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The Effects of COVID-19 on Cognition in the Pediatric Population

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BACKGROUND

Coronavirus disease, or COVID-19, is an infectious disease that can cause long-term cognitive deficits in individuals who contract the virus, causing difficulty performing daily activities. Occupational therapists treat individuals that have cognitive deficits however, there is a lack of research on how COVID-19 affects children's cognition long-term and how to improve these areas through intervention with this population (Lin et al., 2021; Walter et al., 2021; World Health Organization [WHO], 2022)

PROBLEM

Children who have contracted COVID-19 often face long-term cognitive effects, which impact their ability to participate in school, social participation, and their daily activities (Alemanno et al., 2021)

PURPOSE

To address the long-term cognitive deficits of COVID-19 in children and improve these areas at home and in the clinic

Outcome objectives:

1. A needs assessment was completed at The Therapy Spot, including creating written surveys.
2. The program was developed for parents, guardians, and OTs/OTAs that include activities and strategies addressing cognition in children affected by COVID-19, including modules and educational materials.
3. The program was implemented via educational modules at the University of St. Augustine for Health Sciences through Wix.
4. Data was created, administered, and analyzed from pre- and post-program surveys to determine the effectiveness of the program.

METHODS

- Needs assessment included a pre-program survey that was posted on flyers around two outpatient, pediatric clinics, The Therapy Spot
- 6 parents/guardians of children who contracted COVID-19 completed the survey via Microsoft Forms

Pre-program survey: Survey about the child(s) and different areas of cognition and occupations affected due to COVID-19

Topics covered in the program and pre-program survey:

1. Introduction and OT's role in COVID-19
2. Short- and long-term memory
3. Mental health
4. Executive functioning
5. Concentration and brain fog
6. Confidence
7. Hyperactivity
8. Irritability

- Program developed on Wix that included modules and educational handouts based on the findings from the needs assessment
- Activities and strategies to improve different areas of cognition affected by COVID-19 are provided on educational handouts for each module



PROGRAM

General Program Goals:

1. Educate parents, guardians, and OTs on what areas are impacted by COVID-19 in children
2. Provide effective activities and strategies for parents, guardians, and OTs to perform at home and in the clinic
3. Improve cognitive deficits in the children affected by COVID-19 to increase occupational performance
4. Assist affected children in mastering and integrating developmental stages in their lives

Theoretical Framework:

1. The Developmental Frame of Reference

Areas of Cognition Addressed and Strategies:

1. Short- and Long-Term Memory – Memory game
2. Mental Health – Journaling
3. Executive Functioning – Obstacle course
4. Concentration and Brain Fog – Puzzles
5. Confidence – Affirmation bracelets
6. Hyperactivity – Balloon volleyball
7. Irritability – Anger thermometer

Conclusions / Future Directions

- Children who contract COVID-19 can experience cognitive deficits, which impact their ability to participate in school and daily activities (Alemanno et al., 2021).
- OTs and OTAs helping children perform activities that require problem-solving, memory, and multi-step direction were shown to improve functional cognition, occupational performance, and overall cognition development (Walter et al., 2021).
- Cognitive deficits caused by COVID-19 can impact the community at home, school, and work, where individuals are required to use different areas of cognition (Isasi et al., 2021).
- Necessary changes will be made to the capstone program and will be shared with other companies and organizations in the healthcare field that focus on long-haul COVID-19 in children.

References

- Alemanno, F., Houdayer, E., Parma, A., Spina, A., Del Forno, A., Scatolini, A., Angelone, S., Brugliera, L., Tettamanti, A., Beretta, L., & Iannaccone, S. (2021). COVID-19 cognitive deficits after respiratory assistance in the subacute phase: A COVID-rehabilitation unit experience. *PLoS ONE*, 16(2), e0246590. <https://doi.org/10.1371/journal.pone.0246590>
- Isasi, F., Naylor, M. D., Skorton, D., Grabowski, D. C., Hernandez, S., & Montgomery-Rice, V. (2021). Patients, families, and communities COVID-19 impact assessment: Lessons learned and compelling needs. *NAM Perspectives*, 2021(1). <https://doi.org/10.31478/202111c>
- Lin, J. E., Asfour, A., Sewell, T. B., Hooe, B., Pryce, P., Earley, C., Shen, M. Y., Kerner-Rossi, M., Thakur, K. T., Vargas, W. S., Silver, W. G., & Geneslaw, A. S. (2021). Neurological issues in children with COVID-19. *Neuroscience Letters*, 743, 135567. <https://doi.org/10.1016/j.neulet.2020.135567>
- Walter, J. C., Coleman Casto, S. D., & Gates, E. (2021). Inpatient occupational therapy management for a pediatric patient with COVID-19 and multisystem inflammatory syndrome in children: A case report. *The American Journal of Occupational Therapy*, 75(Supplement_1), 7511210020. <https://doi.org/10.5014/ajot.2021.049224>
- World Health Organization. (2022). *Coronavirus disease (COVID-19)*. https://www.who.int/health-topics/coronavirus#tab=tab_1