

AN EXPLORATORY STUDY ON THE BEHAVIORAL CHANGES
OF ADULTS WITH DEVELOPMENTAL DISABILITIES

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HUMAN DEVELOPMENT
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AN EXPLORATORY STUDY ON THE BEHAVIORAL CHANGES OF ADULTS
WITH DEVELOPMENTAL DISABILITIES (53 pp.)

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The purpose of this study was to compare the success rate of adults diagnosed with a developmental disability who received behavioral interventions and reside in different environments: the family home, a congregate setting, or an independent setting. The sample of this study included 58 adults with developmental disabilities served by the Stark County (Ohio) Board of Developmental Disabilities. The data was analyzed from existing data provided to the Stark County Board of DD by service providers of those adults that also receive at least one of four types of behavioral interventions: manual, mechanical, or chemical restraint or time out. Data from 2014 was compared to data from 2015, and success rate was calculated on the difference. A 3 (residential setting) x 5 (intervention) ANOVA was conducted, with success rate as the dependent variable.

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CHAPTER I

INTRODUCTION

The history of developmental disabilities is littered with tragic stories of trauma, torture, seclusion, and experimentation. From medieval times, the world has come a long way in learning about individuals who happen to have disabilities. Shockingly, even in the recent past, there have been outdated interventions and mindsets that have been examined and eliminated. For example, prone or face down restraints were the cause of several deaths in the past, most notably in 2009 when a 17-year-old choked on her vomit and suffocated during a prone restraint in northeast Ohio. The new push in this modern era is for a more person-centered approach and the near elimination of any aversive interventions.

According to the Center for Disease Control and Prevention (2015), approximately one in six children ages 3 to 17 in the United States has some form of a developmental disability. There is not one comprehensive source for the number of adults in the United States who have a developmental disability. However, organizations such as Autism and Developmental Disability Monitoring (ADDM) and the Metropolitan Atlanta Developmental Disabilities Surveillance Program (MADDSP) track trends and patterns in diagnoses among children to determine if the population of individuals with developmental disabilities is rising or falling. Based on these trends in diagnoses, the Center for Disease Control and Prevention (2011) reported a 17.1% increase in children with developmental disabilities over the prior 12 years. With the rise in this population,

the need for programs and research for those of all ages with developmental disabilities is necessary, now more than ever.

In 2014, it was reported that in Ohio 93,645 individuals with developmental disabilities received services (Ohio Department of Developmental Disabilities (DODD), 2014). In Stark County, Ohio, where the sample for the present study was drawn, over 3,000 individuals currently receive services from the Stark County Board of Developmental Disabilities (Stark County Board of Developmental Disabilities, 2015). Individuals who receive services through the Stark County Board of Developmental Disabilities have various disabilities. A few of the common developmental disabilities noted on the Stark County Board of Developmental Disabilities (2015) website are: autism spectrum disorder, mental retardation, cerebral palsy, and Down syndrome.

Behavioral challenges such as physical aggression and self-injurious behavior are found in many adults with developmental disabilities. “Problem behaviours have often been considered as possible ‘behavioural equivalents’ of psychiatric symptoms in people with intellectual disabilities” (Clarke & Gomez, 1999, p. 418). As a result, certain behavioral interventions have been identified by the Ohio DODD (2015) as an appropriate part of services for some adults diagnosed with developmental disabilities. The four interventions that are the focus of the present study are manual restraint (restricting movement with a hands-on approach), mechanical restraint (using a device to restrict movement), time out (preventing the individual from leaving an area), and chemical restraint (using medication to control behaviors). Recent changes in regulations have brought attention to these interventions.

In 2015, the rule or law that governs how behavior support operates was changed in the state of Ohio. The idea of behavior support was now approached with an entirely different mindset. What were before referred to as aversives (e.g., restraints) and rights restrictions (e.g., diet plans) in behavior plans were now all being referred to as restrictive measures. Restrictive measures, the new law stated, should only be used when the individual's behavior leads to a risk of harm or legal sanction. These measures should be looked at as temporary solutions, and if not used in 90 days, should be discontinued from the individual's plan. The state demanded that all plans not meeting this criteria be discontinued before the end of 2015. Gone were the days of an individual having a behavior support plan for most of their life. With this change, behavior support specialists in the state of Ohio had to begin re-learning how to do their job. More positive measures and creative solutions needed to be researched and attempted, without using a restrictive measure unless it was absolutely necessary (Ohio Administrative Code 5123:2-2-06).

Before any type of major restraint is used, all other options of reducing challenging behavior are preferred and required (Disability Rights Ohio, 2012). For example, before someone who shows a lack of safety and pedestrian skills is restrained to prevent them from eloping from their home, or a door chime or double keyed lock installed, they should first be educated on safety and pedestrian skills. The least restrictive measure is always favored over something more intense in order to protect the individual's rights as much as possible. The positive interventions are now the norm, not restrictive measures. These positive interventions need to be implemented more;

however, in dire situations restraints and other aversives are still necessary. This study is an attempt to see if these interventions are making any difference in a positive way in different residential environments.

When an individual has restrictive measures in their plan, there must be data to support the need. All service providers who serve any adult with developmental disabilities must keep incident reports for any unusual incidents. These reports can help build a case for the need for a restrictive measure. Once a restrictive measure is approved by the Human Rights Committee and written into the individual service plan, these data are collected daily by each service provider in each location (e.g., work or home) that the restrictive measure is used. At the end of the month, the data are sent to the county board to the Service and Support Administrator or Behavior Support Specialist. County boards are required to review the data at least quarterly; however, Stark County completes these reviews monthly and sends them to all of the members on each individual's team (e.g., guardian or supervisor).

An example of a simplified restrictive measures plan is as follows: An individual on my caseload has a manual restraint of stretchy mitts approved to put on his hands when he is displaying self-injurious behavior in the form of biting his hands. It is written in the plan that before the mitts are used, staff should first attempt A, B, and C. However, after a certain point (e.g., biting intensifies enough to cause injury), the mitts will be put on his hands for a limited amount of time (i.e., until the minute he calms down or 10 minutes, whichever comes first). After the incident has passed, staff are required by law to document the antecedent (what was happening before), the behavior (including

frequency, duration, and intensity), and how the matter was resolved (e.g., use of restrictive measures and for how long).

The recent changes imposed by the state have led to a shift in the way of thinking among county boards in Ohio. Instead of thinking, “How can we control this person’s behavior?” we are now asking ourselves what this person wants. In looking at things this way, some individuals are happier and challenging behaviors have been reduced. For example, an individual on my caseload severely struggled with elopement and physical aggression to the point where this person actually served prison time for assault. When this individual was released from prison, the team had to follow the new requirements for restrictive measures. In asking this person what they wanted and looking at the reasons for the elopement and physical aggression, the team was able to determine that this person wants to be alone with their significant other in their bedroom. Most team members were very nervous about this given this person’s past history, but due to the new rules, it was attempted. It has been 6 months since this change and there have been no major incidents of either challenging behavior. This individual went from being one of the most notoriously dangerous individuals served by the Stark County Board of Developmental Disabilities to being almost completely off the radar. I have never been more proud of an individual and their progress.

Restrictive measures may be part of an individual’s plan, regardless of their living arrangements. Adults with developmental disabilities live in diverse environments and settings. Some live in their family home. Some live with peers, and some live on their own. The individuals have differing degrees of success in these environments. For

example, Glaesser and Perkins (2013) reported that self-injurious behavior in adults with developmental disabilities is more prevalent in a larger group setting than in other environments. The authors, however, did not explore the interventions used to address this behavior and their success.

While every adult with developmental disabilities has a unique living situation, the living arrangements often are grouped in the literature into one of the following three categories: 1) the individual lives with family of some sort (adopted, foster, spouse, or family of origin), yet receives paid supports in the family home; 2) the individual lives with a roommate(s) (e.g., in an institutional or congregate setting); or 3) the individual lives alone in a non-family home with paid supports. Paid supports refer to staff provided through Medicaid funding who are paid to care for the individual. These paid supports can provide many services including, but not limited to: homemaker personal care, day services, job coaching, non-medical transportation, and medication administration. Some individuals have “natural supports,” which means anyone who provides a service to an individual but is not paid for it. For example, a mother, a good friend, or a brother may take the individual on outings or to doctors’ appointments, or may invite them over for meals. Those living in the family home likely have family or spousal support in the home, whereas those who reside alone or with roommates do not. All individuals included in the present study have some form of paid supports, but do not necessarily have natural supports.

Limited research has looked at outcomes (e.g., satisfaction) of different residential settings for adults with developmental disabilities. Stancliffe and Keane (2000)

conducted a study to compare satisfaction of adults with developmental disabilities in congregate (group) settings versus independent living (living alone but with paid supports). The study showed mostly similar feelings of satisfaction between the two groups of study. Felce, Perry, and Kerr (2011) conducted a study that compared activity levels between adults with developmental disabilities who live with family and those with out-of-home placement. The study showed that those who live out of the home with paid support staff have a higher level of activity and opportunity for activity than those who live in the family home.

Despite the research comparing satisfaction and activity levels in different residential settings for adults with developmental disabilities, a lack of published research is available comparing the success of interventions for these adults' challenging behaviors across different residential settings. The research available tends to focus on how often and for what reasons these interventions are used in an institutional versus a congregate setting. An institutional setting refers to a large number of adults with disabilities living in a hospital or dorm-like setting, versus a congregate setting, which refers to small groups of adults with developmental disabilities living in the community in a home. Bodfish (1992) concluded that institutional settings were more likely to have a higher number of interventions implemented than congregate settings for various reasons, including state and federal regulations, the presence of paid staff, and being less "home-like." Maladaptive behavior, such as physical aggression, was reported to be the primary cause of restraint of individuals living in an institutional setting (Scheirs, Blok, Tolhoek, El Aouat, & Glimmerveen, 2012). Little to no research has been published

regarding behavioral interventions used in a family home. Family homes are more private and, therefore, less data may be available in these situations.

Statement of Purpose

The purpose of the present exploratory study was to compare the behavioral changes of adults diagnosed with a developmental disability who received behavioral interventions and reside in different environments: the family home, a congregate setting, or an independent setting. Specifically, the study assessed for the change between 2014 and 2015 in the number of challenging behaviors shown by individuals in these three environments who had received one or more of the four major interventions (manual, mechanical, or chemical restraint, or time out).

Research Questions

The following research questions guided this study:

1. Does the amount of behavioral change across a year in adults with developmental disabilities vary based on different behavioral interventions received?
2. Does the amount of behavioral change across a year in adults with developmental disabilities vary based on the setting in which they reside?
3. Does the effect of the residential setting on the amount of behavioral change in adults with developmental disabilities differ depending on the behavioral intervention(s) received?

Operational Definitions

Behavioral change: In the present study, behavioral change is defined as a difference in the number of challenging behaviors reported between 2014 and 2015, as reported by service providers who collected the behavioral data daily and submitted it monthly to the Behavior Support Specialists at the Stark County Board of Developmental Disabilities. Monthly totals were added together for each year (2014 and 2015). The annual total from 2015 was subtracted from 2014's annual total. It is possible that some individuals had a greater number of challenging behaviors at the end of the study period.

Behavioral interventions: The behavioral interventions addressed in this study are manual, mechanical, and chemical restraints, as well as time out. A manual restraint is when someone intervenes using a hands-on method and restricts movement. A mechanical restraint is when a device is used to restrict movement. A chemical restraint is when a medication is used to change behaviors. A time out is when an individual is prevented from leaving an area by either a human barrier or a door, gate, or other confining device that cannot be opened by the individual. Some individuals received more than one intervention.

Residential settings: The residential settings addressed in the present study are the family home, a congregate setting, and an independent setting. A family home setting is when an adult with developmental disabilities lives in the home with family members, but also has paid supports. A congregate setting refers to when an adult with developmental disabilities lives in a home operated by an agency (provider) that also includes one or more other adults with developmental disabilities and has paid supports.

An independent setting refers to an adult with developmental disabilities who lives alone, but has paid supports. The variable “residential setting” was identified from demographic data available for each participant at the Stark County Board of Developmental Disabilities.

CHAPTER II

REVIEW OF LITERATURE

A developmental disability is defined by The Developmental Disability Resource Center (2015, para. 1) as a disability that:

Is manifested before the person reaches 22 years of age; . . . constitutes a substantial disability to the affected individual . . . is attributable to mental retardation or related conditions, which include cerebral palsy, epilepsy, autism or other neurological conditions, when such conditions result in [either] impairment of general intellectual functioning or adaptive behavior similar to that of a person with mental retardation.

A developmental disability looks different for every individual. First Signs (2014), a national non-profit organization that provides education about autism spectrum disorders (ASD) and other developmental disabilities, states:

The most common developmental disorder is mental retardation. According to the CDC, more than one out of every 100 school children in the United States has some form of mental retardation. Cerebral palsy is the second most common developmental disorder, followed by autism spectrum disorders. (First Signs, 2014, para. 2)

Today in Ohio, over 3,000 individuals annually receive services through the Stark County Board of Developmental Disabilities (Stark County Board of Developmental Disabilities, 2015). This was not always the case. In the past, those with developmental disabilities only received welfare services. The current system in place in Ohio began in

1967, when the state legislature put into law that each county in Ohio would have a county board of developmental disabilities. The county boards exist and operate under state and local tax payer dollars, voted on through levies. Each county board must operate under the Ohio Department of Developmental Disabilities (DODD).

The Ohio DODD issues administrative and revised codes that govern the way services for developmental disabilities are carried out. The Ohio Revised Code (ORC) and the Ohio Administrative Code (OAC) state that a Service and Support Administrator (SSA) must coordinate services for any individuals who receive Medicaid funding, otherwise referred to as waivers. Individuals who have waivers can receive supports such as residential staff, day programs, home modifications, adaptive equipment, or nursing services.

Each individual living in Ohio can receive different services, depending on their needs. In Stark County, if the individual has behavioral challenges, they not only have an SSA coordinating their services, but a Behavior Support Specialist as well. The Behavior Support Specialist will write a plan for any paid staff to follow should behavioral challenges occur. The Specialist must follow the DODD Behavior Support rule (i.e., Ohio Administrative Code 5123:2-2-06), which outlines behavioral support strategies that include restrictive measures. Each person who has behavioral challenges can have different interventions in their plan, based on their needs. Some individuals have positive supports only (i.e., redirection, incentive programs, etc.), while others may have any of the four main restrictive interventions: manual restraint, mechanical restraint, chemical restraint, or time out. Any of the four interventions, along with rights restrictions (being

restricted from something that is considered a basic right to any typical person, such as the right to watch whatever they want on TV or spend their money however they want) and court orders for the adult with developmental disabilities (e.g., not live within a certain distance of a school, have no contact with a specific person, etc.) need approval from each county's Human Rights Committee before implementation. A Human Rights Committee (HRC) is a checks and balances system put in place to ensure that individuals are not being unfairly restricted and that their risk of harm or legal sanction meets the level that requires the intervention in their plan.

Behavioral Challenges of Some Adults With Developmental Disabilities

Research suggests that individuals with developmental disabilities show more behavior problems than typically developing individuals (Woolfson, Taylor, & Mooney, 2010). According to a study by Emerson, Robertson, Gregory, Hatton, Kessissoglou, Hallam, and Hillery (2000), 10-15% of adults with developmental disabilities display some form of challenging behavior. Matson, Neal, and Kozlowski (2012) noted that the most common and most seriously challenging behaviors are aggression, pica, self-injurious behavior, property destruction, and rumination.

Matson and Rivet (2008) explored the most common challenging behaviors specifically in adults with autism and intellectual disabilities. They determined the frequency of the four most common categories of challenging behaviors (aggression/destruction, self-injurious behavior, stereotypy, and disruptive behavior) was greater when the individuals were diagnosed with autism and an intellectual disability, rather than an intellectual disability alone.

Living Arrangements for Adults With Developmental Disabilities

Parents of a child who has a disability, similar to other parents, often have a choice when their child grows up. They can allow their child to live at home and continue to support them, or they can push them out of the nest and encourage them to live independently, either with roommates or on their own. One factor that may contribute to this decision is the presence of challenging behaviors in their child with developmental disabilities. Parenting stress in both mothers and fathers of a child with a developmental disability actually decreases as the child approaches young adulthood (Woodman, 2014). However, they still face many added stressors other parents do not face that could impact their decision to keep their adult child home or move them out. Parents of adults with developmental disabilities must think about their own health and what happens as they begin to age. Who will care for their child after they are gone? Additionally, the stress of having a grown child with physical and intellectual challenges living at home can be challenging for family members.

In the state of Ohio, parents of an adult with disabilities face three choices of living arrangements, depending on funding: 1) the individual lives with family of some sort (adopted, foster, spouse, or family of origin), yet receives paid supports in the family home, 2) the individual lives with a roommate(s), or 3) the individual lives alone in a non-family home with paid supports. These options are available with funding. There are assessments and criteria that need to be met to determine if an adult child with developmental disabilities can receive funding, and each county board in Ohio has employees that will conduct these assessments (Disability Rights Ohio, 2012).

Resides With Family

According to Hauser-Cram, Krauss, and Kersh (2004), many adolescents with developmental disabilities (57%) continue to live with their families into adulthood. This is compared to 16% of adolescents without disabilities. The study mentioned, however, that of those who reside with family, (over 75%) wish to live independently. This may be an example of families being protective of their loved one with a disability, and while their intentions are well-meaning, may actually be holding them back from growing their independence. Despite the individuals wishing to live independently, the study reports more positive relationships between the adolescent with developmental disabilities and their families than typically developing adolescents have with their families. The study also reports, however, that adolescents who have developmental disabilities receive more attention than their counterparts without disabilities. This appears to be a natural occurrence due to the increased needs of an individual with a disability; however, it could be that the parents are more protective of these individuals.

A study conducted by Gupta and Singhal (2004) reports that although families who have members with developmental disabilities report higher levels of stress, this does not mean that they still do not have positive relationships. This study reviews many ways for families to cope using positive interventions, rather than aversive interventions such as: problem-focused coping (focusing on each problem individually when it arises), having positive perceptions, and positive reappraisal (re-examining the situation to look for the positive take on it). Further education on these positive coping strategies for families with individuals with developmental disabilities would be extremely productive.

If a parent chooses to continue to keep their adult child with developmental disabilities in their home, they have the ability in Ohio to apply for a waiver. There are different types of waivers, but each has a different level of funding that allows for varying amounts of staffing to come to the home and provide various services for the individual. Homemaker Personal Choice (HPC) providers help the individual with hygiene, outings, doctors' appointments, social skills, chores, cooking, and many other basic and everyday tasks (Disability Rights Ohio, 2012).

Qualls (1997) indicated that the "transition of autonomy" is a struggle for families who have a loved one with a developmental disability. Qualls illustrates the difference between childrearing and caregiving. In childrearing, parents begin as guardians and teach and guide their child into adulthood by taking natural steps. Caregiving is constant guiding and teaching and repeating the same steps while remaining guardian without the natural progression to autonomy. The article suggests that sometimes families can hurt themselves by not lessening their own responsibilities and instead allow providers to care for their loved one or allow their loved one to care for themselves as much as possible.

In my limited experience, many (but not all) parents of adults with developmental disabilities struggle with allowing their loved one to take risks and be more independent. This could stem from the fact that they recognize that their loved one does not have the ability to make informed decisions like a typically developing person and they are afraid they will be hurt. The state of Ohio is no longer allowing for this to be the case, as they have implemented rules to allow the individuals we serve to take risks and make mistakes, like any other typical person. This change in thinking has been difficult for

some families. For example, the state has said that unless the person has an immediate risk of harm, diet restrictions are no longer allowed to be put in place. (Immediate risks of harm that would allow diet restrictions are Type I Diabetes or Prader-Willi Syndrome, for example). However, I write a plan for an individual who is bordering on 400 pounds. Her family wants to take control of her diet, and the state will not allow it because anyone has the right to be overweight. This person's parent and family members struggle constantly with this. Education and encouragement are all that can be done, but they feel as if they are allowing her to slowly commit suicide by overeating. It is important that families be educated on positive interventions so they do not have to rely on restrictive measures.

Fears that the adult with developmental disabilities is not able to care for themselves is prevalent among families, according to Solomon and Marcenko (1992). The researchers interviewed families one month after their loved one moved to a community setting (either congregate or independent) and then a year later. They assessed how ready their adult with developmental disabilities was to live more independently. Results showed that one month after the move, many families did not feel the person was ready. One year later, the families had a more positive outlook on the readiness of the individual. This shows the initial fears (e.g., they will not take their medications, they need someone to remind them to keep up their hygiene, etc.) once confronted through allowing the move towards independence generally are diminished, and positive outcomes result. This does not mean that everyone who wants to live more

independently will be successful; however, this should ease the fears of families when confronting the idea of independence for their loved one.

According to a literature review conducted by Abu (2013, p. 412), five themes emerge when a family faces the challenges of having a child with a developmental disability living at home: “(1) negotiating joys and sorrows, (2) physical and mental exhaustion, (3) negotiating with family matters, (4) social stigma, and (5) hope in the midst of despair.” However, in another study (Essex, 2002), it was suggested that despite stressors, families who keep their loved one with disabilities at home report closer relationships. It may be that the family was already close and this is why they decided to keep their loved one home (Essex, 2002). It is important to note that not all family members who have their loved ones with a developmental disability living at home struggle with the above themes.

Dillenburg and McKerr (2011) asked what family members liked and disliked about having their adult child with developmental disabilities living at home. Nearly half (48%) of the respondents stated that handling their loved ones’ behavioral problems was the biggest difficulty facing the family. However, in this study the researchers did not mention any data surrounding families who also had paid staff as supports in the home. Some participants mentioned sending their adult child to respite for short amounts of time, but did not discuss having staff in the home.

Resides in Congregate Setting

A family may decide a congregate setting with paid caregivers (formerly known as a group home) is what they want for their son or daughter. In congregate settings,

families can have varying degrees of involvement. Some parents choose to not participate in their son or daughter's life once they move out. Some choose to continue to visit daily, and others find a middle ground between these two extremes.

One study conducted in a congregate setting examined placement breakdown for the adult residents with developmental disabilities who displayed challenging behaviors (Broadhurst & Mansell, 2007). Individuals may not reside long in the congregate setting due to challenging behaviors and could be placed in many congregate settings over short periods of time. This is referred to as placement breakdown. Broadhurst and Mansell (2007) concluded that the adults who displayed inappropriate sexual behaviors were more likely to experience placement breakdown. The study pointed out that it is very important to examine the characteristics of each congregate setting (training of staff, specialty areas, support for staff, etc.) before placement in order to avoid placement breakdown.

Another consideration for families to keep in mind when deciding whether to place their adult child with developmental disabilities in a congregate setting is the importance of a positive relationship with the agency and staff who are working with the individual. This is important because research has found the professional caregivers tend to see the parents as interfering obstacles that hinder their child's growth and emotional development (Essex, 2002).

A study comparing living arrangements of adults with developmental disabilities living in a congregate versus a family setting was conducted in Taiwan (Wang, Hsieh, Heller, Davidson, & Janicki, 2007). The researchers compared the health outcomes of

adults with developmental disabilities living in institutional settings versus family homes. The study concluded that age is the greatest factor in health outcomes of adults with developmental disabilities, but residential setting may be a contributing factor. Wang et al. (2007) suggested disease may be more prevalent in a congregate setting. In addition, families who care for their adult at home may not be accurately reporting information. This study did not mention having staff supports in the family home, nor did it factor in challenging behaviors.

Independent Living

Some individuals who are more independent may live in their own apartment with staff that drop in to check on them and assist them with certain tasks. A study conducted by Beadle-Brown, Murphy, and DiTerlizi (2009) concluded that adults with developmental disabilities who also have challenging behaviors report a lower quality of life. However, the researchers also concluded that the more independent functioning the individual displayed, the higher quality of life was reported. This suggests an adult living in an independent setting may experience a greater reduction in their challenging behaviors when compared to adults living in other settings.

Cole and Levinson (2002) studied the importance of choice in reducing challenging behaviors among children with developmental disabilities. The results of their study indicated the children showed a decrease in challenging behavior when provided with choices in their school day. While the study did not focus on adults with disabilities, the case can be made that those living in an independent setting as adults

have more opportunity for independence of choice and may therefore have fewer challenging behaviors.

In a study conducted by Schwartz and Rabinovitz (2003), quality of life was explored in adults with developmental disabilities living in independent and congregate settings, both with paid support staff. The results showed that the highest reported quality of life was reported by adults with developmental disabilities who had fewer challenging behaviors and lived in independent settings. The study also examined the life satisfaction of the adults' parents and found that they mostly aligned with the individuals' scores.

Behavioral Interventions

Regardless of the setting, adults with developmental disabilities sometimes display challenging behaviors significant enough to require restrictive measures once less restrictive measures have been exhausted or there is a risk of harm or legal sanction. My hope and preference when writing behavioral interventions for staff to follow is that challenging behaviors can be managed with positive supports (e.g., verbal redirection, voluntary time away, preferred activities, etc.). However, at times, professionals working with adults with developmental disabilities find themselves in situations where these less restrictive supports do not work, all other less restrictive interventions or strategies of de-escalation included in the individual service plan have been exhausted, or the risk of harm or legal sanction is too great and they must intervene with a restrictive measure.

Restrictive measures are, "a method of last resort that may be used by persons or entities providing specialized services only when necessary to keep people safe and with

prior approval by the human rights committee” (Ohio Rev. Code Ann. § 5123:2-2-06). In order to implement any of these restrictive measures, staff must be trained on the restrictive measures written into the ISP (individual service plan) by a certified Behavior Support Specialist or Service and Support Administrator. Staff must also complete crisis management training (in any of the various programs, such as Mandt, CPI, Quest, etc.) in order to implement any manual restraints or medication administration training in order to implement any chemical restraint.

ORC definitions of each of the four restrictive measures follow (Ohio Rev. Code Ann. § 5123:2-2-06). A manual restraint is when someone intervenes using a hands-on method. Restricting any type of movement on someone is considered a manual restraint. This includes disabling the wheels on someone’s wheelchair or performing a hold or restraint. The ORC states that there must be a clear risk of harm or legal sanction for the approved use of this restraint, meaning someone must be at risk of suffering an injury or going to jail. Examples when this might be used are when someone is physically aggressive towards another individual, attempts to run into traffic with no regard for safety, or attempts to hurt themselves to the point of injury (Ohio Rev. Code Ann. § 5123:2-2-06).

A mechanical restraint is another way of restricting movement by using a device instead of using a hands-on restraint. Examples of this are bed rails, seat belts, harnesses or buckle guards on busses or large passenger vans (where seatbelts are not required), and gait belts used to prevent elopement (Ohio Rev. Code Ann. § 5123:2-2-06).

Time out is when an individual is prevented from leaving an area by either a human barrier or a door, gate, or other confining device. In some literature, this is referred to as seclusion (e.g., Webber, McVilly, & Chan, 2011). There are rules associated with the time out intervention. A person may not be locked in an area, will not be in time out for more than 30 minutes at a time or more than an hour in a 24 hour period, must have appropriate light and ventilation, and must be safe (Ohio Rev. Code Ann. § 5123:2-2-06).

A chemical restraint is defined as a medication that will alter a specific behavior. There are three types of chemical restraints: A PRN (as needed) medication for behavioral reasons, such as when someone is upset and cannot calm themselves and is a risk of harm to themselves or others; an off-label use for a medication; or having a medication in place without a corresponding diagnosis (Ohio Rev. Code Ann. § 5123:2-2-06). An example of the latter is someone having a prescription for Klonopin, which is used to treat anxiety, panic disorders, or seizures, without the person being diagnosed with any of these. Physicians may prescribe these medications for off-label use to control maladaptive behaviors.

An Australian study conducted by Webber et al. (2011) examined the use of restraint. The study focused on the populations receiving the interventions rather than the effectiveness of the interventions. The study included chemical and mechanical restraint, as well as seclusion (time out). The authors concluded that the majority of the adults sampled were subjected to chemical restraint and were young, male, and had more than one developmental disability. The study noted that instead of the restraint being used as a

very last option, it was more routine. Webber et al. (2011) noted that further research was needed to determine the effectiveness of restraint.

As a response to challenging behaviors, some researchers have examined the most common method of intervention. A study conducted with a sample of 500 individuals determined that the most common method of intervention for challenging behaviors of those who received one or more interventions was the manual restraint, with 44% of the participants receiving this intervention (Emerson et al., 2000). The second most common intervention of those who received one or more interventions was sedation, or chemical restraint, with 35% of participants receiving this intervention. Seclusion, or time out, was the third most used intervention, with 20% of the participants receiving this intervention. Mechanical restraint was the least frequent intervention, with 3% of the participants receiving this intervention. The sample in this study came from various settings and received varying degrees of residential supports, but the authors did not clarify which setting these different interventions occurred in or which intervention was more successful. The study did note that the use of sedation or chemical restraint was more likely to occur in an institutional setting. It is unclear how this conclusion was reached, other than the author's statement that living in a residential facility, in this study in particular, led to an increased prescription of these type of medications (Emerson et al., 2000).

Matson et al. (2012) discussed several treatment methods for challenging behaviors in adults with developmental disabilities ranging from positive behavioral supports towards the more aversive restraints (both manual and chemical). It was noted

by the researchers that one concern with chemical restraint is that it tends to be used as a last resort, when staff, families or the team are desperate. Instead, according to the researchers, diagnosis should drive treatment. Another concern that the researchers noted with the interventions used for challenging behaviors, is that the problems occurring are anecdotal (and provided by family and staff) and could be flawed. The study calls for caution when using manual restraints due to the possible risk factors (injury, etc.) associated with these interventions. When using these interventions, the researchers note that there are things needed to ensure the correct technique is used in order to prevent injury or other issues, including thorough assessments, monitoring, and attempting less restrictive techniques first.

After examining the most common methods of interventions used in the above studies, some researchers then began examining factors that may lead to these interventions being implemented. Matson and Boisjoli (2009) explored manual, mechanical, and chemical restraints in depth and the factors that lead to the use of each of these interventions, as well as the dangers of an unplanned restraint versus a planned restraint. This study was conducted in Canada with a population of 625 adults with developmental disabilities and challenging behaviors in various residential settings. A planned restraint is used when an individual with a developmental disability has a formal plan, trained staff, and the individual with the developmental disability must display a certain pre-identified behavior in order for the intervention to be used. An unplanned restraint is when someone intervenes with an individual who is displaying a behavior that could result in injury to themselves or others, yet there is no formal plan in place for

them. Matson and Boisjoli (2009) concluded that an unplanned restraint is more dangerous than a planned restraint to the individual and those implementing the restraint. This could be because the behavior is too intense for the intervention or because the person is not trained properly to implement it. Similar to other studies, the differences in residential settings of participants in this study were not addressed, and those who live in family homes with support staff were not included.

Scheirs et al. (2012) attempted to predict which factors lead to restraints among a group of 475 adults with developmental disabilities living in an institution. The results showed, “Significant predictors were the psychological variables: low adaptive functioning, the presence of challenging behaviours, and a relatively high intellectual level. Of the challenging behaviours, specifically behaviours other than actual aggressiveness proved to be predictors of restraint” (Scheirs et al., 2012, p. 112). Examples include verbal aggression, property destruction, stealing, pica behavior, among others.

There is a body of research regarding the effectiveness of restraint with the population of individuals with developmental disabilities. Heyvaert, Saenen, Maes, and Onghena (2013) conducted a case study with a sample of 59 adults and concluded that restraint interventions were highly effective in reducing challenging behavior. This study discussed manual restraints, mechanical restraints, and time out; however, it did not include chemical restraint as one of the restraints studied. Another difference in this study from the present research is that it included response blocking as a restraint. In Ohio, response blocking (blocking acts of physical aggression with arms, hands, or pads)

is not considered a restraint because one is not changing or restricting movement, but protecting oneself or others from being hurt.

After the factors in the studies above are considered, it is also important to examine the various settings in which these interventions are implemented. Saloviita (2002) conducted a study in Finland with a sample of 261 residents of an adult care facility for those with developmental disabilities. Some individuals lived in the institutional setting and some lived in smaller, residential homes (comparable to congregate settings). The study found that the four major interventions described above (i.e., manual, mechanical, chemical restraint, and time out) were used more in the institutional settings, whereas the residential home staff were more likely to use positive interventions rather than any of the restrictive ones. One factor to consider is that the individuals placed in the residential homes may have been placed there due to less severe behaviors, thus requiring less intense interventions.

In summary, there is published research that focuses on adults with developmental disabilities; however, no study has been found that is comparable to the present study. Prior studies include one or two aspects that are similar. For example, the effectiveness of interventions has been researched to a limited degree. However, that research does not address the factor of various residential settings. Published research on the effectiveness of restrictive measures in reducing challenging behaviors of adults with developmental disabilities in different residential settings has not been found. Therefore, the present study was designed to address that void in the research.

CHAPTER III

METHODOLOGY

This was an exploratory study. Due to the fact that strong support was not found in the scholarly literature to formulate directional hypotheses, research questions instead were identified. The study aimed to answer the following research questions:

1. Does the amount of behavioral change across a year in adults with developmental disabilities vary based on different behavioral interventions received?
2. Does the amount of behavioral change across a year in adults with developmental disabilities vary based on the setting in which they reside?
3. Does the effect of the residential setting on the amount of behavioral change in adults with developmental disabilities differ depending on the behavioral intervention(s) received?

Sample

The sample included 63 adults with developmental disabilities served by the Stark County (Ohio) Board of Developmental Disabilities during 2014 and 2015. Only participants for whom there were data for both years were included in the study. All participants had received one or more of the four focal interventions of this study (manual, mechanical, chemical restraint, and time out) and lived in one of three settings (a family home, a congregate setting, or independent living). Of the individuals in this sample, 15 (23.8%) resided in family homes, 31 (49.2%) resided in congregate settings, and 17 (27%) were in independent living arrangements.

Measures

The data analyzed for this study were existing data collected by providers of adults with developmental disabilities and supplied to the Stark County Board of Developmental Disabilities over 2 years (2014 and 2015). Specifically, the total number and types of challenging behaviors the individual displayed each year were examined in this study, as well as the number and types of interventions they received.

Procedures

The research plan was approved by Kent State University's Institutional Review Board. All identifying features of each adult were removed from the data analyzed. All demographic information, including age, gender, and type of disability was eliminated from this study with the exception of living environment, which was collected from each person's individual service plan. Existing data on challenging behaviors collected by providers at the participants' work and home locations during 2014 and 2015 were entered into SPSS version 23. The challenging behaviors included: physical aggression, self-injurious behavior, unsafe vehicle behavior, verbal aggression, property destruction, elopement, pica, and inappropriate sexual behavior. Data on living arrangement and types and totals of interventions implemented for each participant were also entered into SPSS.

Data Analysis

Behavioral change was calculated for each participant as the difference in total challenging behaviors between 2014 and 2015. Frequencies and descriptives were then calculated on the study variables: living arrangement, behavioral interventions

implemented, challenging behaviors, and behavioral change. Pearson correlations and t-tests were also conducted on the study variables.

A 3 (living arrangement) X 5 (intervention) ANOVA was conducted, with behavioral change occurring between 2014 and 2015 as the dependent variable. The independent variables were living arrangement (family home, congregate setting, or independent living) and intervention implemented (manual, mechanical, chemical restraints, time out, or a combination of the previous four). The ANOVA addressed the research questions:

1. Does the amount of behavioral change across a year in adults with developmental disabilities vary based on different behavioral interventions received?
2. Does the amount of behavioral change across a year in adults with developmental disabilities vary based on the setting in which they reside?
3. Does the effect of the residential setting on the amount of behavioral change in adults with developmental disabilities differ depending on the behavioral intervention(s) received?

As a follow up analysis, a one-way ANOVA was run for each study year to determine if the number of the challenging behaviors (the dependent variable) differed depending on the type of intervention implemented (the independent variable).

Chi-square tests also were calculated to see if the type of challenging behavior shown and type of intervention implemented differed based on the living arrangement.

CHAPTER IV

RESULTS

The number of challenging behaviors reported for the 63 adults with developmental disabilities during 2014 ranged from 4 to 7614 ($M = 765.9$, $SD = 1181.9$). The range in 2015 was 6 to 5536 ($M = 631.37$, $SD = 1015.4$). A paired samples t-test was conducted to compare the total number of challenging behaviors in 2014 to the total number of challenging behaviors in 2015. Although there was a decrease in challenging behaviors ($M = 134.5$), the behavioral change was not statistically significant. A chi-square analysis showed no difference in the type of challenging behavior across the three living arrangements.

Frequencies were calculated for interventions received by participants (see Table 1). The most common interventions used were manual restraint (41.3%) and a combination of at least two interventions (31.7%). Time out was not listed separately on the table because any participant who received time out also received at least one other intervention and therefore was placed in the “Combination” category. The most interventions written into anyone’s plan was 5, with 3 individuals receiving this many interventions. Over the 63 participants, there were 123 different interventions approved to be used, which is approximately an average of two interventions per person written in their plan. Some individuals had more than one of each type of behavioral intervention. The number of interventions implemented in 2014 averaged 141.8, with a range of 0 – 1184. In 2015, the average was 141.5, with a range of 0 – 1198. Paired samples t-tests showed there were no significant differences between 2014 and 2015 in the mean number

of times each of the four interventions were used. A chi-square test showed the type of intervention implemented did not differ across the three residential settings.

Table 1

Frequencies of Interventions Received by Participants

	Frequency	Percent of Interventions
Manual restraint	26	41.3%
Mechanical restraint	7	11.1%
Chemical restraint	10	15.9%
Combination	20	31.7%

A 3 (residential setting) x 5 (intervention) ANOVA was conducted to test the three research questions. No significant differences were found. Pearson correlation analyses were run with the number of challenging behaviors and interventions implemented for each year. Significant results were found (see Tables 2 and 3). In both years, the total number of challenging behaviors reported was significantly positively correlated with the number of manual restraints implemented. That is, the greater the number of challenging behaviors, the more frequently manual restraint was used. A significant positive correlation was also found in both years between the use of time out and chemical restraint. Since it was a perfect correlation (1.00), this means whenever time out was used with a participant, a chemical restraint was also used. Additional significant correlations resulted for 2015. A greater number of challenging behaviors

was related to a more frequent use of chemical restraint and time out. Also, in 2015, a significant negative correlation existed between manual and mechanical restraint. This means the more one was used, the less the other was used. A significant positive correlation, however, existed between manual restraint and time out.

Table 2

Correlation Between Number of Challenging Behaviors and Interventions Used in 2014

	1	2	3	4	5
1. Challenging behaviors					
2. Manual restraint	.68**				
3. Mechanical restraint	-.17	-.62			
4. Chemical restraint	.35	-.11	-.77		
5. Time Out	.99	.93	.00	1.00**	

** $p < .01$

Table 3

Correlation Between Number of Challenging Behaviors and Interventions Used in 2015

	1	2	3	4	5
1. Challenging behaviors					
2. Manual restraint	.63**				
3. Mechanical restraint	-.19	-.86**			
4. Chemical restraint	.43**	.49	-.91		
5. Time Out	1.00**	1.00*	.00	1.00**	

* $p < .05$, ** $p < .01$

For each study year, correlations were also calculated for the frequencies of the different types of challenging behaviors exhibited and restraints used (see Tables 4 and 5). In both 2014 and 2015, manual restraint was significantly positively correlated with physical aggression and self-injurious behavior. The more often physical aggression or self-injurious behavior was shown, the more often a manual restraint was implemented. In 2014, manual restraint also positively correlated with property destruction and elopement. Two significant correlations were found in 2014 regarding mechanical restraint; one was a negative correlation with property destruction and the other was a positive relationship with elopement. Additionally, time out was positively correlated with elopement.

In 2015, similar to 2014, there was a significant negative correlation between property destruction and mechanical restraint. Unlike in 2014, chemical restraint showed

significant correlations with some of the challenging behaviors: physical aggression, self-injurious behavior, inappropriate sexual behavior (all positive correlations), and unsafe vehicle behavior (a negative correlation). In 2015, time out was positively correlated with physical aggression, but negatively correlated with elopement.

Table 4

Correlations Between Number of Challenging Behaviors and Interventions Used in 2014

	Manual Restrain t	Mechanical Restraint	Chemical Restraint	Time Out
Physical aggression	.42**	.09	.45	.06
Self-injurious behavior	.84**	-.13	.49	.00
Unsafe vehicle behavior	.24	.33	.00	.00
Verbal aggression	.51	.00	.22	.00
Property destruction	.86**	-1.00**	.26	.00
Elopement	.81**	1.00**	-.22	1.00**
Pica	.00	-.39	.00	.00
Inappropriate sexual behavior	.20	.00	-1.00	.00

** $p < .01$

Table 5

Correlations Between Number of Challenging Behaviors and Interventions Used in 2015

	Manual Restraint	Mechanical Restraint	Chemical Restraint	Time Out
Physical aggression	.59**	.15	.65**	1.00**
Self-injurious behavior	.74**	-.19	.86**	.00
Unsafe vehicle behavior	-.03	.24	-1.00**	.00
Verbal aggression	-.22	.00	.43	.00
Property destruction	.51	-1.00**	.58	.00
Elopement	.41	.31	-.04	-1.00**
Pica	.00	-.12	.00	.00
Inappropriate sexual behavior	.43	.00	1.00**	.00

** $p < .01$

A one-way ANOVA was conducted separately for each study year to assess the total number of challenging behaviors by the type of intervention used. The results were significant for 2014, $F(3, 59) = 2.99, p = .04$. Post hoc tests showed that participants who received only mechanical restraint had a significantly higher number of challenging behaviors ($M = 1847$) than those receiving only chemical restraint ($M = 211.9$). However, in 2015, there were no significant differences by intervention used.

CHAPTER V

DISCUSSION

The purpose of this study was to explore behavioral changes in adults with developmental disabilities who have behavioral interventions in place and reside in different settings. This study was intended to assist Behavior Support Specialists, Service and Support Administrators, family members, and service providers in finding which interventions and settings were associated with the most positive outcomes, meaning a decrease in challenging behaviors. It was the hope that this research would further assist in finding ways, through a combination of residential setting and interventions received, to reduce the use of restrictive measures as much as possible.

The first research question asked if the amount of behavioral change in adults with developmental disabilities differed for those who received different behavioral interventions. The results indicated there was not a significant change (either positive or negative) from 2014 to 2015. The second research question asked if the amount of behavioral change across a year in adults with developmental disabilities varied based on the setting in which they resided. The findings were not significant. The third research question asked if the effect of the residential setting on the amount of behavioral change in adults with developmental disabilities differed depending on the behavioral intervention(s) received. Again, there were no significant results. Possible reasons for the lack of significant findings in the research questions include a small sample size due in part to incomplete data, and the forced reduction of interventions in 2015 by the state of Ohio.

Another reason that could have contributed to the lack of significant results may be due to the fact that there were no significant differences in challenging behaviors from 2014 to 2015. Also, it is possible the results of the research questions were not significant because there is truly no effect of intervention or setting on the individuals' behavioral change. Or, perhaps other variables not looked at in this study, such as mental health diagnoses, were more influential than those assessed in the study.

There were no significant differences between 2014 and 2015 in either the number of challenging behaviors reported or the number of interventions used. This suggests that many of the individuals in this study may be at their baseline in challenging behaviors. In 2015, the Ohio Department of Developmental Disabilities stated that all interventions used must only be used when there is a clear risk of harm or legal sanction. Because there were no significant differences between the two years, this suggests the individuals truly need these interventions because their challenging behaviors are ongoing. One reason there may have been significant correlations between challenging behaviors with interventions in 2015, but not 2014 is this rule change. In 2015, all providers and their staff were trained on the new behavior support rule and this may have changed the way they reported data. For example, under the new rule providers were responsible for documenting the antecedent to any challenging behavior. Possibly, once this was documented and teams began to examine the antecedents, certain challenging behaviors may have been reduced or "fixed" based on this new information. Once the challenging behavior was eliminated, the restrictive measure that was the intervention

would also have been discontinued. This means that now every intervention in place matches with a challenging behavior.

There are several possible explanations for some of the significant results found in this study. Manual restraint positively correlated with challenging behaviors in both years. This result makes sense due to the way restrictive measures are written into individual service plans. When a plan is written, the restrictive measure is typically the last resort after several positive interventions, such as redirection, have been attempted. As Matson and Boisjoli (2009) noted in their study, a planned restraint is less dangerous than an unplanned one. Thus, it is possible in the present study that the more challenging behaviors that occurred, the more likely other interventions had been used and exhausted before manual restraint was resorted to by the providers. Also, chemical restraint and time out positively correlated with each other in both years. This also makes sense. Typically, in my experience, in order to administer a chemical restraint, a quiet area may be utilized so that the individual can calm naturally while the medication works. This could be the reason that chemical restraint is positively correlated with time out.

Significant results were found for correlations between the number of different types of challenging behaviors and the number of different restraints used. Some associations were significant for both study years. For example, in both years manual restraint was positively correlated with physical aggression and self-injurious behavior. Based on the language in the behavior support rule (prior to the change and with the current change) both of these challenging behaviors can cause injury to self or others, and a manual restraint is logical to prevent this as a last step. A perfect (1.00) correlation

existed between time out and elopement in both years. In 2014, this was a positive correlation, but in 2015 it was negative. Only two individuals' data formed this correlation. In 2014, time out was used whenever elopement was used. Perhaps the outcome from time out was not optimal, so instead a different intervention or more positive behavioral supports were chosen over time out in 2015.

In 2014, two more significant correlations were found involving mechanical restraint. When property destruction was displayed, mechanical restraint was not used. One possible reason for this is that a typical mechanical restraint, in my experience, is used for self-injurious behavior and unsafe vehicle behavior. If an individual is displaying property destruction, a manual restraint makes more sense after other options, such as removal of objects, etc. have been exhausted. Mechanical restraint had a positive significant correlation, however, with elopement. This finding was logical in the fact that gait belts are a mechanical restraint when used for elopement, which could be the reason for the correlation. This was not found in 2015, however, which again could be due to the change in the behavior support rule requiring the discontinuation of restrictive measures that may not meet the level of harm required by the rule. In other words, a plan that used a gait belt as a mechanical restraint because someone left their area at work may have been used in 2014, but not in 2015 for this purpose because the behavior did not meet the new criteria.

Interestingly, in 2015, a positive significant correlation was found between chemical restraint and the following: physical aggression, self-injurious behavior, and inappropriate sexual behavior. A chemical restraint is often prescribed for physical

aggression and self-injurious behaviors but not for inappropriate sexual behavior.

Self-injurious behavior can be displayed as a form of anxiety, and chemical restraints may be prescribed to combat this. A chemical restraint used to treat sexually inappropriate behaviors is termed chemical castration and is not frequently used in Stark County (there are no known uses of it for this purpose at this time). This suggests the individuals receiving the chemical restraint are receiving it for physical aggression or self-injurious behavior and the individuals who show inappropriate sexual behavior happen to also exhibit physical aggression and/or self-injurious behavior. Follow up analysis confirms this; there was a significant correlation between inappropriate sexual behavior and self-injurious behavior ($r = 1.00, p < .01$). One reason for this could be an individual who is a sex offender may be restricted due to their sexually inappropriate behaviors. As a result, they may demonstrate their frustration through physical aggression and self-injurious behavior as a way of acting out. Now, with more person-centered planning and more individualized choices and freedoms, I would expect this correlation to not be significant in 2016.

In 2014, individuals receiving mechanical restraints displayed significantly more challenging behaviors than those receiving a chemical restraint. One reason for this could be that the challenging behavior of an individual receiving the chemical restraint may stop due to the effects of the medication.

Limitations

This study had several limitations. Each individual could have different mental health diagnoses which may factor into the frequency of their challenging behaviors not

changing, despite any intervention used. Matson and Rivet (2008) reported in their study that individuals diagnosed with Autism as well as an intellectual disability typically display more challenging behaviors than individuals diagnosed with an intellectual disability alone. Therefore, the individuals in this study or those who are dually diagnosed with mental health and developmental disabilities may display a higher number of challenging behaviors. Some individuals, despite plans and restrictive measures, still struggle with their challenging behaviors. Some individuals also cycle, meaning that for 9 or even 11 months out of a year they do not display any challenging behaviors, but are triggered by a season or a holiday, and have a very bad month that may offset their average.

Another limitation to this study is human error or different concepts of reporting data. Every staff person that provides care for each individual at any time could be marking data on the tracking sheets. Each plan has clear definitions and procedures written for staff, but not all follow the directions. For instance, some staff mark behaviors with tally marks or some mark with numbers which can be hard to read. Some staff write “constant” or “lots” instead of a definitive number. Some staff will get tired of documenting and will write “10+.” Each staff’s documentation is up to the interpretation of the behavior support specialist reviewing the monthly data. Some providers do not send in the data every month as well, which can make data collection difficult. Also, as the new behavior support rule is fairly new, not all staff may be properly trained or experienced in their documentation. Each number reflected in this study is accurate to

the best of the author's knowledge; however, the reliability of the data is at the mercy of the collector.

Another limitation regarding data collection could be interpretation of the definition of each behavior. For example, a positive correlation between pica and self-injurious behavior may be the result of some staff automatically viewing pica behavior as self-injurious, and therefore recording the behavior as both. Other staff may define pica differently.

Another limitation to this study pertains to those individuals who live in the family home. Natural supports (unpaid supports) are not required to collect data. If there were no staff in the home at the time of a challenging behavior, those data were not collected. An individual living in the family home may be displaying a higher number of challenging behaviors than what is reported in this study.

Yet another limitation to this study is that certain individuals' diagnoses make any progress or reduction in challenging behaviors unrealistic. For example, an individual could have a diagnosis of Prader-Willi Syndrome or Lesch-Nyhan Syndrome, both of which are classified as disability diagnoses. However, both diagnoses are lifelong and particularly with Lesch-Nyhan Syndrome, it is progressive. All self-injurious behavior as a result of this illness will continually require mechanical and manual interventions to be in place as the disease progresses.

Further, some individuals may reside in a particular setting due to their challenging behaviors. As Broadhurst and Mansell (2007) reported in their study, individuals who display challenging behaviors are at a higher risk of placement

breakdown. Therefore, some individuals may change settings frequently due to their behavior. Some may display less challenging behaviors without peers around and therefore, they live independently. Other individuals may have moved out of the family home due to challenging behaviors and have since thrived in a congregate setting.

Not taken into account in this study were the individuals' ages and genders. Some individuals in this study could be as young as 18. Younger individuals, as with their typical peers, have more energy and display more challenging behaviors than those who are more mature. Also, typically males display more challenging behaviors than their female counterparts. Webber et al. (2011) reported in their study that young males were more likely to receive a chemical restraint, implying they were more likely to display the challenging behaviors required to receive the intervention. Future research should include age and gender.

Implications

The implications of this study for the Stark County Board of Developmental Disabilities suggest that since there was not a significant increase in interventions from 2014 to 2015, that the board is doing what they are supposed to be doing as the rule requires. As the county board continues to eliminate restrictive measures for behaviors that do not meet the criteria of risk of harm or legal sanction or that have not been used in a quarter, I expect there to be a more significant decrease in the future.

Another implication of this study shines light on the training of providers and their staff. Some providers are resistant to the elimination of restrictive measures, because they do not want to have to have an MUI (major unusual incident which requires

an investigation) on their record due to the use of an unapproved behavior support.

However, even if an individual does not have a plan in place and they are at risk of harm, providers should do what they must to protect the individuals, including restrictive measures. It is a matter of re-education of staff and looking at situations differently than how they have been looked at in the past. For instance, an individual may not display physical aggression frequently enough to meet the need for restrictive measures.

However, every October due to past trauma, he has a rough month. His provider must intervene at times with a manual restraint, although it is not written in his plan, in order to protect this individual. Providers need to be re-training their staff and providing reminders that protecting the individual will not get them in trouble as long as they report what intervention they had to use and why.

Stark County is one of the leaders in person-centered planning in Ohio. Stark has developed the Good Life packet which is being used in other counties as an assessment for restrictive measures. With this study, Stark can continue to be a leader in educating providers and county boards across Ohio in how to reduce restrictive measures while still keeping the individuals safe.

Families can learn from this study as well. Some families are hesitant to eliminate a restrictive measure because they fear that their individual will not be safe. Other families do not want the restrictive measures in place because they do not want anyone to put hands on their loved one. Either way, this study can reassure and educate them by showing that the restrictive measures are only a matter of last resort and that their individual is making positive progress when the restrictive measure is eliminated.

This should be celebrated with families and teams, which is a matter of re-education and changing the way of thinking.

Future research on this topic may include interviews with the individuals, providers, and families to see how they feel about the rule change. Other questions that might provide informative results include: How does your “plan” and how you have been treated in the past compare to now? Do you want these interventions in place to keep you safe? What can we do that we are not doing to keep you safe outside of these restrictive measures? Future research might also include data from 10 or even 20 years ago to show how far the system of developmental disabilities has progressed in Ohio. Also future research could compare future years to 2016, the first full year of the new behavior support rule to assess future progress.

This study began to explore the world of adults with developmental disabilities, behavioral change, behavioral interventions, and various living environments. This study suggests that the Stark County Board of Developmental Disabilities is ensuring that interventions are used appropriately in many areas, such as with physical aggression and self-injurious behavior. More research is needed to assess the relationship between interventions and less common challenging behaviors such as pica and elopement. It should be noted that although the new behavior support rule went into effect in 2015, it was not mandatory that it be implemented until December 31. Therefore, it is possible that not every individual’s plan in this study follows the new behavior support rule. The findings of this study show that there are many positive correlations between challenging behaviors and interventions, yet further research is needed regarding residential setting.

If significant findings result with a larger sample, for instance, county board employees, families, and guardians may be armed with more information to assist their loved one with residing in the setting that is best for them, thereby also reducing their challenging behaviors. With the changes that the State of Ohio frequently puts into law, further research is needed to educate families, individuals, county board employees, and providers on how to navigate this uncertain path.

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