

Paramedic Interventions in Paediatric Mental Health Emergencies:

An Epidemiological Study

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WESTERN SYDNEY
UNIVERSITY



AN ESTIMATED
560,000

Australian paediatrics between 4-17 years have experienced a mental disorder in the last 12 months,⁽¹⁾ with one-third of adults with a mental disorder experiencing symptoms before the age of 14 years and almost half before the age of 18 years.⁽²⁾

The problem

The nature and characteristics of paramedic-paediatric interactions and the mental health involuntary care provided by paramedics is poorly explored. However, there are increasing numbers of paediatrics arriving at the emergency department by ambulance for mental health care. Unfortunately, routinely collected data from Australian national surveys excludes paediatrics under the age of 12 years,⁽¹⁾ limiting understanding of the scope of mental health issues experienced in this population.

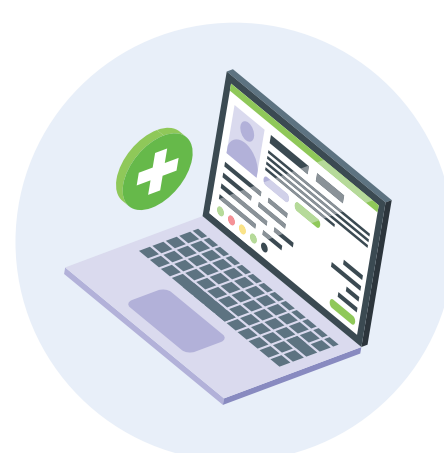
Paramedics are in a privileged position to provide pre-hospital health care while collecting valuable data on patient interactions. This study will provide a deeper understanding of attendance to paediatrics and the involuntary mental health care provided by paramedics.

This study aims to:

- Describe the characteristics of paediatric patients presenting with a mental health-related issue.
- Analyse the changes in the frequency of mental health presentations and the changes in the use of involuntary care provided by paramedics.
- Identify factors that predict when paramedics will initiate involuntary transport, chemical sedation and mechanical restraints.

Methodology

This is a retrospective cohort study using medical records extracted from the New South Wales Ambulance electronic database between 2018 and 2021.



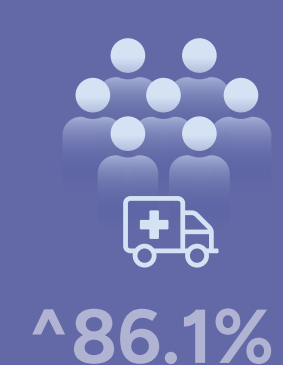
Inclusion criteria:

- **Paediatrics ≤17 years of age**
- **Assessed by the paramedics** as having a mental health-related issue.
- **Descriptive statistics** are used to summarise patient demographics, operational demand, paramedic assessment of the patient and involuntary care provided by paramedics.

- **Multilevel and hierarchical logistic regression analysis** was conducted to determine the unadjusted odds ratio and adjusted odds ratio for mental health section, chemical sedation and mechanical restraint.

THE RESULTS

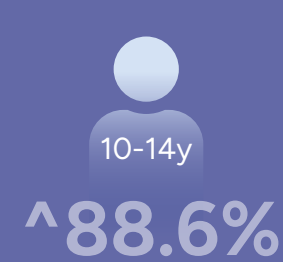
Paramedics interacted with 26,381 paediatric patients who were identified as having a mental health complaint.



Between 2018 and 2021 ambulance response to mental health cases among the paediatric population increased by 86.1%.



Almost two-thirds of cases were female paediatrics (61.8%), and



The 10-14 age group showed the most significant increase (88.6%) in presentations over the study period.

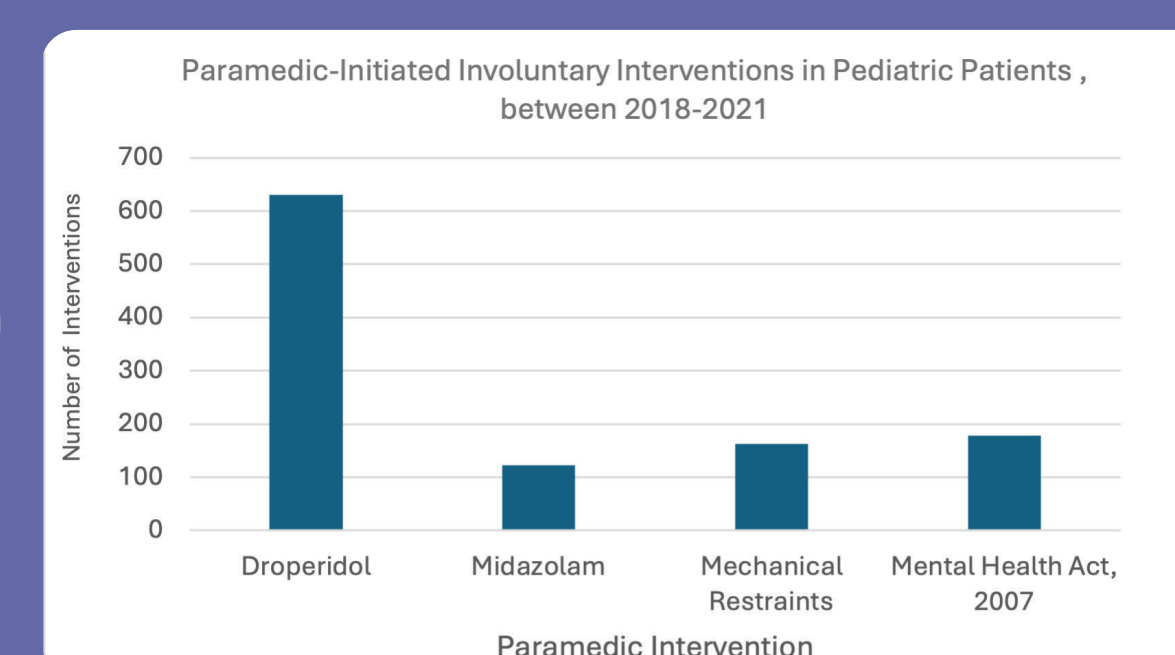


After adjusting for patient demographics, operational demand and paramedic assessment, females were more likely to be involuntarily transported, however, males were more likely to be mechanically restrained and chemically sedated. Our study shows an association between initiation of the Mental Health Act and the paramedic day shift. An association was also found between mechanical restraints and paramedic night shift. Further, paediatrics who required a lights and sirens response were more likely to be chemically sedated and mechanically restrained.

Implications for Practice

While mental health education and preparedness for paramedics have improved, the focus has largely remained on adult care. Our results from this study present a compelling argument for increased focus on education and the management of paediatric mental health patients. Education should be integrated into university curricula for entry-level paramedics and extended through ongoing education within jurisdictional ambulance services. Education programs must include a strong medicolegal component addressing the complexities of consent in paediatric care, where parents or carers often act as surrogate decision-makers, adding complexity to paramedic decision-making.

Given the rise in paramedic care for paediatric patients, it is crucial to explore paramedics' perceptions of their preparedness for delivering this care. Qualitative research could provide valuable insights into their confidence and readiness.



Further research is also necessary to understand the public's experience, particularly how paediatric patients and their carers perceive involuntary care provided by ambulance services and paramedics. Additionally, there is an opportunity to explore gender differences in transport rates and sedation practices, as gender has been shown to influence medical care in other contexts.

It is also important to note that during the time of data collection, oral sedation was not available in this jurisdiction. However, the recent introduction of oral olanzapine may change how chemical sedation is used, potentially leading to a reduction in the use of intramuscular sedation with medications like midazolam and droperidol.

Additionally, these results may influence jurisdiction ambulance services to implement mental health screening and assessment tools specifically designed for paediatric patients.

REFERENCES

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2. Solmi M, Radua J, Olivola M, Croce E, Soardo L, Salazar de Pablo G, et al. Age at onset of mental disorders worldwide: large-scale meta-analysis of 192 epidemiological studies. *Molecular Psychiatry*. 2021.

3. Photo Adobe Stock image library (Capturedbykeleigh)

4. Bennett, R. Image of NSW Ambulance Vehicle (2022)

5. Photo Envato Elements (2024)