

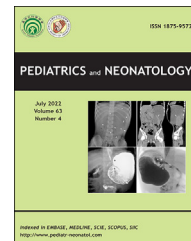


Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.pediatr-neonatol.com>

Short Communication

Visual supports to optimize COVID-19-related healthcare encounters for young/preschool children

Sze Kiat Alan Ong ^{a,*}, Min Sung ^b, Mae Yue Tan ^{a,c},
Ying Qi Kang ^{a,c}, Ramkumar Aishworiya ^{a,c}, Tammy Lim ^{a,c}



^a Khoo Teck Puat – National University Children’s Medical Institute, National University Health System, Singapore

^b Department of Developmental Psychiatry, Institute of Mental Health, Singapore

^c Department of Paediatrics, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Received Nov 2, 2021; received in revised form Jan 11, 2022; accepted Jan 18, 2022

Available online 1 April 2022

1. Introduction

Consequent to the coronavirus disease 2019 (COVID-19) pandemic, health care visits have heightened infectious disease protocols, including COVID-19 testing of patients with suspected or proven infections. This has resulted in additional stress and anxiety for children who have limited understanding of the rationale for these changes.¹ Isolation protocols, unfamiliar appearance of health care workers in personal protective equipment, and discomfort of nasopharyngeal swabs are among the many new but distressing experiences that children encounter during a health care visit nowadays.

Support kits such as visual schedules and social stories are well-established interventions for children with special needs, particularly those with autism spectrum disorder.² Visual support kits have been used in the dental setting to

help prepare children with autism for dental examination.³ Social stories have also been shown to improve outcomes in children with disruptive behavior.⁴ However, recent research is limited with regard to the utility of such a visual support kit in the COVID-19-related medical setting.

Thus, our team created a “Special Care Kit” (<https://bit.ly/specialcarekit-covid19>) to provide resources to support children (both neurotypical and developmental needs) and their caregivers during their visits to health care facilities for COVID-19-related issues. The kit comprises visual schedules (Supplementary Fig. 1), social stories, pictorial boards, and animated videos to illustrate and explain the different COVID-19 processes in a developmentally appropriate manner. The kit was made available online for free. Physical copies were distributed to community clinics managing COVID-19 suspects, ambulances, and hospital emergency departments. Details of the kit were previously discussed.⁵

2. Methods

The effectiveness of the Special Care Kit in improving the experience of children and caregivers during their COVID-

* Corresponding author. National University Children’s Medical Institute, National University Health System, Singapore 1E Kent Ridge Road, NUHS Tower Block Level 12, 119228, Singapore.
E-mail address: alan.ong@mohh.com.sg (S.K.A. Ong).

19-related health care encounters was assessed through voluntary, anonymous surveys completed by parents or caregivers of children who had a COVID-19-related visit to an emergency department of a tertiary hospital from June to December 2020. Implied informed consent was taken when caregivers completed the survey, as documented in the survey sheet. All children and their accompanying caregivers were shown a relevant aspect of the kit before or during their medical encounter. Information collected included demographic data, developmental diagnosis, usual communication skills of the child, and qualitative feedback on the support kit. Descriptive statistics were used to analyze results.

The National Health care Group Domain Specific Review Board provided ethical approval for the study under DSRB Domain F (Reference no. 2020/00489).

3. Results

A total of 46 caregivers participated in the study. The mean age of the patients was 5.1 years. Six (13.0%) patients had developmental difficulties (four had speech and language delay and two had autism spectrum disorder), of which three were still at the pre-verbal stage (such as using pictures or pointing and gestures to communicate). The remaining patients were reported to be typically developing.

Nearly all (98.0%, 45/46) caregivers felt that the Special Care Kit helped their children have a better health care experience, with 39% (18/46) of them noting that their child was calmer and took the whole experience better than expected. Moreover, 61% (28/46) of the caregivers felt that their children had a better understanding of the events during the encounter, and 21% (13/46) felt that the kit helped improve the communication between the medical team and family.

The majority 91% (42/46) would like to have access to other similar support kits during their child's future health care visits.

4. Discussion

The use of age-appropriate support kits in young children is potentially effective in improving their health care experience during the pandemic. The Special Care Kit may allow for better understanding of the processes, reduce the anxiety of the encounter, and improve the communication between the medical team and family. While visual support is widely used and effective in children with developmental needs, preliminary evidence from this pilot study performed during the pandemic established that they can be also helpful in typically developing children. The study is limited by the lack of data from children who did not utilize the kit. However, the psychological effect of COVID-19 on children (without using the Special Care Kit) is well established with significant difficulty during quarantine, routine change, and access to health care for those with pre-existing behavioral issues.⁶ Children who were hospitalized for COVID-19 were also reported to have more severe depression, anxiety, and post-traumatic stress disorder symptoms than healthy controls.⁷

Beyond its utility in a pandemic, caregivers would likely benefit from more age-appropriate support for their children in health care settings, as these can help reduce the stress and anxiety for the family during a new health care experience.

Funding

This work did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declarations of competing interest

None.

Acknowledgements

We would like to express our gratitude to all contributors of the Special Care Kit. We would also like to thank our colleagues from the corporate communication departments of the Institute of Mental Health, National University Health System, KK Women's and Children Hospital as well as our colleagues at Ministry of Health (Singapore), for their immense support of the project. We thank Dr Dimple Rajgor for her assistance in formatting, and in submitting the manuscript for publication.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pedneo.2022.01.007>.

References

1. 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;18:3432.
2. Knight V, Sartini E, Spriggs AD. Evaluating visual activity schedules as evidence-based practice for individuals with autism spectrum disorders. *J Autism Dev Disord* 2015;45:157–78.
3. Marion IW, Nelson TM, Sheller B, McKinney CM, Scott JM. Dental stories for children with autism. *Spec Care Dentist* 2016;36:181–6.
4. Hanrahan R, Smith E, Johnson H, Constantin A, Brosnan M. A pilot randomised control trial of digitally-mediated social stories for children on the autism spectrum. *J Autism Dev Disord* 2020;50:4243–57.
5. Goh TJ, Lim T, Foo M, Ong SKA, Aishworiya R, Nair T, et al. Supporting individuals with autism spectrum disorder in medical settings during COVID-19. *Asian J Psychiatr* 2020;54:102441.
6. Panda PK, Gupta J, Chowdhury SR, Kumar R, Meena AK, Madaan P, et al. Psychological and behavioral impact of lockdown and quarantine measures for COVID-19 pandemic on children, adolescents and caregivers: a systematic review and meta-analysis. *J Trop Pediatr* 2021;67:fmaa122.
7. Zhang A, Shi L, Yan W, Xiao H, Bao Y, Wang Z, et al. Mental Health in children in the context of COVID-19: focus on discharged children. *Front Psychiatry* 2021;12:759449.