

The indirect impacts of the COVID-19 pandemic on children and adolescents

Executive Summary

Why is this issue important?

- The indirect impacts of the COVID-19 pandemic on children and adolescents are as substantial, if not more so, than the direct effects of COVID-19 infection.
- The indirect impacts do not fall equally across young populations and have the potential to widen existing disparities in child and adolescent health and wellbeing.
- Opportunities exist to implement innovative solutions to mitigate longer-term and inequitable effects for the health and wellbeing of children and adolescents and the adults they will become.

What does the research tell us?

- That child and adolescent mental health difficulties, and physical health problems have increased across the 2020-2021 lockdown period in Victoria.
- That changes to family life, school closures and compromised access to health and emergency care have each played a role in the development of adverse outcomes in young populations.
- That the potential impacts on health and development are likely to be long lasting.

Considerations for policy

- In addition to prevention of infection and care of acute COVID-19 illness for children and adolescents, research, policy, and practice should focus on addressing the indirect and ongoing sequelae of the pandemic.
- COVID-19 public health restrictions have highlighted the importance of schools beyond academic learning, where the social, emotional, and physical health of children and young people can also be supported.
- Monitoring of child and adolescent mental health and development, within schools and health systems, will be essential to mitigating the on-going impacts of the pandemic.
- In all policy considerations, resources should focus on those already experiencing disadvantage and the opportunity to address the upstream determinants of inequalities.

Content warning: this brief mentions self-harm, eating disorders, and family violence, and may be distressing for some readers.

Indirect impacts on children and adolescents

Public health restrictions to mitigate COVID-19 infections have changed the way that children and adolescents interact, live, and learn. The effects can be seen at an individual, and at the family and community level. Children and adolescents have been impacted by virtual learning, social distancing, increased screen time, reduced access to healthcare, reduced peer interactions, and reduced structured sport and outside play. These have both immediate, and longer-term effects.¹⁻⁴ Below summarises what we know about how the public health interventions have impacted children and adolescents, and how they present a unique opportunity to address entrenched disadvantage in child and adolescent health in Australia.^{5,6}

Mental health

In 2020 a National Child Health Poll found that one third of parents felt the pandemic had negatively affected the mental health of their child.⁷

A study of Australian children with attention deficient disorder reported increased sadness, depression and loneliness compared to pre-pandemic levels.⁸

Furthermore, the Commission for Children and Young People in Victoria, and a Queensland study showed that multiple lockdowns have had a cumulative detrimental effect on the mental health⁹, education and safety and security of children at home.¹⁰ Not surprisingly, there has been an increased demand on Australia's Kids Helpline, paediatric emergency departments and child mental health services for concerns including increased anxiety and loneliness, suicidal ideation and self-harm.^{11,12}

Research from the United States,^{13,14} China^{15, 16} and the United Kingdom¹⁷⁻¹⁹ have also reported deteriorations in the mental health of children and adolescents, noted by increased rates of anxiety and depression, suicidal ideation, and self-harm. Over 60 studies involving 50,000 children from different countries showed that children and adolescents are more likely to experience high rates of depression and anxiety during and after isolation and social distancing.^{2,20}

For children and adolescents infected with COVID-19, a diagnosis and subsequent quarantine can also exacerbate mental health symptoms.^{21,22} A study of children tested for COVID-19 at Melbourne's Royal Children's Hospital found some children showing symptoms typical of a trauma response: difficulty sleeping, nightmares, reduced concentration, withdrawal from friends, and controlling behaviours around food.²³ Early identification and intervention for these symptoms is important to reduce longer-term problems. With public health restrictions easing, the number of young children infected with COVID-19 is increasing, as too will the effects of testing positive, and the demand for resources to support families.²⁴

There are some encouraging indications of resilience in Australian children and families where connected to appropriate resources and supports.^{25,26} A study examining mental health outcomes of 250 families with children whose illness require frequent hospital care,²⁷ suggests that, except for anxiety, the increased levels of irritability, loneliness and tantrums seen during lockdown largely return to pre-pandemic levels after lockdowns are lifted. It's likely that the quality of care and parent own mental health are significant contributors to this resilience.

Academic Outcomes

Approximately 90% of the globe's students have endured disruptions to their education during the pandemic. In 2020 it was estimated that 46% of Australia's students were reported as vulnerable to adverse educational outcomes,²⁸ however short-term measures of academic achievement have not yet shown a drop in numeracy and literacy^{9,30} at a whole of population level.³¹ Whether certain populations have been adversely impacted remains unknown. In contrast, only 35% of 5,000 Australian teachers reported that their students were learning well³², with student engagement further compromised among children experiencing adversity. This includes those who were already experiencing academic difficulties before the crisis, those with special health³³ and educational needs (e.g., neurodevelopmental disorders, learning difficulties), those with limited access to physical space, technology, and parents/carers with less skillsets and time to aid learning.

It is estimated that the achievement gap between advantaged and disadvantaged students grows at triple the rate during remote learning³². Strategies to identify those left behind and targeted longer-term interventions for those especially in low-socioeconomic school settings will be critical.

Physical health

Organised sports, recreation centres, and play spaces were closed in many countries as a part of public health restrictions, including Australia. A survey of parents from 14 countries (including Australia) reported an additional 55 minutes per day on screens, and 80 minutes less a week of outdoor time for children ages three to five years of age.³⁴ Australian poll data also found increased screen time, less exercise and increased consumption of unhealthy foods.⁷ The effect of these findings on the prevalence of childhood obesity in Australia has not been reported. However, in the United States, body mass index in children and adolescents have increased throughout the pandemic, most prominently in children with pre-existing obesity and in those aged 8-12 and 15-17 years.^{5,36}

The indirect effects of the pandemic on mental health, academic outcomes and physical health are disproportionately impacting children and adolescents that were already experiencing adversity prior to the pandemic.

Family level factors that can impact children and adolescents

Indirect effects of the pandemic on parents and carers have also affected children and adolescents. Where present, reduced family income or job losses, parental mental health and stresses have affected the nutrition, safety and care of infants, children, and adolescents, particularly for those already living in conditions of adversity or with stress at home. In contrast, for Australian families that retained their income, the pandemic's 'forced savings' has resulted in significant savings.³⁷

Reduced family income and parental wellbeing

Job loss and reduced income is a known risk factor for harsh parenting and maltreatment. Available evidence shows that public health restrictions have been accompanied by increased violence against children and women across the globe.³⁸⁻⁴⁰ Australian studies show that over a quarter of families have experienced job loss or reduced family income⁷ with the hardest hit families being those with young children⁴¹ and those already experiencing adversity.^{25,26,42}

Parents have reported experiencing significant levels of stress and poorer mental health, particularly those with pre-existing physical or mental health problems, a child with a neurodevelopmental or a mental health condition, or living in socioeconomic disadvantage.⁴³⁻⁴⁶

Increases in daily negative mood among parents of young children has also been associated with the number of COVID-related hardships experienced.⁴⁷

School closures have increased the amount of time children spend with violent caregivers or chaotic households without access to the usual means of escape.⁴⁸ Access to child protection services has reduced or moved to telehealth services,⁴⁸ potentially exacerbating existing physical and emotional health issues.⁴⁹⁻⁵¹ Reports to child maltreatment hotlines decreased during lockdowns, likely due to decreased contact between children, education staff and health services.⁵²⁻⁵⁴ Data from Australia indicated that notifications made to child protection services increased once restrictions eased.⁵⁵

Maternal and newborn health

The pandemic has had widespread impacts on pregnancy and infants. The social isolation has removed many new parents and carers from support networks, with fear of infection reducing engagement with healthcare facilities and maternal and child health services.

There are reports of increased anxiety and depression among pregnant and postnatal women during COVID-19 restrictions.⁵⁶⁻⁵⁸ An Australian study reported that 88% of pregnant women interviewed felt anxious about the impact of COVID-19 on their wellbeing,⁵⁹ with the number and duration of new calls to the Perinatal Anxiety and Depression Australia helpline doubling between March and October 2020.⁶⁰ There have been instances of newborns and mothers with COVID-19 separated for isolation, and many new parents isolated from family and friends,⁶¹ leading to issues such as inadequate infant weight gain and increased hospital admissions.⁶²

In Victoria, the maternal and child health service moved to reduce face-to-face contact, while giving priority access to infants under eight weeks and families experiencing additional challenges.⁶³

Positive effects

While the pandemic has represented significant disruption for all, some Australian^{7,8,10} and overseas⁶⁴ families have reported some positive experiences. More time spent with family, a closer family network, establishing coping mechanisms, increased focus on mental health, and a reduction in social anxiety triggers have been reported. In a Victorian study 40% of participants identified positives that included increased family time, reduced commitments/busyness, and a sense of people looking out for each other. In this study only a few parents indicated that their relationship with their partner or their children had deteriorated in this time.²⁷

System level factors that can impact children and adolescents

School closures

Since the beginning of the pandemic an estimated 1.6 billion children in 199 countries have been affected by school closures,⁶⁵ including around four million students in Australia. Melbourne has experienced more school closures than other parts of Australia. Schools are about more than learning,⁶⁶ they keep eyes on our children, foster social and emotional development, and provide a place of safety.

School closures during the pandemic have had large impact on children's health, future productivity and earnings⁶⁷, with serious consequences such as learning delays and disruption of social and emotional development are more likely in children already affected by adversity.⁶⁸⁻⁷¹

Accessing health and emergency care

In Australia routine and essential care for children and adolescents have been limited at times.

In 2020, there was no decrease in immunisation rates,⁷² but were 52% fewer dental services provided to children experience adversity compared to 2019,⁷³ and decreased visits to emergency departments. With one study showing that 31% of children who were unwell or injured delayed or avoid accessing healthcare, primarily due to parental fear of exposure to COVID-19.⁴⁵

The pandemic has seen telehealth become an essential aspect of care,^{74,75} however, the efficacy of telehealth is yet to be evaluated and expansion requires careful thought to not exacerbate existing inequities for those without technology access or skill sets.^{76,77}

An Australian poll reported that 27% of children accessed telehealth in 2020, with most parents reporting finding it convenient.⁷⁸ However, for families of children with pre-existing medical conditions, around 55% felt that the quality of telehealth compared to face-to-face appointments was less.²⁷ It is likely that for complex ongoing medical conditions telehealth may not fulfill patient needs.

The consequences of the pandemic have had some unanticipated positives such as improved virtual learning, telehealth, and personal resilience, however the longer-term emotional and physical consequences of child, family and service level factors within families remains largely unknown.

Figure 1: Potential indirect impacts of the COVID-19 pandemic on children and adolescents.

Child level factors:	family level factors that can impact children:	system level factors that can impact children:
Mental health <ul style="list-style-type: none"> ▶ Anxiety ▶ Depression ▶ Resilience Development <ul style="list-style-type: none"> ▶ Academic performance ▶ Physical health and development 	Wellbeing <ul style="list-style-type: none"> ▶ Parent mental health ▶ Parental resilience ▶ Household relationships Resources <ul style="list-style-type: none"> ▶ Income and job loss ▶ Parental support 	Education and Care <ul style="list-style-type: none"> ▶ School and Childcare closures ▶ Parental supervision Healthcare <ul style="list-style-type: none"> ▶ Reduced access to services
Negative effects disproportionately impacting those already experiencing adversity		

Adapted from Goldfeld, S., O'Connor, E., Sung, V., Roberts, G., Wake, M., West, S., & Hiscock, H. (2022). Potential indirect impacts of the COVID-19 pandemic on children: A narrative review using a community child health lens. *Medical Journal of Australia*.

What are the research gaps?

- Longitudinal follow up data to identify children requiring intervention and ongoing care, as we move through the pandemic
- Surveillance data on children’s mental health to align policy efforts in this area with need including level of severity, population risk and geographic concentration
- Intervention studies with robust evaluation designs to address the gap in disparities because of the pandemic.
- Clarification of factors building resilience in children and families
- Targeted studies on the indirect effects on First Nations children.
- Building evidence base for online resources and intervention
- Screening program for mental health and wellbeing on return to school to identify kids in need of support.

Summary

There is increasing concern around the world for the potential of widening existing disparities in child and adolescent health and developmental outcomes. The convergent international body of literature emerging from the COVID-19 pandemic has shone a spotlight on the high risk of negative indirect effects on vulnerable children and adolescents, and on inequities that cannot be ignored. Now is the time to both repair the past and start to reimagine the future for a more equitable Australia for children and adolescents.

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References

1. Generation coronavirus? *Lancet*. 2020;395(10242):1949.
2. Meherali S, Punjani N, Louie-Poon S, Abdul Rahim K, Das JK, Salam RA, et al. Mental Health of Children and Adolescents Amidst COVID-19 and Past Pandemics: A Rapid Systematic Review. *Int J Environ Res Public Health*. 2021;18(7).
3. Ye J. Pediatric Mental and Behavioral Health in the Period of Quarantine and Social Distancing With COVID-19. *JMIR Pediatr Parent*. 2020;3(2):e19867.
4. Dalton L, Rapa E, Stein A. Protecting the psychological health of children through effective communication about COVID-19. *Lancet Child Adolesc Health*. 2020;4(5):345-7.
5. Baxter J, Cobb-Clark D, Cornish, Alexander, et al. Never Let a Crisis Go to Waste: Opportunities to Reduce Social Disadvantage from COVID-19. *The Australian Economic Review*. 2021;54(3):343-58.
6. Goldfeld S, O'Connor, E., Sung, V., et al., A narrative review of the potential indirect impacts of the COVID-19 pandemic on children using a community child health lens. *Medical Journal of Australia*. 2022;In Press.
7. The Royal Children's Hospital National Child Health Poll. COVID-19 Pandemic: Effects on the lives of Australian children and families. Melbourne: The Royal Children's Hospital; 2020 [Available from: <https://www.rchpoll.org.au/wp-content/uploads/2020/07/nchp-poll18-report-covid.pdf>].
8. Sciberras E, Patel P, Stokes MA, Coghill D, Middeldorp CM, Bellgrove MA, et al. Physical Health, Media Use, and Mental Health in Children and Adolescents With ADHD During the COVID-19 Pandemic in Australia. *J Atten Disord*. 2020;1087054720978549.
9. De Young A, Paterson R, March, S., et al., COVID-19 Unmasked Young Children - Report 2: Impact of the second wave in Australia on the mental health of young children and parents. Brisbane: Queensland Centre for Perinatal and Infant Mental Health; 2021.
10. Commission for Children and Young People. Snapshot: Checking in with children and young people. Lockdown 4. Melbourne 2021 [Available from: <https://ccyp.vic.gov.au/assets/COVID-Engagement/CCYP-Youth-Survey-Snapshot-June-21.pdf>].
11. Batchelor S, Stoyanov S, Pirakis, J., et al., Use of Kids Helpline by Children and Young People in Australia During the COVID-19 Pandemic. *Journal of Adolescent Health*. 2021;68:1067-74.
12. Cheek JA, Craig SS, West A, Lewena S, Hiscock H. Emergency department utilisation by vulnerable paediatric populations during the COVID-19 pandemic. *Emerg Med Australas*. 2020;32(5):870-1.
13. Leeb RT, Bitisko RH, Radhakrishnan L, Martinez P, Njai R, Holland KM. Mental Health-Related Emergency Department Visits Among Children Aged <18 Years During the COVID-19 Pandemic - United States, January 1-October 17, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(45):1675-80.
14. Hill RM, Rufino K, Kurian S, Saxena J, Saxena K, Williams L. Suicide Ideation and Attempts in a Pediatric Emergency Department Before and During COVID-19. *Pediatrics*. 2021;147(3).
15. Duan L, Shao X, Wang Y, Huang Y, Miao J, Yang X, et al. An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. *J Affect Disord*. 2020;275:112-8.
16. Xie X, Xue Q, Zhou Y, Zhu K, Liu Q, Zhang J, et al. Mental Health Status Among Children in Home Confinement During the Coronavirus Disease 2019 Outbreak in Hubei Province, China. *JAMA Pediatr*. 2020;174(9):898-900.
17. Children and Families Analytical Unit Scottish Government. COVID-19: Children, young people and families Scotland: Scottish Government; 2021 [updated June 2021].
18. Waite P, Pearcey S, Shum A, Raw JAL, Patalay P, Creswell C. How did the mental health symptoms of children and adolescents change over early lockdown during the COVID-19 pandemic in the UK? *JCPP Adv*. 2021;1(1):e12009.
19. Rajabi M. Mental health problems amongst school-age children and adolescents during the COVID-19 pandemic in the UK, Ireland and Iran: A call to action and research. *Health Promot Perspect*. 2020;10(4):293-4.
20. Loades ME, Chatburn E, Higgs-Sweeney N, Reynolds S, Shafran R, Bridgen A, et al. Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19. *J Am Acad Child Adolesc Psychiatry*. 2020;59(11):1218-39.e3.
21. Orgiles M, Morales A, Delvecchio E, Mazzeuchi C, Espada JP. Immediate Psychological Effects of the COVID-19 Quarantine in Youth From Italy and Spain. *Front Psychol*. 2020;11:579038.
22. Liu JJ, Bao Y, Huang X, Shi J, Lu L. Mental health considerations for children quarantined because of COVID-19. *Lancet Child Adolesc Health*. 2020;4(5):347-9.
23. Danchin M. Vaccine Uptake Group... Challenges experienced by families with a child diagnosed with COVID-19 Melbourne: Murdoch Children's Research Institute; 2021 [
24. Raising Children's Network. The Australian Parenting Website Australia2022 [Available from: <https://raisingchildren.net.au>].
25. Biden EJ, Greenwood JC, Macdonald JA, Spry EA, Letcher P, Hutchinson D, et al. Preparing for Future Adversities: Lessons From the COVID-19 Pandemic in Australia for Promoting Relational Resilience in Families. *Front Psychiatry*. 2021;12:717811.
26. Bryson H, Mensah F, Price A, Gold L, Mudiyansele SB, Kenny B, et al. Clinical, financial and social impacts of COVID-19 and their associations with mental health for mothers and children experiencing adversity in Australia. *PLoS One*. 2021;16(9):e0257357.
27. Crowe L, Clarke, C., Hearn, S., Pugh, R., Kilpatrick, N., Branson, E., et al. Mental health impacts of the COVID-19 pandemic on children and adolescents with chronic health conditions. *Medrxiv preprint*. 2021.
28. Brown N, de Tiele, K., Shelley, S., et al., Learning at home during COVID-19: Effects on vulnerable young Australians Tasmania: University of Tasmania; 2020 [Available from: https://www.utas.edu.au/_data/assets/pdf_file/0008/1324268/Learning-at-home-during-COVID-19-updated.pdf].
29. Gore J, Fray L, Miller A, Harris J, Taggart W. The impact of COVID-19 on student learning in New South Wales primary schools: an empirical study. *Aust Educ Res*. 2021;1-33.
30. Victorian Department of Education and Training. Highlights from Victorian Preliminary Results in NAPLAN 2021. Melbourne 2021 [Available from: <https://www.education.vic.gov.au/about/news/Pages/stories/2021/Highlights-from-Victorian-Preliminary-Results-in-NAPLAN-2021.aspx>].
31. Australian Curriculum AaRA. National Assessment Program - Literacy and Numeracy. Sydney; 2021.
32. Sonnemann J, Goss, P., COVID catch-up: helping disadvantaged students close the equity gap 2020 [updated 14 June; cited 2020 24 Sept]. Available from: <https://grattan.edu.au/report/covid-catch-up/>.
33. Dickinson H, Smith, C., Yates, S., Bertool, M., Not even remotely fair - experience of student with disability during COVID-19. Victoria: Public Service Research Group, University of Melbourne; 2020.
34. Okely AD, Kariippanon KE, Guan H, Taylor EK, Suesse T, Cross PL, et al. Global effect of COVID-19 pandemic on physical activity, sedentary behaviour and sleep among 3- to 5-year-old children: a longitudinal study of 14 countries. *BMC Public Health*. 2021;21(1):940.
35. Brooks CG, Spencer JR, Sprafka JM, Roehli KA, Ma J, Londhe AA, et al. Pediatric BMI changes during COVID-19 pandemic: An electronic health record-based retrospective cohort study. *EclinicalMedicine*. 2021;38:101026.
36. Woolford SJ, Sidell M, Li X, Else V, Young DR, Resnicow K, et al. Changes in Body Mass Index Among Children and Adolescents During the COVID-19 Pandemic. *JAMA*. 2021;326(14):1434-6.
37. Australian Bureau of Statistics. Australian National Accounts: National Income, Expenditure and Product Canberra: Australian Bureau of Statistics; 2021 [Available from: <https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-national-income-expenditure-and-product/latest-release>].
38. Teo S, G. G. Child protection in the time of COVID-19. *J Paediatr Child Health*. 2020;56(6):838-40.
39. Levine DT, Morton J, O'Reilly M. Child safety, protection, and safeguarding in the time of COVID-19 in Great Britain: Proposing a conceptual framework. *Child Abuse Negl*. 2020;110(Pt 2):104668.
40. UNICEF. Beyond Masks; Societal impact of COVID-19 and accelerated solutions for children and adolescents Italy2020 [Available from: <https://www.unicef-irc.org/publications/1149-beyond-masks-societal-impacts-of-covid-19-and-accelerated-solutions-for-children-and-adolescents.html>].
41. Gamara A, Goldfeld, S., Mallett, S., Payne, A.A. and Price, A. Which families are feeling the pinch of the pandemic the most? Melbourne: Melbourne Institute Research Insight; 2021 [Available from: https://melbourneinstitute.unimelb.edu.au/_data/assets/pdf_file/0008/3934439/mi2021n14.pdf].
42. O'Connor M, Greenwood JC, Letcher P, Priest, N., Goldfeld, S., Hope, S., Edwards, B., & Olsson, C. Inequalities in the distribution of COVID-19 related financial difficulties for families with young Child: Care Health and Development. 2021;submitted.
43. Davidson B, Schmidt E, Mallar C, Mahmoud F, Rothenberg W, Hernandez J, et al. Risk and resilience of well-being in caregivers of young children in response to the COVID-19 pandemic. *Translational Behavioral Medicine*. 2020.
44. Westrupp EM, Stokes MA, Fuller-Tyszkiewicz M, Berkowitz TS, Capic T, Khor S, et al. Subjective wellbeing in parents during the COVID-19 pandemic in Australia. *Journal of psychosomatic research*. 2021;145:110482.
45. The Royal Children's Hospital National Child Health Poll. COVID-19 pandemic: Effects on the lives of Australian children and families. Poll Number 18. Melbourne, Australia: The Royal Children's Hospital; 2020.
46. Broadway B, Payne AA, Salamanca N. Coping with COVID-19: Rethinking Australia. Melbourne Institute: Applied Economic & Social Research, the University of Melbourne. . 2020.
47. Gassman-Pines A, Ananat EO, Fitz-Henley J. COVID-19 and Parent-Child Psychological Well-being. *Pediatrics*. 2020;146(4):e202007294.
48. Commission for Children and Young People. Impact of COVID-19 on children and young people: Safety. Melbourne, Australia: Author; 2020.
49. Chanchlani N, Buchanan F, Gill P. Addressing the indirect effects of COVID-19 on the health of children and young people. *Canadian Medical Association Journal*. 2020;192(32):E921-E7.
50. Clinton J. Supporting vulnerable children in the face of a pandemic. A paper prepared for the Australian Government Department of Education, Skills and Employment. Melbourne, Australia: Centre for Program Evaluation, Melbourne Graduate School of Education, The University of Melbourne; 2020.
51. Suleman S, Ratnani Y, Stockley K, Jetty R, Smart K, Bennett S, et al. Supporting children and youth during the COVID-19 pandemic and beyond: A rights-centred approach. *Paediatrics & Child Health*. 2020;25(6):333-6.
52. Thomas EY, Anurudran A, Robb K, Burke TF. Spotlight on child abuse and neglect response in the time of COVID-19. *Lancet Public Health*. 2020;5(7):e371.
53. Bhatia A, Fabbri C, Cerna-Turoff I, Tanton C, Knight L, Turner E, et al. COVID-19 response measures and violence against children. *Bulletin of the World Health Organization*. 2020;98:583-A.
54. Katz I, Katz C, Andresen S, Bérubé A, Collin-Vezina D, Fallon B, et al. Child maltreatment reports and Child Protection Service responses during COVID-19: Knowledge exchange among Australia, Brazil, Canada, Colombia, Germany, Israel, and South Africa. *Child Abuse Negl*. 2021;105078.
55. Australian Institute of Health and Welfare. Child protection in the time of COVID-19. Cat. no. CWS 76. Canberra, Australia: Author; 2021.
56. Ceulemans M, Hompes T, Foulon V. Mental health status of pregnant and breastfeeding women during the COVID-19 pandemic: A call for action. *International Journal of Gynecology & Obstetrics*. 2020;n/a(n/a).
57. Nanjundaswamy MH, Shiva L, Desai G, Ganjekar S, Kishore T, Ram U, et al. COVID-19-related anxiety and concerns expressed by pregnant and postpartum women—a survey among obstetricians. *Archives of Women's Mental Health*. 2020.
58. Haruna M, Nishi D. Perinatal mental health and COVID-19 in Japan. *Psychiatry and Clinical Neurosciences*. 2020;n/a(n/a).
59. Bradford Z, Wynter K, Hauck Y, Vasilevski V, Kuliukas L, Wilson AN, et al. Experiences of receiving and providing maternity care during the COVID-19 pandemic in Australia: A five-cohort cross-sectional comparison. *PLoS One*. 2021;16(3):e0248488.
60. Polchleb C, Sung L. COVID-19 and pandemic perinatal mental health in Australia. *Australian journal of general practice*. 2021;50.
61. Verweij EJ, Mhamdi HI, Steegers EAP, Reiss IKM, Schoenmakers S. Collateral damage of the covid-19 pandemic: A Dutch perinatal perspective. *BMJ*. 2020;369:m2326.
62. Hull N, Kam RL, Gribble KD. Providing breastfeeding support during the COVID-19 pandemic: Concerns of mothers who contacted the Australian Breastfeeding Association. *medRxiv*. 2020:2020.07.18.20152256.
63. Adams C, Ridgway L, Hooker L. Maternal, child and family nursing in the time of COVID-19: The Victorian Maternal and Child Health Service experience. *Australian Journal of Child and Family Health Nursing*. 2020;17(1):12-5.
64. Young Minds. Impact of young people with mental health needs. United Kingdom: Young Minds; 2021 [Available from: <https://www.youngminds.org.uk/media/esifqn3z/youngminds-coronavirus-report-jan-2021.pdf>].
65. Borkowski A, Santiago, J., Bundy, D., UNICEF... COVID-19 Missing More Than a Classroom. The impact of school closures on children's nutrition. Italy: UNICEF; 2021 [Available from: https://www.unicef-irc.org/publications/pdf/COVID-19_Missing_More_Than_a_Classroom_The_impact_of_school_closures_on_childrens_nutrition.pdf].
66. Backholer K, Baum F, Finlay SM, Friel S, Giles-Corti B, Jones A, et al. Australia in 2030: what is our path for health for all? *Med J Aust*. 2021;214 Suppl 8:55-540.
67. Viner RM, Russell SJ, Croker H, Packer J, Ward J, Stanfield C, et al. School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. *The Lancet Child & Adolescent Health*. 2020.
68. Berkman BE. Mitigating pandemic influenza: the ethics of implementing a school closure policy. *Journal of public health management and practice*: JPHMP. 2008;14(4):372-8.
69. Esposito S, Principi N. School Closure During the Coronavirus Disease 2019 (COVID-19) Pandemic: An Effective Intervention at the Global Level? *JAMA Pediatrics*. 2020;174(10):921-2.
70. Merrill K, William T, Joyce KM, Roos L, Protudjer J. Potential psychosocial impact of COVID-19 on children: A scoping review of pandemics & epidemics. *Journal of Global Health Reports*. 2021;4:e2020106.
71. Koiraal A, Goldfeld S, Bowen AC, Choong C, Ryan K, Wood N, et al. Lessons learnt during the COVID-19 pandemic: Why Australian schools should be prioritised to stay open. *Journal of Paediatrics and Child Health*. 2021;n/a(n/a).
72. Australian Government Department of Health. Immunisation coverage rates for all children Canberra, Australia: Commonwealth of Australia; 2021 [Available from: <https://www.health.gov.au/health-topics/immunisation/childhood-immunisation-coverage/immunisation-coverage-rates-for-all-children>].
73. Hopcraft M, Farmer G. Impact of COVID-19 on the provision of paediatric dental care: Analysis of the Australian Child Dental Benefits Schedule. *Community Dent Oral Epidemiol*. 2020.
74. Ros-DeMarize R, Chung P, Stewart R. Pediatric behavioral telehealth in the age of COVID-19: Brief evidence review and practice considerations. *Current problems in pediatric and adolescent health care*. 2021;51(1):100949.
75. Nicholas J, Bell IH, Thompson A, Valentine L, Simsir P, Sheppard H, et al. Implementation lessons from the transition to telehealth during COVID-19: a survey of clinicians and young people from youth mental health services. *Psychiatry Research*. 2021;259:113848.
76. Golberstein E, Wen H, Miller BF. Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents. *JAMA Pediatrics*. 2020.
77. Provenzi L, Borgatti R. Potentials of Telerehabilitation for Families of Children With Special Health Care Needs During the Coronavirus Disease 2019 Emergency. *JAMA Pediatrics*. 2020.
78. The Royal Children's Hospital National Child Health Poll. Telehealth for kids: Experiences of Australian parents. Poll number 21. Melbourne, Australia: The Royal Children's Hospital; 2021.