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Impact of COVID-19 lockdown on children with developmental disabilities and their parents

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Abstract

Purpose of the article: This study explores the impact of the lockdown imposed during the outbreak of the COVID-19 pandemic on the lives of children with developmental disabilities (DD) and the emotional experiences of their parents. Methods: A total of 81 Romanian parents (90% mothers, M_{age} = 39.3, SD_{age} = 8.50) of children with DD participated in this cross-sectional study. Information regarding changes in lifestyle, health conditions, and psychosocial reactions of their children during the lockdown as well as measures adopted for compliance to preventive strategies and in dealing with emotions, was gathered. Results: The results of the study revealed that most of the children had restricted access to leisure activities, family doctor consultations, were less active physically, got fewer opportunities to socialise with their peers, had restricted access to rehabilitation therapies, and specialised medical services. Compliance with COVID-19 preventive measures is challenging for children with DD. Results also provided evidence of parents' emotional distress and negative changes in the lives of children with DD, the inability to adopt COVID-19 appropriate behaviour, and negative emotional states experienced by their parents. Conclusions and recommendations:The results highlight the need for authorities and specialists to plan and implement appropriate intervention procedures, to address the outlined issues, to meet the challenges brought forth by the ongoing crisis.

Keywords: COVID-19; developmental disabilities; parents of children with disabilities

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1. Introduction

The current COVID-19 pandemic has not only led to a health crisis but has also affected the economies of many states, communities, social values, and well-being of families and children everywhere. Indirectly, this health crisis has caused serious risks, which must be identified, followed and addressed (Jiglau et al., 2020).

This "great disruption" has affected education in such a way that is likely to change learning forever (Hepburn, 2020). The measures taken during the pandemic include restrictions in the form of social distancing and distance learning for students at all levels of education. This has resulted in important consequences on the quality of life of children. At the educational level, the adopted measures have resulted in varied kinds of consequences: forced digitalisation, lack of knowledge on using digital tools; teaching under more stressful conditions; and imbalanced learning design (e.g. more cognitive than social and emotional) (Nedelcu, 2020a). Application of remote learning in subjects like art and craft, laboratory-based courses, etc., is a challenging task, especially for learners with developmental disabilities, who need to adapt to the curriculum and application of diverse learning methods.

Remote education due to lockdown has brought uncertainties and challenges for both teachers, parents and children because they have to adapt to new skills and roles; and they have been placed in a discomfort zone along with a weak feeling of togetherness (Jiglau et al., 2020; Nedelcu, 2020b). The measure provoked immense criticism due to the lack of technical resources not only in schools but also at home. In the case of online teaching, children depend on technology, but many of them do not have computers, smartphones, or even an internet connection. Due to the lack of these resources, many children could not fully benefit from the educational activities and lack of face-to-face contact with the teacher also impacted learning. Moreover, the interaction using a digital device relies not only on a good internet connection but also on other technical aspects such as sound quality, clarity of images and other aspects which not only affect learning but also result in additional stress. Due to the unavailability of technological resources, many children with developmental disabilities (i.e. DD) faced discrimination. Some children were able to successfully participate in educational activities while others could not. The UN Convention on the Rights of Persons with Disabilities (2006) states that equal opportunities in education are essential, but in such a case, it became difficult to adhere to the regulations.

According to a study conducted by the NGO “Save the Children” during the state of emergency, over 40% of "vulnerable" children did not benefit from online education; only 12% of them had individual access to necessary equipment and only 10% of the parents were able to help their children continue learning during this period (Save the Children, 2020).

Subsequently, the current pandemic also offered opportunities to (1) experiment with new ways of designing, organising, and delivering the curriculum; (2) reconsider teaching methodologies; (3) practice openness towards change; (4) design creative activities – virtual and augmented reality for providing the students with the feeling of being “present” in a distant classroom (Ghergulescu et al., 2018); (5) develop “collaborative online learning,” “learning from home”; (6) implement project-based learning to a larger extent; and (7) increase the involvement of parents in the child’s learning process.

Remote education or online learning might be cheaper (Nedelcu, 2020b), can be made available to a larger population, and can be more affordable as compared to traditional classroom experience, but

it is also necessary to find answer to the following question: what effect does it have on children with special needs? The education of children with disabilities as an integral part of any mainstream system is stipulated and supported by the Salamanca Statement, adopted by UNESCO in 1994. According to the statement, the fundamental principle of inclusive education is that all children should learn together, whenever possible, regardless of the difficulties they have or the differences between them. The statement emphasises a sense of community in which all children belong to a common group. The inclusive school must recognise and respond to the diverse needs of students, ensure quality education for all, through the implementation of an appropriate curriculum, good organisation, effective teaching strategies, optimal use of resources, and partnership with other community members.

Going to school is associated with community and communication, imitation for learning the behaviours of others, and role negotiations. These elements educate, train, and enrich children's lives. During lockdown, children with disabilities did not benefit from all these learning enhancing elements. A classroom with students is one of the most powerful places in the world and is overloaded with interactions with a formative effect (Nedelcu, 2020a). The online classes failed to create such an effect similar to that of face-to-face interaction in offline classes.

Limited data is available on how the lives of children with DD have been affected by the regulations in force and how their parents have coped with the situation. The sparse information provided by the media only referred to the difficulties of children with disabilities in accessing online schools. There is also a dearth of how the situation caused by COVID-19 has impacted the mental well-being, care, and physical health of the DD children.

The social isolation faced by families having children with developmental disabilities has had direct consequences as a result of the living conditions of the family. Irritability and behavioural problems are manifestations of the stress experienced by children. Self-control difficulties were associated with tensions caused by social isolation, lack of communication, support from others, and restriction of personal relationships with peers (Jiglau et al., 2020). Anxiety caused by social isolation, lack of social contact with classmates or peers, and lack of leisure activities are conditions that can affect children emotionally, which can in turn result in behavioural problems. Additionally, the increased responsibilities of the families having children with DD during this period, as well as the lack of information on how to work with them from a pedagogical viewpoint, has increased stress levels of both parents and children. Each individual has his/her own way of responding to a crisis, and the ways of manifestation are not the same in all cases. Acute stress reactions or crisis reactions can manifest both emotionally and behaviourally. Maladaptive behaviour is often a response to distressing experiences.

Emotional difficulties and problematic behaviours can also result from other experiences, such as "social hazards" (Kolvin et al., 1981). Other research findings indicate that vulnerable factors for behavioural problems include low socioeconomic status (McGrath & Elgar, 2015), low achievers (Huffman et al., 2000), and teacher responses to students' behavioural challenges (Kolvin et al.1981).

In the context of the COVID-19 pandemic, some common reactions are considered normal, up to a certain level of intensity and duration. It manifests itself in the form of the following symptoms: anxiety, moments of panic or despair, sadness, difficulty concentrating, nervousness/irritability, difficulty sleeping at night (falling asleep, fragmented sleep, nightmares), decreased energy, and

fatigue (Pfefferbaum & North, 2020; Stoica, 2020). So, in such a case, it is considered understandable to experience negative emotions. However, not all negative emotions were similar. Some may predispose a person to chronic emotional distress or psychopathology. As the binary model of distress states (Ellis, 1962, 1994), negative emotions can be functional and dysfunctional. The difference is made by our evaluative cognition or interpretation of situations. When our evaluative cognition is irrational and rigid, our negative emotions are most likely to be dysfunctional. When our cognition is flexible and reasonable, our negative emotions are functional (David et al., 2002).

Experiencing functional negative emotions, such as sadness, is associated with adaptive coping skills in a stressful situation (Bonanno, 2004), while experiencing dysfunctional negative emotions (e.g. feelings of worthlessness) increased the probability of unhealthy responses, such as self-blame (Anderson, 1994). Even though we expect people, including parents, to experience negative emotions, whether functional negative emotions are dominant remains to be seen. Clarifying this aspect will help professionals identify vulnerable parents and employ preventive mental health measures. This is all the more important as parents of children with DD face additional challenges than other parents, and the need to foster resilience-related factors is stringent, as has been outlined in previous studies (Iacob et al., 2020).

Keeping the scarcity of data regarding the lives of children with DD in mind, during the lockdown and its effect on their parents' emotions, the investigators considered it important to investigate various aspects in this direction. So, grounded in an empirical, exploratory strategy, this study has two main objectives: (1) to explore the impact of the COVID-19 lockdown on the lives of children with DD and (2) to investigate the emotions of their parents during lockdown.

Taking into consideration the available literature, we anticipate that children with DD are likely to be negatively affected in all major areas of life (i.e. healthy lifestyle, emotions, behaviours, access to education, and medical services). Additionally, we expect their parents to experience higher levels of negative emotions and lower levels of positive emotions.

2. Methods

2.1. Participants and research design

A cross-sectional survey was carried out on 81 Romanian parents of children with DD out of which 90% were mothers (Mage = 39.3; SDage = 8.50), living in Bucharest, the capital of Romania. Out of the total participants, 82.7% were married or had a romantic partner. With respect to education, 29.6% had a high-school degree, and 38.3% had a bachelor's degree.

The age range of children varied between 3 and 19 years, with a mean age of 12 years and SDage = 3.82. Of the total children, 43% suffered from autism spectrum disorder (ASD); 40.7% had intellectual disability, and the remaining were diagnosed with disorders (e.g. attention deficit and hyperactivity disorder, dyslexia, etc.), 68% of the children were boys and 32% girls; 85% attended special education schools. Their intelligence quotient (IQ) varied between 18 and 98;(Mean MIQ = 44.1 and SDIQ = 15.6). Additional details have been provided in Table 1.

Table 1. Socio-demographic information of the participants

Parents	Relationship status	
(N = 81)	With partner	82.7%
	Single	17.3%
	Education level	
	Higher education	38.3%
	High-school	29.6%
	Vocational school	19.8%
	Gymnasium	12.3%
Children	Gender	
(N = 81)	Male	67.9%
	Female	32.1%
	Diagnosis	
	ASD	43%
	ID	40.7%
	ADHD	6.2%
	Other	10.1%
	IQ (N = 57)	
	Average (90–109)	3.6%
	Below Average (80–89)	-
	Borderline (70–79)	3.6%
	Mild ID (50–69)	21.3%
	Moderate ID (35–49)	45.8%
	Severe ID (20–34)	23.9%
	Profound ID (<19)	1.8%

2.2. Measures

2.2.1. Changes in lifestyle, health, and psychosocial reactions

All these changes of the child during COVID-19 lockdown were assessed using a 22-item questionnaire designed by the investigators. The participants rated their answers on a 3-point Likert scale (1 = worse/lower level than before lockdown; 2 = the same/no changes; and 3 = better/higher level than before lockdown). The items provided information regarding changes in the number of sleep hours and sleep quality, food quantity and quality, consumption of sweets, physical activity, self-care skills, interest in socialising with family and friends, the actual possibility of socialising, emotional states (i.e. joy, sadness, fears, irritability), frequency of family conflicts and behavioural problems, access to leisure activities, quality of education, contact with teachers, rehabilitation therapies, medical services provided by the family doctor, and specialised medical services. The scale had good internal consistency (Cronbach's $\alpha = 0.86$).

2.2.2. The compliance of the child regarding COVID-19 preventive measures

This variable was evaluated using a 7-item scale designed by the investigators. The caregivers rated their answers on a 5-point Likert scale from 1 (not at all/almost not at all) to 5 (very much/ almost

always). All items had a direct scoring, with higher scores reflecting higher compliance. Examples of items are "My child readily wears a mask or gloves when we leave the house," "My child avoids putting his/her hands on his mouth/face so often," "My child knows and understands information about COVID-19". In this sample, the Cronbach's alpha index of internal consistency was high (α = .92).

2.2.3. Parents' positive emotions

They were assessed with the help of four items (i.e. joyful, happy, calm, rested), reflecting their emotional states in the last two weeks. Answers were rated on a 5-point Likert scale from 1 (not at all) to 5 (very much). The Cronbach's alpha for these items was excellent (α = .92).

2.2.4. Parents' emotional distress

This variable was investigated using the Profile of Emotional Distress (PED) by Opris & Macavei, 2007, which is a 26-item scale designed to measure functional and dysfunctional negative emotions reflecting two dimensions: sadness/depression and fear. The answers were rated on a 5-point Likert scale with responses from 1 (not at all) to 5 (very much). All the items have direct scoring, with higher total scores reflecting a higher level of emotional distress: ≤ 32 (very low level of distress); 33-40 (low level of distress); 41-55 (medium level of distress); 56-83 (high level of distress); and ≥ 84 (very high level of distress). The Cronbach's alpha for this scale was very high (α = .97), reflecting the presence of redundant items.

2.2.5. Sociodemographic data

These data were collected using a questionnaire designed by the investigators. Information regarding age, gender, relationship status, and education level of the parents was included. Relevant information with respect to children's characteristics, information concerning age, gender, diagnosis, IQ, and schooling was also gathered.

2.3. Procedure

The questionnaires were prepared on Google Forms and distributed in social media groups of parents with disabled children. The questionnaires were available for three weeks during the second month of lockdown (April 2020). Informed consent was taken from the participants before the survey. The participants were also informed that in case any additional information is required, they would be contacted by the researchers via email. Participation was voluntary and no rewards were provided.

3. Results

3.1. Changes in lifestyle, health and psycho-social reactions

Frequency analyses of changes in the children's life-style, health, and psycho-social reactions revealed the following main findings: (1) 45.7% reported poorer sleep quantity and quality; (2) 55.6% reported higher food consumption; (3) 59.3% did not report any difference in the quality of food provided for their children; (4) 55.6% reported higher sweet consumption; (5) 71.6% reported less physical activity; (6) 54.3% reported that the children maintained their self-help skills, while 38.3% exhibited lower level of independence in self-help tasks; (7) 45.7% were able to retain their interest in socialising with their family members, while 35.8% showed increased interest in socialising with

household members; (8) 51.9% exhibited decreased interest in socialising with friends; (9) 65.4% had lower access to leisure activities; (10) joy levels were mostly maintained in 49.4% of the participants and decreased in 39.5%; sadness levels increased in 46.9% of the participants and was maintained in 38.3%; fear level was maintained in 74.1% of the participants; irritability level increased in 53.1% of the participants and remained the same in 40.7%; (11) 46.9% reported increased conflicts with family members and 53.1% of children displayed more frequent problematic behaviour.

When asked about the quality of education during the pandemic, 37% of the parents reported that low quality education was being provided. Additionally, a decrease in contact with the teachers was reported by parents of 43% of the children. Some of the other problems reported were lack of access to rehabilitation therapies and medicines. The details have been provided in Table 2.

Table 2. Frequency analysis of changes in children's lifestyle, health, and psycho-social reactions

Variable	Lower level (%)	The same level (%)	Higher level (%)
Sleep quality	45.7	50.6	3.7
Sleep quantity	45.7	34.6	19.8
Food quantity	9.9	34.6	55.6
Food quality	34.6	59.3	6.2
Sweet consumption	4.9	39.5	55.6
Physical activity	71.6	21	7.4
Self-care skills	38.3	54.3	7.4
Interest for family socialization	18.5	45.7	35.8
Interest for friend socialization	51.9	28.4	19.8
The real possibility of socializing with friends	79	14.8	6.2
Access to leisure activities	65.4	13.6	21
Joy level	39.5	49.4	11.1
Sadness level	14.8	38.3	46.9
Fear level	9.9	74.1	16
Irritability level	6.2	40.7	53.1
Frequency of family conflict	17.3	35.8	46.9
Frequency of problem behaviours	11.1	35.8	53.1
Quality of school education	37	58	4.9
Contact with teachers	43.2	45.7	11.1
Access to rehabilitation therapies	76.5	19.8	3.7
Access to a family doctor	66.7	32.1	1.2
Access to specialized medicine services	75.3	23.5	1.2

3.2. Compliance with COVID-19 preventive measures

Frequency analyses of the items to procure information regarding children's compliance to preventive measures revealed that more children had difficulties accepting or understanding the preventive measures and few exhibited higher levels of compliance. As expected, probably due to low IQ, the percentage of children who were not aware or had a lack of understanding about COVID-19 was the highest (i.e. 60.5%) in comparison to other items. The details have been provided in Table 3.

Table 3. Frequencies of child compliance to preventive measures

Variable	Not at all (%)	A little (%)	Sometimes (%)	A lot (%)	Very much (%)
1.My child understands why he should stay inside the house more.	48.1	12.3	14.8	14.8	9.9
2.My child washes his hands more often.	35.8	16	17.3	17.3	13.6
3. My child accepts to wear a mask or gloves when we leave the house	48.1	7.4	16	12.3	16
4. My child avoids putting his hands on his mouth/face so often.	51.9	17.3	21	3.7	6.2
5.My child knows and understands information about COVID-19.	60.5	12.3	12.3	8.6	6.2
6.My child accepts that he cannot go to school as usual.	39.5	11.1	16	18.5	14.8
7.My child accepts that we cannot go to the shops anymore.	42	11.1	21	13.6	12.3

3.3. Correlations and main descriptive statistics

The correlational analysis revealed that compliance behaviour was positively related to parents' positive emotions ($r = .47$; $p < .001$), child's IQ ($r = .46$; $p < .001$), and the child's age ($r = .32$; $p < .01$). The overall emotional distress of parents was not related to children's compliance behaviour. Additional details have been provided in Table 4.

Table 4. Pearson correlations and basic descriptive statistics

Variable	1	2	3	4	5	6	7	8	9	10
1.Compliance	-									
2.Emotional distress	-.00	-								
3.Positive emotions	.47***	-.26*	-							
4.Functional sadness	-.06	.93	-.31*	-						
5.Dysfunctional sadness	.03	.96***	-.15	.88***	-					
6.Functional fear	-.00	.92***	-.31**	.80***	.81***	-				
7.Dysfunctional fear	-.01	.95***	-.27*	.82***	.88***	.86***	-			
8.IQ	.46***	.09	-.00	.05	.11	.17	.01	-		
9.Child age	.32**	-.00	.28*	-.03	.00	-.00	.01	.08	-	
10.Parent age	.14	-.04	.02	.00	-.07	-.05	-.02	-.06	.50***	-
Mean (SD)	16.1 (8.28)	62.9 (24.9)	11.9 (3.43)	14.7 (5.97)	16.6 (8.20)	16.8 (5.88)	14.7 (6.32)	44.1 (15.6)	12 (3.82)	39.3 (8.5)

Note. * p < .05, ** p < .01, *** p < .001

3.4. Differences in parents' emotions

Paired sample t-tests revealed differences in the emotional experiences of parents during lockdown. It was found that positive emotions were at significantly lower levels as compared to negative emotions, such as dysfunctional sadness and fear. The effect sizes ranged between small and medium. The results have been illustrated in Table 5.

With regard to sadness, the parents experienced significantly higher levels of dysfunctional sadness-related states as compared to functional sadness-related states with medium effect size (t(80) = - 4.41; p < .001; and Cohen's d = - .49). Subsequently, with regard to fear, the situation was reversed. The parents reported higher level of functional fear-related states as compared to dysfunctional fear-related states, with medium effect size (t(80) = 6.07; p < .001; and Cohen's d = .67).

Table 5. Differences in parents' emotions

Paired variables	t-test (df = 80)	p-value	Cohen's d
Positive emotions vs functional sadness	-3.21	.002	-.35
Positive emotions vs dysfunctional sadness	-4.53	<.001	-.50
Positive emotions vs functional fear	-5.74	<.001	-.63
Positive emotions vs dysfunctional fear	-3.14	.002	-.34
Functional sadness vs dysfunctional sadness	-4.41	<.001	-.49
Functional fear vs dysfunctional fear	6.07	<.001	.67

4. Discussion

This study had two objectives: (1) to explore the impact of COVID-19 lockdown on the lives of children with developmental disabilities and (2) to investigate the emotions of their parents. Regarding *the first objective*, the authors examined changes in lifestyle, health, and psychosocial reactions, compliance of children with DD to COVID-19 preventive measures. The results showed that over 50% of children with DD displayed an increase in food intake and sweet consumption, exhibited greater irritability and problem behaviour. There weren't adequate provisions during the quarantine period and no information was provided with regard to physical activity, nutrition or recreational activities, which is very essential for children with disabilities. In Romania, children attending special schools are provided with free supplies and hot meals are offered as a part of the program by local authorities. They were not only able to participate in social programs but also enjoyed benefits in the form of hot meals during the lockdown period which provided necessary nutrients for healthy and balanced development. Special schools also offer free therapeutic services which are necessary for children with disabilities. Failure to attend these therapeutic programs may lead to setbacks in recovery and skill development.

Over 65% of the children had restricted access to leisure activities and family doctor consultations. Over 70% exhibited less physical activity, got few opportunities to socialise with peers and had restricted access to rehabilitation therapies and specialised medical services. Lack of physical exercise has a detrimental impact on children's quality of life, health, and well-being. Consequently, physical activities intended for children with impairments, as well as relaxation exercises, are effective ways for coping with troublesome behaviors. (European WHO [EWHO], 2020). Physical activity and movement

can help reduce aggressive behaviour (Yarımkaya & Esentürk, 2020) and reduce stress levels (Hillier et al., 2011). Sherborne (2001) stated that movement helps children with disabilities in the development of concentration and attention skills, positive self-esteem and emotional security. In this situation, finding strategies to facilitate their physical activities and to enable them to make movements is important for reducing the negative effects of inactivity.

For children with disabilities, access to medical services is especially important for following an individualised therapeutic program, intending to protect and enhance personal autonomy. Children's access to health services during the state of emergency has been limited, and at this time, especially due to triage and initial testing procedures for COVID-19. Even though paediatric services have not been directly affected by COVID-19, the fear of coming into contact with infected people, absence of home visits by specialised doctors, and limited access to other specialised services have endangered the health of children with disabilities due to delays in treatments and rehabilitation interventions.

With respect to contact with teachers after lockdown, it was found that 43% of the children had lesser contact, while for 45% of them, it remained the same. Most likely, they were engaged in online education programs. As most of the families were from Bucharest, the largest city in Romania, they probably had access to the internet and children were able to attend online classes. Future research should explore the situation of children in poorer regions of Romania and other countries, where children do not have access to online learning.

The results pertaining to child's compliance behaviours with the COVID-19 preventive measures scale revealed that they faced difficulties in understanding and accepting appropriate preventive practices, which is very important in the current pandemic situation. Therefore, in the case of children with DD, special training programmes should be designed keeping in mind their profile. A trained specialist must explain prevention measures against COVID-19 spread, to enable them to practise until the situation becomes routine. Children with DD approach problems in a less organised manner, without systematisation, and consequently do not possess a complete understanding of the situation (Popovici & Racu, 2012, p.104). For example, it is challenging to make them learn when to wash hands or disinfect. Lack of verbal skills brings complexity to relationships and makes understanding abstract elements all the more difficult. For this reason, all information about the coronavirus and the necessary preventive measures must be explained in simple language along with visual support. Infection with COVID-19 can also be avoided if children constantly adopt preventive measures and are desensitised wherever needed (e.g. some children refuse to wear anything on their faces, making it challenging to make them wear a mask). Effective strategies should be adopted to provide information regarding COVID appropriate behaviour to children with DD. At the same time, learning through cooperation and facilitating independence skills must be considered (Popovici et al., 2009, p.115).

It is well recognised that students with certain DD (e.g. autism spectrum disorders, ADHD) find it difficult to maintain their attention for a long time. They easily get distracted, so it is important to maintain regular eye contact with them, address them. and keep asking questions from time to time, to keep them attentive and enable them to be present in the class, not just physically, but mentally too (Mangone, 2020). Teachers can make use of the 'store' method during the lockdown period, to tackle such challenges and retain the child's attention. In this method, the worksheets for the children are left at a local store, and they are picked up by the parents. In such a scenario, the parents play the role of "emergency teachers" (Andrei, 2020).

Like many other countries, Romania has adopted the UNICEF Guide on Measures to Protect against COVID-19. The guide contains clear guidelines in the form of medical information for children, parents, and professionals with whom children interact, information on how to identify medically vulnerable children, and expected behaviours. According to the UNICEF Guide, the most vulnerable children are those who stay home alone, whose caregivers become ill, children with disabilities, children from disadvantaged social backgrounds who live in precarious and unfavourable conditions in areas prone to spread of the virus, and for institutionalised children (UNICEF, 2020, p.1).

International documents on the pandemic (e.g. UNICEF, The Alliance for Child Protection in Humanitarian Action, World Health Organization) draw attention to psychosocial stress and COVID-19 stigma that may expose children to greater violence. To prevent such situations, clear behavioural and communication guidelines have been outlined for children living in social isolation and experiencing a crisis.

The second objective of this study was to explore the emotions of parents of children with developmental disabilities during the COVID-19 lockdown. Because of the current scenario, online activities often involve the presence of a parent, involuntarily forcing them to play multiple roles: to help the child connect to the online platform, to explain lessons, help with homework, and provide all types of outdoor support that the child with DD needs. In Romania, educational activities within special schools can last up to 10 hours a day, i.e. from 8:00 to 18:00 hours, depending on the age and the intervention programs available for the child. Even if it may seem like a long program, it is dynamic and interactive, trains the child's on different areas of development. However, during the pandemic, most parents were left to fend for themselves, especially in cases where the family could not afford additional services at home that could help the child with DD. In the face of such a challenge of managing their children's educational and therapeutic programs on their own, many parents were destabilised, lost their patience, experienced exhaustion, and suffered due to unavailability of necessary resources (Popovici & Agheană, 2021).

As anticipated, the level of positive emotions was significantly lower than the level of negative emotions, providing evidence of participants' distress in such a scenario. While investigating different types of negative emotions, the investigators discovered that dysfunctional sadness-related emotions (e.g. depression, hopelessness, uselessness) were more frequent than functional sadness-related emotions (e.g. being sad, upset, feeling downcast). These results suggest that participants were vulnerable to depressive symptoms, which are common in this population, due to the caregiving burden (Scherer, Verhey, & Kuper, 2019). Functional fear-related emotions (e.g. being worried, feeling restless, feeling tense) were more frequent than dysfunctional fear-related emotions (e.g. feeling anxious, panicked, frightened), which is indicative of adaptive negative response shown by the parents in response to COVID-19 situation.

From the practical perspective, these results suggest that authorities should pay attention not only to children with DD but also to the mental health of their parents and ensure necessary support, through a balanced and holistic approach to decision-making (Luckasson & Schalock, 2020). International organisations and specialists have already started giving recommendations concerning interventions for this population: (1) emotional and professional support actions for parents of vulnerable children, digital learning programs adapted to the educational support needs of children with disabilities, the adaptation of procedures for easily reporting cases of abuse and neglect, both in

family and institutional environments, and finding additional resources to address the mental health issues faced by vulnerable families and children (Jiglau et al., 2020).

4.1. Limitations

The study makes an important contribution by adding to the current body of knowledge about COVID-19 and children with DD but suffers from several limitations that need to be addressed, to utilise the findings in the relevant methodological context. Firstly, the correlational nature of the research design does not allow causal or timeline inferences regarding the identified connections between the variables. One cannot determine whether the participants felt the same before the pandemic or whether the results were due to the lockdown. The analyses were exploratory as the authors had little research evidences on children with DD during the pandemic. Secondly, the outlined results are valid for the sample used in the study, and cannot be generalised on all Romanian children who are part of the DD population, as a convenience sampling strategy was used. Moreover, the participants lived in Bucharest, the largest city of Romania, where people enjoy higher living standards than rural areas of the same country. So, the inference drawn by the investigators was that the situation is worse in poorer regions.

5. Conclusion

To conclude, this exploratory study revealed several essential aspects of COVID-19 impact on children with DD and their parents: (1) the negative consequences in the lives of children with DD, especially in the areas of physical activity, socialising with peers, access to rehabilitation therapies, and specialised medical services; (2) lack of understanding about COVID appropriate behaviour and lack of preventive measures for children with DD, which urges specialists to come up with specific interventions in this area; (3) need of assistance for parents of children with DD to protect their mental health and help them cope with dysfunctional emotions.

Although the COVID-19 pandemic has created multiple unfavourable situations, it has provided an opportunity to develop special education in a much more digitalised way. The various online platforms on which the lessons and activities were delivered helped people realise the utility of such a system in a crisis, making education more inclusive. For example, children with various serious disorders, who could not attend classes frequently, had the opportunity to access the lessons in an online format, which in future could reduce the dropout rate.

The societal changes brought by the pandemic can lead to the promotion of more inclusive public policies, which offer equal opportunities to all, from education to health and social assistance, the advantages which they have and their future utilisation. The effectiveness of the online education programmes for children with DD can be increased if video notebooks and video manuals and accessible personalised intervention programs are created in a digital format so that monitoring of the acquisition curve on each learning objective/item could be done during online teaching.

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