

Childhood Cancer Survivors and Distance Education Challenges: Lessons Learned from the COVID19 Pandemic

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Word Count: Abstract-169, Main Text-3190
Running Title- Distance Education/COVID19
Table#-1
Figure#-0

Keywords: Distance learning, Childhood Cancer Survivors, COVID19

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Word/Phrase	Abbreviation
Central Nervous System	CNS
Individual Education Plan	IEP
Acute Lymphoblastic Leukemia	ALL
Optic Pathway Glioma	OPG
Pilocytic Astrocytoma	PA
Occupational Therapy	OT
Speech Language Therapy	SLT
Assistive Technology	AT
Physical Therapy	PT

Abstract

Background: Pediatric cancer patients and survivors have historically struggled to receive adequate educational supports. In the Spring of 2020, the COVID19 pandemic forced an emergency switch from traditional in-person education models to distance education.

Methods: The current study presents initial data from a quality improvement project which included a round of qualitative interviews conducted with parents of pediatric oncology patients at risk for educationally-relevant neurocognitive impacts of disease or treatment. The focus of the interviews was patient experiences of education and instructional delivery during the COVID19 school closures in Spring of 2020 and the beginning of the 2020-2021 school year; interviews were conducted via videoconference and transcripts were analyzed using a phenomenological approach.

Results: Three emergent themes were found regarding the shared experiences of distance schooling for children with cancer during the COVID19 school closures: 1) attention, 2) mental health, and 3) access to instruction. This study describes and explores each theme and offers suggestions for changes to provider service delivery as a result of new pandemic-related schooling needs.

Introduction

Due to the increasing survival rates of childhood cancer ¹, long-term quality of life in survivorship becomes a critical consideration. Persisting disease- or treatment-related impacts have been well-documented among survivors ^{2,3}, with neurocognitive impairments having a significant impact on quality of life, especially as related to schooling and educational success ^{4,5}. These identified neurocognitive impairments are thought to result from demyelination, reduced white matter tract integrity, decreased white matter volume, and/or development of leukoencephalopathy from intrathecal chemotherapies ^{6,7}. Additionally, the size/location of tumor, extent of neurosurgical procedures, and treatment with radiation ⁸ in brain tumor survivors impacts cognitive function. The extent and complications of these procedures are associated with type and degree of neurocognitive impairments ⁹, with the most common impairments including attentional dysregulation, executive dysfunction, and reduced processing speed ¹⁰, all of which can complicate schooling and educational attainment after cancer.

Returning to school after a pediatric cancer diagnosis is often thought of as a return to “normalcy” for survivors and their families¹¹; however, missed schooling and neurocognitive impacts of disease and/or treatment can make this return anything but normal. In the past, the process of navigating schooling after a diagnosis has been found to be a source of significant stress for survivors and parents alike ¹². Furthermore, this year in particular, the COVID19 pandemic has complicated schooling for all students as many school districts across the United States have opted for fully remote (e.g., online only) or some form of hybrid (partially in-person, partially online) instruction, with nearly 93% of United States households with school-aged children reporting some form of distance education during 2020 ¹³. Distance education as a strategy may also better address schooling needs of rural students, mitigate building or district

closures due to inclement weather, or even permit student access to specialty educational programming (i.e., magnet programs) in the future¹⁴. The persistence of the pandemic will likely induce lasting effects on the delivery of instruction and little is known regarding the impact these changes may have on schooling in survivorship. A substantial proportion of survivors are likely to experience difficulty with sustained attention and executive function ¹⁰, but investigators have yet to examine the perceived impact of such impairments on survivors' schooling during COVID19.

To date, no data are available regarding perspectives of pediatric survivors and their families on COVID19-related schooling changes, survivors' ability to access schooling via distance learning formats, or concerns they and their families may have about effectiveness of distance learning or hybrid schooling models. Additional information is also needed regarding the impact of COVID19 on survivors' access to any accommodations or specialized instruction secondary to late effects of cancer and treatment, which may include adapting or modifying assignments as well as ensuring that materials are accessible and appropriate to the student's needs. Little is known regarding the impact of distance learning formats on survivors' access to these kinds of needed supports. Understanding perspectives of pediatric survivors and families on schooling during COVID19 and identifying areas of particular concern is critical and may offer ways to intervene to optimize quality of life in an already stressful time. The current project sought to describe childhood cancer survivors' schooling experiences during the COVID19 pandemic and suggests clinically relevant support strategies during periods of distance or hybrid education.

Methods

This quality improvement project was designed to understand perspectives of parents of childhood cancer survivors regarding schooling during COVID19, identify specific areas of

93 school-related need, and determine ways in which the medical team could better support
94 educational needs of survivors during the pandemic. The project had two aims: first, identify
95 current concerns and distance education needs via qualitative interviews with several parents of
96 survivors most at risk for schooling-related difficulty due to history of central nervous system
97 (CNS) disease or CNS-directed therapy; and second, to identify and implement patient-focused
98 clinical strategies that could be implemented to ameliorate the identified concerns. The project
99 was approved by the local hospital Institutional Review Board; participants consented to audio-
100 recording and were compensated for their time.

101 *Participants*

102 Parents of five school-aged pediatric cancer survivors who were at least one-year post-
103 treatment were identified through their engagement with an ongoing quality improvement project
104 as well as review of patient records. Patients were identified to reflect a diversity of
105 characteristics: cancer type and receipt of CNS-directed therapy, age/school grade level,
106 race/ethnic background, and history of different documented educational supports (Table 1). All
107 parents approached agreed to participate; they were interviewed by a member of the research
108 team with a background in special education. Each semi-structured interview lasted
109 approximately one hour and was conducted via videoconference software (e.g., Zoom) in
110 summer 2020 before the start of the Fall-term.

111 *Measures*

112 A semi-structured interview process ¹⁵ was used to help focus the interviews toward the
113 experiences of childhood cancer survivors during distance education necessitated by the
114 COVID19 pandemic. Preliminary questions included such items as: 1) Describe your overall
115 impressions of home learning during the school closures in spring 2020; 2) During the school

116 closures in the spring, how did services and special teaching –if any– happen for your child?;
117 3) Did your child experience any new problems with accessing services and instruction
118 remotely?; and 4) How were these new problems addressed by the school?

119 All interviews were recorded with permission after consent was obtained and transcribed
120 for analysis purposes. Phenomenological analysis ¹⁶ of the interviews was conducted to establish
121 emergent themes reflecting shared experiences of schooling for children with cancer during
122 COVID19.

123 Findings

124 Analysis of parent interviews revealed three themes: 1) survivor ability to focus as a
125 factor of distance education success, 2) increased anxiety and feelings of loss, and 3) issues with
126 accessibility of the curriculum due to limited accommodations/modification and accessible
127 educational materials. These are described further and situated in the context of reported
128 schooling experiences, below.

129 *Attentional Control and Distance Education*

130 As noted above, attentional dysregulation is a well-recognized consequence of CNS-
131 directed therapies ¹⁷, meaning that sustaining attention over longer periods of time and
132 selectively attending to the topic at hand to the exclusion of other things is particularly
133 challenging for survivors with such neurocognitive impacts of treatment. Not surprisingly then,
134 parents reported that survivors who already had documented difficulty with attentional control
135 experienced significant difficulty with distance education (attending to and completing work
136 either via online learning or packets of assignments sent home). As one parent stated, “I think
137 the hardest thing is her attention span...it’s [instruction] all on a screen and it’s just not going to

keep her attention that long at all... she usually has charts where she gets rewards [when in-person], and she just needs high energy for her to be engaged.”

Notably, schooling during COVID19 has resulted in changes in direct instructional time with classroom teachers or school-based service providers and less opportunity for individualized “classroom” supports, requiring students to manage their learning and assignments more independently, or with greater parent support when unsuccessful independently¹⁸. This need for parent assistance during distance education was reported as especially problematic, because most caregivers indicated a need to be working themselves. While survivors with previously identified attention difficulties typically had been provided with supports for attention and/or behavior in their traditional in-person school setting, parents reported that school staff struggled to adapt these supports to the online setting in the context of COVID19. As a result, parents reported greater struggles and reduced educational success for their survivors in the context of remote schooling.

Increased Anxiety and Feelings of Loss

Of concern, interviewed parents reported that changes in home and school routines as well as increased discussions of COVID19-related illness and death in the media was accompanied by increases in anxiety and worry among childhood cancer survivors. As one parent reported, any talk of the pandemic at home resulted in panic and crying, “He still has a lot of fears since his diagnosis. This [the pandemic] has made that harder. He’s started crying, I don’t want you to talk about dying.” Another parent stated, “I’ve noticed his anxiety has increased [since school closed].”

Given that survivors may have late-effects of treatment that are considered comorbid conditions associated with poorer outcomes of COVID19 infection, parents indicated that both

161 they and their child worried about the risks of returning to school in-person, should their school
162 district shift from distance education to in-person schooling. When asked how they felt about a
163 possible return to school, one parent stated, “I’m not comfortable, not with his health, because
164 his immune system, from what I understand... it’s still a hindrance, so I’m really nervous.”
165 Parents also recalled past experiences of their children getting sick due to classmates attending
166 school while ill, “when he was in school, when he was receiving treatment, you know, kids go to
167 school while they’re sick, like they have pink eye. There were kids constantly being sent to
168 school with strep throat and pink eye and the nurse would be trying to send them home and
169 actually had to talk to the parents – if your kid’s sick they can’t be here.” These experiences have
170 made them doubt their children’s safety regarding a return to in-person schooling during the
171 pandemic.

172 Furthermore, interviewed parents also reported feelings of loss and frustration in
173 survivors, specifically related to the impact of school closures on their in-person attendance and
174 peer contact. Given that children often miss months to years of school during treatment,
175 returning to school after treatment can be a much-anticipated milestone ¹¹. These feelings of loss
176 are reflected in one survivor’s reported complaint: “I finally got to be a regular kid and now
177 this.” Another survivor lamented, “I finally had my chance to be normal and now *nothing* is
178 normal.” These feelings of loss were directly related to school absences during treatment, with
179 parents reporting that survivors connected being out of school during COVID19 with memories
180 of their illness and treatment.

181 **Curriculum Inaccessibility**

182 Students with disabilities, such as those associated with cancer treatment, often require
183 changes to the regular curriculum. Students may receive these changes in the form of

184 accommodations, which can mean added supports such as having a read-aloud version of a book
185 for a struggling reader. Changes to the regular curriculum can also take the form of
186 modifications, such as having fewer items to solve for a math assignment, or offering an
187 alternative text at a lower reading level. Students with disabilities also often require specialized
188 instruction, which may include one-on-one or small group instruction, demonstrating skills in
189 multiple ways, or providing additional guidance and support. These accommodations,
190 modifications, and specialized instructional methods are typically documented in an
191 individualized education plan (IEP) or an accommodation plan (Section 504 plan) which is
192 drafted by the school team and parents and is legally binding. While each of the patients
193 involved in this project received some type of accommodations, modifications, or specialized
194 instruction *prior to COVID19*, none of the interviewed parents reported access to
195 accommodations and/or modifications made to the general education curriculum during the
196 COVID19 school closures. As one parent stated, “I basically feel like everything just got
197 dropped.” Parents reported having to do the work of creating accommodations and modifications
198 themselves, requiring them to do their own research into relevant education techniques. As one
199 parent explained, “I did a lot of Googling.”

200 Another strategy to support student access to the regular classroom curriculum is
201 “assistive technology,” defined as any software or device that supports daily functional skills.
202 For example, every survivor included in this project is reading below grade-level and would
203 benefit from speech-to-text software, which can enable student laptops and tablets to read
204 webpages and digital text aloud. As one parent reported, “I’d say that probably half of the things
205 sent by the teacher were not in her realm of understanding or reading... concerns were shared,
206 but nothing came out of that.” Assistive technology can support students with hearing loss, low

vision/blindness, reading disabilities, language disorders, and more. Despite these survivors having blindness, low reading ability, language disorders, and other needs that could be supported through the use of assistive technology, none of the interviewed parents reported that their survivor had an assistive technology assessment prior to spring 2020. The switch to distance education highlighted an even greater need for assistive technology, with students expected to learn via a new modality (i.e., online) and without the types of adult assistance they would typically find in a traditional classroom. Although there were reported issues with accessibility of the online content during distance education, none of the survivors' schools suggested assistive technology or switched to more digitally accessible instructional materials.

Discussion

Our findings offer initial evidence for impacts of the COVID19 schooling changes on childhood cancer survivors and their families, and suggest the presence of greater attentional struggles, new or increased psychosocial symptoms, and changes in survivors' access to the educational curriculum. These findings echo the conclusions of a recent review that highlights the special considerations for vulnerable learners during the COVID19 pandemic¹⁹. Care teams responsible for pediatric cancer survivors should be aware of these concerns and related factors that may make schooling during COVID19 particularly challenging for their patients and consider specific strategies to support them.

Given that most patients treated for cancer are likely to have trouble with attention and focus¹⁷ due to either acute or longer-term neurocognitive effects, or both, patients who struggle with attentional control may need new, distance schooling-specific, recommendations shared with the school team. Referrals for neuropsychological evaluation can help to clarify the nature of the survivor's attentional needs as well as clarify any comorbid psychosocial or learning

difficulties that may further exacerbate learning remotely. Additionally, referral to behavioral interventions or therapy can help survivors to acquire new coping skills as well as learn strategies applicable to the online learning environment. In addition to making such referrals, our team has developed a series of parent-friendly blog posts relevant to addressing challenges of remote schooling and the needs of students with attentional or executive dysfunction [e.g.: <https://www.kennedykrieger.org/stories/linking-research-classrooms-blog/executive-function-and-online-learning>]. Links to such posts can be regularly included in a “Schooling during COVID19” letter that is available for providers to send to families of survivors via the electronic medical record at our institution or included in discharge instructions, and other educational materials for families.

Mental health considerations are critical for all children during COVID19^{20,21}. In the general population, more than half of adolescents who use mental health services receive these services in a school-based program²², services that may not be readily available during COVID19. Furthermore, evidence suggests that childhood cancer survivors are at greater risk for symptoms of anxiety, depression, and social difficulties compared to their peers or siblings²³⁻²⁵. Given that interviewed parents reported increased mental health symptoms in survivors during the pandemic, oncology clinicians should routinely assess patients for unmet mental health needs²⁶ and make referrals to hospital-based mental health care or support groups, as appropriate, at this time. The use of telehealth methods for provision of psychological care²⁷ during this period may help to eliminate or reduce at least some of the barriers that make school-based mental health services so important for youth at risk for healthcare disparities.

Furthermore, health care providers should have open discussions with patients and families about the risks of returning to school during COVID19 and the availability of options

such as Home and Hospital or Homebound instruction. Federal guidance²⁸ emphasizes that children with cancer (or a cancer history) are eligible for Home and Hospital during COVID19, if and when schools return to in-person instruction without an option for online learning. Ensuring that survivors and families are aware of this federal guidance allowing students to “opt-out” of in-person schooling may not only reduce anxiety related to returning to in-person schooling, but also support families in understanding their rights to such educational supports. Our institution has developed a patient-friendly, explanatory information sheet describing student rights to Home & Hospital (Homebound) instruction for children with chronic/pre-existing conditions during COVID19 that can be provided to patients and families during visits, or sent as a “patient communication” via the patient portal as needed outside of the context of the visit (<https://www.kennedykrieger.org/sites/default/files/library/documents/HHT%20Fact%20Sheet.pdf>).

In addition to referring patients for neurocognitive evaluation to assist in documenting specific educationally-relevant impacts, the oncology team may help parents advocate for Home and Hospital (Homebound) instruction during COVID19 by providing written documentation of associated side effects, such as fatigue, and describing how such effects can impact the ability to maintain attention during remote learning. An example of this documentation may include the following statements for on- and off-treatment patients, respectively:

“John Doe is currently receiving treatment for cancer at our institution. John is experiencing significant fatigue as a result of his treatment and his parents report that he is unable to maintain attention for the time period required during remote classroom learning. I have suggested to his parents that they request his school team assist his family in applying for home and hospital teaching services.”

“Brianna Doe has a history of treatment for cancer at our institution, and experiences late-effects of treatment that put her at higher risk for infection and poor outcomes from COVID19. As such, given that her school district is returning to in-person session, she will need to be given the option of opting out of in-person instruction. I have suggested to her parents that they request her school team consider provision of Home and Hospital instruction for the duration of the pandemic to minimize risk of infection with severe consequences.”

Furthermore, given the impacts of cancer and its late-effects on hearing^{29,30} and vision^{31,32}, an assistive technology assessment should always be encouraged for patients who have limited hearing and/or vision. Findings from the current project suggest that the shift in method of instruction necessitated by the pandemic exposed potential pre-existing gaps in terms of survivors’ access to the curriculum, highlighting the critical role of digital accessibility and assistive technology. Regardless of the type of learning environment, oncology providers should be ready to refer patients for assistive technology assessments (via hospital-based rehabilitation services or school-based evaluation) that will help determine what types of technologies may best support the patient’s functional needs. Such supports may target the survivor’s needs in the areas of reading, writing, communication, organization, task-completion, mathematics, memory, and more. In addition to hospital-based evaluation, oncology providers can recommend that the school team assess the patient’s assistive technology needs related to the specific schooling context. Given the likely continued future use of distance education models^{33,34}, ensuring that survivors who require at-home schooling have access to the supports they will need to fully access their educational instruction will be critical for supporting their quality of life.

Conclusion

The COVID19 pandemic has presented numerous challenges to society over the last year. Debates about schooling have been highly contested and concerned parents are likely to turn to the healthcare community for advice and support³⁵. We report on conversations with stakeholder parents of childhood cancer survivors and identify specific concerns and clinically relevant suggestions for oncology care teams. More focused provider communication with parents about remote learning concerns including attention, mental health, and access to instruction, followed by appropriate referrals, may lessen the burden COVID19 has on the childhood cancer survivor community.

Conflict of Interest Statement

The authors declare that they have no conflict of interest

Acknowledgments

The authors would like to thank the parents and stakeholders participating in the Patient-Centered Outcomes Research Institute (PCORI)-funded Engagement project for their expertise.

Data Availability

The data that support the findings of this study are available from the author upon reasonable request.

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318 References

- 319 1. Ward E, DeSantis C, Robbins A, Kohler B, Jemal A. Childhood and adolescent cancer
320 statistics, 2014. *CA: a cancer journal for clinicians*. 2014;64(2):83-103.
- 321 2. Barrera M, Atenafu EG, Schulte F, et al. Determinants of quality of life outcomes for
322 survivors of pediatric brain tumors. *Pediatric blood & cancer*. 2017;64(9).
- 323 3. Oh Y, Seo H, Sung KW, Joung YS. The Effects of Attention Problems on Psychosocial
324 Functioning in Childhood Brain Tumor Survivors: A 2-Year Postcraniospinal Irradiation
325 Follow-up. *Journal of pediatric hematology/oncology*. 2017;39(2):e46-e53.
- 326 4. Gummersall T, Skaczkowski G, Wilson C. Childhood cancer, age at diagnosis and
327 educational attainment: A meta-analysis. *Critical reviews in oncology/hematology*.
328 2020;145:102838.
- 329 5. Jacobson LA, Pare-Blagoev EJ, Ruble K. Barriers to Schooling in Survivorship: The Role of
330 Neuropsychological Assessment. *JCO oncology practice*. 2020:OP2000549.
- 331 6. Aukema EJ, Caan MW, Oudhuis N, et al. White matter fractional anisotropy correlates
332 with speed of processing and motor speed in young childhood cancer survivors.
333 *International journal of radiation oncology, biology, physics*. 2009;74(3):837-843.
- 334 7. Khong PL, Leung LH, Fung AS, et al. White matter anisotropy in post-treatment
335 childhood cancer survivors: preliminary evidence of association with neurocognitive
336 function. *Journal of clinical oncology : official journal of the American Society of Clinical
337 Oncology*. 2006;24(6):884-890.
- 338 8. Silva AHD, Aquilina K. Surgical approaches in pediatric neuro-oncology. *Cancer
339 metastasis reviews*. 2019;38(4):723-747.
- 340 9. Anderson NE. Late complications in childhood central nervous system tumour survivors.
341 *Current opinion in neurology*. 2003;16(6):677-683.
- 342 10. Mulhern RK, Palmer SL. Neurocognitive late effects in pediatric cancer. *Current problems
343 in cancer*. 2003;27(4):177-197.
- 344 11. McLoone JK, Wakefield CE, Butow P, Fleming C, Cohn RJ. Returning to School After
345 Adolescent Cancer: A Qualitative Examination of Australian Survivors' and Their
346 Families' Perspectives. *Journal of adolescent and young adult oncology*. 2011;1(2):87-94.
- 347 12. Ruble K, Pare-Blagoev J, Cooper S, Martin A, Jacobson LA. Parent perspectives on
348 oncology team communication regarding neurocognitive impacts of cancer therapy and
349 school reentry. *Pediatric blood & cancer*. 2019;66(1):e27427.
- 350 13. Mcelrath K. Nearly 93% of Households with School-Age Children Report Some Form of
351 Distance Learning During COVID-19. 2020.
352 [https://www.census.gov/library/stories/2020/08/schooling-during-the-covid-19-](https://www.census.gov/library/stories/2020/08/schooling-during-the-covid-19-pandemic.html)
353 [pandemic.html](https://www.census.gov/library/stories/2020/08/schooling-during-the-covid-19-pandemic.html).
- 354 14. Gemin B SB, Vashaw L, Watson J, Harrington C & LeBlanc E. *Digital Learning Strategies
355 for Rural America: A Scan of Policy and Practice in K-12 Education* 2018.
- 356 15. Creswell J. *Qualitative inquiry and research design: Choosing among five approaches*.
357 3rd ed: Los Angeles, CA, Sage 2013.
- 358 16. Moustakas c. *Phenomenological research methods*. Thousand Oaks, CA, Sage; 1994.

17. Anderson FS, Kunin-Batson AS. Neurocognitive late effects of chemotherapy in children: the past 10 years of research on brain structure and function. *Pediatric blood & cancer*. 2009;52(2):159-164.
18. Nelson A. How COVID-19 Has Affected Special Education Students. 2020. <https://now.tufts.edu/articles/how-covid-19-has-affected-special-education-students>.
19. Drane CF, Vernon L, O'Shea S. Vulnerable learners in the age of COVID-19: A scoping review. *Australian educational researcher*. 2020:1-20.
20. Rousseau C, Miconi D. Protecting Youth Mental Health During the COVID-19 Pandemic: A Challenging Engagement and Learning Process. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2020;59(11):1203-1207.
21. Leff RA, Setzer E, Cicero MX, Auerbach M. Changes in pediatric emergency department visits for mental health during the COVID-19 pandemic: A cross-sectional study. *Clinical child psychology and psychiatry*. 2020:1359104520972453.
22. Ali MM, West K, Teich JL, Lynch S, Mutter R, Dubenitz J. Utilization of Mental Health Services in Educational Setting by Adolescents in the United States. *The Journal of school health*. 2019;89(5):393-401.
23. Brinkman TM, Li C, Vannatta K, et al. Behavioral, Social, and Emotional Symptom Comorbidities and Profiles in Adolescent Survivors of Childhood Cancer: A Report From the Childhood Cancer Survivor Study. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology*. 2016;34(28):3417-3425.
24. Michel G, Rebholz CE, von der Weid NX, Bergstraesser E, Kuehni CE. Psychological distress in adult survivors of childhood cancer: the Swiss Childhood Cancer Survivor study. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology*. 2010;28(10):1740-1748.
25. Zeltzer LK, Recklitis C, Buchbinder D, et al. Psychological status in childhood cancer survivors: a report from the Childhood Cancer Survivor Study. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology*. 2009;27(14):2396-2404.
26. Long-Term Follow-Up Guidelines for Survivors of Childhood, Adolescent and Young Adult Cancers, Version 5. 2018. www.survivorshipguidelines.org.
27. Ramtekkar U, Bridge JA, Thomas G, et al. Pediatric Telebehavioral Health: A Transformational Shift in Care Delivery in the Era of COVID-19. *JMIR mental health*. 2020;7(9):e20157.
28. *Questions and Answers on Providing Services to Children with Disabilities During the Coronavirus Disease 2019 Outbreak*. 2020. <https://sites.ed.gov/idea/idea-files/q-and-a-providing-services-to-children-with-disabilities-during-the-coronavirus-disease-2019-outbreak/>
29. Bass JK, Knight KR, Yock TI, Chang KW, Cipkala D, Grewal SS. Evaluation and Management of Hearing Loss in Survivors of Childhood and Adolescent Cancers: A Report From the Children's Oncology Group. *Pediatric blood & cancer*. 2016;63(7):1152-1162.
30. Beyea JA, Lau C, Cooke B, Hall S, Nathan PC, Gupta S. Long-Term Incidence and Predictors of Significant Hearing Loss Requiring Hearing Assistive Devices Among

- Childhood Cancer Survivors: A Population-Based Study. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology*. 2020;38(23):2639-2646.
31. Whelan KF, Stratton K, Kawashima T, et al. Ocular late effects in childhood and adolescent cancer survivors: a report from the childhood cancer survivor study. *Pediatric blood & cancer*. 2010;54(1):103-109.
32. Peragallo JH. Effects of Brain Tumors on Vision in Children. *International ophthalmology clinics*. 2018;58(4):83-95.
33. Cahapay MG. Rethinking education in the new normal post-COVID-19 era: A curriculum studies perspective. *Aquademia Journal*. 2020;4(2).
34. Ray A. E-learning: the new normal in the post-covid world. *International Research Journal of Modernization in Engineering Technology and Science*. 2020;2(9).
35. Esposito S, Principi N. Debates Around the Role of School Closures in the Coronavirus 2019 Pandemic-Reply. *JAMA pediatrics*. 2020.