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Educational Pandemic Impacts in Applied Behavior Analysis (ABA) Classrooms: Qualitative Outcomes from Board Certified Behavior Analyst (BCBA) and Registered Behavior Technicians (RBT) Perspectives

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Abstract

The current COVID-19 pandemic has led to unprecedented changes in how Applied Behavior Analysis (ABA) services are provided to students/clients with autism spectrum disorders (ASD), and scant literature is available from which to determine the best course of action for providing safe services during a pandemic. The research question for this study is: What is the essence of experiences of parents, teachers, and Board-Certified Behavior Analysts of students with ASD who are now receiving ABA services remotely due to the COVID-19 pandemic school closures? Generic qualitative design was used to analyze the responses of nine participants who are either Board Certified Behavior Analysts (BCBAs) or Registered Behavior Technicians (RBTs). Findings indicate that service providers are concerned about the effectiveness of telehealth services, do not believe that safety is always a priority for in person services, and that students/clients are struggling to find success amid the near-constant changes in service delivery brought about by the pandemic. Findings indicate that BCBAs and RBTs working with students with ASD are concerned about the negative outcomes for students in relation to changes in service delivery, are not comfortable with the level of risk to their own health and safety in order to provide services, and that telehealth options for ABA services have pros and cons that are difficult to weigh when determining how best to provide services during a pandemic.

Keywords

applied behavior analysis, autism, evidence-based practice, BCBA, remote, generic qualitative

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Educational Pandemic Impacts in Applied Behavior Analysis (ABA) Classrooms: Qualitative Outcomes from Board Certified Behavior Analyst (BCBA) and Registered Behavior Technicians (RBT) Perspectives

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The current COVID-19 pandemic has led to unprecedented changes in how Applied Behavior Analysis (ABA) services are provided to students/clients with autism spectrum disorders (ASD), and scant literature is available from which to determine the best course of action for providing safe services during a pandemic. The research question for this study is: What is the essence of experiences of parents, teachers, and Board-Certified Behavior Analysts of students with ASD who are now receiving ABA services remotely due to the COVID-19 pandemic school closures? Generic qualitative design was used to analyze the responses of nine participants who are either Board Certified Behavior Analysts (BCBAs) or Registered Behavior Technicians (RBTs). Findings indicate that service providers are concerned about the effectiveness of telehealth services, do not believe that safety is always a priority for in person services, and that students/clients are struggling to find success amid the near-constant changes in service delivery brought about by the pandemic. Findings indicate that BCBAs and RBTs working with students with ASD are concerned about the negative outcomes for students in relation to changes in service delivery, are not comfortable with the level of risk to their own health and safety in order to provide services, and that telehealth options for ABA services have pros and cons that are difficult to weigh when determining how best to provide services during a pandemic.

Keywords: applied behavior analysis, autism, evidence-based practice, BCBA, remote, generic qualitative

Introduction

The current COVID-19 pandemic led to a sudden and complete overhaul of the education system in the United States of America. This has been detrimental to the education of many students involved, with the most negative outcomes associated with students with disabilities (Cassidy et al., 2020). The shift to remote learning (typically through video conferencing software or telehealth means) occurred with little to no warning, leaving teachers, students, parents, and practitioners of Applied Behavior Analysis (ABA) to develop means of instruction without being able to provide in-person instruction. A lack of specialized services for students with autism spectrum disorder (ASD) has been associated with increased problem behavior (Bull et al., 2015) and a reduction in appropriate leisure and academic skills. As a result of the COVID-19 pandemic, many ABA service providers were unable to continue with in person service provision and were forced to move to online telehealth means to provide services. As the COVID-19 pandemic has been an unprecedented event in terms of ABA

service provision for students with ASD, the impact of the pandemic-related changes has not yet been discussed, which presents a gap in current literature. The current study aims to provide insights as to how the pandemic has impacted ABA services so that BCBAs, RBTs, and school district administrators can evaluate the effectiveness of their COVID-19 related changes in service delivery to problem-solve, address gaps in services, or develop more effective means of providing services to students with ASD.

Literature Review

In a typical school year in the United States of America, K-12 schools are closed due to outbreaks of illness for a period ranging from a day to a week or more at a time over a period of several months (Uscher-Pines et al., 2018). School closures for illness or natural disasters cause concern for the academic, behavioral, and social gains of all students (Wong et al., 2016), though these closures are often deemed essential for the mitigation of spreading disease among students who would otherwise not be able to understand the importance of physical distancing (van Gemert et al., 2018). The effectiveness of strategies used by teachers during pandemics has only minimally been previously studied, based upon pandemics that have impacted countries outside of the United States of America (Fumanelli et al., 2016), and the specific needs of students with autism spectrum disorders (ASD) were not part of this study.

Preference for Routine in Students with ASD

As Bull et al. (2015) noted, individuals with ASD often show a preference for strict routines and become anxious or display verbal or physical aggression when routines are disrupted. Family routines are beneficial for individuals with ASD and can even provide for natural environment learning within the context of family routines (Schlebosch et al., 2016), though over half of parents of children with ASD reported that their child experiences high levels of anxiety even in the home environment (Adams et al., 2019). With the sudden and unprecedented long-term school closures due to COVID-19, parents and teachers alike have attempted to find the best ways to support students with ASD.

For many students with ASD, transitions during daily routines are quite challenging, though parent-teacher collaboration has shown to mediate some of the challenging behaviors of students with ASD (Josilowski & Morris, 2019). During the current COVID-19 pandemic, teachers have been tasked with finding ways to connect with students and families and to provide education at a distance, which are particularly challenging for young students with ASD. Lai et al. (2018) identified social support as the primary beneficial intervention for youth during school closures, though the social skills deficits that characterize an ASD diagnosis have made this an even bigger challenge when physical distancing is being enforced. Children have demonstrated higher levels of resilience in the face of natural disasters (Mohammadinia et al., 2018), though children who are higher in anxiety have an increased probability of experiencing post-traumatic stress disorder (PTSD), and academic, social, and behavioral difficulties when returning to school after an extended closure (Stough et al., 2018). This is especially concerning for students with ASD who are already prone to higher levels of anxiety and social/behavioral challenges (Bull et al., 2015).

Remote and Virtual Learning Options

In areas that have experienced long-term school closures due to natural disasters, psychosocial interventions have been utilized to mediate these negative impacts (Brown et al., 2017). Lee et al. (2016) found that movement-based psychosocial interventions reduced

anxiety levels of students with autism, and Robinson et al. (2019) reported anxiety reduction with interventions using robots. Social skills interventions delivered in a virtual environment have shown promise for increasing social skills and helping students with autism to have their needs met (Wong et al., 2016), though little is known about the use of psychosocial interventions delivered through a remote classroom for students with ASD.

Telehealth options for behavioral supports, using Applied Behavior Analysis, has become increasingly popular to support families as well (Ferguson et al., 2019), though neither of these options have been researched in relation to their use for students with ASD during long-term school closures during a pandemic. Tomlinson et al. (2018) conducted a literature review of practices for training individuals to implement ABA via telehealth. Overall outcomes indicate that the telehealth option showed significant positive results in reducing problem behavior and increasing basic skills, though implementation fidelity varied greatly, and barriers to technology use negatively impacted outcomes in some cases. The current COVID-19 pandemic presents a wholly new challenge to parents and teachers of students with ASD in relation to providing educational services with ABA principles in a remote learning environment.

Challenges for Use of Remote Services

The sudden closure of schools due to COVID-19 was unprecedented and few school districts had time to prepare for the closures. Provision of remote services for ABA have been previously studied, and challenges exist for providers and parents even when ample preparation time is available. A meta-analysis by Ferguson et al. (2019) determined that telehealth remote services were effective for increasing social skills and daily living outcomes for students with ASD, but academic skills were not specifically assessed in any of the 28 studies in their analysis. ABA services, to achieve maximum efficacy, should be implemented by highly trained, supervised individuals and be conducted consistently over several hours per week (Dai et al., 2018). This is a challenge in all telehealth settings but is likely nearly impossible for most parents to do in the current pandemic situation. Video modeling programs and check-ins with ABA practitioners have been effective, though in-the-moment support is not typically a feature of a telehealth program, which leaves parents largely unsupported throughout the day (Dai et al., 2018). The efficacy of telehealth options can be improved when remote learning focused on parent training for how to implement ABA rather than focusing on the skills of the child involved (Parsons et al., 2017). Some evidence exists for remotely training parents to conduct functional analysis to reduce physical aggression and self-injurious behavior (Benson et al., 2018), though this study did not consider how academic or prosocial skills can be increased. The current literature on use of remote services by teachers to support parents with the implementation of ABA highlights a gap in the literature regarding the best ways to support families in the current pandemic.

Research Question(s)

RQ: What are the experiences of Board Certified Behavior Analysts (BCBAs) and Registered Behavior Technicians (RBTs) of students with ASD when ABA services moved to remote instruction due to the COVID-19 pandemic school closures?

Context for the Study

The study was conducted by two researchers: the first researcher is a principal at a school for children with ASD and the second researcher is an Intervention Specialist and

Board-Certified Behavior Analyst. Both researchers worked with students with ASD during extended school closures during the COVID-19 pandemic. The researchers noted that service provision via remote means was unprecedented, had largely not been considered prior to the pandemic, and that teachers and BCBAAs were forced to make changes quickly without prior experience or evidence-based practices from which to determine the best ways to proceed. This left a tremendous gap in the literature that the researchers wished to contribute to for future researchers and practitioners who may face similar challenges.

Methods

Approval was received from the Capella University Institutional Review Board before the study began. Qualitative design was used to analyze data in this study. The researchers chose qualitative design in order to ascertain the experiences of BCBAAs and RBTs who worked with students with ASD during the switch from in-person instruction to remote learning. This method was chosen to enable participants to express both what their experience of teaching during a pandemic has been and how it has impacted the teachers in terms of how they provide services to their students with ASD, as sharing experiences is a hallmark of qualitative design (Percy et al., 2015).

An open-ended online survey was given to all nine participants, all of whom were either BCBAAs or RBTs in the northeastern part of the United States of America. Specific demographics were not collected from participants. Participants were included if they were working with students with autism and had switched to a telehealth or remote service approach during the COVID-19 pandemic. Participants were excluded if they failed to answer any of the survey questions provided.

Design

Generic qualitative design was used to answer the research question for this study. Participant responses were downloaded from Survey Monkey in a spreadsheet so that questions could be examined by reading responses for each participant numerically or by examining responses of individual participants. Generic qualitative data was chosen as a means of collecting the unique experiences and opinions of service providers of applied behavior analysis in their own words (Percy et al., 2015).

Methodology

A generic qualitative analysis, specifically an inductive thematic analysis with constant comparison (Percy et al., 2015), was conducted to analyze data. First, the data was examined from all participants, after which the second researcher highlighted data related to the research question. All unrelated data was moved to a separate file to be stored. Each set of data was then coded and named. From there related groups of data were clustered into patterns. As each subsequent participant's data was examined, the data were compared to that of previous participants to compare to existing data. Related patterns were grouped together with representative quotes taken directly from the data and were then grouped into related themes. The themes were then grouped to provide a response to the research question. An analysis of each theme was written to relate to the research question with supporting quotes provided (Percy et al., 2015).

Participant Selection

Snowball sampling, in which individuals were emailed a link to the survey and asked to complete the survey and forward it to others (Etikan, Alkassim et al., 2016) was used. Individuals were invited to participate in the study by the first researcher, with surveys being conducted online to ensure anonymity of participants and to allow participants to complete the interview questions at their convenience. Purposive sampling, in which specific participants had been asked to complete the survey (Etikan, Musa et al., 2016) had been attempted by the researchers in an early iteration of the study, but there were insufficient participant responses from that sampling method, therefore snowball sampling was used to widen the pool of participants. The study was approved by the Capella University Institutional Review Board, with the change in sampling receiving approval from the IRB as well.

Recruitment

Initially, a letter of recruitment was emailed to select BCBAAs who were known to the first researcher. This approach did not yield enough participants to complete the study. The recruitment strategy was changed to snowball sampling, for which a revision was approved by the Capella IRB, in which original participants were emailed a follow-up recruitment letter asking them to provide the link to the survey to other BCBAAs and RBTs who have provided direct services to students with autism during the COVID-19 pandemic. Survey Monkey was used to provide for anonymity of responses and so that participants could complete the survey at a time that was convenient to them.

Materials and Procedures

Trustworthiness, which is characterized as credibility, dependability, confirmability, and transferability (Gunawan, 2015) was examined in the analysis of data. The units of meaning, clustered units of meaning as themes, individual participant summaries, and general and unique themes were analyzed thoroughly from the written responses of participants. Credibility, defined as confidence in the findings being true (Amankwaa, 2016), was ensured by following a protocol for study completion as suggested by Percy et al. (2015). To ensure dependability, defined as establishment of consistent findings that can be replicated (Amankwaa, 2016P), the second researcher journaled after each survey was submitted. This allowed the researcher to find consistent patterns in the data from one participant to the next. Neutrality of findings free from researcher bias, or confirmability (Amankwaa, 2016), was ensured by journaling after each survey submission and again after the survey had closed. Application of the findings to other topics, or transferability (Amankwaa, 2016) was ensured by providing participants with open ended questions that allowed for robust responses to provide detailed answers that allowed the researcher to find patterns in data

Results

Results were compared to the research question: What are the experiences of Board-Certified Behavior Analysts (BCBAAs) and Registered Behavior Technicians (RBTs) of students with ASD when ABA services moved to remote instruction due to the COVID-19 pandemic school closures?

Table 1
Units of Meaning

Participant	Patterns of meaning
1	use of Zoom; continue with Zoom
2	constant schedule changes; switching from remote to in-person; increased problematic behaviors
3	remote services; interruptions; evolved; adapted
4	remote or in-person choice; adult safety not met; services provided at all costs
5	telehealth is ineffective; students have declined
6	overwhelming; many unknowns
7	frustration; exhaustion
8	telehealth is less effective; most resumed in-person
9	increased flexibility; new methods of communication learned; difficult; anxiety

Table 2
Clustered Patterns to Form Themes

Theme	Supporting Quotes
Negative Student Outcomes	<p>“Some have displayed with regression in skills, or increased frequency/intensity of maladaptive behaviors.” (Participant 2)</p> <p>“It is necessary for a child to receive their ABA services in person. It is ineffective to receive through telehealth.” (Participant 5)</p> <p>“It’s disappointing to see how much our clients are missing out on quality services. So many clients have regressed in big part due to lack of socialization.” (Participant 8)</p> <p>“...lack other supports like multi-sensory, prompting, etc. some homes had tight space, distractions, noise, child would run away from screen, etc.” (Participant 9)</p> <p>“Constant schedule changes, higher intensity behaviors, some regression in clients.” (Participant 2)</p>
Staff Concerns	<p>“Parents are more desperate for services” (Participant 2)</p> <p>“...high staff turnover, difficulty managing to work with my at child home.” (Participant 2)</p> <p>“It’s important to continue providing services any way we can...the clients and their families really need it now.” (Participant 2)</p> <p>“It can be more stressful, but the importance of consistent ABA services and supervision is more important than ever.” (Participant 3)</p>

“Some providers have opted to forego CDC recommendations to continue as normal, but I don’t feel comfortable doing so.” (Participant 4)

“My needs are not met. The expectation is to provide services without regard to safety. Students needs are being met.” (Participant 4)

“Services should be provided at all costs.” (Participant 4)

“It is unsafe to work in person during the pandemic. However, the child’s needs are being met before the provider’s needs.” (Participant 5)

“It’s been overwhelming.” (Participant 6)

“One day at a time. Let’s make a difference!” (Participant 6)

“I am worn out mentally and emotionally from all these restrictions. I do not feel service is as effective as before.” (Participant 7)

“Our (provider) needs are not being met.” (Participant 7)

“For those I see receiving services via TeleHealth, I worry that this may be a permanent future for them.” (Participant 8)

Pros and Cons of Remote Service Provision

“Parent training was great via Zoom. Supervision was great as well, therapy was a bit more difficult without being with the client in person.” (Participant 1)

“I think supervision and parent training should be able to continue via Zoom.” (Participant 1)

“They (child/clients) were satisfied with the service and want to continue some parts via Zoom.” (Participant 1)

“Most of my clients are receiving in-person direct instruction, and remote BCBA supervision/parent training and it has really been working out.” (Participant 2)

“I realized that much of a BCBA’s work can be done effectively via telehealth.” (Participant 2)

“Supervision and parent training via modalities such as zoom, or telephone are very similar to the same services in-person.” (Participant 2)

“It’s worked and has shown that remote delivery is feasible and a great tool during a pandemic or without one.” (Participant 3)

“We were able to get creative with services. Virtual instruction exposed goals that were nonessential. Highlighted need for caregiver training.” (Participant 4)

“Trained students with a new method of communication of talking to others over zoom...phone skills also.” (Participant 9)

“It has been hard for the kids who had to receive ABA services over Telehealth, I feel like it was ineffective for them, and their behaviors might have declined from telehealth. However, I was able to work in service during

the pandemic, and the child received the necessary service to improve their behaviors.” (Participant 5)
 “Some of the children who received telehealth need more hours of ABA services due to the decline of behaviors because of telehealth.” (Participant 5)
 “My client needs are not being fully met as telehealth and mask wearing is so difficult for the autistic client.” (Participant 6)
 “Those who partake in TeleHealth struggle tremendously with focus and attention.” (Participant 8)
 “Not the same as full time in person. We compensated as much as we can.” (Participant 9)

Table 3
Summary of Individual Participant Responses

Participant	Summary of Response
1	The overall experience of using Zoom was positive and the participant would like to continue using remote services. There was acknowledgement that some parts of service provision were more difficult online, but that overall staff and parents wanted to continue remote services.
2	This participant’s clients are receiving direct services in person but parent training and supervision are happening via remote means. There were many schedule changes that impacted client behavior but much of the work a BCBA does is able to be done online. This participant notes that staff are exhausted with the changes due to the pandemic, but that providing services however they can be delivered is what is most important.
3	Participant 3 notes difficulty with wearing masks in areas of facial expression and communication but overall believes remote options are a good practice that has adapted and evolved over time to benefit clients.
4	Safety is a big concern for participant 4, who believes that there are still many issues with remote service provision that need to be addressed. These individual notes that providers have had to get creative with how they provide services and need to focus more on parent training when providers cannot go into the home to provide services. This participant feels that the needs of the providers are not being met and that student needs have been prioritized over staff safety, though this participant concludes with “services should be provided at all costs.”
5	This participant had several behavior technicians who refused to do in person service provision, which led to a lack of services for clients or to clients being forced to do telehealth even if it may not have been the best option. Many of this participant’s clients have struggled and even regressed with remote service provision, some because remote services were not approved by insurance

- companies, or hours were reduced for telehealth. This individual feels that it is unsafe to work in person during a pandemic but that the child's needs are being placed before staff safety.
- 6 Some clients are still receiving in person services with safety precautions, but many have switched to remote services. The participant is overwhelmed and conflicted about being happy to provide services to some clients but also knowing that others are not getting what they need. Safety measures make it difficult for clients to interpret facial expressions, but safety is a top priority. Many clients are dysregulated.
- 7 This participant mentioned several times that wearing masks is not beneficial to nonverbal clients who need to see facial expressions. The participant is mentally and emotionally worn out and feels that services are not as effective as they were pre-pandemic. The participant does not feel safe providing in person services but knows that this is the best option for clients.
- 8 This participant has done primarily in person service provision during the pandemic and feels lucky to be able to do so, as previous telehealth experiences have not been beneficial to clients. Clients via telehealth struggle with focus and attention, and all clients are regressing in social skills due to forced isolation. The process of service delivery has evolved, and providers have adapted, but the participant is concerned that telehealth may permanently replace in person services for some clients.
- 9 This participant notes a lack of clarity in determining service effectiveness with the myriad changes that continue to take place during the pandemic. New communication skills are being developed, though hands-on support is not able to be done due to telehealth. Services can still be effective but require substantial adjustments and revisions throughout the process. This participant feels that staff and client needs are only being partially met and that staff have compensated as much as they can.

Three primary themes were derived from participant data: The presence of negative student outcomes with the online service provision experience; staff concerns regarding their experiences; and the presence of pros and cons of remote service provision. Each of these are detailed as follows with quality of the finding, data excerpts, and analysis discussed in relation to each individual theme. The first theme, Negative Student Outcomes, is defined as ineffective provision of ABA services, regression in previously gained skills, and/or increase in maladaptive or negative behaviors. As evidenced by Participant Two in relation to client challenges during the pandemic: "Constant schedule changes, higher intensity behaviors, some regression in clients," which was reiterated by Participant Two in additional comments "Some have displayed with regression in skills, or increased frequency/intensity of maladaptive behaviors." These participants directly noted the presence of regression in skills and behavior as a function of telehealth learning. Others specifically addressed telehealth as a negative for students: "It is necessary for a child to receive their ABA services in person. It is ineffective to receive through telehealth" (Participant 5). This demonstrates the concerns about the negative outcomes of students due to the ineffective service provision of telehealth for ABA. As Participant Eight summarizes: "It's disappointing to see how much our clients are missing out on quality services. So many clients have regressed in big part due to lack of

socialization.” These quotes demonstrate the regression in progress and increase of maladaptive behaviors that are associated with inconsistent or ineffective instruction. This inconsistency can be attributed to the continual changes in service provision made necessary by the COVID-19 pandemic, which forced most ABA providers to turn to telehealth-based service delivery. As is evidenced in the data, this change has been ineffective for many students with ASD and has led to negative consequences in their academic outcomes, such as regression in the previously learned skills or increases in previous reductions of problem behavior.

For the second theme staff concern is defined as an issue for which a participant believes the health and/or safety of a staff member or student is not being fully protected from the risk of COVID-19 or concerns about the fidelity of services that are currently being provided. As Participant Four states: “Some providers have opted to forego CDC recommendations to continue as normal, but I don’t feel comfortable doing so...My needs are not met. The expectation is to provide services without regard to safety. Students needs are being met.” In this case, the participant notes a concern for their own safety as a result of being told to enter a situation in which risk of contracting COVID-19 is heightened. This lack of safety is reiterated by Participant Five: “It is unsafe to work in person during the pandemic. However, the child’s needs are being met before the provider’s needs” and Participant Seven: “Our (provider) needs are not being met.” This reiterates the concern of service providers that their safety and well-being are not being considered when service provision decisions are made by employers. The importance of ABA services was addressed by Participant Four who stated, “Services should be provided at all costs,” which increases provider stress, “It’s been overwhelming” (Participant 6). Even for participants who understand the importance of providing ABA services despite the pandemic, there is still concern for the stress levels of staff when meeting these demands. One participant mentioned that all the unknowns related to the pandemic are of huge concern: “For those I see receiving services via TeleHealth, I worry that this may be a permanent future for them” (Participant 8). This demonstrates the conflict most providers feel in understanding the vital importance of the services they provide while also trying to balance their own concerns with personal safety and health.

In the final theme, Pros and Cons of Remote Service Provision, participants discussed the positives and negatives they have experienced when changing service delivery due to COVID-19. Among the positives were parent training and RBT supervision. “Parent training was great via Zoom. Supervision was great as well; therapy was a bit more difficult without being with the client in person” (Participant 1). This demonstrates the dichotomy between finding beneficial aspects of telehealth as a result of the pandemic and seeing negative student outcomes as a result of sudden change in service delivery. This was echoed by Participant Two: “Most of my clients are receiving in-person direct instruction, and remote BCBA supervision/parent training and it has really been working out...Supervision and parent training via modalities such as zoom or telephone are very similar to the same services in-person” (Participant 2). In this excerpt, the participant notes the positives of telehealth for supervision and parent training, while noting that client services have remained in-person to ensure efficacy. Participant Four stated: “We were able to get creative with services. Virtual instruction exposed goals that were nonessential. Highlighted need for caregiver training.” This is demonstrative of the finding of both positives and negatives in the switch to remote service delivery. The primary negatives were found in relation to client needs, as noted by Participant Five: “It has been hard for the kids who had to receive ABA services over Telehealth, I feel like it was ineffective for them, and their behaviors might have declined from telehealth. However, I was able to work inservice during the pandemic, and the child received the necessary service to improve their behaviors,” Participant Six: “My client needs are not being fully met as telehealth and mask wearing is so difficult for the autistic client,” and

Participant Nine: “Not the same as full time in person. We compensated as much as we can.” At first glance it seems that a discrepancy exists between the participants who noted positives and the participants who focused on negatives, however this represents the great unknowns that service providers must navigate daily. The desire to provide necessary services to students is evident, even though many providers feel that current services are inconsistent or ineffective as they are currently being provided.

Discussion

Josilowski and Morris (2019) highlights the importance of parent-teacher collaboration for mitigating challenging behaviors with students who have ASD. While BCBA's attempted to keep services as consistent as possible, this collaboration was noted as ever-changing and inconsistent due to the pandemic. Also noted in current research are the need for social supports when schools are closed (Lai et al., 2018), especially since higher anxiety and decreased social/behavioral skills (Bull et al., 2015) often result when students with ASD do not have the opportunity to interact with peers. This provides an explanation for why participants in the current study consistently noted increases in problematic behaviors and decreases in adaptive social skills. Stough et al. (2018) found that an increase in PTSD symptoms is common after an event that forces schools to close, and many of the changes in student behavior noted by current participants speak to symptoms that mirror those of PTSD.

Prior to the COVID-19 pandemic, some researchers had begun to examine the effects of telehealth for students with ASD. Tomlinson et al. (2018) found positive outcomes in reduction of problem behavior and increases in prosocial skills with telehealth options, though implementation fidelity varied greatly among participants. Participants in the current study discussed the constant changes taking place and the ways in which fidelity was interrupted and not able to be ensured due to the pandemic changes. Telehealth has been successful in improving academic performance, though only when several hours per week of highly structured telehealth instruction are provided (Dai et al., 2018), though fewer hours than normal have been available due to the pandemic. Many participants noted positives in regard to parent training with telehealth, and this was supported by literature (Parsons et al., 2017).

Limitations of the Study

One limitation is the snowball sampling technique, which means that participants were invited to participate by the first researcher, and other perspectives from differing environments and regions were not considered. The participants for this study were all from the same geographical area and all were working in very similar settings. This limits the ability of the findings to be generalized to other populations and to service-providers in public schools or other non-private clinical settings. Another limitation is that only BCBA's or RBT's were included, meaning that only the perspectives of individuals trained specifically in applied behavior analysis techniques were included. Parents and teachers were not included. Their perspectives of service provision and the impact of change in services during the pandemic may not have matched those of the BCBA's or RBT's who responded.

Suggestions for Future Research

Researchers could use varied sampling techniques to include participants from various states or regions. Inclusion of individuals from other urban areas or suburban and remote areas may reveal different perspectives of the pros and cons of remote instruction and may provide future directions for current providers who wish to extend services to additional areas. Teacher

and parent perspectives could be included to gain perspectives of those who are not trained specifically in applied behavior analysis. Many parents may not see the regression of skills or change in service provision as detrimental to the same degree that those trained in behavior analysis did. Student data could be compared to find empirical evidence of changes in social skills or behavior from pre-COVID-19 to now to provide statistical evidence for the pros and cons of using telehealth to provide applied behavior analysis services. Telehealth sessions could be observed to determine implementation fidelity and to provide evidence-based strategies for effective implementation of telehealth services.

Implications of the Findings

It is evident that the COVID-19 pandemic has presented BCBA and RBTs with great challenges in providing services to students with ASD. Some participants mentioned benefits of telehealth for parent training and supervision of RBTs, which indicates that telehealth options and strategies could be expanded in these areas. Most of the negative outcomes have been in relation to telehealth service provision for increasing social skills and decreasing maladaptive behaviors, which demonstrates a need for improvement. Practitioners could use the information provided by this study to shape approaches to social skills training and behavior reduction such that these areas are more rigorously included in parent training and that other members of the household could be included in sessions to increase generalization of skills. Additionally, researchers and practitioners could develop means of providing services in person using specialized equipment, such as clear face masks, to mitigate safety concerns while still being able to provide direct services to clients.

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