

Impact of COVID-19 on Pediatric Neurosciences: a systematic review

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INTRODUCTION

The rapid spread of the novel coronavirus (COVID-19) in 2020 led to governments worldwide introducing varieties of social distancing measures including lockdowns, stay at home mandates to limit COVID-19's impact and prevent health services from becoming overwhelmed. There was collateral impact of the pandemic on children through educational institution closures and de-prioritisation of their physical health needs. This study appraises the impact of COVID-19 on paediatric neuroscience utilisation and the mitigating effects of telehealth (TH) to support recovery strategies.

OBJECTIVES

To evaluate the impact of COVID-19 on paediatric neurosciences services worldwide and the role of telehealth during the pandemic.

METHODS

The Systematic literature review (PROSPERO 2022 CRD42022326953) of reports evaluating the impact of COVID-19 on paediatric neuroscience provision (January 2020 - May 2022).

RESULTS (1)

10474 titles were screened and 1088 abstracts were screened (Figure 1). Majority of the studies included were from North America (23/69, 33.3%), followed by Europe (21/69, 30.4%), Asia (including middle-east) (14/69, 20.3%), South America (4/69, 5.8%), and 5 from multiple continents (7.2%). Almost half of all the studies included related to epilepsy (33/69, 47.8%), followed by general neurology (14/69, 20.3%) (Figure 2). Thirteen studies (18.8%) reported ethnicity, 11 (15.9%) studies reported socioeconomic index and 7 studies reported both (10.1%).

RESULTS (2)

Acute paediatric neurological presentations to emergency services reduced by 24-72% with one of three studies reporting a possible increase in PICU admissions. Average cancellations of clinic appointments were 50.34%, with a change in format in 53%. Increased restriction was associated with a higher COVID-19 burden. 31.3% of papers reported changes in the severity of their patient clinical condition. 23.3% felt that there was a worsening of the condition, 60.6% felt that there was no change, and 11.8% felt that there had been an improvement (Figure 3).

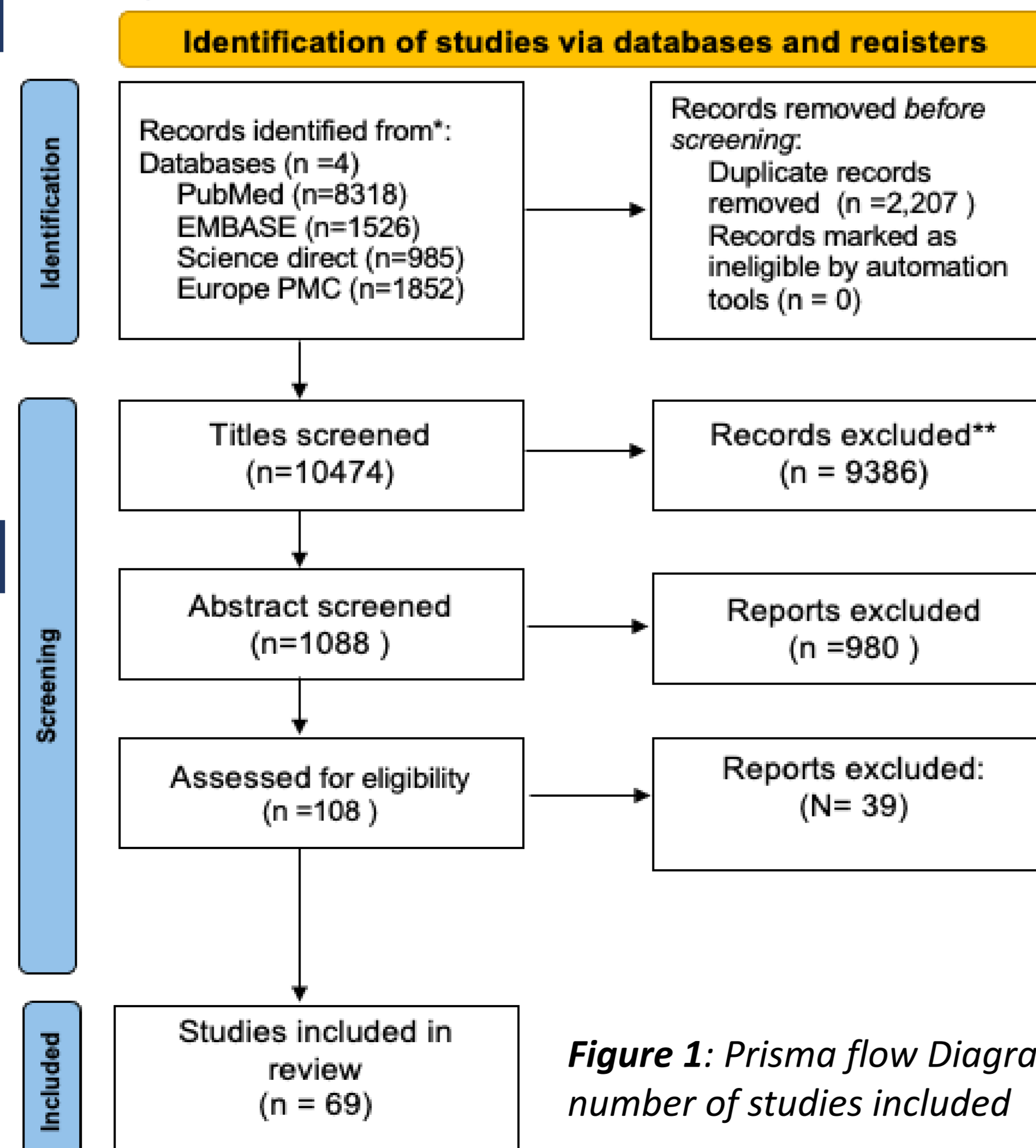


Figure 1: Prisma flow Diagram of number of studies included

Figure 2. Location of studies by specialty on a World Map of confirmed COVID-19 cases up to 21st May 2022.

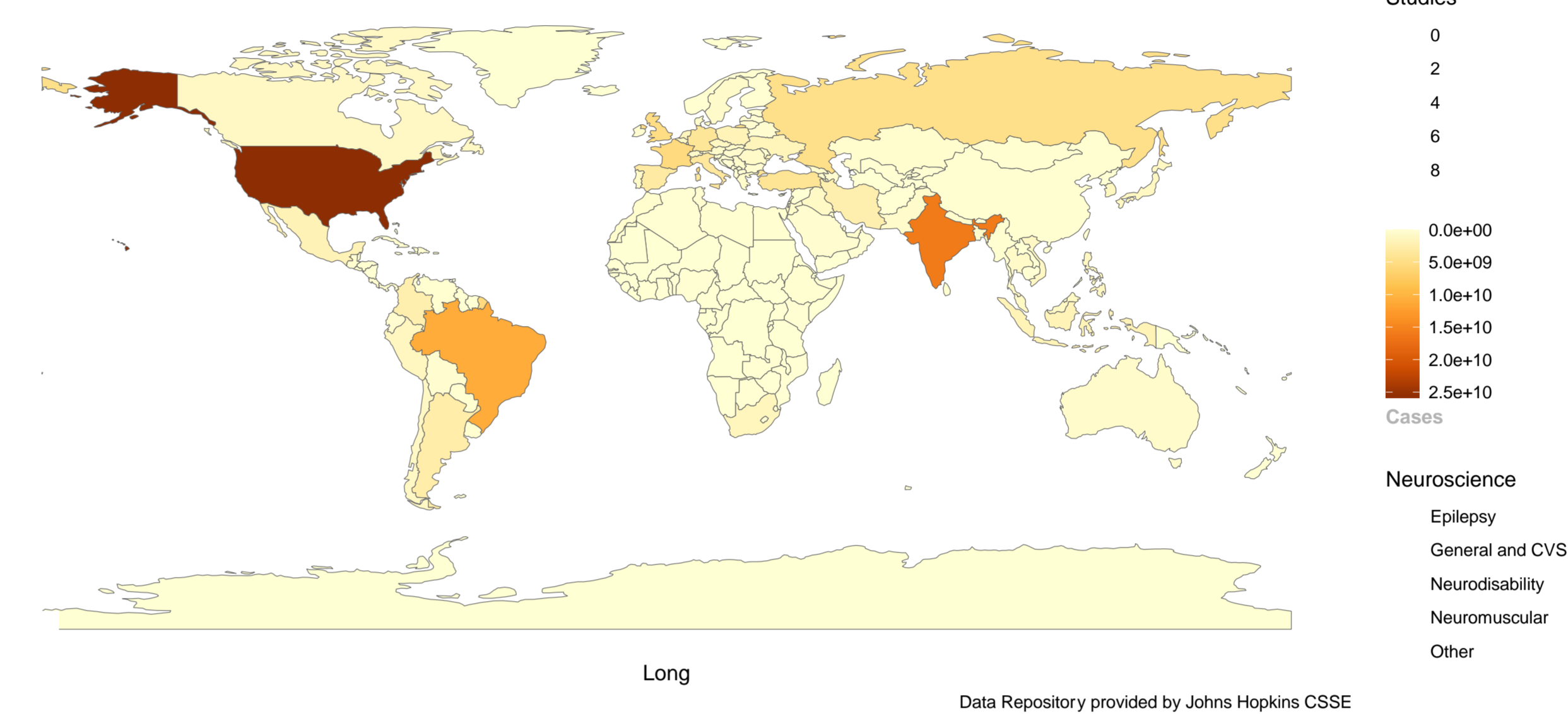
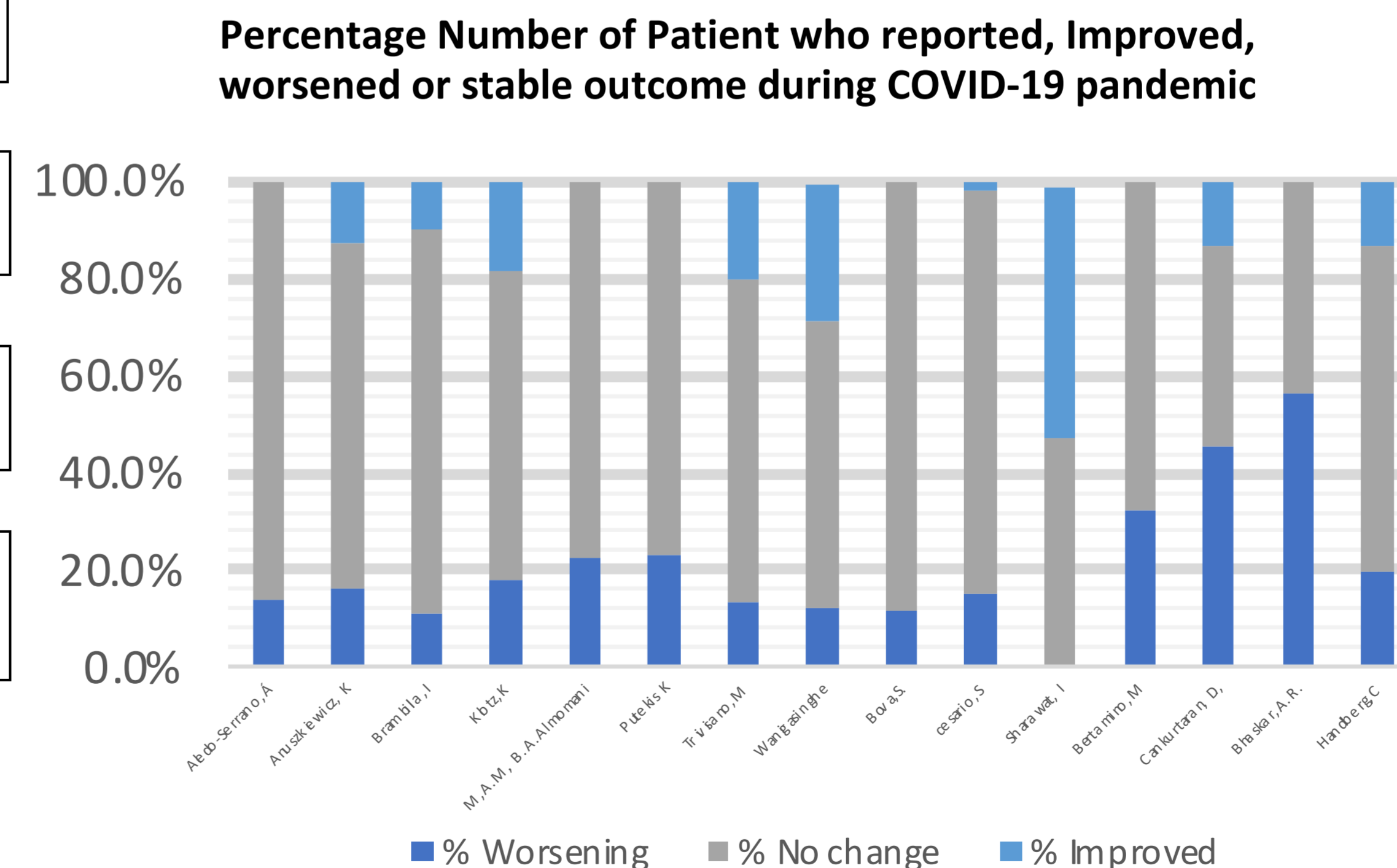


Figure 3: Percentages of patients that reported a change in their patient clinical condition



RESULTS (3)

Uptake of TH utilisation increased 24.5% to 100%. Despite TH, more decline was reported by carers of children with multiple disabilities following service disruption, compared to a single disability. Clinicians raised concerns on the suitability of TH for examination but no concerns were identified in a TH audit. In a setting with good infrastructure, inequalities to access of TH services were identified.

CONCLUSION

Lockdown measures during the pandemic had a significant impact on paediatric neuroscience utilisation with worsening of chronic conditions in a fifth of patients studied. TH had a mitigating role during restrictions but if not carefully implemented post-pandemic, may exacerbate inequalities.

Members of international networks reported rapid snapshots of worldwide challenges. These crucial networks must be strengthened and extended going forward as part of the 'recovery' of childhood neurosciences.