



Parental Views of Families of Children with Autism Spectrum Disorder and Developmental Disorders During the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic, the infection caused by the novel coronavirus detected in December 2019 by World Health Organization (WHO), has detrimentally impacted human life in a variety of areas. Many concepts including outbreak, pandemic, and quarantine have been an inseparable part of our lives. This kind of dialectic change naturally affects persons with autism spectrum disorder (ASD) and developmental disorders (DD) and their families. The present study using a mixed-method evaluation aims to reveal the impacts of the COVID-19 pandemic on the family functioning of children specifically with ASD in Turkey. This study promises a holistic understanding of how the lockdown depending on the COVID-19 pandemic affects families and their children with ASD with positive and negative sides.

Keywords Autism spectrum disorder · COVID-19 (coronavirus) pandemic · Families · Mixed-method evaluation

Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental and increasingly prevalent disorder currently affecting one in 54 children as reported by the Centers for Disease Control and Prevention (CDC) (Maenner et al. 2020). Individuals with ASD experience substantial deficits in social communication and social interaction problems besides restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2013). Although support is needed on a regular basis, the COVID-19 pandemic increases the family support needs of individuals with ASD in such uncertain times. In this respect, researchers need to integrate emerging qualitative and quantitative data to understand catastrophic social changes like the COVID-19 outbreak, especially for people with ASD and developmental disorders (DD) and their families (Fetters & Molina-Azorin, 2020). Using quantitative and qualitative methods, this study

seeks to describe aspects of the effects of the COVID-19 pandemic using the parental appraisals of children with disabilities and their families as a parent describes conditions through their own stories. This study investigated different aspects of the effects of lockdown in relation to the COVID-19 pandemic on the family functioning of children with ASD and DD.

Since pandemics affect individuals and society on many levels, not just as a medical phenomenon, panic and stress are the two main consequences of the societal impact of pandemic outbreaks. This often affects the emotional health of people besides increasing concerns over the perceived threat of illness so that people may store foods and medical supplies (Pierce et al., 2020). Another substantial result of the COVID-19 pandemic is the family burden to meet their children's educational and therapeutic needs at home without or with less professional support within family systems beyond economic difficulties, social isolation, mortality rate, or higher anxiety in relation to being infected (Cuypers et al., 2020; Neece et al., 2020; Sun et al., 2020). Especially, all children are affected by isolation or quarantines causing nationwide school closures all around the world due to the spread of this novel coronavirus (WHO, 2020). Closing of schools, daycare programs, or after-school supports increases the need for parents assisting their children as a teacher and adds this to their current responsibilities of employment, household tasks, and personal issues

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or interests (Eshraghi et al., 2020; Fontanesi et al. 2020). Individuals with intellectual and developmental disabilities (IDD) including children with ASD are also vulnerable to the effects of the pandemic (Manning et al., 2020; Moukaddam & Shah, 2020; Thompson & Nygren, 2020). Furthermore, these children, especially children with ASD, require more and specific supports in accordance with their diagnosis to meet their educational, social, health, and psychological needs (Aishworiya & Kang, 2020). Additionally, children with ASD experience high level challenges during isolation or quarantine because they struggle to tolerate the uncertainty and anxiety (e.g., Boulter et al., 2014; Hume et al., 2020; Jenkinsen et al., 2020).

The COVID-19 pandemic has a widespread effect on the society around the world because of isolation, lockdown, curfew, or quarantine beyond the already mentioned negative impacts of this current outbreak. Isolation and quarantine practices that can be voluntary as well as mandatory are described in the Law on Public Hygiene no.1593 (1930, amended 2018) in Turkey. In accordance with this law, the government is responsible for applying protective measures including isolation or quarantine aiming reduction of mobility and mitigating the spreading of epidemic or pandemic diseases in a specific area or entire country. Although the isolation and quarantine enforcements restrict individual liberties, quarantine is essential as one of the most effective public health measures for controlling outbreaks (Kilic et al., 2020). ‘Stay home’ or ‘stay-at-home’ has become a worldwide motto/mantra during the quarantine associated with the COVID-19 pandemic (CDC, 2020a; WHO, 2020; Ministry of the Interior of Turkey, 2020). This means isolation or separation from society and environment for all people including families of children with ASD. Quarantine or lockdown restrictions associated with this outbreak impact personal and family life because people must stay at their home or in a place designated for this task by following specific rules. Therefore, these fundamental changes in social life may lead to short-term or long-term effects on family functioning during the quarantine.

The catastrophic or uncertain atmosphere may impact all aspects of parental perceptions of families who have children with ASD about the COVID-19 pandemic. Although negative events usually lead to negative appraisals, researchers need to conduct a comprehensive evaluation and confirm their data by using characteristically different assessment methods to see the whole picture (Creswell, 2010; Creswell & Plano Clark, 2006; Leech & Onwuegbuzie, 2009; Tashakkori & Teddlie, 2010). Therefore, integration of both qualitative and quantitative data may potentially facilitate understanding of the effects of catastrophic or uncertain situations well because of the COVID-19 pandemic. Above all, a body of research identified that families of children with ASD due to having and rearing a child with a disability are usually

more skillful in adapting to unusual conditions (e.g., Glidden et al., 2006; Hastings & Taunt, 2002; Hasting et al., 2005; Jones & Passey, 2004; McCubbin & McCubbin, 2001; Summers et al., 1988). Therefore, if the experience of parents of children with ASD is different from most of the parents of typically developing children, their appraisals may hypothetically be different from the usual or general panorama.

The purpose of the present study was to investigate the impact of the lockdown and curfew associated with the COVID-19 coronavirus pandemic on the family life of children with ASD in Turkey by integrating qualitative and quantitative methods. In this respect, thematic analysis was used as an analytic tool to distribute what parents said to relevant themes exploring how families of children with ASD interpret the quarantine’s effects on their family and child’s daily life and routine. Also, the family distress, family quality of life, and family happiness respectively were assessed by using the single-item questions to confirm the interviewed parents’ points of view about their perceptions during the quarantine. Accordingly, our research question was how lockdown or curfew measures associated with the COVID-19 pandemic affect perceptions of families of children with ASD on their family functioning.

Method

Participants

Participants included 32 biological parents of children diagnosed with ASD and DD who lived together with their child during the quarantine, an essential requirement for study inclusion. In the current study, most participating parents were married ($n = 30$, 98.8%) and identified their perceived income level as in the middle range ($n = 17$, 53.1%). Mothers and fathers had similar levels of education ranging from elementary school to a university degree. Mothers’ mean age ($M = 37.40$, $SD = 7.33$) ranged from 26 to 59 years while fathers’ age ($M = 39.34$, $SD = 10.62$) ranged from 25 to 60 years. Most fathers were blue-collar workers ($n = 21$, 65.6%); most mothers were homemakers ($n = 25$, 78.1%). The children of parent participants were diagnosed as ASD ($n = 23$, 71.9%), IDD ($n = 6$, 18.8%), and other disabilities including learning disability, and developmental delay ($n = 3$, 9.4%). Some parents characterized the disability of their children to be mild severity ($n = 13$, 40.6%) depending on educational assessment reports by the Guidance and Research Centres (GRCs) which is the single authorized institute to serve for school guidance and special education services under the Ministry of National Education (MoNE, 2011) in Turkey. Most children were male ($n = 20$, 62.5%) and their age ranged from 2.5 to 22 years (Mean = 7.75,

Table 1 Characteristics of families and their children with ASD and DD (n=32)

Variables		n (%) & M (SD)
Age of mothers (N=32)	Mean & SD of Mother Age	M=37.40 (SD=7.33) Ranged 26–59
Education level of mothers	University/upper degree	7 (21.9)
	College	3 (9.4)
	High school	9 (28.1)
	Middle school	5 (15.6)
	Elementary school	7 (21.9)
	Unreported	1 (3.1)
Employment status of mothers	White collar	5 (15.6)
	Blue collar	
	Retired	2 (6.3)
	Homemakers	25 (78.1)
Age of fathers (N=32)	Mean & SD of Father Age	M=39.34 (SD=10.62) Ranged 25–60
Education level of fathers	University/upper degree	6 (18.8)
	College	4 (12.5)
	High school	10 (31.3)
	Middle school	4 (12.5)
	Elementary school	6 (18.8)
	Unreported	2 (6.3)
Employment status of fathers	White collar	8 (25.0)
	Blue collar	21 (65.6)
	Retired	2 (6.3)
	Unemployed	1 (3.1)
Perceived Income	Low	11 (34.4)
	Middle	17 (53.1)
	High	3 (9.4)
	Unreported	1 (3.1)
Marital Status	Married/together	30 (98.8)
	Single parent	2 (6.3)
Gender of children with ASD & DD	Female	12 (37.5)
	Male	20 (62.5)
Age of children with ASD & DD	Mean & SD of Child Age	7.75 (5.23) Ranged 2.5–22
Type of Disability	Intellectual Disability (ID)	6 (18.8)
	Autism Spectrum Disorder (ASD)	23 (71.9)
	Other type disability (e.g., LD, SLI, DD)	3 (9.4)
Severity of disability	Mild	13 (40.6)
	Moderate	9 (28.1)
	Severe	6 (18.8)
	Profound	2 (6.3)
	Unreported	2 (6.3)

SD=5.23). Demographic characteristics of parents and their children with ASD and DD are included in Table 1.

Procedure

The first author of the current study collected qualitative and quantitative data from parents of children with ASD by using video call or phone chat technology between April 13, 2020, and May 9, 2020. In Turkey, March 16, 2020, was the

first day of quarantine precautions, and the data collection was finished before May 11, 2020, the first day of easing of lockdown restrictions. A total of 34 interviews were conducted with families of children with ASD and IDD living in Turkey but two interviews conducted with family members living elsewhere during the pandemic were excluded from the analysis. All participants were living in Istanbul, a large, crowded city that was most affected by quarantine precautions in Turkey.

The interviewer explained the scope and purpose of the study, and participants agreed orally to provide informed consent before semi-structured interviews began via distance technology because of the quarantine obligations of researchers and families. The interviewees answered 5 semi-structured interview questions and 3 single-item quantitative questions besides sharing basic socio-demographic information. Except for a few interviews with only mothers, most of the interviews included both parents within one interview format. A semi-structured interview protocol was intentionally flexible. Therefore, even though the interviews focused on research questions associated with quarantine effects, two-way communication (turn-taking organization) between interviewer and participant allowed a conversational approach (Coryn et al., 2014; Johnson & Weller, 2001). All questions were asked to the interviewees by video call and voice chat by using WhatsApp online and the conversations were simultaneously digitally recorded. Immediately following the qualitative interview, single-item questions were asked to interviewees via WhatsApp chat message, and their responses were recorded on the sheet by the researcher. Interviews ranged from 19.31 to 85.15 min an average interview length of 45.17 min.

Measures

Socio-Demographic Form

Parents provided basic socio-demographic information about themselves and their child with ASD and DD as the researcher recorded this on a short socio-demographic form. This form includes parents' age, education, labor status, marital status, parental relationship with the child, perceived income as well as the child's age, gender, disability type, and severity of the disability.

Qualitative Measures—Semi-Structured Interview

The researcher(s) developed five open-ended interview questions asking general information about the COVID19 pandemic, family precautions, and any positive or negative effects on family functioning and children with disabilities. Interview probes included: (1) What kinds of precautions do you take to deal with COVID-19 pandemic? (2) What are the negative effects of the COVID-19 pandemic on your family life? (3) What are the positive effects of the COVID-19 pandemic on your family life? (4) What are the negative effects of the COVID-19 pandemic on your child with a disability? (5) What are the positive effects of the COVID-19 pandemic on your child with a disability?

Quantitative Measures

Following the interview portion of data collection researchers used three single-item scales or questions to assess family distress, family quality of life, and family happiness. Although single-item measurements are less reliable than multi-item scales (International Wellbeing Group, 2013), a scale should be user-friendly and time-efficient as well as reliable and valid (Zimmerman et al., 2006). Measuring overall quality of life, health, or happiness via single item questions instead of multiple-item scales have been used in some research (Abdel-Khalek, 2006; DeSalvo et al., 2006; Gardner et al., 1998; Zimmerman et al., 2006). Additionally, researchers should focus on targeted information to consider catastrophic social changes like the quarantine relevant to the pandemic. Thus, parents answered the single-item questions to rate their family distress, family quality of life, and family happiness respectively during the COVID-19 pandemic to serve as verification of the qualitative data and to show the consistency of parental appraisals during the quarantine.

The Brief Family Distress Scale

Families rated their situation during the quarantine associated with the COVID-19 pandemic by selecting one of 10 statements on The Brief Family Distress Scale (BFDS). The BFDS assessed the family distress of parents of individuals with ASD about caring for their child (Weiss & Lunsky, 2011). The scale statements were derived from qualitative interviews conducted with parents of children with ID and mental health problems (Weiss & Lunsky, 2010). In this scale, A score of 8 or above, indicates currently being in crisis of families.

A single-item question about Family Quality of life

Overall FQOL was assessed by asking parents to rate their FQOL on a ten-point visual analog scale (from Extremely Low—1 to Extremely High—10) with a single-item question in the present study. Here a family quality of life (FQOL) rating indicates the degree to which families' needs are met, family members enjoy their life together, and that family members have a chance to do things important to them (Turnbull et al., 2020; Zuna et al., 2010).

A Single-Item Question About Family Happiness

Happiness refers to the subjective or individualistic feeling of a human being (Findler et al., 2016). However, in this instance, family happiness was used to assess an entire family as a unit in terms of a collectivistic perspective. Family happiness (Tolstoy, 1859), a more collectivistic concept,

describes the happiness of the entire family of critical importance in Eastern societies (Joshani, 2014). Although family happiness is a subjective judgement, this collective happiness of families was evaluated using a visual analog scale with five statements (ranging from Not at all happy = 1 to Very happy = 5) as a single-item question in the present study.

Design

A concurrent (or convergent) mixed methods design was used to investigate the research questions and the results were compared simultaneously, which is also called Type D: Concurrent triangulation design (Creswell & Plano Clark, 2006; Creswell et al., 2003). Unequal weighting favored the qualitative data with quantitative data being used to confirm or contrast the prior method in accordance with fully mixed concurrent dominant status design (Leech & Onwuegbuzie, 2009). Accordingly, the research design was formulated as [QUALITATIVE (thematic analysis) + quantitative (single-item questions)].

The Concurrent Triangulation Design was used including the most common approach among mixed-methods research for obtaining different but complementary data on the same topic (Creswell, Plano Clark, et al., 2003; Morse, 1991). This design compares or contrasts quantitative results by using qualitative findings (Creswell & Plano Clark, 2006). Or vice versa, the qualitative results can be used to support quantitative findings. This design supports collecting and analyzing quantitative and qualitative data by merging both data formats into one overall interpretation.

The rationale for using the “concurrent triangulation design” is the convenience of a single-phase timing for this study (Creswell et al., 2003). This design is also referred as “simultaneous triangulation” and the researcher can play a key role in deciding whether qualitative and quantitative methods are of equal priority, or if one data source is more dominant than the other in this design (Morgan, 1998). In this respect, the dominant status (unequal weight = QUAL + quan) was adopted to emphasize

qualitative aspects of the study. Within qualitative analysis, unequal weight is used for qualitative part of the study. The quantitative data emerging from single-items questions was then used to validate the qualitative results from the semi-structured interview items. Accordingly, our formulation is QUALITATIVE (qual: thematic analysis) + quantitative (single-item questions) = Interpretation based on QUAL + quan results together (See Fig. 1).

Analysis

Qualitative Data—Thematic Analysis

Thematic analysis including identifying, analyzing, and reporting themes relevant to data aims to interpret various aspects of the research focal with a qualitative perspective (Boyatzis, 1998; Braun & Clarke, 2006). The researcher’s judgment is crucial as the key indicator in selecting themes and determining which themes are more crucial (Braun & Clarke, 2006). In this sense, the researcher generated main themes apriori before interviews, and each code was distributed to themes in accordance with relevant research questions. The interview recordings (audio records) were transcribed verbatim for thematic analysis by a journalism student, then the first author analyzed interviews using the five themes generated in accordance with qualitative research questions of the current study (Braun & Clarke, 2013).

Quantitative Data

The means (M) and standard deviations (SD) were computed depending on the parental rating of each single-item question. Pearson correlations were also computed among quantitative variables to reveal the relationship with each other with statistical significance set at $p < 0.05$. The quantitative data was analyzed by using IBM SPSS Statistic 22 (IBM Corp, 2013).

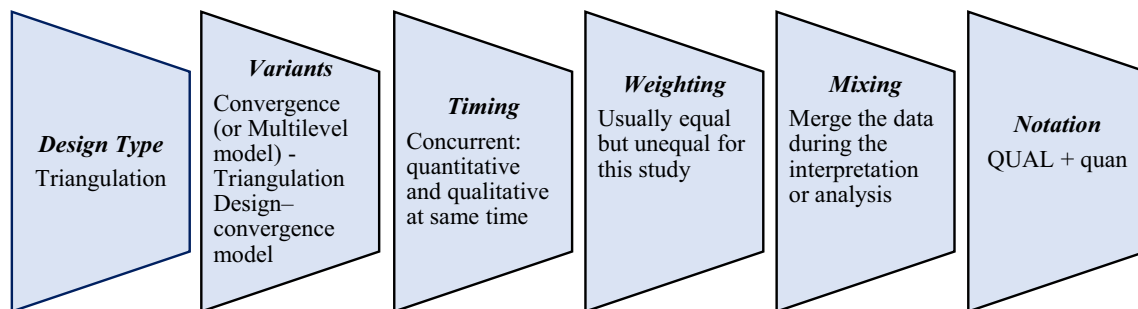


Fig. 1 The pathways of the current study in mixed methods design

Integrating Qualitative and Quantitative Results to Compare or Contrast

The quantitative and qualitative findings were integrated or combined by bringing these two data sources together to find contrast and comparison (Fetters et al., 2013). Integration is an intentional process to bring quantitative and qualitative approaches together interdependently addressing different sides of common research in a study (Bazeley, 2012). Data were depicted by using the joint displays of integrated analysis of qualitative and quantitative results providing new insights so that researchers and readers can better understand how the mixed method was used in current study (Guetterman et al., 2015). The joint display is a way to compare and contrast viewpoints of participants as well as verify the qualitative results by using quantitative data in mixed method evaluation. Thus, the joint displays enhanced interpretation of the integrated quantitative and qualitative results and provided a novel insight to discuss this data. The two prevalent types of joint displays are statistics-by-themes or side-by-side comparisons in the convergent design (Creswell & Plano Clark, 2011). A side-by-side display was used in this study to integrate results about parental appraisals on effect of pandemic.

Results

The qualitative and quantitative results analyzed together within the concurrent/convergent triangulation design described the family functioning of children with ASD during the quarantine related to the COVID-19 pandemic. This permitted simultaneous analysis rather than a separate summary of interviews and statistics.

Qualitative Results

The current study analyzed how interviewees negatively or positively interpreted the effects of the COVID-19 pandemic on their family system besides how they cope with this pandemic by using what they said and how much they said about it. In this respect, the thematic analysis was applied to investigate how parents perceived the lockdown restrictions while what and how much they affirmed with their words via thematic classifications.

Five semi-structured questions prompted parents to reveal the effect of the COVID-19 pandemic on families of children with ASD and DD within the qualitative evaluation. A thematic statement/quotes was put after each predominant interpretation of qualitative data to embody the parental appraisals. Table 3 briefly depicts the parental qualitative appraisals combined with single-item responses during the COVID-19 pandemic lockdown.

Theme 1. Coping with Pandemic and Precautions

Parents answered how they cope with the COVID-19 pandemic and what kinds of precautions they have taken against the outbreak as the first interview question. Most parents reported that they took basic precautions including isolation, not going outside, and/or limited interaction (50%): *“We adopted a logic called sunbed umbrella. Apart from our own home, only certain family members go out. It is only for essential needs, namely food, for basic food needs (Ö.B.)”*. Secondly, a subset of families reported that they were more careful about hygiene rules (31.2%) to cope with pandemic: *“What is done (cleaning house) once or twice a week has now turned into a daily routine (N.H)”*. Parents also reported that obey curfew rules and social distancing (15.6%): *“We are distant to people. I think we are trying to take all the precautions (A.B.)”*.

Theme 2. Negative Effect of Pandemic for Family

A minority of parents expressed that they had financial problems (15.6%): *“Due to this covid (the COVID-19), they closed many businesses and he (my husband) stayed at home and I am at home in the same way. You know, going out is prohibited (Z.H.)”* and experienced conflict among family members (15.6%): *“We are also affected psychologically. Therefore, our involvement in everything at home bothers women a little more at that point. There is some unpleasantness in between, but of course, after 1 or 2 h, nothing is left (A.B)”* during the pandemic. They reported some companies or workplaces where parents work were completely closed or reduced the work hours due to lockdown, which was the reason that some of the parents lost their jobs or their earnings decreased. Secondly, especially fathers who normally spent their time at the workplace had to stay at home depending on curfew and lockdown and shared the same places with other family members for all times during the pandemic. Consequently, especially fathers expressed experiencing some conflict with mothers.

Theme 3. Positive Effect of Pandemic for Family

A considerable number of parents reported that they had a chance to share much more time and doing something together (56.2%) due to the pandemic: *“First, I used to go to work until K... (child’s name) was 5.5-month-old, I had a chance to stay at home when he was 5.5 month-old (because of the pandemic). We could not take more than a week’s leave. We take one week and one annual leave, at most two or three times during the holidays. Uh, it’s the fourth week in our lives for the first time, right? For 4 weeks, mother, father, and child are in the same house, K... (child’s name) has been seeing us for the first time for 4 weeks (H.H.)”*. They

expressed that family interaction among family members increased in terms of time as well as quality. In contrast, parents reported all family members normally could not find much time to do together depending on especially labor-intensive works and time need to be reserved to go to work before the pandemic. Parents secondly reported increased father-child interaction as a result of much reserved time for kids (34.3%) because they had to stay at home due to the pandemic: “*This is the first time I am home with children in such a long time. I think my communication with the older girl is good. So, Uhm S ... (wife’s name) knows from earlier. For example, she did not even go to the grocery store, our communication was bad because we did not spend time together, we did not sit together, I do not know, we did not have a social activity. At least I feel like my daughter is listening to me now. When I ask for something, she does it or she wants to know what I know. We had the opportunity to play several games, such as social, home play, all kinds of old games. In other words, our father-daughter relationship, I think I could build it on more solid ground in 20–25 days (S.B.)*”. In this respect, increasing father-child interaction is probably one of the good consequences of the “stay-at-home” order depending on the pandemic.

Theme 4. Negative effect of the pandemic for the child with ASD and DD

A substantial number of parents reported that unmet educational needs (40.6%) were problematic for their children during the pandemic: “*For example, he (child with ASD) cannot go to school (special education center), it affected him a lot. For example, it would be better if he went to school. He behaves different at home because he does not go (S.H)*”. Within the pandemic precautions, all educational services stopped depending on closing either general or special education schools. Although some online educational services were provided for students, these services could not meet the educational needs of some children with ASD and DD because of their needs for intensive behavioral support and face-to-face education. Parents reported the isolation and no or limited interaction with peers (31.2%) as the second negative impact of the pandemic on their children: “*The child wants to be outside. This kid has allergic problems of course. We can’t go out to get fresh air, to have fun, to*

play, and still, I can’t (M.B.)”. In this respect, during the curfew, especially children with ASD had no chance to go some places where they might be together with peers such as malls, parks, or schools or join some activities enhancing their social integration.

Theme 5. Positive Effect of the Pandemic for the Child with ASD and DD

Parents mostly reported the increased verbal behaviors (25%) of their children specifically with ASD with the increased family interaction during the pandemic: “*For example, interaction with family members caused (children) talking more. You know more when talking, eye contact. She looks at our faces, can listen, for example, while talking (A.H)*”. In this sense, parents expressed having a chance to talk and interact with their children specifically with ASD besides increased sibling interaction for some families. For this theme, parents also reported their children with ASD were more skillful to meet their own self-care skills (18.7%): “*For example, he could not bathe alone, now he takes a bath alone. He can easily get dressed by himself (D.H.)*”. Parents mentioned the increased variety of self-care skills performed by their children from toilet skills to wash hands.

Quantitative Results

Three single-item questions were asked parents at the end of each interview to corroborate the nexus between qualitative and quantitative results. Table 2 depicts the results including mean and standard deviation besides correlations among quantitative variables. First, each parent rated where they and their families were in terms of crisis associated with quarantine by choosing the relevant statement of the BFDS on a 10-point scale. Each statement was describing a point along the continuum from no stress to a complete crisis. Accordingly, the examination of the average scores obtained from BFDS during the pandemic revealed that the overall parental perception of family distress was low level ($M = 3.03$, $SD = 1.57$). Second, parents indicated their overall satisfaction with their family quality of life ($M = 6.96$, $SD = 1.61$) as satisfied during the pandemic by using a visual analog scale, 1 = extremely low and 10 = extremely high. Last, parents rated their family happiness by using a visual

Table 2 Correlations among single-item variables ($n = 32$)

	Mean / Likert (SD)	1	2	3
1. Family Distress (FD)	3.03 / 10 (1.57)	–		
2. Family Quality of Life (FQOL)	6.96 / 10 (1.61)	–0.38*	–	
3. Family Happiness (FH)	3.56 / 5 (0.75)	–0.17	0.54**	–

* $p < 0.05$

** $p < 0.01$

analog scale including statements from not at all happy to very happy with a single-item question. Parents assessed their family happiness or collective happiness as moderately happy ($M = 3.56$, $SD = 0.75$).

Pearson correlations among single-item questions revealed that there is unsurprisingly a significant negative correlation between family distress and family quality of life ($r = -0.38^*$, $p < 0.05$) depending on different direction tendencies of both variables. Also, a significantly positive correlation was computed between family quality of life and family happiness ($r = -0.54^{**}$, $p < 0.01$). However, there was no significant correlation between family distress and family happiness ($r = -0.17$, $p = 0.33$) probably depending on the dominant cumulation around the middle statement of the single-item question.

Combining Qualitative and Quantitative Results

This study focused on concordant integration of qualitative and quantitative results by using a side-by-side display that were depicted in Table 3. By combining both results, this study showed that the pandemic had negative effects as well as positive effects on family functioning and children with ASD and DD. Contrary to popular belief, the current study indicated some positive effects experienced during the pandemic even though it also detrimentally impacted the families and their children. Likewise, quantitative results depending on family distress, family quality of life, and family happiness verified the positive appraisals of parents during the pandemic. In this sense, parental perception about family distress was rated at a low level, while families were satisfied with their family quality of life. At first glance, parental assessment was summarized at a moderate level of family happiness. But becoming moderately happy in the current era is a precious and reasonable goal for all people wherever or whichever conditions they live.

Discussion

The purpose of this study was to verify qualitative parental appraisals by using the quantitative single-item questions about the COVID-19 pandemic. Although some available scales including Pandemic Severity Index or Pandemic Severity Assessment Framework (PSAF) offered by CDC (2020b) promise to evaluate influenza pandemic, these or similar scales are far from exactly revealing impacts of novel corona virus (the COVID-19) pandemic on families of children disabilities. Therefore, a qualitative evaluation verifying by quantitative single-item questions can lead to reveal viewpoints of families of children with ASD and DD during the COVID-19 pandemic. Indeed, this verification indicated

a positive tendency about the effects of the COVID-19 on family functioning and children specifically with ASD.

Considering the viewpoints of parents, a predominant subcategory within the study's themes was "*shared more family time and increased family interaction*" under the positive effect of the COVID-19 on family life. Most parents, especially fathers, expressed lack of time to spend time together with families because they need to work as either white or blue-collar workers in the workforce until lockdown and curfew depending on the COVID-19 pandemic. Therefore, parents underlined the upsides of these uncertain days even though some isolation precautions were applied during the pandemic. Furthermore, parents evaluated the isolation, not going outside, or limited interaction as essential strategies or ways to behave in order to cope with the pandemic. In contrast, the isolation or limited interaction with the social environment took place as a part of a psychologically catastrophic condition in some studies (Coyne et al., 2020; Fontanesi et al., 2020; Mazza et al., 2020; Neece et al., 2020). Other than that, isolation as a negative effect of a pandemic for families were rarely rated by parents in the current study. Therefore, the assessment of some concepts like isolation can be clarified depending on how or where these findings were categorized under various themes. On the other hand, the working class (blue-collar) seemed to be more affected by pandemic restrictions because some of them lost their job when many companies stopped or slowed the operations. But the middle class (white-collar) emphasized the positive impacts of the quarantine period especially on father and child interaction. Therefore, further study should be done to determine whether the negative impacts on the family functioning could be due to economic reasons during the pandemic. This study did not specifically or directly address economic effects of the quarantine.

Undoubtedly, "*the unmet educational needs of the children with ASD*" has been the most emphasized issue by parents during the pandemic in the present study. Suspending of educational services depending on pandemic lockdown was highlighted as a significant challenge for children in other some research (Fontanesi et al., 2020; Masters et al., 2020). However, parents expressed increased verbal behaviors of their children with ASD as a result of increased family interaction during the pandemic. Increasing the verbal behavior has always become one of the main goals of early and intensive behavioral services which are widespread treatment approach for children with ASD (Eldevik et al., 2009; Ingvarsson, 2016). Therefore, positive appraisals of parents on especially expressive language skills that sounds promising in communication development of children with ASD is a remarkable result during the quarantine. Parents also reported improvements of their children with ASD in self-care skills as a part of the positive effect of the pandemic. Undoubtedly, answering the question that how substantial

Table 3 Joint display of quantitative and qualitative appraisals of parents (n = 32)

Themes and definitions	Categories/Examples	n	%	M / Likert (SD) of BFDS, FQOL, and FHS
1. Cope with pandemic Parents obey the quarantine orders and apply hygiene rules to protect themselves against to virus	More carefully about hygiene rules	11	31.2	N/A
	Wash hands frequently	4	12.5	
	Using disinfectants like cologne or hand sanitizer frequently	8	25.0	
	Change clothes when came home	5	15.6	
	Wearing mask or gloves	9	28.1	
	Obeying quarantine rules like social distancing, curfew in specific times	5	15.6	
	Isolation, no go outside, limited interaction	16	50.0	
2. Negative effects for family Parents evaluate the negative effect of pandemic on family as a whole	Confinement effect, loosing freedom	3	9.3	BFDS's M = 3.03 / 10 (SD = 1.57)
	Boring at home	4	12.5	FQOL's M = 6.96 / 10 (SD = 1.61)
	Anxiety about contacted virus or fear about death own self or oneself	3	9.3	FHS's M = 3.56 / 5 (SD = 0.75)
	Conflict among family members	5	15.6	
	Financial problems	5	15.6	
	Isolation socially	3	9.3	
	Inertness, passivity, gain weight	2	6.2	
	Uncertainty feeling about what will happen	1	3.1	
	Family routines collapse or disappear	2	6.2	
	3. Positive effects for family Parents evaluate the positive effect of pandemic on family as a whole	Shared more family time and improved family interaction	18	56.2
Having a chance mzeet personal interests or hobbies		4	12.5	FHS's M = 3.56 / 5 (SD = 0.75)
Keeping calm or feeling peaceful, religiosity or spirituality, relaxing		5	15.6	
Increased father- child interaction		11	34.3	
Increased sibling interaction		3	9.3	
Learning patience		2	6.2	
Stay healthy and safe		2	6.2	
4. Negative effects for child with ASD and DD Parents evaluate the negative effect of pandemic on their children with ASD & DD		Unmeet educational needs	13	40.6
	Increased problem behaviors, tantrums, anger	6	18.7	FQOL's M = 6.96 / 10 (SD = 1.61) FHS's M = 3.56 / 5 (SD = 0.75)
	Feeling despair or insufficient about child's requests	8	25.0	
	Stretching the rules or routines	1	3.1	
	Isolation socially, no or limited interaction with peers	10	31.2	
	Boring at home	8	25.0	
	Increased stereotype or echolalia	1	3.1	
	Lack of activity or sports	5	15.6	
	Fears losing some skills, or increasing severity due to pandemic lockdown	3	9.3	

Table 3 (continued)

Themes and definitions	Categories/Examples	<i>n</i>	%	M / Likert (SD) of BFDS, FQOL, and FHS
5. Positive effects for child with ASD and DD Parents evaluate the negative effect of pandemic on their children with ASD & DD	Increased interaction with family members	2	6.2	BFDS's M = 3.03 / 10 (SD = 1.57) FQOL's M = 6.96 / 10 (SD = 1.61) FHS's M = 3.56 / 5 (SD = 0.75)
	Increased verbal behaviors	8	25.0	
	Increased social skills	4	12.5	
	Increased self-care skills	6	18.7	
	Increased other developmental skills	2	6.2	
	Increased opportunities to learning independence	3	9.3	
	Spending time his or her interest (sport, read, or other activities)	1	3.1	
	Increased natural learning or incidental teaching opportunities	1	3.1	
	Relaxed	2	6.2	
Awareness about pandemic, outbreak, and precautions	3	9.3		

changes can occur in verbal behaviors and self-care skills of children with ASD and DD in such a short-term period covering the lockdown around three months requires much more data. There might be two explanations for increased verbal behaviors of children with ASD and DD during the quarantine due to the pandemic. First, parents had an opportunity to monitor the current performance of their children closely in critical areas like social and individual development. Second, parents especially fathers had a chance to interact more with their child and have more verbal practice during the quarantine. Given the highlights of qualitative evaluation verified with quantitative data without denying the potential negative consequences of the pandemic, parents stated substantial positive effects depending on staying at home and spending more time with other family members and especially interacting with children with ASD.

Limitations

There are some limitations about this study. First, researcher(s) could not reach a sufficient number of participants consisting of families of children with DD to compare parental perspectives on lockdown effects for both groups. The data collection was limited to a three-month period covering the first quarantine period in Turkey. Second, the study's results depended on a restricted range in terms of location, income, or professions of participants limiting the wide-range effects of the pandemic on families of children with ASD and DD. Considering the data mostly collecting from a single city (Istanbul), perceived middle income, blue

collar fathers or homemaker mothers, revealing the results of the pandemic and understanding its effects on the family system would require a more comprehensive investigation with a larger sample. Despite these limitations, this study represents an initial investigation into insights of families of children with ASD and DD on the effects of the COVID-19 pandemic in Turkey.

Conclusion

One of the most critical lessons that emerged from the current study is that more comprehensive research needs to be conducted on the effects of COVID-19 on families of children specifically with ASD. Secondly, all stakeholders including families, researchers, professionals, or policy-makers should use a holistic lens indicating negative as well as positive aspects to understand the impacts of the COVID-19 pandemic. In this respect, using mixed-method research may more adequately show the viewpoints of families of children with ASD and other disabilities during uncertain or catastrophic times.

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Declarations

Conflict of interest The present study's author(s) declared no conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval This article does not contain any experimental studies with human participants or animals performed by any of the author(s). The informed consent was orally obtained from participants before they responded to the surveys since cultural concerns often preclude signing an official document in Turkey (Tufts—Office of The Vice Provost for Research, 2020) and due to the lockdown depending on the COVID 19-pandemic (Ministry of Health, 2020).

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