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Dynamics of mental health and health care use among children and young adults*

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Abstract

Despite adolescents' and young adults' high rates of mental disorder, treatment utilisation is low. Using Australian longitudinal administrative and survey data, we show an increasing proportion accessing nervous system scripts as they age. Younger cohorts have increasingly accessed these scripts earlier; usage is generally higher among disadvantaged groups and in regions with better mental health service access. Less than half of all young adults facing very high psychological distress in 2018 had recently accessed mental health care. Instead of professional help, young people seek friends and family for help with personal and emotional problems.

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1. Introduction

The mental health and wellbeing of young people is critical, particularly as chronic mental illnesses often emerge during childhood and adolescence; years which can shape individuals' lifetime trajectories. Children's social and emotional development is underpinned by good mental health and can be consequential not only for the children themselves, but also for their peers, families and broader communities. The transition to adulthood involves several milestones that young people may find challenging as they complete their education, enter the workforce, and form relationships and families. In addition, young people often face barriers in accessing the support they need. It is crucial that we understand the mental health and health care use patterns among young Australians, their determinants including the barriers they face in accessing mental health care. In this study, we discuss the potential barriers that children might face, and show empirical evidence on the prevalence of mental health problems and the dynamics of mental health care use, differentiating age from potential cohort effects. We also shed light on help seeking behaviour of young people.

This is also important due to the potentially large economic implications of mental ill-health. The annual costs of mental illness to the economy in Australia have been estimated to be up to \$70 billion, and the costs of disability, premature death due to mental ill-health, suicides and self-harm are estimated to be an additional \$151 billion (Productivity Commission, 2020). Large cost savings are thus expected if mental health problems could be prevented or reduced by early intervention and treatment during childhood or adolescence.

Our understanding of the prevalence of mental disorders in Australia is primarily based on a program of epidemiological surveys. The 2015 Australian Child and

Adolescent Survey of Mental Health and Wellbeing showed that 14 per cent of 4 to 17 year-olds were identified as having a diagnosable mental disorder in the past year, with Attention-Deficit/Hyperactivity Disorder and Anxiety disorders the most common (Lawrence *et al.*, 2015). The most recent adult National Survey of Mental Health and Wellbeing estimated that one quarter of 16 to 24 year-olds and one in five 16 to 85 year-olds had experienced a mental disorder in the past year and showed that adolescence and early-adulthood was the period of life with the highest rates of mental disorders (Australian Bureau of Statistics, 2007). In addition, self-harm/suicide is the leading cause of death among Australians aged 15 to 44 years (Australian Bureau of Statistics, 2019a).

There is mixed evidence about whether population mental health has been getting worse over time. Much of the epidemiological literature shows stability in the prevalence of mental disorders (Baxter *et al.*, 2014). However, a number of recent studies suggest that rates of mental disorders and psychological distress are increasing, particularly among young people. For example, in the analysis of time series data from the United States, Twenge *et al.* (2019) found that rates of major depressive disorders rose from 8.7 to 13.2 per cent for adolescents across 2005-17, and from 8.1 to 13.2 per cent for young adults across 2009-17. Interestingly, no comparable increase was found in older adults. In Australia, analysis of the HILDA Survey has shown a similar pattern of worsening mental health concentrated in young adults (Burns *et al.*, 2020; Butterworth *et al.*, 2020) and the past decade has seen significant increases in the rates of suicide remains among Australians under 25 years (Hill *et al.*, 2020). It has been hypothesised that these trends could be due to cultural changes, such as the increasing role of technology and screen time in influencing mental and wellbeing of young people, particularly amid the rise and prevalent use of social media (Lin *et al.*, 2016; Twenge *et al.*, 2019; Keles *et al.*, 2020).

In addition to these concerning trends of mental health in young people, and despite the highest prevalence of mental disorders in adolescence and early rather than late adulthood (Rickwood *et al.*, 2007; Australian Bureau of Statistics, 2007), access to treatment usually only occurs years later (Kessler *et al.*, 2007). In Australia, it has been previously shown that only 29 per cent of children and adolescents with a mental health problem had sought professional help within a 12-month time frame

(Rickwood *et al.*, 2007). This lack of help-seeking behaviour was one factor behind the rollout of *headspace* centres in Australia starting in 2006. These *headspace* centres were specifically designed to improve mental health care access of young people by providing a youth friendly, non-stigmatising and integrated approach to engage young people in mental health care (Rickwood *et al.*, 2015).

While this investment in accessible youth mental health services in Australia has been a promising step in reducing barriers to mental health care, understanding the reasons for the enduring treatment gap is important to reduce the burden of mental health in the community. Furthermore, even for those who access services, it is unclear whether the type and quality of treatment they receive is the same. Treatment usually consists of either medication use, psychotherapy or a combination of both. Typically, psychotherapy rather than medication use is the recommended first line of treatment for depressive disorders in children and adolescents (Therapeutic Goods Administration, 2020; Malhi *et al.*, 2021). While the use of medications, especially prescribed by a General Practitioner (GP), could easily broaden access for some form of mental health care treatment, there is also the potential for tension between access and quality of care (Olfson *et al.*, 2014).

Using national survey-linked administrative datasets, we show that there is a significant proportion of children with mental health care needs, and that younger cohorts are increasingly accessing prescription medicines for treatment of mental health disorders as well as mental health services at younger ages. While the proportion of those accessing nervous system scripts plateaus across most cohorts to some fixed proportion as they age, for some groups, including Aboriginal and Torres Strait Islander peoples (ATSI) and those living in socioeconomically disadvantaged regions, the proportion accessing nervous system scripts continues to rise well into their late 20's. There is a large proportion of young people who report having considered or attempted self-harm or suicide (22.7 per cent at age 18-19 in 2018). Around a third of young adults aged 18-19 in 2018 were in the high or very high-risk category of mental distress according to the Kessler-10 score. Even among those in the very high category, the majority had not accessed any mental health services over a 12-month period between 2016—17. Furthermore, of those in high need that did access mental health care, around one in ten used a mental health script without

accessing a Medicare-subsidised mental health service including those provided by GPs, psychologists or psychiatrists. Instead, young people often rely on pre-existing relationships and informal sources of support, with the vast majority having turned to friends and family for personal and emotional problems. Although social support from these sources likely remain a valuable protective factor that is readily accessible for many adolescents and young adults, there is a substantial opportunity to improve access and utilisation of professional mental health services among the most vulnerable young Australians.

2. Barriers to accessing mental health care

The mental health care system in Australia is complex: The Commonwealth funds primary care and specialist services through the Medicare Benefits Schedule (MBS) and medications through the Pharmaceutical Benefit Scheme (PBS), while the States fund hospital and most community care. Beyond these, privately funded services are also available. However, the lack of engagement among young people with these more formal services has led to the funding of additional community, educational and workplace programs including headspace (targeted at young people), crisis helplines and online programs. Thus, young people and their parents have to navigate a complex system, and may enter the Australian mental health care system through many alternative pathways and the treatment and support they receive may vary widely. There is limited evidence, however, on the extent to which these different services and supports improve both short and long-term mental health, and there still remains a substantial treatment gap with many if not the majority of those with mental ill health not seeking or receiving treatment.

In addition to a complex mental health care system, cost sharing policies, such as co-payments, could deter families with low income to access health care for their children (Nilsson and Paul, 2018), including mental health care. In addition to financial factors, social and cultural factors can also influence the use of mental health care. In particular, stigma and negative perceptions surrounding mental illness and preferences for self-reliance may deter young adults from seeking help (Gulliver *et al.*, 2010; Salaheddin and Mason, 2016). Seeking help for mental health care may be particularly difficult for individuals and groups that experience prejudice and discrimination. For example, sexual minorities are less likely to use primary health

care in stigmatising environments (Saxby *et al.*, 2020) and a lack of cultural inclusivity and experiences of racism might be associated with reduced health-seeking in ATSI (Shephard, 2006; Si *et al.*, 2006).

Aside from more social and cultural factors, it could be difficult for parents to distinguish between temporary changes during child development and more persistent changes in behaviour (McGorry and Goldstone, 2011), which might be particularly problematic for younger children who heavily rely on their parents to access health care. Self-recognition of symptoms is also difficult and previous studies have demonstrated that young people are less likely to seek help for mental health if they have low levels of mental health literacy and lack awareness about what resources are available (Rickwood *et al.*, 2007).

In addition to factors that influence help seeking behaviour, some socioeconomic groups may find it difficult to access the services they need even if they actively seek help. For example, there is a limited number of mental health care specialists in rural and remote areas in Australia (Productivity Commission, 2020). Additionally, families from culturally and linguistically diverse (CALD) backgrounds can struggle to find services for their children provided in their language (Department of Health, 2018; Hiscock *et al.*, 2020).

3. Empirical evidence on dynamics in Australia

3.1 Data Description

This analysis sources data from two key survey-linked-administrative datasets: the 2011–2016 Cohorts of the Multi Agency Digital Infrastructure Project (MADIP) Basic Longitudinal Extract (BLE), and the Longitudinal Study of Australian Children (LSAC).

The MADIP BLE sample contains information on the 2016 Census population linked to administrative data on annual utilisation of government-subsidised prescription medicines and medical services from 2011 to 2016 (Australian Bureau of Statistics,

2019b)).¹ As data on prescription medicines is provided at the Anatomical Therapeutic Chemical (ATC) groups level, the key category of interest is nervous system scripts, which primarily comprise antidepressants and anti-anxiety medication (Department of Human Services, 2019). Analysing 2-year cohorts (based on their age at the 2016 Census) from those roughly born between 1986-87 to 2000-01, we analyse the proportion of people that access nervous system scripts between the ages of 10 and 30. We also explore heterogeneous patterns by gender and across key groups of interest: ATSI, regional disadvantage (as measured by the Index of Relative Socioeconomic Disadvantage, IRSD), and access to psychologists (as measured by the density of psychologists in a given Statistical Area 3 region², as per Saxby *et al.* (2020)).

While the MADIP BLE data contains administrative data at the individual level for the whole 2016 Census population, it only provides medication information at the aggregate drug class level, such as any nervous system scripts rather than more specific classes of medications or specific mental health related service use, such as psychologist visits. It also does not contain information on the actual mental health status of respondents. We therefore complement this information with more detailed information from the LSAC survey, which is a biennial survey of over 10,000 children in Australia with detailed information on their mental health and socioemotional development and is linked to Medicare data on their medication and service use. Beginning from 2004, two representative cohorts are followed: a Birth (B) cohort who were born between 2003-04, and an older Kindergarten (K) cohort who were born between 1999-2000. Information on the study children, along with

¹ It should be noted that data on government-subsidised prescriptions excludes over-the-counter medicines and prescriptions for public hospital inpatients (Mellish *et al.*, 2015). However, over-the-counter is of little concern as most nervous system scripts for mental health treatment require a prescription. Furthermore, only since April 2012 are medications below the co-payment threshold recorded in the PBS (Mellish *et al.*, 2015). Subsequently, individuals accessing any mental health related scripts in the years prior may represent an underestimate if a significant proportion had accessed under co-payment prescriptions for mental health. However, in 2011-12, a small proportion (less than 28%) of all dispensed prescriptions for mental health-related medications were estimated to be under co-payment (Australian Institute of Health and Welfare, 2012).

² The number of psychologists is determined based on the occupation code reported at the time of the 2016 Census.

their families, are collected through to 2018 (and ongoing) over 8 waves via interviews with parents, teachers/carers, and the children themselves once they grow old enough.

We make use of the detailed linked Medicare information in the LSAC which is available for most children -- 93 per cent with complete parental consent forms were successfully linked at wave 1. Over time, the number of study children with available Medicare information changes, in part, as study children leave/re-enter the LSAC survey or change their consent to linkage some time later.

This Medicare-linked information for the LSAC dataset is available from May 2002 through to March 2017. Beginning from April 2013, further detailed information is available on the ATC classification codes of medicines subsidised under the PBS, allowing us to identify subcategories of nervous system scripts that are used to address mental health. These include antidepressants, anxiolytics, hypnotics/sedatives, antipsychotics, and psychostimulants/nootropics. Due to this later availability of ATC codes, our PBS analysis is restricted to the period between April 2013 to March 2017, corresponding to waves 6 and 7 of the survey. We also have information on the mental health services (provided by clinical/other psychologists, GPs/ Other Medical Practitioners (OMPs), psychiatrists, or other allied health professionals) that children accessed. Since a number of mental health items were only introduced to the MBS from 2006 onward, we restrict our analysis of the MBS data accordingly.³

We also investigate more informal self-reported help seeking behaviour collected in the LSAC survey. Study children from ages 14/15 and above for both cohorts were asked whether they had sought help for a personal or emotional problem from different sources (parents, friends, teachers, mental health professionals, etc.) over the past twelve months. Responses flexibly allow for multiple sources of help to be selected.

We also use various mental health related measures (Kessler-10 (K10), the emotional symptoms subscale of the Strengths and Difficulties Questionnaire (SDQ) and

³ Mental health service usage prior to 2006 is likely very low, as the B cohort is around age 2, and the K cohort is around age 6.

information on suicidal ideation and self-harm) in the LSAC to describe children's mental health status and explore how these are associated with their mental health service use. We use alternative mental health related measures because mental health is captured in different ways at different ages. The Kessler-10 score measures psychological distress across 10 questions. These involve asking how often over the past four weeks that the individual felt hopeless, nervous, worthless, etc., with responses given over a Likert scale ranging from 1 ("none of the time") to 5 ("all of the time"). K10 scores are the sum of these questions, and range from 10 to 50. Groups are then defined by score: low (10-15), moderate (15-21), high (22-29) and very high (30-50) levels of distress. The K10 has only been collected once so far for the K cohort in 2018, as the instrument was not primarily developed for younger children and adolescents. To identify study children and adolescents who are likely to have emotional problems as a reflection of poor mental health, we refer to the emotional symptoms subscale of the SDQ. The SDQ is a validated screening measure (Hiscock *et al.*, 2020) and is a widely used questionnaire for assessing child mental health problems (Goodman *et al.*, 2010). We refer to the parents' report of the child's emotional problems measured as a score between 0-10 of increasing symptoms. This score is underpinned by five items about whether the child's behaviour can be described as "nervous or clingy in new situations", "often unhappy, down-hearted or fearful", etc., across a three-point scale of 1 "not true", 2 "sometimes true" and 3 "certainly true". The SDQ emotional symptoms score is produced as the average of these responses which are rescaled to a 0--10 range, and following Hiscock *et al.* (2020), we classify scores at or above 5 to reach a clinical range of emotional symptoms. The SDQ is asked at every wave but excludes the K cohort in 2018; consequently, we focus on data for both cohorts from 2016 for the analysis. We also have information on suicidal ideation and self-harm from children aged 14/15 years and above for both cohorts. Respondents were asked whether over the past 12 months they had "thought about hurting yourself on purpose in any way", "ever seriously consider attempting suicide", or "make a plan about how you would attempt suicide"; any affirmative response constitutes ideation of self-harm or suicide. Respondents were also asked if over this time period they had "hurt yourself on purpose in any way" and "how many times did you actually attempt suicide", by which we measured an attempt at self-harm or suicide.

3.2 Evidence from MADIP

Figure 1 shows the mean proportion of individuals accessing a nervous system script for each birth cohort as they age from 2011 to 2016 and across different subgroups of interest; namely by gender, ATSI status, levels of psychologist access; and socioeconomic disadvantage.

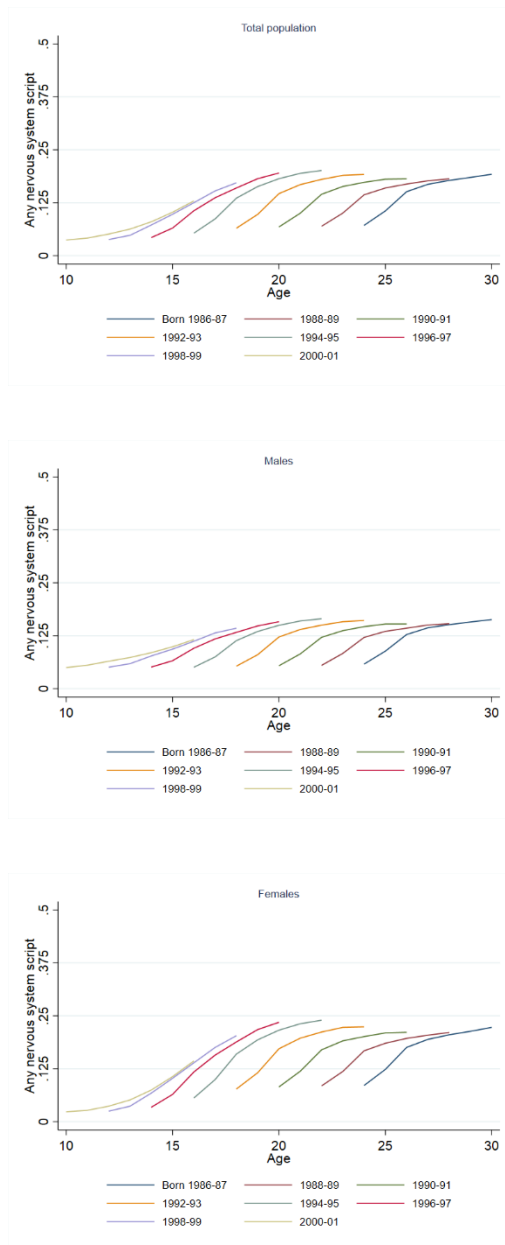
Overall, in the total population (top left figure) we observe that there are clear age and cohort differences. We see a steep increase in the proportion of individuals with nervous system scripts as each cohort ages. But this steep increase in use has been happening at earlier ages for each younger cohort. The increase in nervous script use for those born in 1986-87 mainly occurred between the ages 24 to 26 years while the large increase in use happened between 13 and 17 years old for those born between 1998 and 2001. Thus, a higher proportion of younger cohorts were accessing nervous system scripts at each age, suggesting a cohort trend towards increased use at younger ages among younger cohorts. The gender subgroups reveal that the steep increases in any use of nervous system scripts are particularly attributable to use in females.

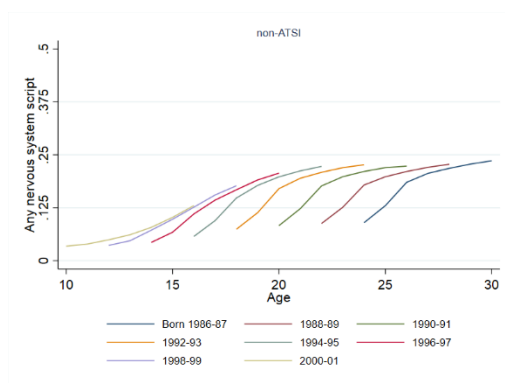
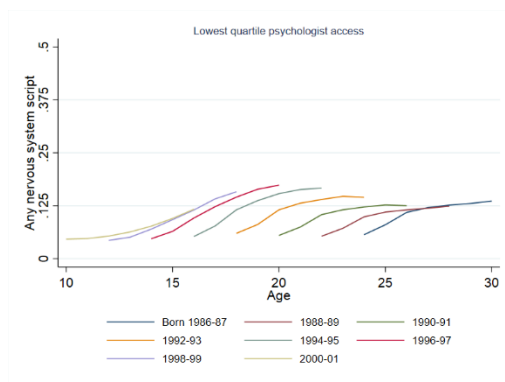
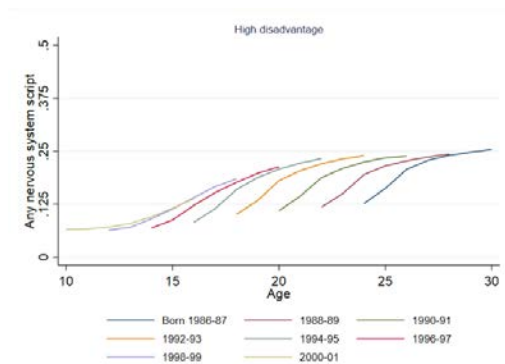
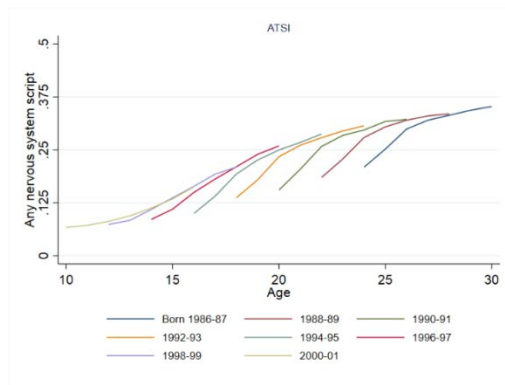
Relative to the non-ATSI population, ATSI are significantly more likely to use any nervous system script, with the proportion of ATSI people accessing any nervous system script continuing to rise with age such that nearly 37 per cent of 30 year olds in the oldest cohorts had filled a nervous system script.⁴ This is in contrast to the non-ATSI population, whereby use starts to plateau at 25 per cent regardless of the cohort. Again, in terms of cohorts, younger ATSI cohorts are using more nervous system scripts at younger ages. The proportion of individuals using any nervous system script is higher in regions with greater socioeconomic disadvantage than those living in regions with less disadvantage though we see that the increasingly younger escalated use of nervous system scripts is similar across these groups. This is consistent with previous research indicating that those living in more socioeconomically disadvantaged areas have poorer mental health (Delgadillo *et al.*, 2016). Compared to those living in regions with the lowest access to psychologists, a higher proportion of young Australians living in regions with greater access to psychologists (which likely

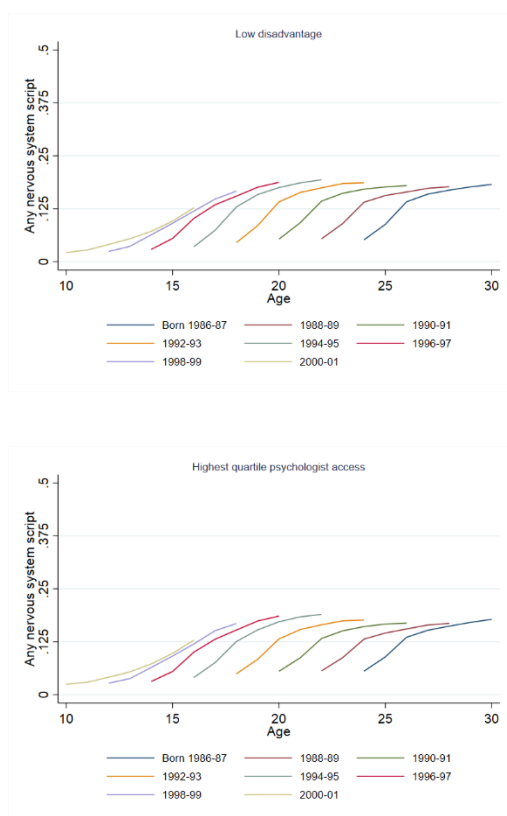
⁴ We may underestimate pharmaceutical use of ATSI people due to the special arrangements for the supply of pharmaceuticals to clients of Remote Area Aboriginal Health Services.

proxies high access to mental health services in general and is correlated with less rurality) access nervous system scripts, though we see that that gap in use is the largest in the older cohorts.

Figure 1 – Mean proportion of individuals accessing a nervous system script per year by age and birth cohorts for total population, males and females; ATSI and non-ATSI; levels of psychologist access; levels of disadvantage.







Note: MADIP data. As an example, cohort 1986-87 includes those who were either 29 or 30 at the time of the 2016 Census. Thus, the first and last points only estimate the proportions accessing scripts for a proportion of the cohort.

3.3 Evidence from LSAC

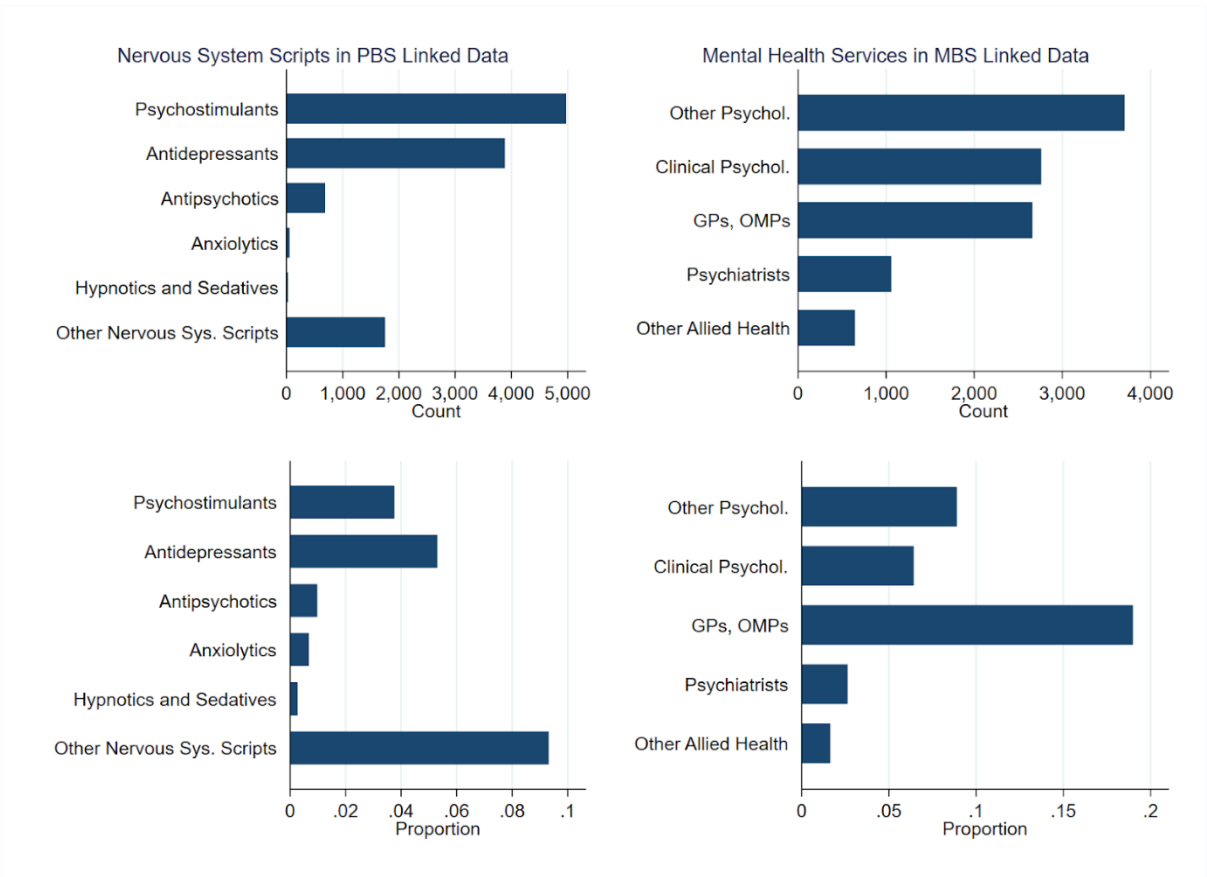
The LSAC survey and its linked Medicare information help depict a detailed picture of the types of mental health related scripts and mental health services accessed by children and adolescents for the B cohort (who were born 2003/04) and the K cohort (who were born in 1999/2000). The K cohort in the LSAC data overlaps with the youngest two cohorts in the graphs in Figure 1 using the MADIP data, while the B cohort is not present in Figure 1. The tables and figures presented from the LSAC in this section are weighted using the cross-sectional weights provided by the LSAC to preserve the sample's representativeness at wave 1.

Figure 2 shows the relative prevalence of mental health service use as well as those nervous system scripts that are used for the treatment of mental health disorders (across April 2013-March 2017), respectively.⁵ Psychostimulants and antidepressants

⁵ Items relating to pediatrics in the MBS during this timeframe are not considered to be directly related to mental health and are therefore not included in our mental health service categories.

are common nervous system scripts administered to the LSAC sample. Although a larger proportion of the sample had received other nervous system medications, the total count of these is lower, indicating less frequent or repeated use as compared to psychostimulants and antidepressants. Mental health services among psychologists (clinical or otherwise), general practitioners, and OMPs are common service categories. Once again, despite the prevalence of services by GPs and OMPs which often involve mental health treatment plans, the higher count of services with psychologists suggests repeated use of these mental health services among a smaller group in the sample.

Figure 2 – Relative prevalence of types of mental health related scripts and services



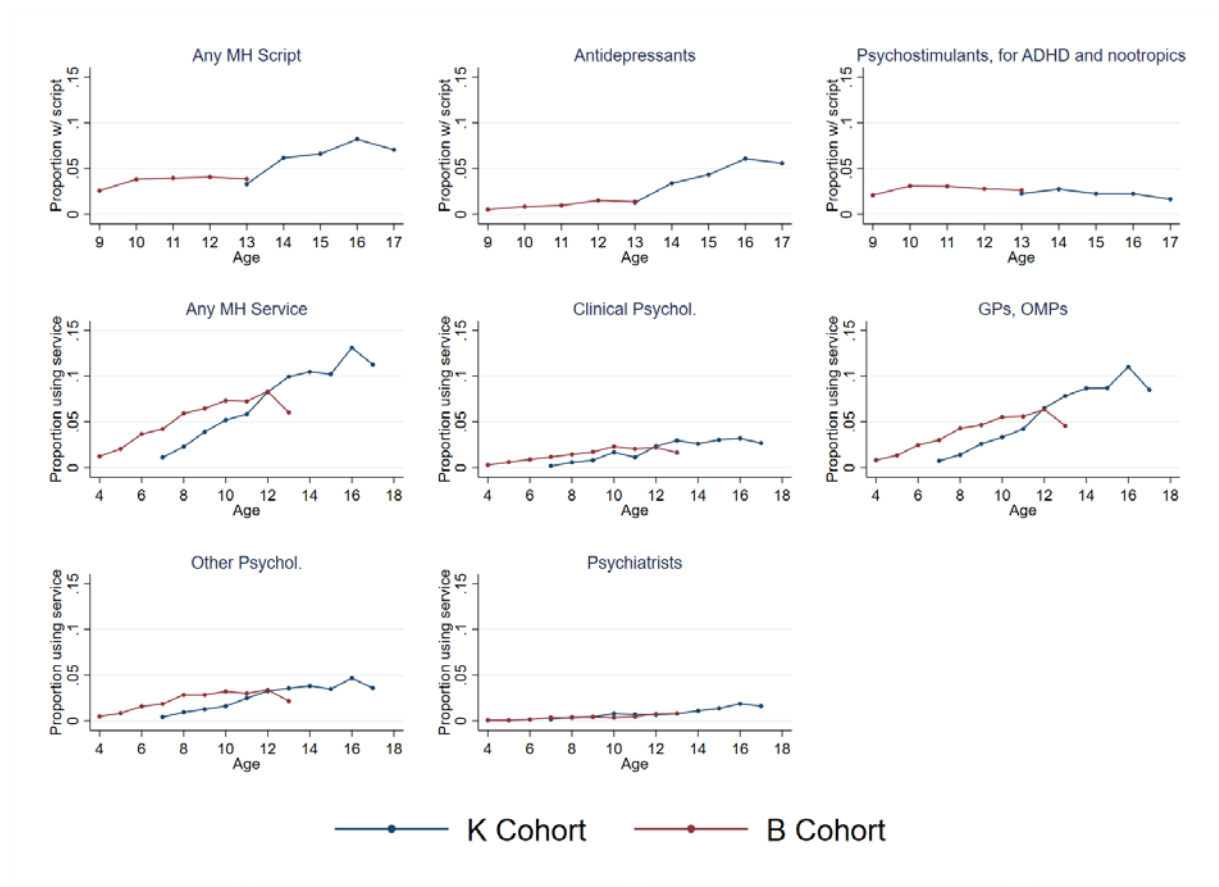
Note: Linked LSAC-Medicare data. Top panels display the weighted number of nervous system scripts and mental health services for LSAC study children ($N=3768$ from the B cohort and $N=3620$ for the K cohort) with PBS-linked and MBS-linked data between April 2013—March 2017. Bottom panels display the weighted proportion of LSAC study children with linked data that have accessed the corresponding nervous system scripts or mental health services. The nervous system scripts follow the “N” anatomical main group of the ATC Classification System. Other Nervous System Scripts are all nervous system scripts excluding the groups of mental health related scripts listed here.

Figure 3 compares cohorts, displaying at each age the weighted proportion who have had any usage (the extensive margin) of mental health related scripts (comprising of

antidepressants, anxiolytics, hypnotics/sedatives, antipsychotics, and psychostimulants)⁶ accessed through the PBS and any mental health services (provided by clinical/other psychologists, GPs/OMPs, psychiatrists, or other allied health professionals) accessed through the MBS. We also show the development of the most common mental health related scripts (antidepressants and psychostimulants) and mental health services (clinical psychologists, GPs/OMPs, other psychologists, psychiatrists). Graphs corresponding to mental health services begin from 2006, when the Australian government's Better Access program expanded the list of items in the MBS. In Figure 3, a narrow overlap in ages (at age 13) is observable for the mental health related script information (across the top three panels), showing that the younger B cohort in 2016/17 (at age 13) accesses such medications at very similar rates to the older K cohort in 2012/13 (at age 13). In contrast however, the remainder of the figure displays the use of mental health services (which overlap across a longer time frame due to the availability of MBS data), which indicates that the younger B cohort is accessing mental health services at much earlier ages than the older K cohort. Some of this increase in use may be related to additional mental health related items being made available on the MBS. As the linked data are available up until March 2017, the data points for the most advanced ages for each cohort (age 13 for the younger cohort and age 17 for the older cohort) may be understating actual usage as fewer respondents in each cohort have reached this age and are observed using mental health services during a 12-month period.

⁶ The proportion of children from the K cohort (born 1999-2000) with any ATC-classified "N" nervous system script at age 16 is close to 15 per cent in the LSAC (not shown). This is comparable to the Census-linked administrative data, where we found that around 13 per cent of those aged 16 from the cohorts 1998-99 and 2000-01 are accessing nervous system scripts (Figure 1).

Figure 3 – PBS/MBS usage over age, by LSAC cohorts.



Note: Linked LSAC-Medicare data. The above graphs display weighted proportions for the K cohort (N=4814) and the B cohort (N=4874) with linked Medicare data that have been prescribed a mental health (MH) script or have used a mental health service at different ages, showing the extensive margins of health care use for the study children. As linked Medicare data become censored for non-respondents in the LSAC survey, the denominator that produces these figures are adjusted accordingly over time.

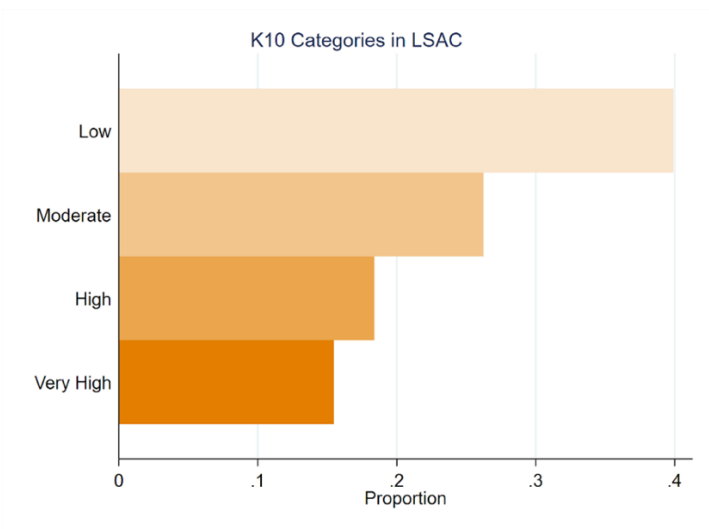
The top panel of Figure 4 shows the weighted distribution of 2,652 K cohort children by their Kessler-10 risk category in 2018 (at wave 8, ages 18-19). The bottom panel shows each category's weighted use of a mental health related script or service between April 2016--March 2017. Although the majority of young people in this sample faced low to moderate risks of psychological distress, around a third were in the high or very high-risk category. This is consistent with data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey⁷ which shows that rates of high or very high mental distress peak among those aged 15 to 19 years (with around 30 per cent identified with distress). The prevalence of distress gradually

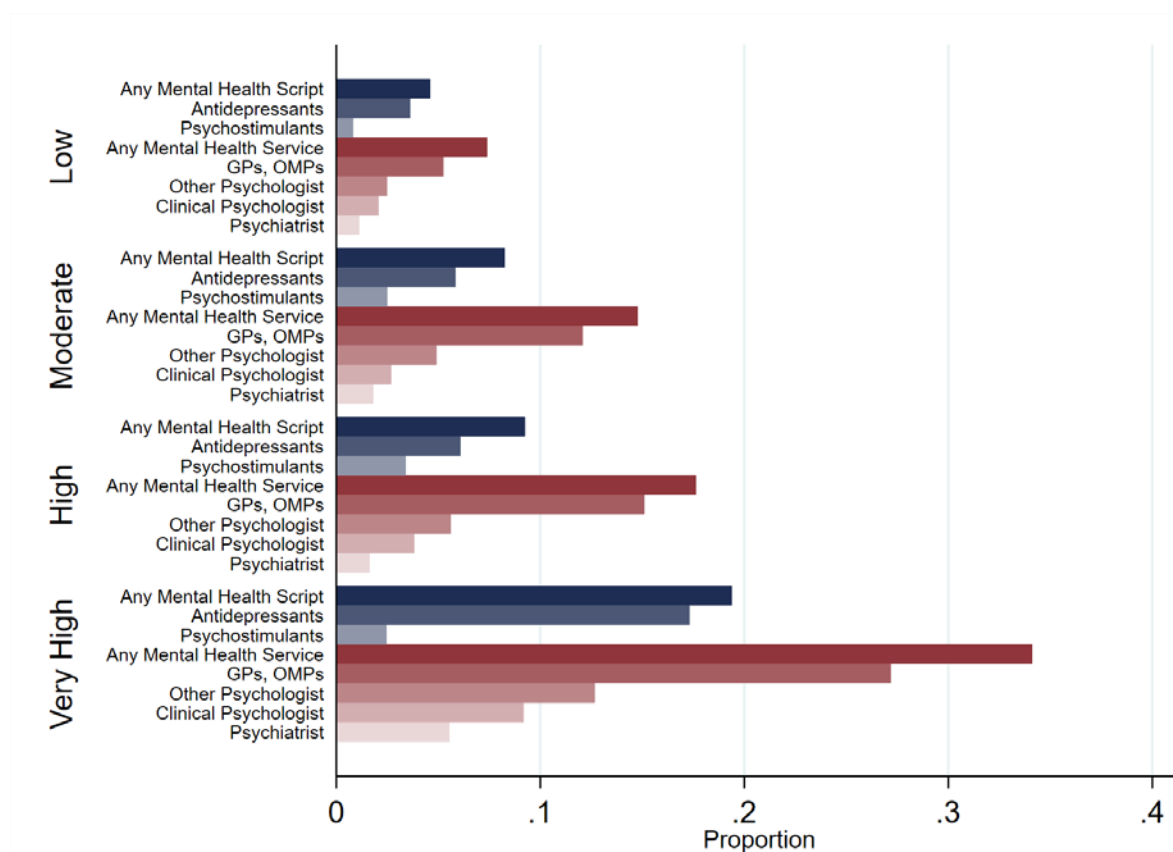
⁷ The HILDA is a 20-year national household panel study that collects data from all household members aged 15 years and above. The K10 is included every second year in the HILDA Survey.

declines with increasing age in the HILDA but still a quarter of those aged in their early 30s report high or very high levels of distress.

Figure 4 for the LSAC data also shows that young Australians at greater risk of psychological distress are more likely to have a mental health related script (particularly for antidepressants) and are more likely to access mental health services, which are commonly delivered by GPs and OMPs. Although this use of mental health care is relatively pronounced for the very high K10 group compared to those at lower levels of distress, rates of usage still appear low for the high-risk group, as only 19 per cent of them filled a mental health related script and only 34 per cent accessed a mental health service.

Figure 4 – Distribution of the Kessler-10 (K10) in LSAC and use of mental health related scripts and services





Note: Linked LSAC-Medicare data. The top graph shows the weighted proportion distribution of the K-10 for the K-cohort in 2018 (ages 18-19). The bottom graph displays the weighted proportion of individuals from the K-cohort in each Kessler-10 category in 2018 who have had a mental health related script or have accessed a mental health service between April 2016—March 2017 ($N=2652$).

Considering the combined incidence of mental health related scripts and mental health services, Table 1 shows the weighted proportions of the LSAC sample that used none, one, or both types of health care between April 2016 to March 2017. These are split across different groupings, both retrospectively by 2018 groupings (Kessler-10 risk, self-harm categories), and prospectively for 2016 groupings (self-harm, SDQ emotional symptoms range, IRSD above/below median among those with high SDQ emotional symptoms). The third column of Table 1 also displays the proportions in each category for the Birth and Kindergarten cohorts, who differ by around 4 years of age.

In accordance with Figure 4, around a third of the older cohort in the LSAC data face high or very high risks of psychological distress according to the K10. These young people are far more likely to have been accessing mental health services and/or mental health related scripts than their lower risk counterparts. Notably however, the

majority of even the most high-risk group in 2018 had not had any observable use of Medicare funded mental health care over the 2016-17 period. Given that previous research has shown that a large proportion of people with poor mental health remain in poor mental health the following year (Roy and Schurer, 2013), it seems likely that our finding is indicative of access rather than volatility of mental illness.

Table 1 also shows that self-harm ideation and attempts at self-harm are not uncommon among young people. At least 10 per cent of the sample in both cohorts reported they had considered self-harm or suicide over the past 12 months, and around another 10 per cent report to have made some attempt. These are high rates given the young age of the adolescents, as lifetime measures of suicidal ideation (not including self-harm) among persons aged 16-85 in Australia are around 13 per cent, with suicide attempts at 3.3 per cent (Department of Health, 2009). Evidence from the K cohort shows that these more vulnerable young Australians do have greater mental health script access, and both cohorts show greater recent use of mental health services. As with the K10 category, the majority of young people -- concerning even those at greatest risk, have no record of recent Medicare-subsidised mental health care usage. This appears to be acute among the younger cohort, with only 14 per cent of those who considered self-harm or suicide and 20 per cent of those who attempted, having received recent mental health care.

To consider whether groups at risk of self-harm and suicide proceed to access mental health care, Table 1 also presents the prospective use of these groups for the K cohort who were also asked these questions in 2016. The younger B cohort was aged 12/13 during this wave and was not administered these survey questions. The distribution of harm ideation/attempt categories are similar between 2016 and 2018, and also show similar patterns of service/script access. Again however, only under half of K cohort respondents who reported to have recently attempted self-harm or suicide proceeded to access mental health care and close to one in five accessed both services and medication.

Also, among groups defined in 2016, adolescents with an SDQ emotional score at and above 5 out of 10 may be considered in the clinical range of emotional problems (Hiscock *et al.*, 2020; Goodman, 2001). Around 13 per cent of the younger cohort and 17 per cent of the older cohort lie within this range. These adolescents are more likely

to access mental health care, for example 47 per cent of at-risk youths in the older cohort have some mental health care usage in 2016--17. To consider whether mental health care usage within this at-risk group differs by socioeconomic status, we consider for each cohort those below the median of the regional IRSD with greater disadvantage and those above the median with lesser disadvantage. This comparison shows that the more advantaged group among those in the clinical emotional symptoms range is more likely to access the health care system for mental health and uses more mental health services in isolation as well as mental health scripts in isolation than the more disadvantaged group.

Throughout Table 1 and earlier figures, groups within the LSAC sample with poorer measured mental health do appear to use more mental health care. However, around one in ten treated individuals receive mental health related medications without an accompanying mental health service. Overall, a large proportion of young people -- even those at greatest risk of poor mental health, have not recently accessed mental health related scripts or services.

Since most young people with poor mental health receive neither treatment nor service, where then, do they turn to? The LSAC survey provides some indication of this by asking the study children where they have sought help from for personal and emotional problems over the past 12 months. Responses allow multiple sources of help to be nominated; these are presented in Figure 5 both by Kessler-10 group and SDQ emotional symptoms range.

Table 1 – Usage of mental health care across April 2016-March 2017, by cohort and grouping

Grouping		Distribution	Mental Health Care Use, 2016—17 (%):			
Cohort	year	(%)	None	Service Only [†]	Script Only [^]	Both

**Retrospective
use:**

	Grouping		Distribution (%)	Mental Health Care Use, 2016—17 (%):			
	Cohort	year		None	Service Only [†]	Script Only [^]	Both
K10 Group: ¹	K	2018					
Low			39.4	90.4	5.0	2.2	2.3
Moderate			26.4	81.4	10.3	3.8	4.4
High			18.3	78.7	12.0	3.6	5.6
Very High			15.9	61.9	18.7	4.0	15.4
Self-harm category:	B	2018					
No ideation			79.4	91.6	4.8	2.3	1.3
Ideation only			10.1	85.9	9.0	*	*
Self- harmed/attempted suicide			10.5	80.0	12.3	*	*
Self-harm category:	K	2018					
No ideation			77.3	87.1	7.1	2.6	3.3
Ideation			11.3	63.3	19.7	5.7	11.3

		Grouping	Distribution	Mental Health Care Use, 2016—17 (%):			
	Cohort	year	(%)	None	Service Only [†]	Script Only [^]	Both
only							
Self-harmed/attempted suicide			11.4	60.8	19.4	4.1	15.8
 Prospective use:							
Self-harm category:	K	2016					
No ideation			75.5	87.2	7.5	2.8	2.5
Ideation only			11.5	69.3	15.9	5.6	9.1
Self-harmed/attempted suicide			13.1	54.6	20.9	5.7	18.8
 SDQ Emotional symptoms range:							
Normal (0—4)	B	2016	86.6	92.3	4.6	2.1	1.0
Clinical (5—10)			13.4	66.9	19.8	5.0	8.3

	Grouping		Distribution	Mental Health Care Use, 2016—17 (%):			
	Cohort	year	(%)	None	Service Only [†]	Script Only [^]	Both
SDQ Emotional symptoms range:	K	2016					
Normal (0—4)			83.2	86.9	7.7	2.8	2.6
Clinical (5—10)			16.8	53.3	20.1	7.7	18.8
IRSD, among Clinical range of Emotional SDQ:	B	2016					
Below Median (High Disadvantage)			67.0	69.0	18.3	5.1	7.6
Above Median (Low Disadvantage)			33.0	62.4	23.1	*	*
IRSD, among Clinical range of Emotional SDQ:	K	2016					
Below Median (High Disadvantage)			61.1	55.9	18.8	6.4	18.9

Grouping		Distribution	Mental Health Care Use, 2016—17 (%):			
Cohort	year	(%)	None	Service Only [†]	Script Only [^]	Both
Above Median (Low Disadvantage)		38.9	49.3	22.2	9.8	18.7

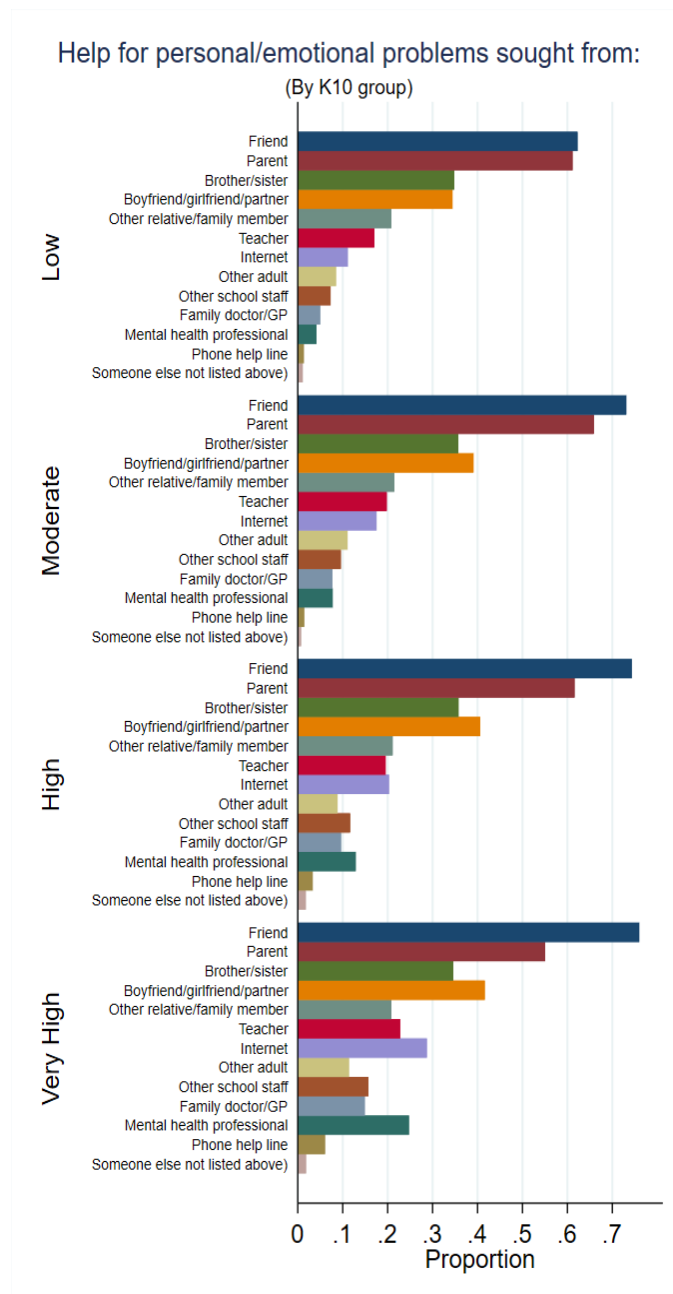
Note: Linked LSAC-Medicare data. This table shows subsample weighted proportions by mental health care non-use, script-only usage[^], service-only usage, and both script and service usage across April 2016-March 2017 in the rightmost columns for persons who had successfully linked Medicare data. The top panel shows groups defined in 2018, such that health care usage is described retrospectively. Conversely, the bottom panel shows prospective health care use for groups defined in 2016. The self-harm and suicide questions were not asked of the B cohort in 2016 as they were only aged 12/13 at the time. The grouping cohort, year, and distribution are presented across columns 2-4. * For cells that approach a small size (<10), these are marked as * to avoid disclosive risks.[^] Scripts comprise of psychostimulants, antidepressants, hypnotics/sedatives, antipsychotics, and anxiolytics as presented in Figure 2, excluding “other” nervous system medications. Even when including all nervous system medications however, usage of any mental health care across these groups is at most 51 per cent. [†] Services here refer specifically to mental health services provided by clinical/other psychologists, GPs/OMPs, other allied health, and psychiatrists as presented in Figure 2.

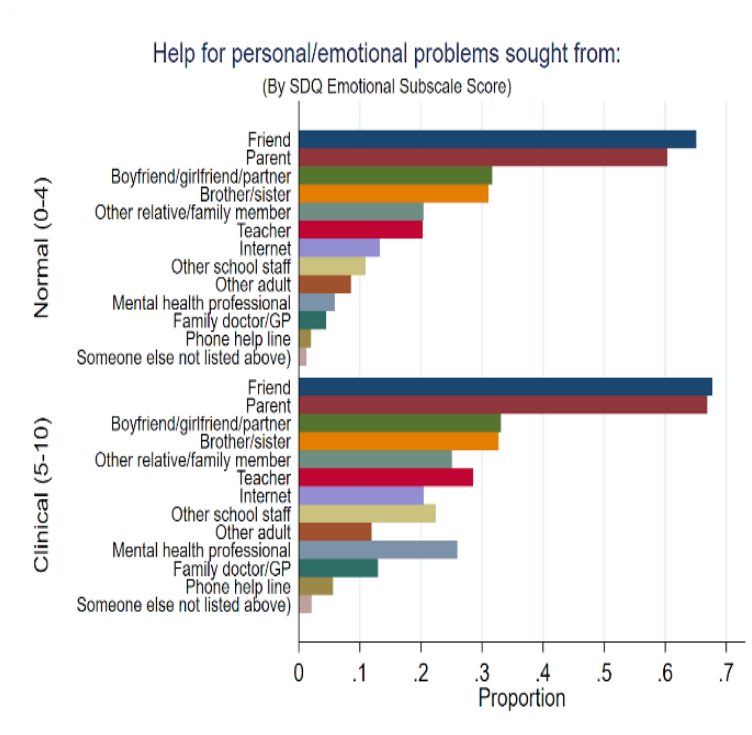
Figure 5 shows that although the proportion of individuals that seek help from medical professionals is higher among those at greater risk of poor mental health, professional help is far from the most common source of help. Instead, young people are much more likely to turn to friends and family for support. Across the sample more broadly, around 14 per cent seek professional (doctor/GP, mental health professional, phone help line) support. These low rates may reflect the importance of certain qualities of care and support, particularly since support from parents, friends, and other family members is often easily accessible, relies on pre-existing trust and relationships, and is more likely to be informal, when compared to the process of seeking out help from mental health professionals or the health care system in general.

With changed access to health care during the COVID-19 pandemic, young people may face additional or unfamiliar barriers to accessing mental health care at a time when their mental health needs might even be greater than normal. Consequently, despite the formal capabilities of mental health professionals or the known benefits of

certain medications in treating mental health conditions, informal social support networks through friends and family are likely a major and important source of assistance for many young Australians struggling through the pandemic. This suggests the importance of mental health literacy in the community such that they can effectively help when called upon.

Figure 5 – Source of help, by K10 group and SDQ emotional symptoms range.





Note: Left figure displays the proportion of LSAC study children in the K cohort who nominated a particular source of help over the last 12 months for personal or emotional problems across waves 6-8 by K10 group defined in 2018 ($N=2642$). Right figure displays the proportion of LSAC study children in both B and K cohorts who nominated a particular source of help over the last 12 months for personal or emotional problems by SDQ emotional score ranges over waves 6-8 ($N=6404$).

4. Conclusion

The mental health and wellbeing of young people is an ongoing concern for Australia. The statistics are alarming: one in three young people report high or very high levels of distress; one in five report to have thought about or attempted self-harm or suicide in the last year. That a poor start to life has negative flow-on effects later in life including serious economic repercussions, only exemplifies the concern. This study used longitudinal and linked data from preeminent Australian datasets to investigate mental health care use in young people over time. We find some evidence of positive trends in health care use (especially treatment at younger ages); however, we also find evidence of remaining unmet need and inequality.

Across the total population, we find evidence of clear cohort and age differences. A higher proportion of young people today are now accessing nervous system scripts

than before, and a higher proportion of children are accessing mental health services through GPs and psychologists. Unless earlier access is being driven solely by increased need at younger ages, it is potentially a positive story when that access is directed to those in need and in accordance with appropriate models of care guidelines. We find some evidence of this, observing a positive gradient between need and access, where those with the highest levels of psychological distress and poor emotional health access the highest proportion of mental health care. However, just under half of all children and young people with very high levels of psychological distress accessed any form of mental health care within a 12-month period, and less than two in five children and young people who self-harmed or attempted suicide had accessed any form of mental health care. Of further concern, of those in high need that did access mental health care, around one in ten solely used pharmacological treatments rather than accessing mental health services provided for example by GPs, psychologists or psychiatrists.

Nevertheless, some reforms in Australia's youth mental health services, such as *headspace*, have been innovative (McGorry *et al.*, 2014). It has to be acknowledged that there are strong social determinants to mental ill-health such as economic disadvantage and low educational attainment that mental health services cannot be expected to fully mitigate (Allen *et al.*, 2014). Due to the manifold influences on mental health, reforms outside the health care sector, such as welfare and economic reforms, could help prevent or lessen mental health problems. However, there remains a clear need to increase the provision of appropriate mental health services to those in high need. The Better Access initiative to include telehealth consultations is promising (Department of Health, 2019), but increased non-telehealth fee-for-service payments are unlikely to solve access issues for children and young people in disadvantaged areas where service provision is low. More emphasis must be placed on lowering the barriers to seek help and improving access through supply-side factors such as online options for those with mild and moderate conditions; the use of schools as potential gateways to access treatment (Productivity Commission, 2020); and proposed new models such as technology-enabled staged care (Hickie, 2019), should be trialled and robustly evaluated before being rolled out. As children turn to their friends and families for help, measures to increase mental health literacy among parents and students in general may also be helpful. While there is unlikely to be a

‘silver bullet’ to the problems observed in this study, it is clear from the levels of investment in mental health programs and inquiries into mental health care over the last decade that there is a will in Australia. The health economic challenge remains to use robust, evidence-based and cost-effective approaches to deliver better mental health outcomes for all children and young people.

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