

CLINICIAN FACTORS RELATED TO THE DELIVERY OF PSYCHOTHERAPY FOR
YOUTH WITH AUTISM AND ADHD

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Abstract

Children and adolescents with autism are far more likely than children without autism to experience co-occurring mental health problems such as anxiety or depression. Though evidence-based psychotherapy that addresses mental health problems in youth without autism has been effective for youth with autism (e.g., cognitive behaviour therapy), these youth are less likely to receive such interventions. Recent research indicates that clinician factors, such as knowledge, attitudes, confidence, and beliefs, can impact their decisions to provide care, though this work has primarily focused on adults or was done within the context of one kind of treatment (CBT). The current study examined psychological predictors of clinicians' intention to deliver psychotherapy to youth with autism or ADHD. Participants included 611 clinicians aged 20 to 75 across publicly funded agencies in Ontario, Canada. Multiple mediation analyses revealed clinician knowledge was associated with intention to treat clients with autism or ADHD, and normative pressures and attitudes partially mediated this association. Clinicians felt less likely to treat clients with autism than those with ADHD, partly because of differences in their attitudes and normative pressures, which related to their knowledge. This research suggests that targeted training around autism and mental health care may be a useful initiative for mental health agency staff.

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Introduction

Autism is a neurodevelopmental condition involving significant deficits in social communication and the presence of restricted or repetitive behaviours, interests and activities (American Psychiatric Association, 2013). Clinical features and the severity of autism may vary depending on child characteristics such as their cognitive functioning, adaptive behaviour, and the presence of comorbid physical or mental health problems. Children and adolescents with autism are far more likely to experience co-occurring mental health issues, including anxiety, depression, and conduct problems (Arim et al., 2015; Strang et al., 2012), compared to those without autism. For example, in a sample of 109 children and adolescents with autism aged 5 - 17 years, Leyfer et al. (2006) found high rates of comorbid psychiatric conditions over their lifetime, including major depressive disorder, obsessive-compulsive disorder, and specific phobic disorder. Similarly, Simonoff et al. (2008) found that 50%-70% of youth with autism met the criteria for at least one co-occurring psychiatric disorder. There is a clear need for access to effective mental health care for children and youth with autism to address these prevalent emotional and behavioural problems.

Psychotherapy

Psychotherapy refers to the use of psychological interventions to reduce symptoms of mental health problems, such as anxiety or depression (American Psychological Association, 2013). Psychotherapeutic interventions fall into five broad categories: cognitive, behavioural, humanistic, integrative/holistic and psychodynamic approaches (American Psychological Association, 2013). These different forms of psychotherapy often use evidence-based approaches, which integrate clinical expertise with the best available research (Cook et al., 2017), to improve emotional and behavioural problems among youth (Effective Child Therapy,

2020). Psychotherapy is a common approach to addressing multiple kinds of mental health problems among children and youth (e.g., phobias/anxiety, depression, oppositionality) and has produced significant positive treatment effects (Reynolds et al., 2012; Weisz, 2004; Weisz et al., 1995).

Psychotherapies that are effective with youth in general can also target mental health problems in youth with autism. A variety of psychotherapeutic interventions have been found to be efficacious in reducing mental health problems in individuals with autism, including CBT to improve anxiety or depression (Spain et al., 2015; Weiss et al., 2018; Weston et al., 2016), mindfulness-based therapy programs to reduce anger issues (Singh et al., 2011), acceptance and commitment therapy for minimizing distress and hyperactivity (Pahnke et al., 2013), exposure and response prevention therapy to treat obsessive-compulsive behaviours (Lehmkuhl et al., 2008), and parent training programs to target child disruptive behaviours (Kasperzack et al., 2020; Whittingham et al., 2008). Additionally, reasons for referrals to mental health services are often the same for children with and without autism, such as the need to treat challenging behaviours, including aggression, hyperactivity or non-compliance (Mandell et al., 2005).

Barriers in Mental Health Care for Children and Adolescents with Autism

Children and adolescents with autism often struggle to access evidence-based psychosocial interventions to treat mental health difficulties (Brookman-Frazee et al., 2012a). A number of studies indicate that parents of children with autism report barriers to mental health services including long waitlists (Lim et al., 2020), lack of specialized autism professionals (Chiri & Warfield, 2012; Vohra et al., 2014), and unmet service needs (Zablotsky et al., 2015). Brookman-Frazee et al., (2012a) reported that parents of children with autism note that services do not meet child mental health needs and families experience frustration from providers. Most

parents felt that their child was making minimal progress during therapy, and that service providers lacked expertise and comprehensive autism knowledge. They reported that therapists would benefit from more training specific to autism issues and in using parent training models to incorporate families during treatment. Other studies have noted concerns of low trust and communication with professionals, lack of coordination among service providers, and high staff turnover (Jacksons et al., 2020). Similarly, in adult populations, clients with autism report dissatisfaction with therapy (Maddox et al., 2020) and difficulty finding healthcare providers who are willing and able to provide care for them (Joseph-Kent, 2016). In Maddox and colleagues (2020), adult mental health clients with autism reported negative psychotherapy experiences, specifically, that their clinician did not understand autism, provide practical recommendations, and did not accommodate their clinical practice to meet their needs. More research is needed into factors related to the delivery of effective mental health care for families of children and adolescents with autism needing support.

Some studies suggest that children and adolescents with autism have trouble accessing quality mental health services because of long waitlists (Ning et al., 2019), inadequate insurance coverage (Vohra et al., 2014), or not knowing where to access support (Vogan et al., 2017); however, little research has focused on factors related to service providers. Studying factors related to service providers, such as their intention to provide treatment, is an essential area to explore when investigating potential barriers to access to care, including psychotherapy. A person's intention, or motivation – the effort an individual plans to exert to perform a behaviour (Fishbein & Ajzen, 2010; Maddox et al., 2019) – has been found to predict the implementation of evidence-based practices, including clinicians treating children with mental health problems without autism (e.g., CBT, exposure/systematic desensitization) (Williams, 2016), and teacher

behaviour working with children with autism (e.g., pivotal response training, positive reinforcement) (Fishman et al., 2018; 2020).

Theory of Planned Behavior

The Theory of Planned Behavior (TPB; Ajzen, 1991) has been used as a framework to assess a persons' intention to engage in a specific behaviour. The TPB suggests a persons' intention or motivation is a dominant predictor of behaviour under the appropriate conditions (Ajzen, 1991) and has been used to understand therapists' intention to provide CBT to adults with autism (Maddox et al., 2019). This framework posits that the more favourable attitudes, more significant normative pressures felt from others, and the greater self-efficacy towards a specific behaviour, the more likely the person is to engage in that behaviour (Ajzen, 1991). In Maddox and colleagues (2019) study, clinicians reported weaker intentions, less favourable attitudes and normative pressures, and lower self-efficacy or confidence in reference to starting CBT with adult clients with autism who have depression or anxiety disorders, compared to clients without autism. Clinician attitude, defined as the perceived advantages or disadvantages of starting CBT, was found to be a positive predictor of intention to deliver CBT. To our knowledge, no other studies have examined the psychological predictors (attitudes, normative pressures and confidence) of intention to provide psychotherapy to people with autism, including none for children with autism.

Attitudes

Healthcare professionals may hold less favourable attitudes, characterized as the perceived advantages or disadvantages in performing a behaviour (Ajzen, 1991), towards working with people with neurodevelopmental disabilities, including autism. In a sample of 100 therapists across nine publicly funded community mental health clinics in San Diego County,

United States, Brookman-Frazee et al. (2012b) noted that therapists reported treating children with autism as *challenging* and *frustrating*. Therapists shared concerns about the rate of client progress, the ineffectiveness of some treatment strategies and challenges with navigating between systems (e.g., special education and mental health systems). Clinicians also noted feeling highly motivated to receive comprehensive training on autism characteristics and intervention strategies. In another study in Werner (2011) in Israel, a sample of 42 graduate students in health and social work professions were asked about their experience interacting with people with autism. Most respondents described it as *difficult* and reported less preference in treating clients with autism because they felt working with this client population may be physically and emotionally demanding and require a high degree of energy and patience. Students noted that their lack of knowledge about autism might contribute to their negative attitude and avoidant feelings towards working with this specialized population and shared a desire for extensive training.

Normative Pressure

Normative pressure, the social pressure felt from others, can be defined in two ways: 1) the perceptions about what others similar to ourselves do (descriptive norms) and 2) perceptions about attitudes that others hold (injunctive norms) (Ajzen, 1991). Some research suggests that service providers feel low normative pressures from others towards delivering healthcare services to clients with disabilities, including autism, which can impact service delivery. Maddox and colleagues (2019) noted that clinicians felt greater injunctive and descriptive normative pressure to start CBT with adult clients without autism than with adult clients with autism. In Werner and Grayzman (2011) study, students in various health sectors, including social work, occupational therapy, speech and language therapy, and nursing programs, reported feeling less

normative social pressure from others to work with people with disabilities compared to the general population. More research is needed to examine how mental health care service providers report feeling others' social influence to treat youth with autism in their clinical practice.

Confidence

Self-efficacy, or confidence (Bandura, 1997), refers to a person's sense of agency towards a specific behaviour (Ajzen, 1991), and some evidence suggests therapists may have lower levels of confidence in working with youth with autism than for other clients. Cooper and colleagues (2018) used the Therapist Confidence Scale (TCS) to measure confidence in a sample of 50 clinicians attending a training workshop on accommodating their practice for children and adults with autism. On average, clinicians rated their confidence in working with clients with autism as *moderately confident*. In Williams and Haranin (2016) study, although community mental health clinicians reported up to 20% of their caseload involved clients with developmental disabilities, including autism, only half reported feeling *somewhat* or *very confident* in diagnosing and delivering mental health therapy for youth with autism. Self-efficacy or confidence is important to examine as it has been found to be a strong predictor of intention among healthcare service providers working with patients without autism (Rich et al., 2020; Shamblen et al., 2018) and teachers working with youth with autism (Morgan 2013).

Clinician Knowledge

Knowledge may be key considerations to influence a clinician's intention to treat, as this factor may alter attitudes, normative pressures and confidence. Greater autism knowledge has been associated with more self-perceived confidence towards the treatment of clients with autism among psychiatrists (Crane et al., 2019; Williams & Haranin, 2016), and more positive attitudes

towards working with people with autism among the public (Shand et al., 2020). Autism training, as a proxy for knowledge, has also been linked to mental health providers feeling more normative pressures (e.g., social pressures from others) to deliver mental health interventions for children with autism in the United States (Ingersoll et al., 2018). Similarly, college student participation in an online autism training program in the United States was associated with decreased stigma and increased knowledge about autism (Gillespie-Lynch et al., 2015). In non-autism populations, a recent meta-analysis found that clinician trainings on exposure therapy were associated with higher clinician knowledge of exposure therapy, more favourable attitudes towards using exposure therapy, and confidence in delivering exposure-based interventions (Trivasse et al., 2020).

Research Gap

There are several research gaps in the mental health literature relating to clients with autism receiving services. Researchers have primarily focused on how service providers can care for the treatment of adult clients with autism in need of mental health support, with less emphasis on children and adolescents. It is possible child mental health therapy may differ from adult care due to differences in the training and specialization required for working with younger clinical populations, intervention strategies and treatment modifications.

This work has also often been looked at within the context of only one type of treatment (CBT), with less exploration of other forms of therapy, for example DBT, solution-focused therapy, family therapy or psychotherapy, more broadly. In clinical practice, service providers may treat clients using a variety of psychotherapeutic interventions; thus, it may be crucial to examine therapist intention across therapeutic modalities. For example, children with conduct problems are often treated using parent management training (Kazdin et al., 2018) or parent-

child interactional therapies (Effective Child Therapy, 2020), children with bipolar disorder are treated using family therapy or DBT, and children with anxiety and obsessive-compulsive disorders are treated using CBT (Effective Child Therapy, 2020).

Although clinician intention has been compared with clients with or without autism, few studies have reported on therapist experience related to delivering psychotherapy for clients with autism, compared to their experience of doing so for children with a comparison chronic neurodevelopmental condition, such as attention-deficit hyperactivity disorder (ADHD). ADHD and autism are the two most common neurodevelopmental disabilities identified in childhood (Thapar et al., 2017), and researchers often use both in comparative studies examining child mental health care (Bora & Pantelis, 2015; Gadow et al., 2009; van Steensel et al., 2013). Comparing therapist ratings relating to clients with ADHD, not just clients without autism, can help delineate whether any therapist-reported differences are related to autism or neurodevelopmental disability, more broadly. This is important to inform whether initiatives to support therapist-reported differences should be autism-specific or more about neurodevelopmental considerations, generally.

Study Objectives and Hypotheses

The current study aimed to understand barriers in accessing mental health services in publicly funded agencies across Ontario, Canada for children and adolescents with autism by examining factors that influence clinicians' intention to provide psychotherapy (e.g., attitudes, normative pressures, confidence, and knowledge). Clinicians were asked to complete an online survey, co-produced by Dr. Jonathan Weiss and the Youth Services Bureau of Ottawa. Service providers were asked to report on their experiences related to psychotherapy to address mental

health problems for child and adolescent clients with autism or ADHD. Three key research questions were addressed:

- 1) Are there differences in clinician reported intention to provide psychotherapy to clients with autism and the variables that may underlie this intention, compared to those with ADHD?
 - a. Hypothesis: Clinicians will report weaker intentions, less favourable attitudes, less normative pressures, lower confidence, and less knowledge about delivering psychotherapy to children with mental health problems with autism compared to children and adolescents with ADHD.
- 2) Is clinician-reported knowledge associated with levels of intention towards treating clients with autism and those with ADHD and are differences in intention mediated by Theory of Planned Behaviour clinician factors (e.g., attitudes, normative pressure, and confidence).
 - a. Hypothesis: The association between clinician knowledge and their intention to treat will be mediated by clinician psychological predictors of intention for both clients with autism and with ADHD. Less knowledge will lead to lower reports of confidence, attitudes, and normative pressures, which in turn will be associated with less intention.
- 3) Are differences in clinician-reported knowledge for clients with autism compared to ADHD associated with differences in clinician intention, and are these differences mediated by differences in the Theory of Planned Behaviour factors (e.g., attitudes, normative pressure, and confidence).
 - a. Hypothesis: Different rates of knowledge will be associated with different rates of intention that clinicians have about treating clients with autism, compared to ADHD, and will be mediated by clinician differences in psychological predictors

of intention. More significant differences in knowledge will lead to poorer confidence, attitudes and normative pressures, which in turn will be associated with differences in intention for clients with autism compared to those with ADHD.

Method

Procedure

This survey was approved by the York University Human Participants Review ('Ethics') Sub-Committee. The current study collected information from clinicians across the province in a cross-sectional online survey. Publicly funded mental health agency staff were asked by their clinical or administrative leads to share an anonymous survey link with all frontline staff who provide psychotherapy to children and adolescents with mental health problems. Survey questions about autism and ADHD were counterbalanced across participants, meaning that some respondents were first asked about these variables in relation to ADHD, while others were first asked about autism. All participants provided informed consent before completing the survey. English and French versions of the survey were available.

Data collection for this project occurred at four time points. First, it was collected in December 2019, from 8 core service providers in the Ottawa area that were affiliated with the Youth Services Bureau of Ottawa Lead Agency (Youth Services Bureau of Ottawa, Children's Hospital of Eastern Ontario, Crossroad's Children's Mental Health Centre, Centre Psychosocial, Roberts/Smart Centre, Royal Ottawa Health Care Group, Maison Fraternité, and Somerset West Community Health Centre). Second, data was collected in June-July 2020 from Woodview Mental Health and Autism Services (Hamilton, Brant and Halton). It was then collected in August-September 2020 from Kinark Child and Family Services (Dufferin, Durham, Halton,

Northumberland, Peel, Peterborough, Simcoe, York and Vanier). Finally, Children's Mental Health Ontario (CMHO) launched the survey in April-May 2021 to member agencies across the province (excluding to those that already completed the survey noted above). Following an explanation of the survey, CMHO collected received expressions of interest from 57 member agencies. Ultimately, 54 agencies had some mental health providers who completed the survey. Each agency decided on its own process for informing staff about the survey.

Participants

Participants included 611 mental health care service providers, in which 83% were women, between the ages of 20 and 75 years ($M = 40.2$ years, $SD = 10.85$). The majority of survey participants identified as White (79%), reported current employment status as full-time (92%) and had a post-secondary education (93% with post-secondary overall), such as a bachelor's degree (32%) or a master's degree (37%).

To be included in this study, participants needed to have provided psychotherapy to children and adolescents at one of the participating agencies. Participants included direct service providers (80%), supervisors/coordinators (11%), and some who noted being both direct service providers and supervisors/coordinators (8%). The surveys were completed by social workers (46%), child and youth workers (21%), registered psychotherapists (19%), clinical psychologists (5%) or those with other professional designations (9%). Table 1 provides details on demographic characteristics of the sample.

All survey respondents reported treating mental health problems in children or adolescents in some capacity. Participants indicated that their primary theoretical orientation when treating clients was cognitive-behavioural (41%), eclectic (34%), behavioural (12%), or other (e.g., collaborative problem solving, attachment-based therapy; 10%). The majority of the

sample reported treating at least one client with autism (90%) and one client with ADHD (98%) in the past. In fact, on average, respondents indicated 19% ($SD = 19.5\%$, Median = 15%) of their caseload involved clients with autism and 47% ($SD = 24.9\%$, Median = 50%) involved clients with ADHD. Furthermore, many respondents noted knowing someone with autism (60%) and with ADHD (88%) outside their work. However, the majority reported that the frequency of contact with individuals with autism (85%) was *very rare* or *occasional*, and nearly half of the respondents indicated the frequency of contact with individuals with ADHD (48%) was *very rare* or *occasional*.

Table 1 Participant Demographics and Characteristics (n = 611)

Variables	<i>M (SD) or %</i>
Age (years) ^a	40 (10.85)
Educational Background ^b	
Some college or university	2
Associate degree/diploma	19
Bachelor's degree	32
Master's degree	37
Professional school	3
Doctoral degree	2
Unknown/Prefer not to disclose	5
Gender (female) ^c	83
Identified as White ^d	79
Employment Status ^b	
Full Time	92
Part Time	7
Other	1
Theoretical Orientation ^c	
Behavioural	12
Cognitive Behavioural	42
Dynamic/Analytic	1
Eclectic	35
Other	10
Professional Group ^c	
Social Worker	46
Registered Psychotherapist	19
Clinical Psychologist	5
Child and Youth Worker	21
Other	9

Primary Role ^f	
Direct Service Provider	80
Supervisor/Coordinator	11
Direct Service Practitioner & Supervisor	8
Other	1

Note. ^a 44 missing cases; ^b 1 missing case; ^c 3 missing cases; ^d 2 missing cases; ^e 10 missing cases; ^f 5 missing cases

Measures¹

Clinician Attitudes. Clinicians' attitudes were defined as the perceived advantages or disadvantages of delivering psychotherapy to mental health clients with autism or ADHD (Maddox et al., 2019). Respondents' attitudes were assessed using standard semantic differential scales (Fishbein & Ajzen, 2010) used in previous research by Maddox et al. (2019) on therapists' attitudes towards starting CBT for adult clients with autism. Survey respondents reported how favourably or unfavourably they felt towards providing psychotherapy to clients with autism or ADHD using opposite adjective pairs and a 10-point slider scale (10 to 0). The adjective pairs comprised of Good-Bad, Effective-Useless, Pleasant- Unpleasant, Hopeful-Hopeless and Manageable-Burdensome. A total mean score of the clinician attitudes was computed by averaging across all five items, with higher scores indicating more favourable attitudes. The internal consistency for this scale in the present study was excellent for all questions about clients with autism and with ADHD ($\alpha = .93$ and $.94$, respectively).

Clinician Normative Pressures. Two different types of normative pressures (norms), the social pressure felt from others, were assessed: descriptive norms (e.g., perceptions about what others like them do) and injunctive norms (e.g., perceptions about attitudes that others hold)

¹ The online survey included several questionnaires by Maddox et al. (2019), adapted for this study. For example, measures were adapted by substituting the word "adult" to "child and/or adolescent", the inclusion of ADHD versions of questions, and referring to psychotherapy rather than specifically to CBT. We thank Dr. Brenna Maddox for permission to use aspects of her survey.

(Maddox et al., 2019). Descriptive norms were measured by asking participants to identify the extent to which they agreed with the following statement: "*Most clinicians like me, in my professional situation, would provide psychotherapy to these clients [clients with mental health problems who present with autism or ADHD],*" using a 5-point Likert Scale (1 = strongly disagree; 5 = strongly agree). Injunctive norms were measured by asking participants to indicate their responses using a 5-point Likert scale (1 = strongly disapprove; 5 = strongly approve) for two items: "*[Continue to think about providing psychotherapy to clients with mental health problems who present with autism or ADHD], how much would [other clinicians or your supervisor/manager] disapprove or approve if they knew you were providing psychotherapy to these clients.*". The average score between the descriptive and injunctive items computed a total norm score. Higher total norm scores represented greater normative pressures felt by clinicians. This scale had adequate internal consistency across all three items for clients with autism ($\alpha = .77$) and good internal consistency for clients with ADHD ($\alpha = .87$).

Clinician Confidence in Delivering Psychotherapy. Survey respondents completed the Therapist Confidence Scale (TCS; Cooper et al., 2018), assessing confidence across several therapeutic domains (e.g., assessment, building rapport, delivering interventions and ending therapy). Responses indicated using a 5-point Likert scale (1 = not confident; 5 = highly confident), with references to clients with autism or ADHD. A mean score was calculated, with higher scores reflecting greater overall confidence. This 14-item measure exhibited excellent internal consistency in previous research ($\alpha = 0.92$) (Cooper et al., 2018), as well as in our current study for all questions about clients with autism and with ADHD ($\alpha = .95$ and $.96$, respectively).

Clinician Intention. Participants reported their level of intention, or motivation, in providing psychotherapy by answering a single-item question: “*If it were up to you, how likely is that you would provide psychotherapy to clients with mental health problems who present with [autism or ADHD]?*”. Clinicians provided their responses using a 7-point Likert scale (1 = extremely unlikely; 7 = extremely likely). A mean score was calculated with higher ratings reflective of greater clinician intention to treat (Maddox et al., 2019).

Clinician Knowledge on Mental Health Topics for Clients with Autism/ADHD. A self-rated knowledge measure developed by Brookman-Frazee et al. (2012b), and later adapted by Maddox et al. (2019) was used in this study. This 6-item tool captured how knowledgeable clinicians feel towards mental health-related topics for child and adolescent clients with autism or ADHD, using a 5-point Likert scale (1 = not at all knowledgeable; 5 = extremely knowledgeable). An average score was calculated with higher scores reflecting greater self-reported knowledge for topics related to mental health issues in clients with autism or ADHD. The measure showed excellent internal consistency across all items for clients with autism and with ADHD ($\alpha = .95$ and $.96$, respectively).

Statistical Analyses

All statistical analyses were performed using IBM SPSS version 26. No major violations in skewness and kurtosis were noted upon visual inspection of histograms and normal Q-Q plots, and correlation and regression assumptions, including linearity, normality, and homoscedasticity, were satisfied. Descriptive and correlational data were calculated to examine the associations between all variables of interest.

The first objective involved paired samples *t*-tests and Wilcoxon signed-rank tests to examine whether clinician factors were significantly lower for mental health clients with autism,

in contrast with clients with ADHD, with Cohen's d as a measure of effect size. The second and third objectives involved testing the possibility of multiple mediators using the PROCESS macro, embedded in SPSS (Hayes, 2012). Pearson product-moment correlation and Preacher and Hayes's (2008) bootstrapping procedure (1,000 samples) were used to analyze the data (Farmer 2012; Preacher and Hayes, 2008). Mediations were significant if the intervals between the lower and upper limit of a 95% confidence interval (CI) did not contain zero (Preacher and Hayes, 2008). Clinician age was entered as a covariate across all analyses. Two multiple mediation analyses were then calculated examining the Knowledge-Intention relationship with regard to autism (Model 1) and ADHD (Model 2). The final multiple mediation analysis (Model 3) was calculated to investigate the relationship between differences in knowledge and intention for clients with autism compared to those with ADHD. R squared was calculated as a measure of effect size for regression models in multiple mediation analyses. Partial eta squared was calculated as a measure of effect size for significant independent variables.

Results

Objective 1: Differences in Clinician Intention, Attitudes, Normative Pressures, Confidence, and Knowledge

As shown in Table 2, Wilcoxon Signed Ranks tests revealed that clinicians reported lower levels of intention to provide psychotherapy to children and adolescents with autism ($M = 4.49$, $SD = 1.73$), compared to clients with ADHD ($M = 5.56$, $SD = 1.68$); $Z = -12.57$, $p < .001$, $d = -.36$). Clinicians had less favourable attitudes (with a medium effect size, Cohen's $d = .70$) and normative pressures (e.g., beliefs about attitudes that others hold, beliefs about what others like them do) (with a large effect size, Cohen's $d = .85$) about delivering psychotherapy to clients

with autism. Clinicians also reported feeling significantly less confident and less knowledgeable about providing psychotherapy to child and adolescent clients with autism compared to youth with ADHD, with large effect sizes.

Table 2 Descriptive Statistics for Clinician Attitudes, Confidence, Normative Pressures, Knowledge, and Intention for Clients with Autism Compared to Clients with ADHD (n = 611)

	MH + ADHD <i>M (SD)</i>	MH + Autism <i>M (SD)</i>	<i>Z or t(df)</i>	<i>p</i>	Cohen's <i>d</i>
Attitude ^a	7.79 (1.64)	6.53 (1.89)	17.15 (603)	<.001	.70
Confidence ^a	4.13 (.63)	3.51 (.79)	22.13 (608)	<.001	.90
Normative Pressures ^a	4.24 (.76)	3.59 (.72)	20.93 (607)	<.001	.85
Knowledge ^a	3.72 (.75)	2.96 (.88)	21.60 (607)	<.001	.88
Intention ^b	5.56 (1.68)	4.49 (1.73)	12.57	<.001	.36

Note. MH = Mental Health Problems

^aPaired Samples *t*-Test; ^bWilcoxon Signed Ranks Test

As shown in Table 3, most of the predictor variables were correlated with small to moderate size and the same patterns of relations emerged with reference to autism and to ADHD. Knowledge and confidence had a strong positive correlation; however, standard regression collinearity (VIF estimates) and multicollinearity diagnostics (Condition Index/Variance Proportions) revealed no evidence of collinearity.

Table 3 Correlations among Independent Variables, Mediators and Outcome Variable for Clients with Autism and with ADHD

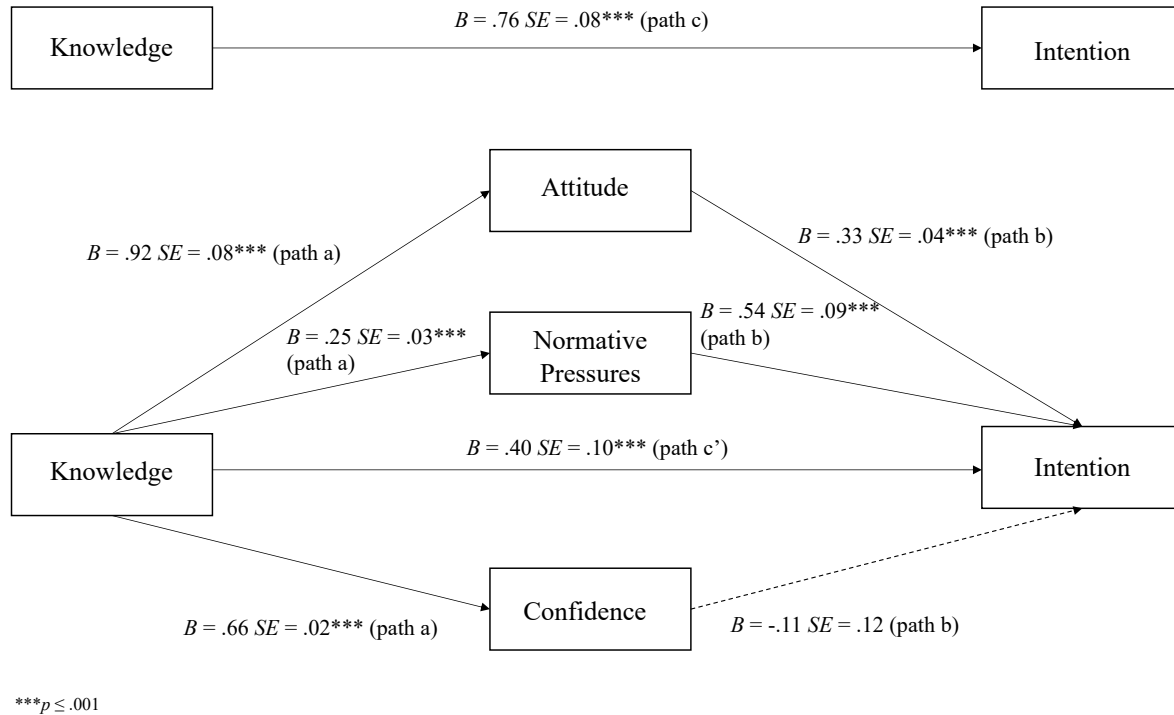
	Knowledge	Attitudes	Confidence	Normative Pressures
Autism	.			
Attitudes	.46**	-		
Confidence	.72**	.49**	-	
Pressures	.32**	.43**	.32**	-
Intention	.41**	.53**	.37**	.43**
ADHD				
Attitudes	.43**	-		
Confidence	.71**	.47**	-	
Pressures	.39**	.47**	.41**	-
Intention	.37**	.48**	.30**	.52**

Objective 2a: Model 1 - Mediators of the Knowledge-Intention Relationship for Clients with Autism

As shown in Figure 1 (path c), the total direct effect of clinician knowledge was a predictor of intention, prior to entering the mediator variables, $t = 10.16$, $p < .001$, $CI = .61$ to $.91$, account for 16 % of the variance. With the inclusion of the potential mediators, the overall model accounted for 35% of the variance in intention, $F(5, 556) = 60.23$, $p < .001$. As shown in Figure 1 (path b), attitude ($t = 8.45$, $p < .001$, $\eta^2 = .11$), normative pressures ($t = 5.74$, $p < .001$, $\eta^2 = .06$), and knowledge ($t = 4.01$, $p < .001$, $\eta^2 = .03$) were all independent predictors, while clinician confidence ($t = -.96$, $p = .34$) was not. The multiple mediator results indicated a significant total indirect effect (point estimate = .36, $CI = .18$ to $.54$), accounted for by the indirect effect of attitude (point estimate = .30, $CI = .21$ to $.42$), and normative pressures (point estimate = .14, $CI = .07$ to $.20$). Having greater knowledge was related to more favourable attitudes and greater feelings of normative pressures (path a), which were related to greater

clinician intention (path b). The continued significance of the direct association of knowledge and intention suggests a partial mediation.

Figure 1 Multiple Mediation Analysis of Attitude, Normative Pressures and Confidence on the Knowledge-Intention Relationship for **Clients with Autism**

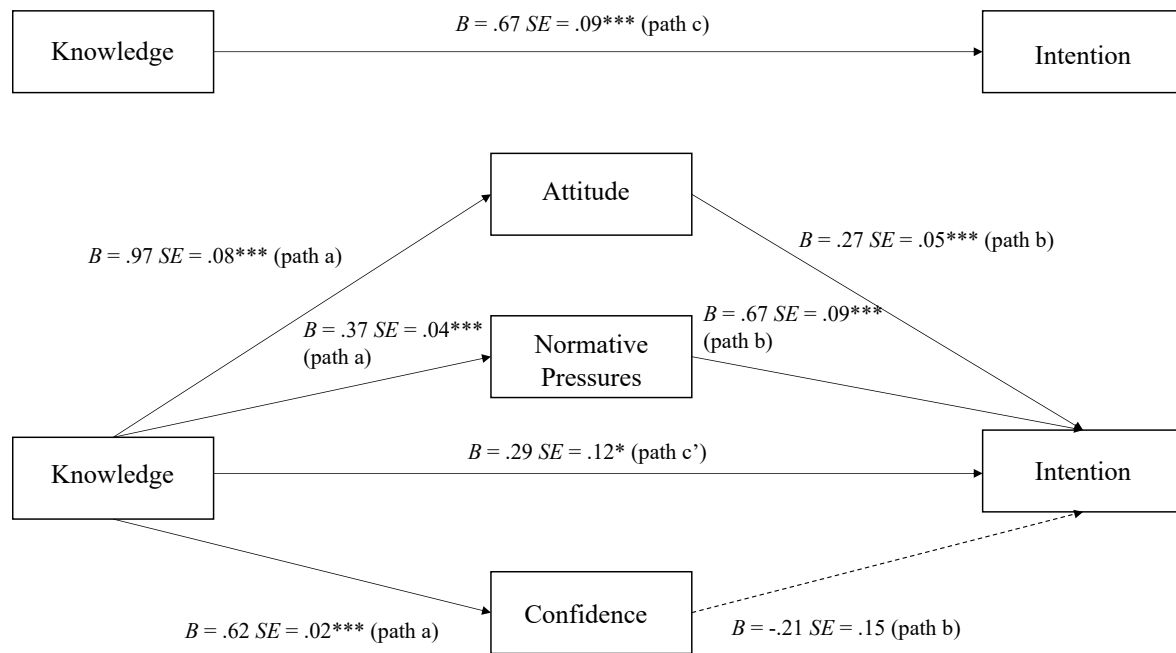


Objective 2b: Model 2 - Mediators of the Knowledge-Intention Relationship for Clients with ADHD

Similar direct effects emerged for clients with ADHD. As illustrated in Figure 2 (path c), the total direct effect of clinician knowledge was a predictor of intention, prior to entering the mediator variables, $t = 7.47$, $p < .001$, $CI = .49$ to $.84$, account for 9% of the variance. After all the potential mediators were entered, the overall model accounted for approximately 28% of the variance in intention, $F(5, 560) = 42.51$, $p < .001$. As demonstrated in Figure 2 (path b), attitude ($t = 5.82$, $p < .001$, $\eta_p^2 = .06$), normative pressures ($t = 7.14$, $p < .001$, $\eta_p^2 = .08$), and

knowledge ($t = 2.42$, $p < .05$, $\eta_p^2 = .01$) were all independent predictors, while clinician confidence ($t = -1.45$, $p = .16$) was not. The multiple mediator results indicated a significant total indirect effect (point estimate = .38, CI = .17 to .59), accounted for by the indirect effect of attitude (point estimate = .26, CI = .15 to .38), and normative pressures (point estimate = .25, CI = .15 to .36). These results suggested higher clinician knowledge was associated with more positive attitudes and greater feelings of normative pressures (path a), which was related to increased clinician intention (path b). The relationship between knowledge and intention remained significant after entering the mediators and control variable, suggesting a partial mediation.

Figure 2 Multiple Mediation Analysis of Attitude, Normative Pressures and Confidence on the Knowledge-Intention Relationship for **Clients with ADHD**

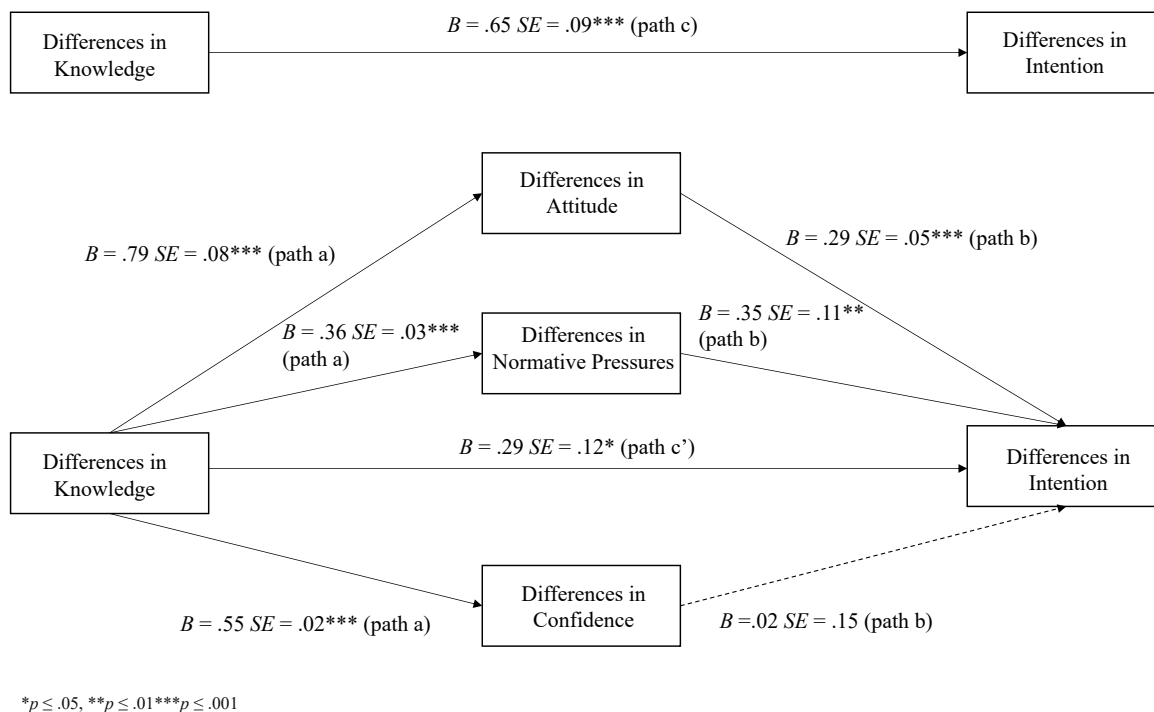


* $p \leq .05$, *** $p \leq .001$

Objective 3: Model 3 - Mediators of the Knowledge-Intention Difference for Clients with Autism Compared to those with ADHD

Multiple mediation analysis was used to investigate different rates of clinician knowledge and differences in intention. As shown in Figure 3 (path c), the total direct effect of knowledge difference was a predictor of intention difference before entering the mediator variables, $t = 7.28$, $p < .001$, $CI = .48$ to $.83$, account for 9% of the variance. The overall model accounted for approximately 19% of the variance in clinician intention after including the potential mediators, $F(5, 555) = 26.00$, $p < .001$. As illustrated in Figure 3 (path b), differences in attitudes ($t = 5.96$, $p < .001$, $\eta^2 = .06$), normative pressures ($t = 3.20$, $p < .01$, $\eta^2 = .02$), and knowledge ($t = 2.40$, $p < .05$, $\eta^2 = .01$) were all independent predictors, while differences in clinician confidence ($t = .15$, $p = .88$) was not. The multiple mediator results indicated a significant total indirect effect (point estimate = $.37$, $CI = .18$ to $.55$), accounted for by the indirect effect of attitude difference (point estimate = $.23$, $CI = .14$ to $.34$), and normative pressures difference (point estimate = $.13$, $CI = .03$ to $.23$). More significant differences in knowledge led to poorer attitudes and normative pressures (path a), which in turn was associated with differences in intention for clients with autism compared to those with ADHD (path b). The direct association of knowledge difference and intention difference remained significant, suggesting a partial mediation.

Figure 3 Multiple Mediation Analysis of Differences in Attitude, Normative Pressures and Confidence on the Knowledge-Intention Difference for Clients with Autism compared to those with ADHD



Discussion

The current study examined clinician psychological predictors of intention towards delivering psychotherapy to child and adolescent clients with autism or ADHD in publicly funded agencies in Ontario. The aim of the project was to examine if there were differences in clinician factors and whether clinician intention was associated with their knowledge, confidence, attitudes, and normative pressures around treatment.

Differences in Clinician Intention, Attitudes, Normative Pressures, Confidence, and Knowledge

In line with hypotheses, clinicians were less confident, felt less normative pressure, had less knowledge, demonstrated less favourable attitudes, and had less intention to provide

psychotherapy to clients with autism compared to those with ADHD. These results were not surprising given past research demonstrating that most therapists did not report strong intentions to start CBT for adult clients with autism with anxiety or depression (Maddox et al., 2019). Healthcare providers often report limited training and knowledge in working effectively with individuals with autism (Heidgerken et al., 2005; Maddox & Gaus, 2019; Maddox et al., 2020; Zerbo et al., 2015), likely contributing to misconceptions or feelings of discomfort in treating this specialized population. Our results suggest that if it were up to them, service providers would be less likely to provide psychotherapy to youth with autism than those with ADHD, which may pose a barrier to mental health service access.

Mediators of the Knowledge-Intention Relationship for Clients with Autism or ADHD

For both populations, clinician attitude and normative pressures were significantly related to their intention in the expected direction and functioned as partial mediators of the relationship between knowledge and intention. This is partly consistent with Maddox and colleagues (2019), who found that clinician attitude, but not normative pressures, was a significant predictor of intention to treat clients with autism. Those authors focused on adult populations and solely on CBT in the US, and our children's mental health focus in Ontario suggests that perceived pressures do matter in this context.

Our results also suggest that the partial mediation of normative pressures and attitudes is not unique to autism. Increasing clinician knowledge about clients with neurodevelopmental disabilities may improve clinician motivation to provide care for both clients with autism and ADHD (Ingersoll et al., 2018). Our findings linking the Theory of Planned Behaviour variables (e.g., attitudes and normative pressures) with intention is consistent with other studies on the intention of healthcare providers outside of the context of mental health (Kortteisto et al., 2010;

Omura et al., 2018). Increasing knowledge, positive attitudes, and the expectations clinicians perceive from other colleagues or supervisors about delivering effective care may be particularly important for training, as it relates to clinician intention towards treatment for both populations. Surprisingly, we did not find that clinician confidence explained the variance in intention to deliver psychotherapy to clients with autism or ADHD, despite it being correlated with intention. However, this finding is similar to Maddox and colleagues' (2019), who found that self-efficacy was not a significant predictor of intention when considering clients with or without autism. Our study also demonstrated that knowledge and confidence were closely related; therefore, a possible explanation for this finding may be that when examining these constructs together, clinician knowledge may account for the variance in intention that may have otherwise been explained by confidence.

Mediators of the Knowledge-Intention Difference for Clients with Autism Compared to ADHD

Differences in rates of knowledge found between clients with autism and ADHD were associated with differences in intention, and these were again partially mediated by differences in attitudes and normative pressures, but not confidence. These results further test the hypothesis that the differences found in intention to treat different neurodevelopmental groups are linked to the differences found in knowledge, attitudes, and normative pressures. This finding speaks to the importance of clinician training and educational programs to address any potential negative beliefs or stigmatizing attitudes towards individuals with autism. Weaker clinician intention to deliver psychotherapy to clients with autism, even when compared to ADHD, can reduce the number of skilled mental health service providers willing or available to work with youth with autism in need of support, serving as a potential barrier to access to services.

Limitations and Future Directions

This survey is an important first step in improving Ontario's mental health care sector for children and youth with neurodevelopmental conditions, such as autism or ADHD, who have co-occurring mental health problems. However, there are some limitations of this work and related directions for future research. First, while the lead mental health agencies affiliated with Children's Mental Health Ontario were able to send the survey to all interested publicly funded service providers, there were variable levels of responses across agencies. It is possible that this sample does not represent the larger sample of service providers who chose not to respond. In addition, findings may not generalize to other agencies, particularly those that are privately funded. Second, because the background information section appeared at the end of the survey, we could not compare clinicians who fully completed the survey compared to those who started but did not finish on demographic variables. Third, clinician intention was measured by a single item, and although many research studies have successfully used this one-item to measure this construct (Fishman et al., 2018; Ingersoll et al., 2018), it may be useful to examine intention using a general measure with well-established psychometric properties. Finally, the data were cross-sectional and correlational in nature. The cross-sectional nature of this study limits inferences on causality; therefore, we must exercise some caution when interpreting our results.

Future projects can expand on this work by distributing the online tool used in our study on clinician experience and motivation to treat clients with autism or ADHD following agency-wide mental health staff training and educational programs. Further, research is needed to determine how initiatives can improve autism knowledge, and most importantly, address clinician's intention to treat by targeting normative pressures and attitudes. Longitudinal studies

are needed to test whether intention predicts clinicians' delivery of psychotherapy, such as CBT, but also ACT (acceptance and commitment therapy), and ET (exposure therapy), for clients with mental health problems who also present with autism or ADHD. This online survey could also be delivered among autism service providers such as board-certified behaviour analysts or other behavioural therapists to examine whether patterns of intention to treat differ or remain the same across professionals working with this specialized population. Overall, our current work can inform training programs undertaken in Ontario for mental health clinicians to deliver evidence-based therapeutic activities skillfully for youth with neurodevelopmental conditions in need of support.

Conclusions

Our findings suggest the existence of potential barriers to treatment delivery for child and adolescent clients with mental health problems who also present with autism. Even when compared to other clients with ADHD, who may often present with chronic, pervasive behavioural challenges, clients with autism appear to be at a disadvantage. Overall, clinicians reported feeling less likely to deliver psychotherapy to clients with autism than those with ADHD, such as CBT, DBT, and family therapy, partly because of differences in their attitudes and normative pressures, which related to their knowledge. Training initiatives addressing mental health service providers' attitudes and normative pressures towards autism or ADHD may improve clinicians' intention to treat and improve access to effective mental health care for clients with neurodevelopmental conditions.

References

- American Psychological Association. (2013, July 17). *What is Psychotherapy?*
<https://www.apa.org/ptsd-guideline/patients-and-families/psychotherapy>
- American Psychiatric Association. (2013). *Diagnostic and Statistic Manual of Mental Disorders* (5th ed.). Washington, DC: American Psychiatric Publishing.
- Arim, R., Kohen, D., Garner, R., Lach, L., MacKenzie, M., & Rosenbaum, P. (2015). Psychosocial functioning in children with neurodevelopmental disorders and externalizing behavior problems. *Disability & Rehabilitation*, 37(4), 345-354.
<https://doi.org/10.3109/09638288.2014.919361>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50 (2), 179–211.
<https://www.sciencedirect.com/science/article/abs/pii/074959789190020T>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W H Freeman/Times Books/ Henry Holt & Co.
- Bora, E., & Pantelis, C. (2016). Meta-analysis of social cognition in attention-deficit/hyperactivity disorder (ADHD): Comparison with healthy controls and autistic spectrum disorder. *Psychological Medicine*, 46(4), 699–716.
<https://doi.org/10.1017/S0033291715002573>
- Brookman-Frazee, L., Baker-Ericzen, M., Stadnick, N., & Taylor, R. (2012a). Parent perspectives on community mental health services for children with autism spectrum disorders, *Journal of Child and Family Studies*, 21(4), 533-544.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3826258>

- Brookman-Frazee, L., Drahota, A., Stadnick, N., & Palinkas, L.A. (2012b). Therapist perspectives on community mental health services for children with autism spectrum disorders. *Administration and Policy in Mental Health*, 39(5), 365-373.
<https://doi.org/10.1007/s10488-011-0355-y>
- Chiri, G., & Warfield, M. (2012). Unmet need and problems accessing core health care services for children with autism spectrum disorder. *Maternal and Child Health Journal*, 16(5), 1081-1091. <https://pubmed.ncbi.nlm.nih.gov/21667201/>
- Cook, S., Schwartz, A., & Kaslow, N. (2017). Evidence-based psychotherapy: Advantages and challenges. *Neurotherapeutics*, 14(1), 537-545.
<https://link.springer.com/article/10.1007/s13311-017-0549-4>
- Cooper, K., Loades, M.E, & Russell, A. (2018). Adapting psychological therapies for autism. *Research in Autism Spectrum Disorders*, 45, 43-50.
<https://doi.org/10.1016/j.rasd.2017.11.002>
- Crane, L., Davidson, I., Prosser, R., & Pellicano, E. (2019). Understanding psychiatrists' knowledge, attitudes and experiences in identifying and supporting their patients on the autism spectrum: online survey. *BJPsych Open*, 5(3), 1-8.
<https://doi.org/10.1192/bjo.2019.12>
- Effective Child Therapy. (2020). *Evidence-Based Mental Health Treatment for Children and Adolescents*. <https://effectivechildtherapy.org/>
- Farmer C. (2012). Demystifying moderators and mediators in intellectual and developmental disabilities research: a primer and review of the literature. *Journal of Intellectual Disability Research*, 56(12), 1148–1160. <https://doi.org/10.1111/j.1365-2788.2011.01508.x>

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York: Psychology Press.

Fishman, J., Beidas, R., Reisinger, E., & Mandell, D. S. (2018). The utility of measuring intentions to use best practices: A longitudinal study among teachers supporting students with autism. *The Journal of School Health*, 88(5), 388–395.
<https://doi.org/10.1111/josh.12618>

Fishman, J., Lushin, V. & Mandell, D.S. (2020). Predicting implementation: Comparing validated measures of intention and assessing the role of motivation when designing behavioral interventions. *Implementation Science Communications*, 1(81), 1-10.
<https://doi.org/10.1186/s43058-020-00050-4>

Gadow, K. D., DeVincent, C. J., & Schneider, J. (2009). Comparative study of children with ADHD only, autism spectrum disorder + ADHD, and chronic multiple tic disorder + ADHD. *Journal of Attention Disorders*, 12(5), 474–485.
<https://doi.org/10.1177/1087054708320404>

Gillespie-Lynch, K., Brooks, P. J., Someki, F., Obeid, R., Shane-Simpson, C., Kapp, S. K., Daou, N., & Smith, D. S. (2015). Changing college students' conceptions of autism: An online training to increase knowledge and decrease stigma. *Journal of Autism and Developmental Disorders*, 45(8), 2553–2566. <https://doi.org/10.1007/s10803-015-24229>

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling. Retrieved from
<http://www.afhayes.com/public/v2history.pdf>

- Heidgerken, A. D., Geffken, G., Modi, A., & Frakey, L. (2005). A survey of autism knowledge in a health care setting. *Journal of Autism and Developmental Disorders*, 35(3), 323–330. <https://doi.org/10.1007/s10803-005-3298-x>
- Ingersoll, B., Straiton, D., Casagrande, K., & Pickhard, K. (2018). Community providers' intentions to use a parent-mediated intervention for children with ASD following training: An application of the theory of planned behavior. *BMC Research Notes*, 11(1), 777-783. <https://doi.org/10.1186/s13104-018-3879-3>
- Jackson, L., Keville, S., & Ludlow, A. (2020). Mothers' experiences of accessing mental health care for their child with an autism spectrum disorder. *Journal of Child and Family Studies*, 29(2), 534-545. <https://doi.org/10.1007/s10826-019-01662-8>
- Joseph-Kent, K. E. (2016). *Autism spectrum disorders and the health- care experiences of aging adults*. Unpublished doctoral dissertation. Miami University of Ohio.
- Kasperzack, D., Schrott, B., Mingeback, T., Becker, K., Burghardt, R., & Kamp-Becker, I. (2020). Effectiveness of the stepping stones triple p group parenting program in reducing comorbid behavioral problems in children with autism. *Autism: The International Journal of Research and Practice*, 24(2), 423–436. <https://doi.org/10.1177/1362361319866063>
- Kazdin, A., Glick, A., Pope, J., Kaptchuck, T., Lecza, B., Carrubba, E., McWhinney, E., & Hamilton, N. (2018). Parent management training for conduct problems in children: Enhancing treatment to improve therapeutic change. *International Journal of Clinical and Health Psychology*, 18(2), 91-101. <https://www.sciencedirect.com/science/article/pii/S1697260018300024#bibl0005>

- Kortteisto, T., Kaila, M., Komulainen, J., Mäntyranta, T., & Rissanen, P. (2010). Healthcare professionals' intentions to use clinical guidelines: a survey using the theory of planned behaviour. *Implementation science*, 5(51). <https://doi.org/10.1186/1748-5908-5-51>
- Lehmkuhl, H. D., Storch, E. A., Bodfish, J. W., & Geffken, G. R. (2008). Brief report: exposure and response prevention for obsessive compulsive disorder in a 12-year-old with autism. *Journal of Autism and Developmental Disorders*, 38(5), 977–981. <https://doi.org/10.1007/s10803-007-0457-2>
- Leyfer, O. T., Folstein, S. E., Bacalman, S., Davis, N. O., Dinh, E., Morgan, J., Tager-Flusberg, H., & Lainhart, J. E. (2006). Comorbid psychiatric disorders in children with autism: interview development and rates of disorders. *Journal of Autism and Developmental Disorders*, 36(7), 849–861. <https://doi.org/10.1007/s10803-006-0123-0>
- Lim, N., O'Reilly, M., Sigafoos, J., Lancioni, G., & Sanchez, J. (2020). A review of barrier experienced by immigrant parents of children with autism when accessing services. *Review Journal of Autism and Developmental Disabilities*, <https://link.springer.com/article/10.1007%2Fs40489-020-00216-9>
- Maddox, B.B, Crabbe, S., Fishman, J., Beidas, R., Brookman-Frazee, L., Miller, J., Nicolaidis, C., & Mandell, D. (2019). Factors influencing the use of cognitive-behavioral therapy with autistic adults: A survey of community mental health clinicians. *Journal of Autism and Developmental Disorders*, 49, 4421-4428 <https://link.springer.com/article/10.1007%2Fs10803-019-04156-0>
- Maddox, B. B., Crabbe, S., Beidas, R. S., Brookman-Frazee, L., Cannuscio, C. C., Miller, J. S., Nicolaidis, C., & Mandell, D. S. (2020). "I wouldn't know where to start": Perspectives from clinicians, agency leaders, and autistic adults on improving community mental

- health services for autistic adults. *Autism: The International Journal of Research and Practice*, 24(4), 919–930. <https://doi.org/10.1177/1362361319882227>
- Maddox, B. B., & Gaus, V. L. (2019). Community mental health services for autistic adults: Good news and bad news. *Autism in Adulthood: Challenges and Management*, 1(1), 15–19. <https://doi.org/10.1089/aut.2018.0006>
- Mandell, D. S., Walrath, C. M., Manteuffel, B., Sgro, G., & Pinto-Martin, J. (2005). Characteristics of children with autistic spectrum disorders served in comprehensive community-based mental health settings. *Journal of Autism and Developmental Disorders*, 35(3), 313–321. <https://doi.org/10.1007/s10803-005-3296-z>
- Morgan, J.A. (2013). *Factors influencing physical educators' inclusion behaviors towards students with autism spectrum disorder*. Unpublished doctoral dissertation. Oregon State University.
- Ning, M.D., Schwartz, J., Dunlap, K., Washington, P., Kalantarian, H., Du, M., & Wall, D.P. (2019). Identification and quantification of gaps in access to autism resources in the United States: An infodemiological study. *Journal of Medical Internet Research*, 21(7), 13094. <https://doi.org/10.2196/13094>
- Omura, M., Stone, T. E., Maguire, J., & Levett-Jones, T. (2018). Exploring japanese nurses' perceptions of the relevance and use of assertive communication in healthcare: A qualitative study informed by the theory of planned behaviour. *Nurse Education Today*, 67, 100–107. <https://doi.org/10.1016/j.nedt.2018.05.004>
- Pahnke, J., Lundgren, T., Hursti, T., & Hirvikoski, T. (2013). Outcomes of an acceptance and commitment therapy-based skills training group for students with high-functioning

- autism spectrum disorder: A quasi-experimental pilot study. *Autism*, 0(0), 1-12.
<https://pubmed.ncbi.nlm.nih.gov/24142796/>
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods*, 40(3), 879–891. <https://doi.org/10.3758/brm.40.3.879>
- Reynolds, S., Wilson, C., Austin, J., & Hooper, L. (2012). Effects of psychotherapy for anxiety in children and adolescents: a meta-analytic review. *Clinical Psychology Review*, 32(4), 251–262. <https://doi.org/10.1016/j.cpr.2012.01.005>
- Rich, A., Medisauskaite, A., Potts, H.W.W. & Griffin, A. (2020). A theory-based study of doctors' intentions to engage in professional behaviours. *BMC Medical Education*, 20(1), 44, <https://doi.org/10.1186/s12909-020-1961-8>
- Shamblen, S. R., Atwood, K., Scarbrough, W., Collins, D. A., Rindfleisch, A., Kligler, B., & Gaudet, T. (2018). Perceived Behavioral Control as a Key to Integrative Medicine. *Journal of Evidence-Based Integrative Medicine*, 23(1), 1-9.
<https://doi.org/10.1177/2515690X18801581>
- Shand, A., Close, S., & Shah, P. (2020). Greater autism knowledge and contact with autistic people are independently associated with favourable attitudes towards autistic people. *Experimental Results*, doi:10.1017/exp.2020.46
- Simonoff, E., Pickles, A., Charman, T., Chandler, S., Loucas, T., & Baird, G. (2008). Psychiatric disorders in children with autism spectrum disorders: Prevalence, comorbidity, and associated factors in a population-derived sample. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47(8), 921-929.
<https://doi.org/10.1097/CHI.0b013e318179964f>

- Singh, N., Lancioni, G., Singh, A., Winton, A.S., Singh, A.N., & Singh, J. (2011). Adolescents with asperger syndrome can use a mindfulness-based strategy to control their aggressive behavior. *Research in Autism Spectrum Disorders*, 5(3), 1103-1109.
<https://bit.ly/2J7TJTW>
- Spain, D., Jacqueline, S., Chalder, T., Murphy, D., & Happé, F. (2015). Cognitive behaviour therapy for adults with autism spectrum disorders and psychiatric co-morbidity: A review. *Research in Autism Spectrum Disorders*, 9, 151-62.
<https://doi.org/10.1016/j.rasd.2014.10.019>
- Strang, J. F., Kenworthy, L., Daniolos, P., Case, L., Wills, M. C., Martin, A., & Wallace, G. L. (2012). Depression and anxiety symptoms in children and adolescents with autism spectrum disorders without intellectual disability. *Research in Autism Spectrum Disorders*, 6(1), 406-412. <https://doi.org/10.1016/j.rasd.2011.06.015>
- Thapar, A., Cooper, M., & Rutter, M. (2017). Neurodevelopmental disorders. *The lancet. Psychiatry*, 4(4), 339–346. [https://doi.org/10.1016/S2215-0366\(16\)30376-5](https://doi.org/10.1016/S2215-0366(16)30376-5)
- Trivasse, H., Webb, T. L., & Waller, G. (2020). A meta-analysis of the effects of training clinicians in exposure therapy on knowledge, attitudes, intentions, and behavior. *Clinical Psychology Review*, 80, <https://linkinghub.elsevier.com/retrieve/pii/S0272735820300751>
- van Steensel, F. J., Bögels, S. M., & de Bruin, E. I. (2013). Psychiatric comorbidity in children with autism spectrum disorders: A comparison with children with ADHD. *Journal of Child and Family Studies*, 22(3), 368–376. <https://doi.org/10.1007/s10826-012-9587-z>
- Vogan, V., Lake, J. K., Tint, A., Weiss, J. A., & Lunskey, Y. (2017). Tracking health care service use and the experiences of adults with autism spectrum disorder without intellectual

- disability: A longitudinal study of service rates, barriers and satisfaction. *Disability and Health Journal*, 10(2), 264–270. <https://doi.org/10.1016/j.dhjo.2016.11.002>
- Vohra, R., Madhavan, S., Sambamoorthi, U., & St Peter, C. (2014). Access to services, quality of care, and family impact for children with autism, other developmental disabilities, and other mental health conditions. *Autism*, 18(7), 815-826.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4908578/pdf/nihms-792920.pdf>
- Werner S. (2011). Assessing female students' attitudes in various health and social professions toward working with people with autism: a preliminary study. *Journal of Interprofessional Care*, 25(2), 131–137. <https://doi.org/10.3109/13561820.2010.515043>
- Werner, S., & Grayzman, A. (2011). Factors influencing the intention of students to work with individuals with intellectual disabilities. *Research in Developmental Disabilities*, 32(6), 2502-2510. <https://bit.ly/3axF93c>
- Weston, L., Hodgekins, J., & Langdon, P. (2016). Effectiveness of cognitive behavioural therapy with people who have autistic spectrum disorders: A systematic review and meta-analysis. *Clinical Psychology Review*, 49, 41-54.
<https://pubmed.ncbi.nlm.nih.gov/27592496/>
- Weiss, J. A., Thomson, K., Burnham Riosa, P., Albaum, C., Chan, V., Maughan, A., Tablon, P., & Black, K. (2018). A randomized waitlist-controlled trial of cognitive behavior therapy to improve emotion regulation in children with autism. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 59(11), 1180–1191.
<https://doi.org/10.1111/jcpp.12915>
- Weisz, J. R. (2004). *Psychotherapy for children and adolescents*. New York: Cambridge University Press.

- Weisz, J. R., Weiss, B., Han, S. S., Granger, D. A., & Morton, T. (1995). Effects of psychotherapy with children and adolescents revisited: a meta-analysis of treatment outcome studies. *Psychological Bulletin*, 117(3), 450–468. <https://doi.org/10.1037/0033-2909.117.3.450>
- Whittingham, K., Sofronoff, K., Sheffield, J., & Sanders, M. R. (2009). Stepping stones triple p: An RCT of a parenting program with parents of a child diagnosed with an autism spectrum disorder. *Journal of Abnormal Child Psychology*, 37(4), 469–480. <https://doi.org/10.1007/s10802-008-9285-x>
- Williams, N. (2016). Assessing mental health clinicians' intentions to adopt evidence-based treatments: reliability and validity testing of the evidence-based treatment intentions scale. *Implementation Science*, 11, 60-73. <https://doi.org/10.1186/s13012-016-0417-3>
- Williams, M. E., & Haranin, E. C. (2016). Preparation of mental health clinicians to work with children with co-occurring autism spectrum disorders and mental health needs. *Journal of Mental Health Research in Intellectual Disabilities*, 9(1-2), 83–100. <https://psycnet.apa.org/record/2016-28325-006>
- Zablotsky, B., Pringle, B. A., Colpe, L. J., Kogan, M. D., Rice, C., & Blumberg, S. J. (2015). Service and treatment use among children diagnosed with autism spectrum disorders. *Journal of Developmental and Behavioral Pediatrics*, 36(2), 98-105. <https://doi.org/10.1097/DBP.0000000000000127>
- Zerbo, O., Massolo, M. L., Qian, Y., & Croen, L. A. (2015). A study of physician knowledge and experience with autism in adults in a large integrated healthcare system. *Journal of Autism and Developmental Disorders*, 45(12), 4002–4014. <https://doi.org/10.1007/s10803-015-2579-2>.