et al., 2019). We use data from the 2011 Australian Census of Population and Housing, which provides detailed information on all individuals and households present in Australia on the night of August 9, 2011. The PLIDA Census 2011 contains records for approximately 21.5 million people. This Census data is further linked to government administrative sources, including tax records from the Australian Taxation Office (ATO) and medicare records from the Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS).

Our analysis focuses on individuals with a GP diagnosis of a mental health disorder, which we identify through Medicare records of a Mental Health Treatment Plan (MHTP). The relevant MBS item numbers are listed in Appendix Table A1. Between 2011 and 2023, 7.8 million individuals received at least one MHTP. To ensure consistency in treatment history, we restrict our analysis to each individual's first observed MHTP, since follow-up plans are likely to reflect prior experience with and access to mental healthcare. To increase the likelihood that we are capturing truly initial plans, we define a pre-analysis window from 2011 to 2013 and exclude any individuals with an MHTP recorded during this period. This restriction ensures that all individuals in our analytic sample had no MHTP in at least the three years prior to their observed plan. Our analysis period therefore begins in 2014 and extends through 2023, yielding a sample of 6.6 million individuals. We further exclude individuals with missing information on income or area of residence (Statistical Area 1, SA1), resulting in a final sample of 5.4 million individuals. Appendix Figure A1 illustrates the detailed sample selection process.

We analyse children ($<$18 years old) and adults (25-54 years old) separately throughout our study. These groups differ in important ways that are likely to affect mental healthcare use and access. For children, healthcare decisions are typically made by parents or guardians, whose willingness and ability to pay may differ from that of adult patients. In addition, the set of providers differs, with some psychologists and other professionals specialising in paediatric care. The composition of diagnosed mental health conditions also varies systematically between children and adults.

For adults, we restrict the sample to those aged 25–54, reflecting the prime working-age population. This restriction improves the comparability of income as a proxy for ability to pay, since

younger adults may be full-time students or financially dependent on their parents, and may not accurately report their own income or residential address (e.g. while studying or travelling). At the upper end, we exclude older adults because some may have already entered retirement, where taxable income may be a poor proxy for financial resources due to access to superannuation, pension income, or accumulated wealth. In a robustness check, we extend the adult sample to include all individuals aged 18 and older and find that the results are similar.

In our analytical sample, 53% of children are female, with an average age of 11 years. Among adults, 58% are female, with an average age of 38 years. The higher proportion of females likely reflects both higher rates of mental health disorders and a greater propensity to seek care among women (Australian Institute of Health and Welfare, 2024*a*,*b*).

3.2 Mental healthcare use

Our main outcome variable is a binary indicator of whether an individual received any psychotherapy services within three months of their diagnosis, as proxied by the date of their initial MHTP. A three-month window reflects a policy-relevant measure of timely access to care, consistent with clinical expectations for early intervention following diagnosis. In sensitivity analyses, we examine alternative time frames ranging from one to twelve months post-diagnosis.

Psychotherapy services refer to evidence-based psychological therapies delivered either individually or in groups by accredited allied health professionals, including general and clinical psychologists, occupational therapists, and social workers. These therapies are the recommended first-line treatment for common mental health conditions such as depressive and anxiety disorders, and are typically the intended care pathway following a GP diagnosis and Mental Health Treatment Plan; though it may not be appropriate for some less common or complex conditions. We include both face-to-face and telehealth-delivered services (via videoconferencing or telephone). Appendix Table A2 lists all the services used in the analysis.

Over the period 2014–2023, just over half of individuals accessed at least one mental health service within three months of receiving their MHTP: 55% among children and 54% among adults. However, Appendix Table A3, which presents detailed descriptive statistics by year,

shows that these averages mask a clear downward trend. Among children, the proportion accessing care within three months fell from 63% in 2014 to 45% in 2023. A similar pattern is observed among adults, with service use declining from 58% to 48% over the same period. The most pronounced drop occurred between 2019 and 2021, coinciding with the COVID-19 pandemic, and use remained below pre-pandemic levels through to 2023. These declines suggest growing barriers to accessing care, even among individuals who have been formally diagnosed and referred for treatment.

3.3 Income

Our measure of inequity is based on the income of residents in a neighbourhood, measured at the Statistical Area Level 1 (SA1). SA1s capture small, relatively homogeneous communities of approximately 200 to 800 residents (average 400). We use neighbourhood-level income instead of household income due to data limitations: household structure is not consistently observable in our administrative records. For instance, when multiple adults are observed at the same address, it is not always possible to distinguish between co-residents with shared finances (e.g. couples) and those with separate economic circumstances (e.g. roommates). This constrains our ability to construct valid and consistent household income measures over time. Neighbourhood-level income provides a consistently observable proxy that is available annually for the full sample.

To construct the neighbourhood-level income measure, we use data on all individuals aged 25–54 years (working-age), irrespective of whether they received a MHTP. For each SA1 neighbourhood and year, we calculate the average annual taxable income using linked tax records from the Australian Taxation Office, excluding neighbourhoods with implausibly large population counts that likely reflect address recording errors. Each individual in our analysis, regardless of their age or personal income status, is then assigned to an income quintile based on the average income of their neighbourhood. Quintile 1 (Q1) includes individuals living in neighbourhoods in the bottom 20% of the income distribution, while Quintile 5 (Q5) includes those in the top 20%. Appendix Table A4 reports the mean income for each quintile by year. In 2023, the average income of 25–54 year olds in Q1 was approximately AUD $39,000, compared to AUD $102,000 in Q5. These values differ slightly between the child and adult samples due to small differences

in the set of neighbourhoods in which they reside.

4 Methodology

We use regression analysis to estimate the magnitude of income inequity in psychotherapy service use among individuals diagnosed with a mental health condition. Specifically, we estimate the following regression model:

$$psych_i = \beta_1 + \beta_2 Income_i^{q_2} + \beta_3 Income_i^{q_3} + \beta_4 Income_i^{q_4} + \beta_5 Income_i^{q_5} + \lambda X_i' + \varepsilon_i \quad (1)$$

where $psych_i$ is a binary indicator that equals one if the individual has accessed any psychotherapy service within three months of receiving a MHTP, and 0 otherwise. $Income_i^q$ represents indicators for an individual's income quintile, based on income measured at their neighbourhood of residence, with the first quintile as the omitted reference group. The income quintile coefficients capture the difference in access across income groups, conditional on having a diagnosis, which we interpret as income-related inequity. X_{it}' is a vector of control variables, including state fixed effects, and a full set of gender-by-age fixed effects to flexibly control for variation in mental health conditions and service use that systematically differ by age and gender.

We estimate the regression model separately for adults and children, and for each year from 2014 to 2023. To explore heterogeneity, we also stratify the analysis by gender, age group, and whether the individual has a more complex mental health condition. In additional specifications, we modify the dependent variable to separately capture use of face-to-face versus telehealth psychotherapy services, allowing us to assess whether the expansion of telehealth during the COVID-19 pandemic contributed to recent trends in inequity. We also estimate models where the outcome is an indicator for use of psychiatric medications commonly prescribed for anxiety and depression, enabling comparison between income-related inequity in therapy versus medication use. Across all specifications, results are presented as percentages relative to the relevant sample mean, in order to facilitate interpretation and comparison across population subgroups and outcomes.

A key empirical challenge throughout the analysis is potential selection into receiving a MHTP. For a given level of psychological distress, higher-income individuals may be systematically more likely to seek care and obtain a MHTP. If so, our estimates would understate the true extent of income-related inequity in access to treatment, as lower-income individuals with equivalent need may be underrepresented in our estimation sample. It is difficult to quantify the extent of this selection bias without direct measures of psychological distress. Prior research using survey data on children's emotional difficulties (at ages 10-17 years) from the strengths and difficulties questionnaire, linked to individual Medicare records, found no evidence of income-related selection into MHTPs from 2010–2017 (Black et al., 2024).

Using complete Medicare records from PLIDA from 2014–2023, we examine the likelihood of receiving a MHTP by neighbourhood income quintile among all Australians (Appendix Figure A2). On average, both children and adults in higher-income neighbourhoods are more likely to receive a MHTP than those in lower-income areas, although the difference is small ($<1\%$) and not adjusted for underlying need. Given that psychological distress is more prevalent among socioeconomically disadvantaged individuals (Lorant et al., 2003; Reiss, 2013), it is plausible that some pro-rich selection into MHTPs exists. Our estimates of horizontal income inequity in psychotherapy use should therefore be interpreted as conservative.

Another empirical consideration is that while Medicare-subsidised services account for the majority of psychotherapy delivered in Australia (Australian Institute of Health and Welfare, 2025*c*), individuals may also access similar care through other channels. These include services delivered through community mental health centres, hospitals, or school-based programs, none of which are captured in our data. Unfortunately, there is no comprehensive administrative dataset covering these services, limiting our ability to assess their impact on measured inequity. However, these alternative services generally do not require a MHTP. As such, individuals who have received a MHTP, and are therefore eligible for Medicare-subsidised care, are more likely than the general population to use Medicare-covered services. This mitigates concerns that the exclusion of non-Medicare services substantially biases our findings.

5 Results

5.1 Trends in access and inequity

Before presenting regression estimates, we first describe trends from 2014 to 2023 in key potential barriers to care: out-of-pocket costs, the likelihood of receiving a zero-cost service, waiting times, and provider availability. These descriptive figures aid understanding of how potential barriers to accessing timely care have changed over time.

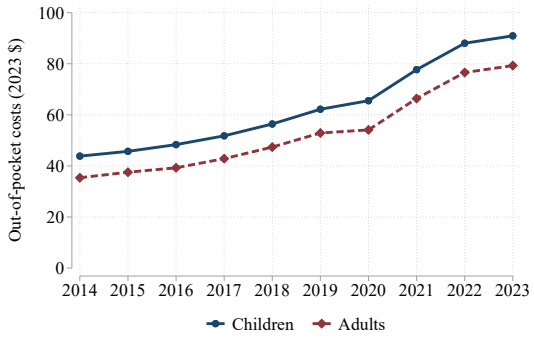
To construct these measures, we use the sample of individuals with a MHTP and consider only their first psychotherapy service following the plan. Out-of-pocket costs are expressed in inflation-adjusted 2023 AUD. Waiting time is measured as the number of days between the MHTP date and the date of the first psychotherapy session. Provider availability reflects the number of unique Healthcare Provider Identifiers (HPIs) associated with Medicare-subsidised psychotherapy services. All figures are calculated separately for children and adults. One important caveat is that these measures are based only on individuals who received care, and may not reflect the costs or delays faced by those who did not access any psychotherapy services.

Figure 1 shows that real out-of-pocket costs for both children and adults have more than doubled over the past decade (Panel A). For children, the average cost per session rose from approximately $44 to around $90 (in 2023 AUD), while for adults, it increased from $35 to $80. Mirroring this trend, the share of zero-fee services declined substantially, from 44% to 17% for children, and from 50% to 23% for adults (Panel B). These patterns suggest that financial barriers to accessing care have intensified over time, disproportionately affecting lower-income individuals.

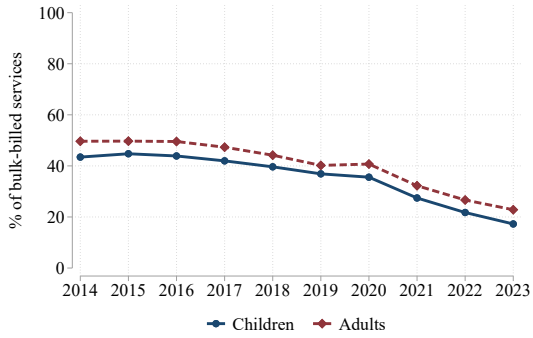
Panel C presents trends in waiting times, measured for individuals who eventually received care. For adults, average waiting times remained relatively stable at around 30 days until 2020, but rose sharply during the COVID-19 pandemic to approximately 40 days by 2023. For children, waiting times increased steadily from 30 days in 2014 to 45 days in 2023, with more pronounced increases occurring during the pandemic.

Panel D shows growth in the number of providers offering Medicare-subsidised psychotherapy. For adults, the number increased from approximately 12,000 in 2014 to 18,000 in 2023, and

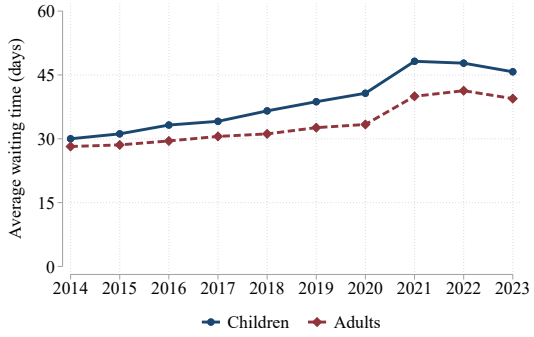
for children, from 9,000 to 12,000. However, it is unclear whether this represents a meaningful expansion in service capacity, as effective access depends not only on the number of registered providers, but also on hours worked, provider productivity, and the distribution of clients across the workforce. In Appendix Table A5, we document a steady increase in the number of MHTPs issued over time for both children and adults, with a notable spike during the COVID-19 years, suggesting that service demand has also increased.



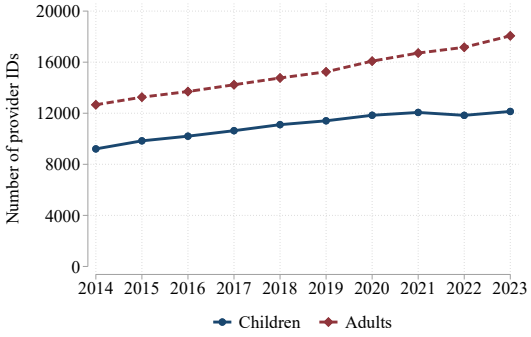
(a) Average out-of-pocket costs



(b) Share of zero-fee services



(c) Average waiting times



(d) Number of providers

Figure 1: Trends in out-of-pocket costs, zero-fee services, waiting times, and providers over time

Notes: Data is sourced from PLIDA. This figure presents the trends in average out-of-pocket costs, share of zero-fee services, waiting times and the number of provider identifiers from 2014 to 2023, based on each individual's first psychotherapy service.

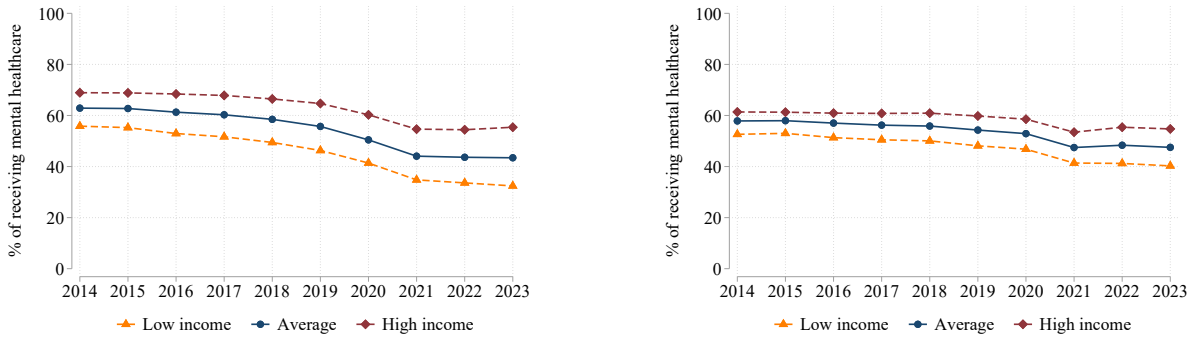
Overall, the trends suggest that, despite an increase in the number of providers delivering Medicare-subsidised psychotherapy, both affordability and waiting times for initial care have worsened over the past decade. These pressures became more pronounced during the COVID-19 period, when the number of MHTPs issued rose sharply. Taken together, the results indicate that

growth in the provider workforce has not been sufficient to offset increased demand, resulting in reduced access to timely and affordable care.

To understand how reduced access to psychotherapy services has varied across the income distribution, we next examine differences in service use between low- and high-income individuals. Figure 2 plots the proportion of individuals receiving any psychotherapy service within three months of their MHTP, separately for the lowest and highest neighbourhood income quintiles, as well as the overall average, from 2014 to 2023.

Panel A shows that among children, service use declined substantially over the decade, with a particularly sharp drop among those from low-income neighbourhoods. In 2014, 56% of low-income children accessed care within three months, compared to 70% of high-income children. By 2023, the rate had fallen to just 32% for low-income children, while remaining at 55% for those from high-income areas, a gap of 24 percentage points.

Panel B shows a similar but more modest pattern for adults. Psychotherapy use within three months of a MHTP declined from 53% to 40% among adults in the lowest income quintile, and from 61% to 55% among those in the highest quintile. The next sections formally quantify these income gradients in mental healthcare use.



(a) Children **(b)** Adults

Figure 2: Psychotherapy use by income group over time

Notes: Data is sourced from PLIDA. This figure shows the proportion of individuals who accessed a psychotherapy service within three months of receiving their first MHTP. Income groups are based on SA1 neighbourhood income: low and high income refer to the bottom and top income quintiles, respectively, while average refers to the average across all income groups.

5.2 Estimated income-related inequity over time

Figure 3 presents our main regression results, showing the estimated probability of accessing psychotherapy within three months of receiving a MHTP, for individuals in the highest income quintile relative to those in the lowest quintile. Each point represents the coefficient β_5 from Equation 1, expressed as a percentage of the sample mean (see Appendix Table A6 for the coefficient estimates). All estimates adjust for state fixed effects and gender-by-age fixed effects.

Income-related inequity in access to psychotherapy increased markedly between 2014 and 2023 for both children and adults, with the steepest rises occurring after the onset of the COVID-19 pandemic. Among children, individuals from high-income neighbourhoods were 23% more likely than those from low-income neighbourhoods to receive psychotherapy within three months in 2014. This inequity grew steadily over the decade, reaching 34% in 2019 and then jumping to 51% by 2023. For adults, the initial gap was 18% in 2014, rising to 22% in 2019 and 31% in 2023. There is some indication that the adult inequity may have stabilised between 2022 and 2023, but for children it appears to have continued rising.

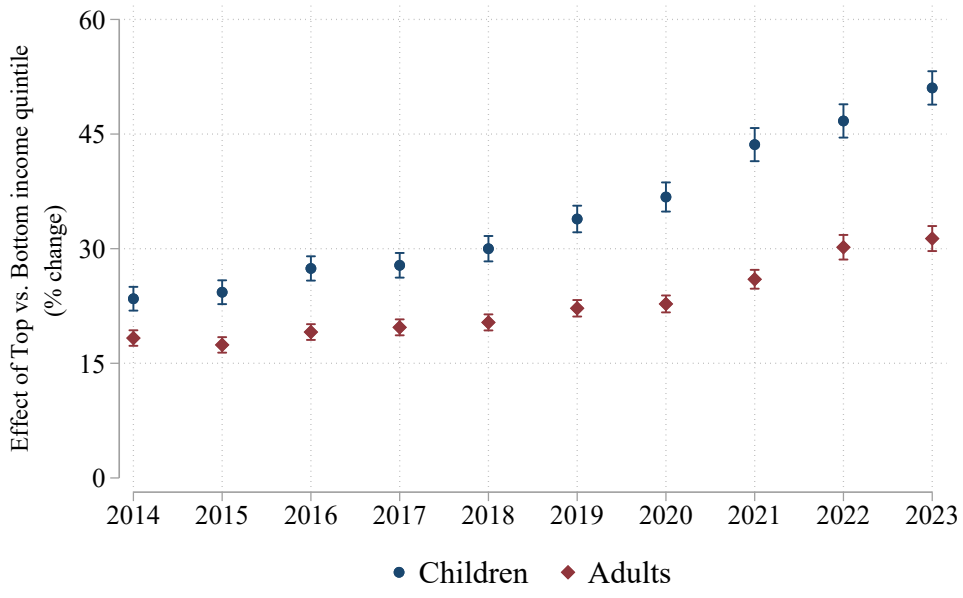


Figure 3: Income inequity in psychotherapy use over time

Notes: This figure presents the coefficient estimates and 95% confidence intervals for β_5 from Equation 1, expressed as a percentage relative to the sample mean. These represent the likelihood of receiving a psychotherapy service among individuals in the highest income quintile (Q5), compared to those in the lowest (Q1), conditional on having a MHTP. All estimates adjust for state fixed effects and gender-by-age fixed effects. Estimates for other quintiles are provided in the Appendix Figure A3.

Appendix Figure A3 displays results for all income quintiles. As expected, the service use gap increases with income quintiles, but similar trends over time are observed across quintiles Q2 to Q4, not just for the top quintile. We also confirm that these findings are robust to including all adults aged 18 and over in the analysis, rather than restricting to the 25–54 age group (see Appendix Figure A4).

In another robustness analysis, we examine whether our main findings are sensitive to the choice of a three-month window for defining timely access to psychotherapy following a MHTP. A possibility is that individuals from lower-income neighbourhoods take longer to access care, and that the observed inequities reflect delayed, but not ultimately lower, use of services. To assess this, we replicate the main income inequity estimates for 2023 using alternative time windows ranging from 1 to 12 months post-MHTP (Appendix Figure A5). The results show that the income gradient remains substantial and consistent across all time windows, with no evidence that lower-income individuals eventually catch up. In fact, the inequity is slightly more pronounced when shorter time windows (1–2 months) are used, suggesting that higher-income individuals are particularly advantaged in securing prompt access to psychotherapy services.

5.3 Estimated heterogeneity by patient characteristics

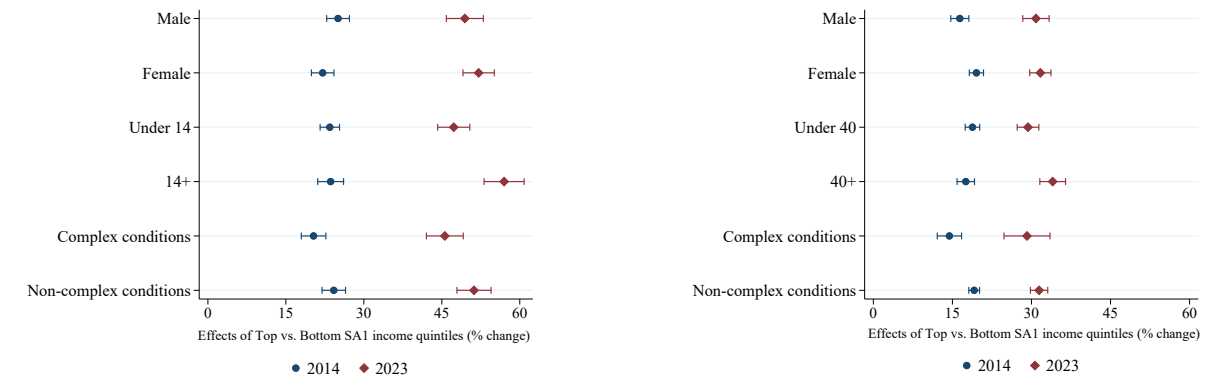
In this section, we assess whether the rise in income-related inequity documented in Figure 3 is consistent across different patient subgroups. First, we examine differences by gender and age group, with children grouped into ages 6–13 and 14–17, and adults into ages 25–39 and 40–54. Gender and age are well-established predictors of mental health needs, help-seeking behaviour, and patterns of service use. For example, females are generally more likely than males to seek mental healthcare, which could influence their likelihood of receiving treatment. For children, patterns of care-seeking depend heavily on parents (Black, Johnston and Ride, 2025). Parents may differ in how they perceive the necessity of mental health treatment based on the child's age, with younger children more likely to receive care initiated by a parent, and older adolescents more likely to be involved in their own care decisions. Differences in preferences for psychotherapy versus medication may also vary by age.

Figure 4 shows that the substantial rise in inequity has been widespread, increasing similarly

over time for both males and females and across all age groups, despite the differences in mental health needs and care-seeking behaviours discussed above. One exception is in 2023, where inequity among older children (aged 14–17) is significantly greater than among younger children (difference is significant at the 1% level).

Next, we examine whether trends in income-related inequity differ by the complexity of a patient's condition. Over the past decade, the diagnostic composition of mental health conditions has shifted, particularly among children, with rising diagnoses of complex conditions such as Attention Deficit Hyperactivity Disorder (ADHD) and autism spectrum disorder (ASD) (Australian Bureau of Statistics, 2024*a*; Australian Institute of Health and Welfare, 2025*a*). These changes may affect care pathways, as complex conditions often involve multidisciplinary management and require treatment from paediatricians or psychiatrists alongside psychological therapy. To assess whether changes in case complexity could explain the rise in inequity, we estimate trends separately for individuals who have and have not received care from a psychiatrist or paediatrician at any point between 2014 and 2023. While this is an imperfect proxy for clinical complexity, due to the absence of data on formal diagnoses, it is the most feasible approach given available information. This check also helps us to understand whether our results could be in-part explained by the roll-out of the National Disability Insurance Scheme (NDIS) (2016-2018), which may provide alternative cover for psychotherapy services for eligible participants. Only people with a disability that is caused by a permanent impairment may be eligible, and this includes ASD (the most common disability on the NDIS), psychosocial disability, and developmental delay, but excludes ADHD. Evidence of the permanence and severity of impairment typically involves a physician such as a paediatrician or psychiatrist (or an existing treating mental health professional, which we exclude from our baseline sample).

The results in Figure 4 show similar increases in income-related inequity across both groups. This suggests that the widening gap in access to psychotherapy is unlikely to be driven by changes in care complexity or the introduction of the NDIS over time.



(a) Children **(b)** Adults

Figure 4: Heterogeneity in access to mental healthcare

Notes: This figure presents the coefficient estimates and 95% confidence intervals for β_5 from Equation 1, expressed as a percentage relative to the sample mean, for 2014 and 2023, by gender, age and complexity of mental health disorder. These represent the likelihood of receiving mental healthcare among individuals in the highest income quintile (Q5), compared to those in the lowest (Q1), conditional on having a MHTP. All estimates adjust for state fixed effects and gender-by-age fixed effects.

5.4 The role of telehealth services

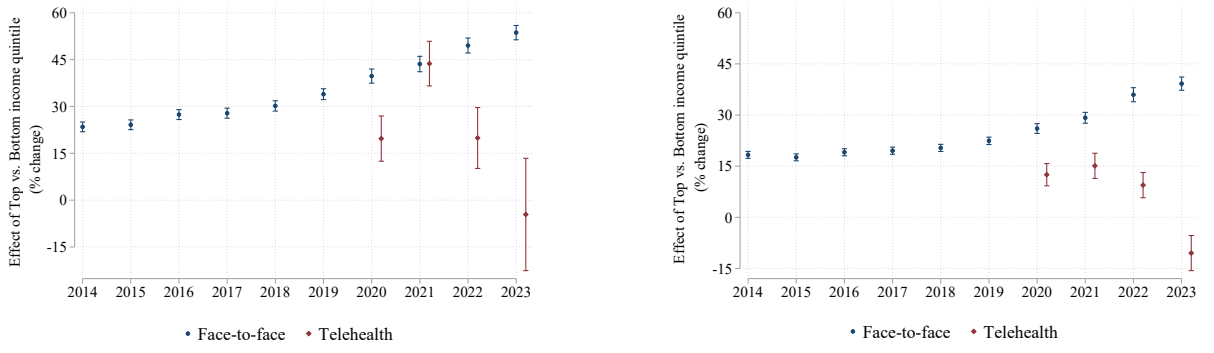
Figure 3 shows that income-related inequities in access to psychotherapy increased markedly during and after the COVID-19 pandemic. While this period was characterised by rising demand for mental health services, one of the most significant changes to service delivery was the rapid expansion of telehealth psychotherapy from March 2020. Prior to this, telehealth services were only available to individuals in specific geographic areas with limited access to in-person care. The pandemic reforms removed these restrictions, making video and telephone consultations widely accessible. Video consultations were generally promoted as the preferred substitute for in-person care, with telephone used when video was not feasible. On average, out-of-pocket costs were similar for face-to-face and video consultations, and lower for telephone services (see Appendix Table A7). Between 2020 and 2022, telehealth accounted for over one-quarter of all psychotherapy consultations.

In addition to supporting social distancing and reducing disease transmission during the pandemic, the expansion of telehealth may have improved access by lowering travel and time costs associated with in-person care. However, video consultations can also introduce new barriers for disadvantaged populations, who are less likely to have access to suitable technology, may be less confident using digital platforms, and often lack private spaces for confidential discussions

(Yeatman et al., 2023). Prior research suggests that, at the aggregate level, video-based psychiatry consultations have been distributed less equitably than face-to-face services since the onset of the pandemic (Yeatman et al., 2023), but there is limited evidence on whether similar patterns are observed for psychotherapy use among individuals with identified mental health needs.

To examine the role of telehealth in shaping income-related inequity, we re-estimate our primary regression model separately for face-to-face and telehealth psychotherapy services. As shown in Figure 5, the pattern of inequity for face-to-face consultations closely mirrors the overall results presented in Figure 3. This is unsurprising, given that the majority of psychotherapy services were delivered in person throughout the study period.

For both children and adults, we observe a pro-rich inequity in access to telehealth psychotherapy during the peak COVID-19 years (2020–2022), although the magnitude of inequity is generally smaller than for face-to-face services. Confidence intervals are wider for children, reflecting their lower rates of telehealth use compared to adults. By 2023, however, the pattern shifts: among children, income-related inequity in telehealth access is no longer statistically distinguishable from zero, while among adults, the inequity reverses direction, becoming significantly pro-poor. Given that the average out-of-pocket costs for services changed little between 2022 and 2023, price differences are unlikely to explain this shift.



(a) Children **(b)** Adults

Figure 5: Face-to-face vs telehealth services

Notes: This figure presents the coefficient estimates, expressed as a percentage relative to the sample mean, separately for face-to-face and telehealth mental health services. These represent the likelihood of receiving mental healthcare among individuals in the highest income quintile (Q5), compared to those in the lowest (Q1), conditional on having a MHTP. All estimates adjust for state fixed effects and gender-by-age fixed effects.

When we disaggregate the telehealth services by type of service (see Appendix Figure A6),

we find that inequity in video consultations closely resembles that of face-to-face care, while telephone-based consultations exhibit substantially lower inequity and account for the observed pro-poor gradient in 2023. This pattern likely reflects strong income-related selection into telephone services, which are typically used when video is not feasible. Thus, the pro-poor gradient in telephone-based care likely reflects constrained choices rather than improved equity, with telephone consultations serving as a fallback option rather than a form of high-quality, accessible care.

Overall, these findings suggest that while the introduction of telehealth changed how care was delivered, it did not substantially alter the broader trend of rising pro-rich inequity in access to psychotherapy. Further research, including data beyond 2023, is needed to assess whether telehealth can serve as a more equitable mode of service delivery in the longer term. Such evaluations should consider not only access, but also the quality and effectiveness of care across different population groups.

5.5 Income-related inequity in psychiatric medication use

Our focus so far has been on inequities in psychotherapy because it is the recommended first-line treatment for depression and anxiety, particularly for mild to moderate cases (Hazell, 2022; Malhi et al., 2021). However, patients may be prescribed psychiatric medication, such as antidepressants or anxiolytics, either as a substitute for psychotherapy or alongside it. This can depend on clinical severity, patient preferences, or GP assessment of what is feasible and appropriate, including considerations of local service availability and cost (Malhi et al., 2021).

Unlike out-of-pocket costs for psychotherapy, which have risen markedly over the study period, the cost of psychiatric medications has remained relatively stable due to the structure of the Pharmaceutical Benefits Scheme (PBS). Under the PBS, patients pay a capped co-payment, which was approximately $30 for general patients and $7 for concessional patients in 2023 (Pharmaceutical Benefits Scheme, 2025). Around 83% of antidepressant and anxiolytic prescriptions are issued by general practitioners, who typically charge lower out-of-pocket fees than psychiatrists or psychologists (Australian Institute of Health and Welfare, 2025*b*). As a result,

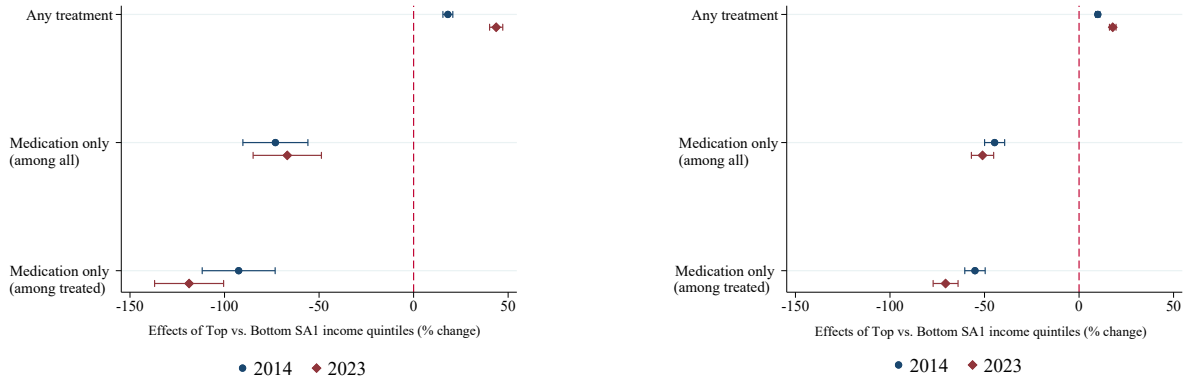
the total financial cost associated with the medication treatment pathway is substantially lower than that of the psychotherapy pathway.

In this section, we examine income-related inequities in the use of antidepressants and anxiolytics, and how these have evolved from 2014 to 2023. Appendix Table A8 lists all included PBS-listed medications. If medications are typically prescribed as complements to psychotherapy, we might expect similar pro-rich inequities. However, if they are used more as substitutes, we would expect a pro-poor inequity in medication use, particularly as psychotherapy becomes increasingly pro-rich over time. In standard consumer choice theory, when the relative price or availability of one good changes (e.g. psychotherapy becomes less accessible), demand may shift toward its substitute (e.g. medication), particularly among more constrained consumers.

We restrict our analysis to individuals who received a MHTP and exclude those with antidepressant or anxiolytic use in the 12 months prior, to reduce confounding from prior treatment history. We focus on children aged 14 and above, given that antidepressant use is rare among younger children. We estimate income-related inequity across three indicators: (1) receiving any treatment (psychotherapy or medication); (2) receiving medication only; and (3) receiving medication only, conditional on receiving treatment. The first measure captures overall treatment access, while the latter two focus on potential substitution away from psychotherapy, which may represent a less optimal treatment approach (Malhi et al., 2021). The distinction between the second and third indicators is the comparison group: the second includes all others with a MHTP, while the third excludes those who receive neither psychotherapy nor medication, and can be considered individuals who are more willing to use some form of treatment.

Figure 6 presents estimates for 2014 and 2023. For both children and adults, the probability of receiving any treatment is substantially higher among those from higher-income neighborhoods, consistent with earlier findings on psychotherapy use. In contrast, when considering the use of medication-only, the gradient is reversed and especially striking among those who receive some form of treatment. In 2014, children from high-income areas were 92% less likely than those from low-income areas to receive medication only (relative to those receiving psychotherapy only or both treatments). This pro-poor inequity increased to 119% in 2023 (the increase is statistically significant at the 1% level). A similar pattern holds for adults. In 2014, high-income

adults were 55% less likely to use medication only, with the gap increasing to 71% in 2023 (also significantly different at the 1% level).



(a) Children **(b)** Adults

Figure 6: Income-related inequity in psychiatric medication use

Notes: This figure presents the coefficient estimates, expressed as a percentage relative to the sample mean. These represent the likelihood of receiving mental healthcare among individuals in the highest income quintile (Q5), compared to those in the lowest (Q1), conditional on having a MHTP. The three comparison groups are defined as: (1) psychotherapy or medication treatment; (2) medication treatment only; and (3) medication only among a subgroup of individuals who received some treatment (psychotherapy or medication). All estimates adjust for state fixed effects and gender-by-age fixed effects.

These findings suggest that lower-income individuals are more likely to rely on psychiatric medication instead of psychotherapy, likely reflecting financial and access barriers to psychological care. The extent of this apparent substitution has increased over the past decade as out-of-pocket costs and average wait times for psychotherapy increased.

6 Discussion and Conclusion

This study provides new evidence on the growing income-related inequity in access to timely mental healthcare among children and adults in Australia. Using Census-linked administrative data, we show that inequities in access to psychotherapy have widened substantially over the past decade, with individuals living in lower-income neighbourhoods increasingly disadvantaged. These disparities are particularly pronounced among children. For example, in 2023, children in the highest-income quintile of neighbourhoods were 51% more likely to receive psychotherapy within three months of a mental health treatment plan than those in the lowest-income quintile.

The increase in inequity closely reflects rising out-of-pocket costs and longer waiting times for care, pointing to growing affordability constraints and service shortages. These patterns are consistent with known barriers to accessing timely mental healthcare (Dawadi et al., 2024; Yang and Zhang, 2025; Rosenberg, Park and Hickie, 2022).

It is important to note that our estimates likely understate the full extent of inequity. The analysis focuses only on individuals who have already engaged with the healthcare system and received a diagnosis and mental health treatment plan from a GP. Previous research suggests that individuals in lower-income communities face greater challenges at this initial stage, including lower mental health literacy, stigma, and difficulties navigating care pathways (Knapp et al., 2006; National Mental Health Commission, 2021).

We find little evidence that the observed increase in inequity can be explained by differences in individual characteristics such as gender, age, or case complexity. While telehealth dramatically altered service delivery during the COVID-19 pandemic, it did not substantially change the trajectory of increasing income-related inequity. This is consistent with other studies suggesting that telehealth, particularly video-based services, may replicate existing access issues (Yeatman et al., 2023).

Our findings on psychiatric medication use reveal a different pattern: individuals in lower-income neighbourhoods are much more likely to receive medication without accompanying psychotherapy. We also find that this pro-poor inequity in the use of psychiatric medication instead of psychotherapy increased over the decade from 2014 to 2023, likely reflecting increasing financial and access barriers to psychological care. This is concerning, especially for children, for whom psychiatric medication without psychotherapy is not typically recommended (Hazell, 2022). These patterns are consistent with evidence from other countries showing that individuals from socioeconomically disadvantaged backgrounds are more likely to be treated with medication, possibly due to financial, geographic, or time-related barriers to accessing therapy (Cuddy and Currie, 2020; Niemeyer and Knaevelsrud, 2023; Selinheimo et al., 2023).

Overall, these findings highlight the need for policy responses aimed at improving access to mental healthcare to ensure that mental health support is timely, appropriate, and accessible to all. Reducing out-of-pocket costs for psychotherapy should be a central focus. This could

involve increasing Medicare rebates, introducing targeted subsidies, or expanding low-fee service models. Policies to increase the availability of psychologists in under-served areas, such as rural regions and low-income urban neighbourhoods, are also likely to be important. Given the increasing reliance on psychiatric medication in place of psychotherapy among lower-income populations, greater integration between general practice and psychological services may help ensure that patients receive care aligned with clinical guidelines. Finally, future workforce and service planning should monitor access and equity outcomes directly, to ensure that mental health system reforms are not only increasing capacity overall but improving access for those most in need.

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References

Arnault, Louis, Florence Jusot, and Thomas Renaud. 2024. "Did the COVID-19 pandemic reshape equity in healthcare use in Europe?" *Social Science & Medicine*, 358: 117194.

Australian Bureau of Statistics. 2023. "National Study of Mental Health and Wellbeing (2020-2022)." https://www.abs.gov.au/statistics/health/mental-health/national-study-mental-health-and-wellbeing/2020-2022, Accessed: 2025-03-18.

Australian Bureau of Statistics. 2024*a*. "Autism in Australia, 2022." https://www.abs.gov.au/articles/autism-australia-2022, Accessed: 2025-07-27.

Australian Bureau of Statistics. 2024*b*. "Patient Experiences 2023-24. ABS." https://www.abs.gov.au/statistics/health/health-services/patient-experiences/latest-release, Accessed: 2025-03-15.

Australian Bureau of Statistics. 2025. "Person Level Integrated Data Asset (PLIDA)." https://www.abs.gov.au/about/data-services/data-integration/integrated-data/person-level-integrated-data-asset-plida, Accessed: 2025-04-04.

Australian Institute of Health and Welfare. 2024*a*. "Medicare mental health services." https://www.aihw.gov.au/mental-health/topic-areas/medicare-subsidised-services, Accessed: 2025-04-04.

Australian Institute of Health and Welfare. 2024*b*. "Prevalence and impact of mental illness." https://www.aihw.gov.au/mental-health/overview/prevalence-and-impact-of-mental-illness#ageandsex, Accessed: 2025-04-04.

Australian Institute of Health and Welfare. 2025*a*. "ADHD medications dispensed 2004–05 to 2023–24." https://www.aihw.gov.au/mental-health/topic-areas/mental-health-prescriptions/adhd-medications-dispensed-overtime, Accessed: 2025-07-27.

Australian Institute of Health and Welfare. 2025*b*. "Mental health prescriptions." https://www.aihw.gov.au/mental-health/topic-areas/mental-health-prescriptions#Patient-characteristics, Accessed: 2025-06-10.

Australian Institute of Health and Welfare. 2025*c*. "Mental health services." https://www.aihw.gov.au/mental-health/overview/mental-health-services, Accessed: 2025-06-10.

Australian Psychological Society. 2025. "How much does seeing a psychologist cost." https://psychology.org.au/psychology/about-psychology/what-it-costs, Accessed: 2025-03-07.

Bartram, Mary. 2019. "Expanding access to psychotherapy in Canada: Building on achievements in Australia and the United Kingdom." Vol. 32, 63–67, SAGE Publications Sage CA: Los Angeles, CA.

Bartram, Mary, and Jennifer M Stewart. 2019. "Income-based inequities in access to psychotherapy and other mental health services in Canada and Australia." *Health Policy*, 123(1): 45–50.

Biddle, Nicholas, Robert Breunig, Francis Markham, and Chris Wokker. 2019. "Introducing the Longitudinal Multi-Agency Data Integration Project and Its Role in Understanding Income Dynamics in Australia." *Australian Economic Review*, 52(4): 476–495.

Bijl, Rob V, Ron de Graaf, Eva Hiripi, Ronald C Kessler, Robert Kohn, David R Offord, T Bedirhan Ustun, Benjamin Vicente, Wilma AM Vollebergh, Ellen E Walters, et al. 2003. "The prevalence of treated and untreated mental disorders in five countries." *Health Affairs*, 22(3): 122–133.

Black, Nicole, David W Johnston, and Jemimah Ride. 2025. "Children's access to mental healthcare: parental perceptions and resource constraints." *Social Science & Medicine*, 117853.

Black, Nicole, David W Johnston, Martin Knapp, Michael A Shields, and Gloria HY Wong. 2025. "Horizontal inequity in the use of mental healthcare in Australia." *Health Economics*, 34(2): 297–315.

Black, Nicole, David W Johnston, Michael A Shields, and Trong-Anh Trinh. 2024. "Inequity in child mental healthcare use." IZA Discussion Papers.

Bruffaerts, Ronny, Jose Posada-Villa, Ali Obaid Al-Hamzawi, Oye Gureje, Yueqin Huang, Chiyi Hu, Evelyn J Bromet, Maria Carmen Viana, Hristo Ruskov Hinkov, Elie G Karam, et al. 2015. "Proportion of patients without mental disorders being treated in mental health services worldwide." *The British Journal of Psychiatry*, 206(2): 101–109.

Cookson, Richard, Carol Propper, Miqdad Asaria, and Rosalind Raine. 2016. "Socioeconomic inequalities in health care in England." *Fiscal Studies*, 37(3-4): 371–403.

Cuddy, Emily, and Janet Currie. 2020. "Treatment of mental illness in American adolescents varies widely within and across areas." *Proceedings of the National Academy of Sciences*, 117(39): 24039–24046.

Cuijpers, Pim, Clara Miguel, Mathias Harrer, Constantin Yves Plessen, Marketa Ciharova, Davide Papola, David Ebert, and Eirini Karyotaki. 2023. "Psychological treatment of depression: A systematic overview of a 'Meta-Analytic Research Domain'." *Journal of Affective Disorders*, 335: 141–151.

Currie, Janet, Paul Kurdyak, and Jonathan Zhang. 2024. "Socioeconomic status and access to mental health care: The case of psychiatric medications for children in Ontario Canada." *Journal of Health Economics*, 93: 102841.

Dawadi, Shrinkhala, Frances Shawyer, Emily Callander, Scott Patten, Brendan Johnson, Sebastian Rosenberg, Vinay Lakra, Elizabeth Lin, Helena Teede, Graham Meadows, et al. 2024. "An equity indicator for assessing mental healthcare access: a national population case study." *Epidemiology and Psychiatric Sciences*, 33: e70.

d'Uva, Teresa Bago, Andrew M Jones, and Eddy Van Doorslaer. 2009. "Measurement of horizontal inequity in health care utilisation using European panel data." *Journal of Health Economics*, 28(2): 280–289.

Enticott, Joanne C, Graham N Meadows, Frances Shawyer, Brett Inder, and Scott Patten. 2016. "Mental disorders and distress: associations with demographics, remoteness and socioeconomic deprivation of area of residence across Australia." *Australian & New Zealand Journal of Psychiatry*, 50(12): 1169–1179.

Hashmi, Rubayyat, Khorshed Alam, Jeff Gow, Khurshid Alam, and Sonja March. 2023. "Inequity in psychiatric healthcare use in Australia." *Social Psychiatry and Psychiatric Epidemiology*, 58(4): 605–616.

Hazell, Phillip. 2022. "Antidepressants in adolescence." *Australian Prescriber*, 45(2): 49.

Jui-fen, R Lu, Gabriel M Leung, Soonman Kwon, Keith YK Tin, Eddy Van Doorslaer, and Owen O'Donnell. 2007. "Horizontal equity in health care utilization evidence from three high-income Asian economies." *Social Science & Medicine*, 64(1): 199–212.

Knapp, Martin, Michelle Funk, Claire Curran, Martin Prince, Margaret Grigg, and David McDaid. 2006. "Economic barriers to better mental health practice and policy." *Health Policy and Planning*, 21(3): 157–170.

Kovess-Masfety, Viviane, Julia Van Engelen, Lisanne Stone, Roy Otten, Mauro Giovanni Carta, Adina Bitfoi, Ceren Koc, Dietmar Goelitz, Sigita Lesinskiene, Zlatka Mihova, et al. 2017. "Unmet need for specialty mental health services among children across Europe." *Psychiatric Services*, 68(8): 789–795.

Lam, Janine R, Jessica Tyler, Katrina J Scurrah, Nicola J Reavley, and Gillian S Dite. 2019. "The association between socioeconomic status and psychological distress: a within and between twin study." *Twin Research and Human Genetics*, 22(5): 312–320.

Lopes, Francisca Vargas, Bastian Ravesteijn, Tom Van Ourti, and Carlos Riumallo-Herl. 2023. "Income inequalities beyond access to mental health care: a Dutch nationwide record-linkage cohort study of baseline disease severity, treatment intensity, and mental health outcomes." *The Lancet Psychiatry*, 10(8): 588–597.

Lorant, Vincent, Denise Deliège, William Eaton, Annie Robert, Pierre Philippot, and Marc Ansseau. 2003. "Socioeconomic inequalities in depression: a meta-analysis." *American Journal of Epidemiology*, 157(2): 98–112.

Malhi, Gin S, Erica Bell, Darryl Bassett, Philip Boyce, Richard Bryant, Philip Hazell, Malcolm Hopwood, Bill Lyndon, Roger Mulder, Richard Porter, et al. 2021. "The 2020 Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for mood disorders." *Australian & New Zealand Journal of Psychiatry*, 55(1): 7–117.

Merikangas, Kathleen Ries, Jian-Ping He, Debra Brody, Prudence W Fisher, Karen Bourdon, and Doreen S Koretz. 2010. "Prevalence and treatment of mental disorders among US children in the 2001–2004 NHANES." *Pediatrics*, 125(1): 75–81.

Morris, Stephen, Matthew Sutton, and Hugh Gravelle. 2005. "Inequity and inequality in the use of health care in England: an empirical investigation." *Social Science & Medicine*, 60(6): 1251–1266.

National Institute of Mental Health. 2022. "Mental Illness." https://www.nimh.nih.gov/health/statistics/mental-illness, Accessed: 2025-06-10.

National Mental Health Commission. 2021. "National Children's Mental Health and Wellbeing Strategy."

NHS Digital. 2016. "Adult Psychiatric Morbidity Survey: Mental Health and Wellbeing, England, 2014." Accessed: 2025-06-10.

Niemeyer, Helen, and Christine Knaevelsrud. 2023. "Socioeconomic status and access to psychotherapy." *Journal of Clinical Psychology*, 79(4): 937–953.

Pharmaceutical Benefits Scheme. 2025. "Pharmaceutical Benefits: Fees, Patient Contributions and Safety Net Thresholds." https://www.pbs.gov.au/info/healthpro/explanatory-notes/front/fee, Accessed: 2025-06-10.

Pirkis, Jane, Dianne Currier, Meredith Harris, C Mihalopoulos, V Arya, M Banfield, et al. 2022. "Evaluation of Better Access (Main Report)." *Australian Government—Department of Health, Disability and Ageing*.

Pulok, Mohammad Habibullah, Kees van Gool, and Jane Hall. 2020. "Horizontal inequity in the utilisation of healthcare services in Australia." *Health Policy*, 124(11): 1263–1271.

Reiss, Franziska. 2013. "Socioeconomic inequalities and mental health problems in children and adolescents: a systematic review." *Social Science & Medicine*, 90: 24–31.

Rosenberg, Sebastian, Shin Ho Park, and Ian Hickie. 2022. "Paying the price–out-of-pocket payments for mental health care in Australia." *Australian Health Review*, 46(6): 660–666.

Selinheimo, Sanna, Kia Gluschkoff, Jarno Turunen, Pauliina Mattila-Holappa, Johanna Kausto, and Ari Väänänen. 2023. "Income gradient in psychotherapy use and psychotropic drug purchases: A longitudinal register study in Finnish employed population." *Journal of Psychiatric Research*, 164: 133–139.

Statistics Canada. 2023. "Mental disorders and access to mental health care." https://www150.statcan.gc.ca/n1/pub/75-006-x/2023001/article/00011-eng.htm, Accessed: 2025-06-10.

Watanabe, Ryo, and Hideki Hashimoto. 2012. "Horizontal inequity in healthcare access under the universal coverage in Japan; 1986–2007." *Social Science & Medicine*, 75(8): 1372–1378.

Yang, Ou, and Yuting Zhang. 2025. "Wait Times for Psychiatric Specialist Services in Australia." *JAMA Network Open*, 8(2): e2461947–e2461947.

Yeatman, Thomas, Joanne Enticott, Vinay Lakra, and Graham Meadows. 2023. "Equitable psychiatry, telehealth, and the COVID-19 pandemic: Analysis of national data." *Frontiers in Public Health*, 11: 1014302.

Online Appendix

Table A1: MHTP item numbers used in the analysis

	F2F	Telehealth	
		Video	Telephone
20-40 mins (including GPs without mental health training)	2700	92112	92124 (a)
40 mins (including GPs without training)	2701	92113	92125 (a)
	2702 (a)		
	2710 (a)		
20-40 mins (with training)	2715	92116	92128 (a)
40 mins (with training)	2717	92117	92129 (a)

Notes: Items marked with (a) indicate services that have been discontinued during the analysis period from 2014 to 2023.

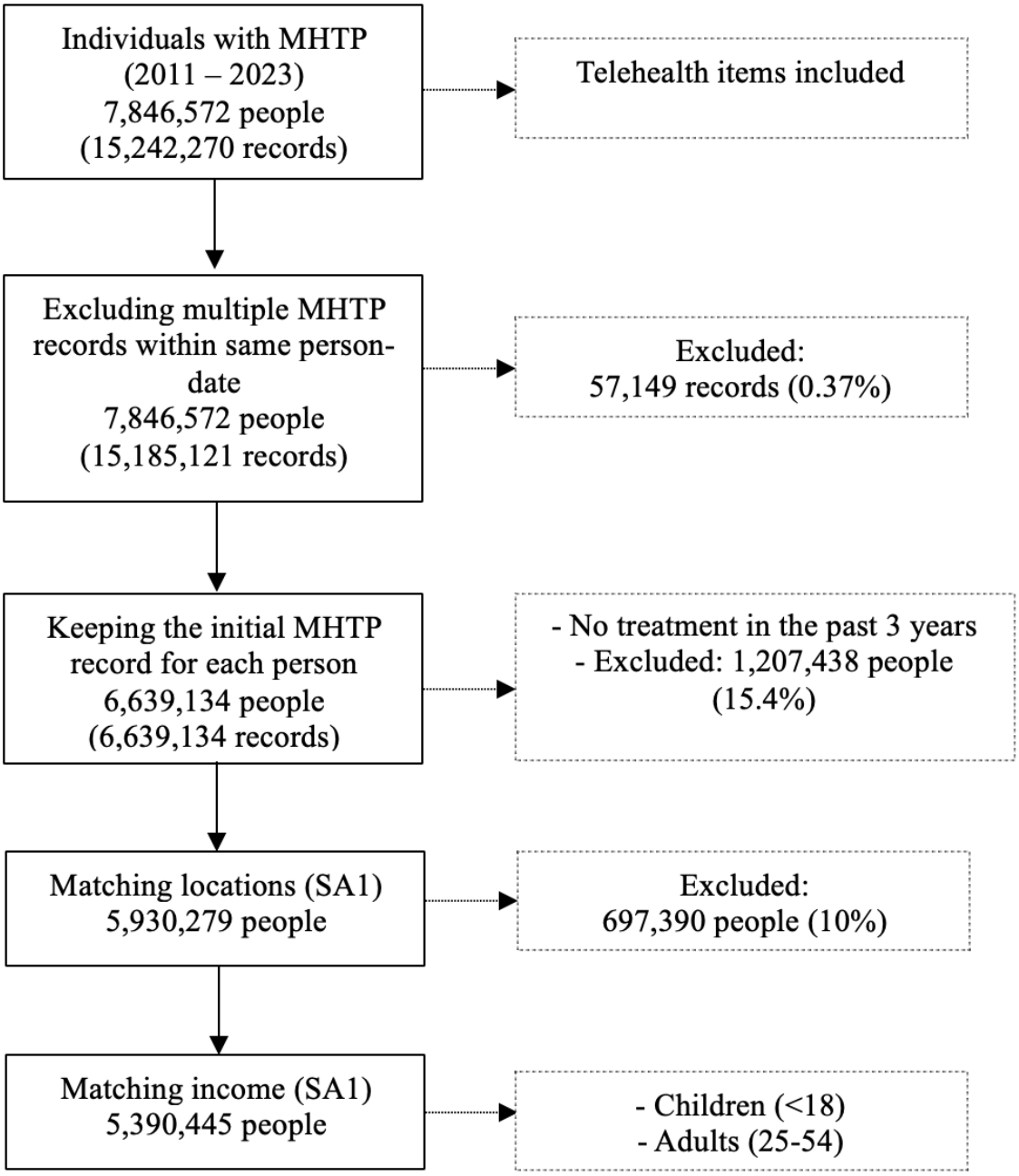


Figure A1: Sample Selection

Table A2: MBS mental health item numbers included in the analysis

		Face to face	Existing/new teleconference	COVID Telehealth Video	Telephone
Clinical psychologists	Psychological therapy - 30-50 mins	80000	80001 (a)	91166	91181
	Psychological therapy - 30-50 mins - other than a consulting room	80005			
	Psychological therapy - at least 50 mins	80010	80011 (a)	91167	91182
	Psychological therapy - at least 50 mins - other than a consulting room	80015			
	Group therapy at least 60 mins	80020	80021		
	Group therapy at least 90 mins	80022 (n)	80023 (n)		
	Group therapy at least 120 mins	80024 (n)	80025 (n)		
General psychologists	FPS - 20-50 mins	80100	80101 (a)	91169	91183
	FPS - 20-50 mins - other place	80105			
	FPS - at least 50 mins	80110	80111 (a)	91170	91184
	FPS - at least 50 mins - other place	80115			
	FPS - group - 60 mins	80120	80121		
	FPS - group - 90 mins	80122 (n)	80123 (n)		
	FPS - group - 120 mins	80127 (n)	80128 (n)		
Occupational therapist	FPS - 20-50 mins	80125	80126	91172	91185
	FPS - 20-50 mins - other place	80130			
	FPS - 50 mins	80135	80136	91173	91186
	FPS - 50 mins - other place	80140			
	FPS - group - 60 mins	80145	80146		
	FPS - group - 90 mins	80147 (n)	80148 (n)		
	FPS - group - 120 mins	80152 (n)	80153 (n)		
Social workers	FPS - 20-50 mins	80150	80151	91175	91187
	FPS - 20-50 mins - other place	80155			
	FPS - 50 mins	80160	80161	91176	91188
	FPS - 50 mins - other place	80165			
	FPS - group - 60 mins	80170	80171		
	FPS - group - 90 mins	80172 (n)	80173 (n)		
	FPS - group - 120 mins	80174 (n)	80175 (n)		

Notes: FPS stands for Focused Psychological Strategies. Items marked with (a) indicate services that have been discontinued, while items marked with (n) represent newly introduced services during the analysis period from 2014 to 2023.

Table A3: Sample descriptives

Children

Year	Sample size	Female	Age	Any psychotherapy services	Any medication
2014	99,999	0.50	11.17	63.11	4.03
2015	111,297	0.50	11.18	62.96	3.84
2016	118,956	0.50	11.12	61.65	3.52
2017	126,816	0.50	11.23	60.74	3.65
2018	126,986	0.51	11.19	59.00	3.55
2019	122,390	0.52	11.26	56.37	3.56
2020	121,152	0.56	11.61	51.41	4.31
2021	111,003	0.59	11.74	45.16	4.31
2022	96,752	0.57	11.47	44.95	4.17
2023	94,347	0.56	11.21	44.87	3.71

Adults

Year	Sample Size	Female	Age	Any psychotherapy services	Any medication
2014	285,319	0.60	38.31	57.90	17.75
2015	298,027	0.59	38.16	58.01	17.07
2016	311,071	0.58	38.05	57.09	16.24
2017	319,703	0.59	38.04	56.33	15.38
2018	301,710	0.58	38.06	56.01	15.04
2019	291,666	0.57	37.87	54.50	14.45
2020	266,854	0.58	37.71	53.14	14.25
2021	235,182	0.58	37.66	47.70	13.27
2022	187,760	0.57	37.77	48.69	13.43
2023	177,855	0.56	38.09	47.89	12.77

Table A4: Summary statistics - Income quintiles

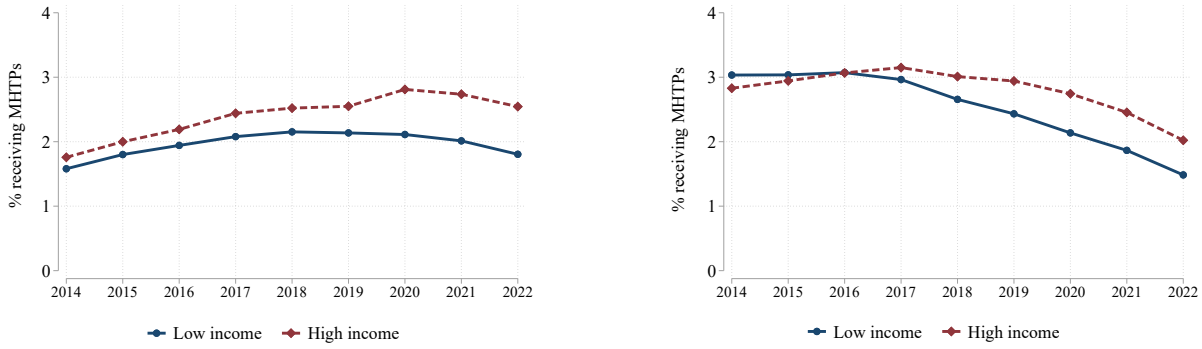
Children

Year	SA1 Income - Quintiles				
	Q1	Q2	Q3	Q4	Q5
2014	26,449	36,970	44,143	52,369	73,469
2015	27,572	38,474	45,953	54,439	76,264
2016	28,285	39,630	47,351	56,114	78,490
2017	29,222	40,816	48,833	57,692	80,591
2018	30,001	41,991	50,104	59,017	81,728
2019	30,892	43,220	51,404	60,340	82,100
2020	32,139	44,927	53,407	62,723	84,724
2021	34,165	47,312	56,261	66,077	89,691
2022	37,624	51,684	61,150	71,706	97,417
2023	39,492	54,136	64,163	75,220	102,576

Adults

Year	SA1 Income - Quintiles				
	Q1	Q2	Q3	Q4	Q5
2014	26,317	36,909	44,069	52,265	72,708
2015	27,342	38,425	45,898	54,409	75,510
2016	28,197	39,583	47,299	56,034	77,536
2017	29,075	40,797	48,761	57,614	79,573
2018	30,004	41,968	50,057	58,964	80,885
2019	31,020	43,182	51,377	60,273	81,242
2020	32,181	44,752	53,269	62,520	83,294
2021	34,073	47,257	56,190	65,976	88,295
2022	37,321	51,451	60,954	71,487	96,308
2023	39,226	54,070	64,099	75,084	101,694

Notes: This table presents the average income of each quintile by year.



(a) Children **(b)** Adults

Figure A2: Selection in MHTP

Notes: This figure shows the proportion of individuals with a MHTP by income group. Low and high income refer to the lowest (Q5) and highest (Q1) income quintiles, respectively.

Table A5: Number of MHTPs over time

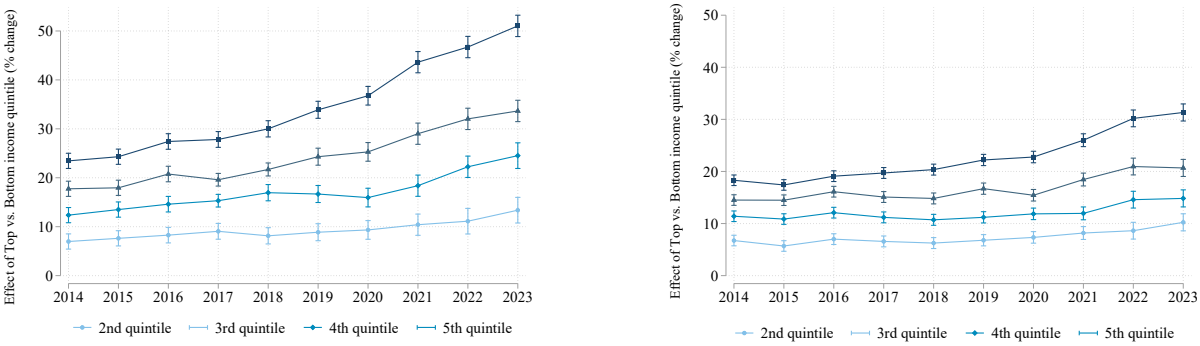
Year	Children	Adults
2011	106,353	450,452
2012	126,311	460,058
2013	145,453	508,435
2014	163,244	560,729
2015	183,939	600,001
2016	199,313	644,538
2017	216,590	677,082
2018	228,769	702,219
2019	232,922	738,752
2020	242,408	760,268
2021	232,473	739,383
2022	213,092	677,738
2023	208,184	688,977

Notes: The number of MHTPs issued over time, separately for children and adults.

Table A6: Estimated income-related inequity - Coefficient estimates

	Children			Adults		
Year	**Coef. Est.**	**Std. Err.**	**% Change**	**Coef. Est.**	**Std. Err.**	**% Change**
2014	0.148	0.005	23.452	0.106	0.003	18.306
2015	0.153	0.005	24.302	0.101	0.003	17.410
2016	0.169	0.005	27.414	0.109	0.003	19.091
2017	0.169	0.005	27.826	0.111	0.003	19.705
2018	0.177	0.005	30.000	0.114	0.003	20.353
2019	0.191	0.005	33.886	0.121	0.003	22.202
2020	0.189	0.005	36.763	0.121	0.003	22.772
2021	0.197	0.005	43.620	0.124	0.003	25.998
2022	0.210	0.005	46.716	0.147	0.004	30.188
2023	0.229	0.005	51.038	0.150	0.004	31.325

Notes: These represent the coefficient estimates for β_5 from Equation 1. All estimates adjust for state fixed effects and gender-by-age fixed effects. % change is the coefficient estimate divided by the outcome mean.



(a) Children **(b)** Adults

Figure A3: Inequity across income quintiles

Notes: This figure presents the coefficient estimates and 95% confidence intervals from Equation 1, expressed as a percentage relative to the sample mean. Reference group is the first quintile. All estimates adjust for state fixed effects and gender-by-age fixed effects.

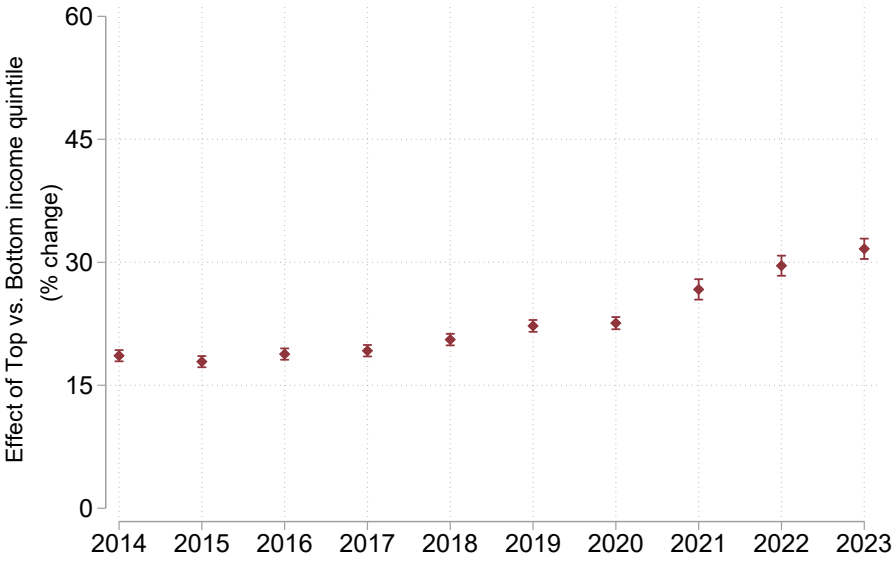


Figure A4: Income inequity in psychotherapy use over time: All adults aged 18 and above

Notes: This figure presents the coefficient estimates and 95% confidence intervals for β_5 from Equation 1, expressed as a percentage relative to the sample mean. These represent the likelihood of receiving mental healthcare among individuals in the highest income quintile (Q5), compared to those in the lowest (Q1), conditional on having a MHTP. All estimates adjust for state fixed effects and gender-by-age fixed effects.

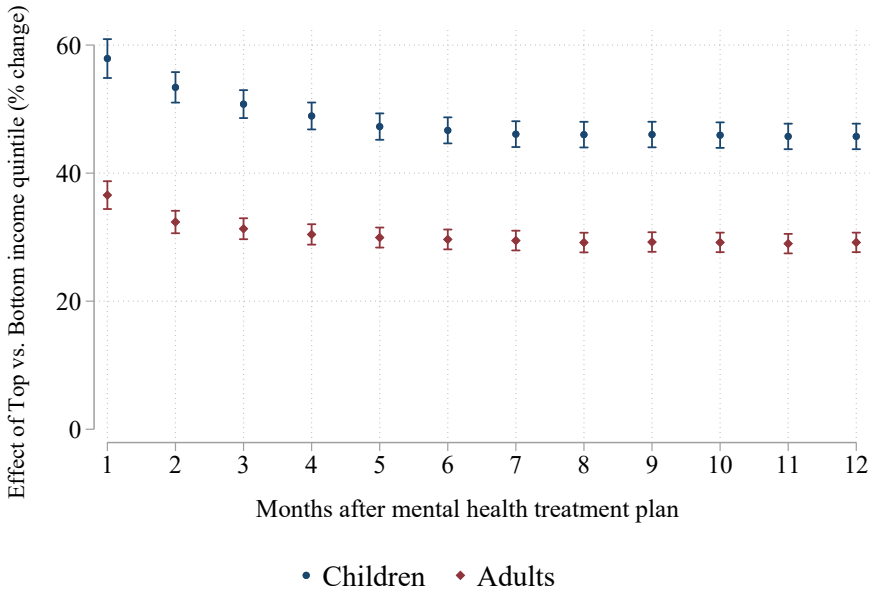


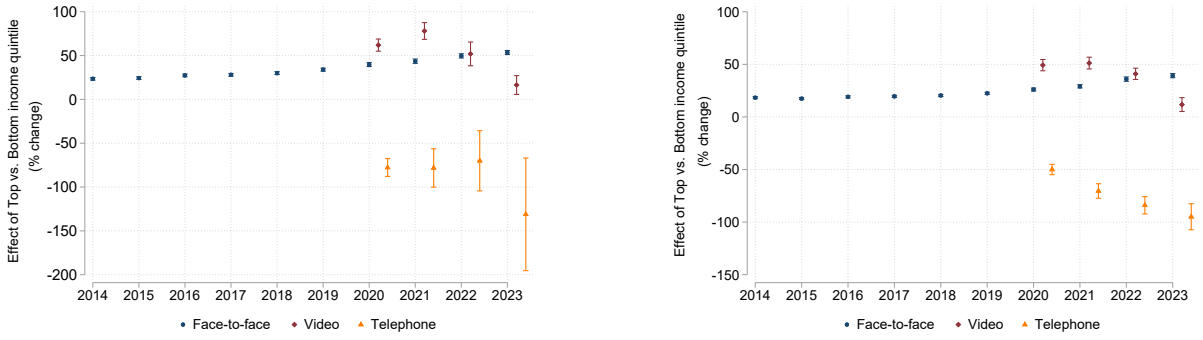
Figure A5: Alternative windows

Notes: This figure presents the coefficient estimates and 95% confidence intervals for β_5 from Equation 1, using alternative time windows ranging from 1 to 12 months for 2023. These represent the likelihood of receiving mental healthcare among individuals in the highest income quintile (Q5), compared to those in the lowest (Q1), conditional on having a MHTP. All estimates adjust for state fixed effects and gender-by-age fixed effects.

Table A7: Number of mental health services and average out-of-pocket costs for face-to-face and telehealth consultations

Year	Number of observations			Average out-of-pocket cost		
	Face-to-face	Telehealth		Face-to-face	Telehealth	
		Video	Telephone		Video	Telephone
2014	4,353,083			30.2		
2015	4,782,862			32.2		
2016	5,156,658			34.1		
2017	5,426,950			36.8		
2018	5,763,077			40.2		
2019	5,966,942			45.2		
2020	4,458,487	1,145,273	560,615	50.4	41.5	13.1
2021	4,501,651	1,168,998	454,737	58.3	60.5	20.1
2022	4,165,344	1,166,361	386,426	67.1	67.0	22.9
2023	4,887,055	1,012,672	277,933	70.9	65.0	22.4

Notes: This table presents the number of mental health services and average out-of-pockets costs for all mental health items from 2014-2023.



(a) Children **(b)** Adults

Figure A6: Income inequity by type of service

Notes: This figure presents the coefficient estimates, expressed as a percentage relative to the sample mean, separately for face-to-face, video and telephone based services. These represent the likelihood of receiving mental healthcare among individuals in the highest income quintile (Q5), compared to those in the lowest (Q1), conditional on having a MHTP. All estimates adjust for state fixed effects and gender-by-age fixed effects.

Table A8: List of medications and their classifications

ATC Code	Drug Name	Drug Class
N05BA01	diazepam	Anxiolytics
N05BA04	oxazepam	Anxiolytics
N05BA12	alprazolam	Anxiolytics
N06AA02	imipramine	Antidepressants
N06AA04	clomipramine	Antidepressants
N06AA09	amitriptyline	Antidepressants
N06AA12	doxepin	Antidepressants
N06AB03	fluoxetine	Antidepressants
N06AB04	citalopram	Antidepressants
N06AB05	paroxetine	Antidepressants
N06AB06	sertraline	Antidepressants
N06AB08	fluvoxamine	Antidepressants
N06AB10	escitalopram	Antidepressants
N06AG02	moclobemide	Antidepressants
N06AX	other	Antidepressants
N06AX03	mianserin	Antidepressants
N06AX11	mirtazapine	Antidepressants
N06AX16	venlafaxine	Antidepressants
N06AX18	reboxetine	Antidepressants
N06AX21	duloxetine	Antidepressants
N06AX23	desvenlafaxine	Antidepressants