THERAPEUTIC PROCESS FACTORS IN MENTAL HEALTH TREATMENT FOR AUTISTIC YOUTH

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Abstract

Psychosocial interventions can be beneficial for addressing mental health challenges for some autistic youth, but a sizeable portion of youth who take part in mental health treatment do not demonstrate clinically meaningful improvement. Examining therapeutic process factors may provide insight as to why some youth benefit from treatment, while others do not. The current research aimed to evaluate the role of various therapeutic process factors in mental health treatment for autistic children and adolescents through two studies.

The first study involved a systematic review and a narrative synthesis of the literature on how therapeutic process factors have been measured and the association with treatment outcome following psychosocial intervention addressing mental health challenges for autistic youth. Twenty-five studies met inclusion criteria. Process factors assessed across studies included relational factors; treatment expectations, readiness, and satisfaction; and treatment engagement from youth and their parents. Process-outcome associations were reported for a limited number of constructs.

The second study examined indicators of child engagement in relation to treatment outcome for autistic children who participated in cognitive behaviour therapy for emotion regulation. Indicators of child engagement included observational ratings of in-session involvement, and therapist ratings of therapeutic alliance between therapist and child and homework completion. Each indicator of engagement was measured at early, middle, and late stages of therapy. After controlling for pre-treatment scores, in-session involvement significantly predicted some aspects of post-treatment emotion regulation, whereas therapeutic relationship and homework completion did not.

This dissertation addresses key gaps in research on mental health treatment for autistic youth by providing a detailed summary on what is currently known about therapeutic process

factors and process-outcome associations in psychotherapy, and offers original findings that highlight the importance of child in-session involvement for therapeutic success. Research should continue to focus on relatively well-examined factors, such as therapeutic alliance, and explore factors that are less understood, such as client beliefs about treatment and parent involvement. Clinicians working with autistic clients should actively strive to form therapeutic alliance with youth and parents, and support positive treatment engagement for the full duration of therapy to enhance the likelihood of successful outcomes.

Keywords: autism, mental health, youth, psychotherapy, therapeutic factors

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Chapter 1: Introduction

Recent prevalence estimates indicate that between 1.5% and 1.8% of youth[1] under the age of 17 years are identified as having autism (Maenner et al., 2020; Ofner et al., 2018), a neurodevelopmental condition characterized by social and communication difficulties, and restrictive or repetitive behaviours and/or interests. Beyond core symptoms, autistic people commonly experience multiple mental health conditions, including anxiety, mood, and behavioural problems (Lai et al., 2019; Salazar et al., 2015). Approximately 70% of autistic youth meet criteria for at least one psychiatric disorder (Mattila et al., 2010; Simonoff et al., 2008), with even higher rates reported for children receiving mental health services (Brookman-Frazee et al., 2018). Emotional and behavioural problems displayed by autistic children, such as intense outbursts or tantrums, or aggression towards themselves or others, may be due in part to underdeveloped emotion regulation processes (Mazefsky & White, 2014; Weiss, 2014). Establishing effective mental health interventions is critical for improving positive life outcomes for autistic youth and their families.

There is emerging evidence supporting the use of cognitive behaviour therapy (CBT) to address mental health challenges for autistic youth with verbal abilities who demonstrate average intellectual functioning (Ameis et al., 2018; Weston et al., 2016). For autistic children, CBT has largely focused on reducing symptoms of anxiety (Weston et al., 2016), though recent research suggests CBT may also be useful in promoting emotion regulation skills (Conner et al., 2019; Weiss et al., 2018). To enhance therapeutic benefits, several modifications have been recommended when providing CBT to autistic individuals, including the use of concrete and

[1] For the purpose of the dissertation, the term "youth" refers to individuals between the ages of 0 and 17 years. The term "child(ren)" is used to describe individuals who are of pre-adolescent age (i.e., under 13 years), and "adolescent(s)" refers to individuals between 13 and 17 years of age.

visually salient materials, incorporating autism-specific challenges and child-specific interests into treatment plans, and heavily involving parents in the therapeutic process (Moree & Davis, 2010). Nonetheless, a notable portion of autistic children who take part in CBT do not exhibit clinically meaningful improvement upon therapy completion (e.g., Wood et al., 2009; 2020), with meta-analytic results indicating only 23% show complete recovery from anxiety symptoms (Warwick et al., 2017). An examination of potential mechanisms of treatment change would be useful for understanding *who* benefits from participating in CBT and *why*.

Common Process Factors

Common therapeutic factors may explain some of the variation in mental health treatment outcomes that occurs across participants. The common factor approach recognizes the importance of particular intervention techniques for effecting change through treatment (e.g., thought records or behavioural activation in CBT), but emphasizes the relatively larger role that process-related factors may play in therapeutic outcomes (Thomas, 2006). Based on the seminal work of Lambert (1992; Lambert & Barley, 2001), Miller et al. (1997) describe four factors of therapy change: (1) model/techniques, (2) expectancy, (3) relationship factors, and (4) client and extratherapeutic factors. Model and techniques refer to the specific therapeutic orientation of the therapist (e.g., cognitive-behavioural, psychodynamic), and the skills or strategies the therapist uses to move their client towards change (Hubble et al., 1999). Through informal review of outcome research involving adults (i.e., estimates of treatment change were not statistically derived), Miller et al. (1997) estimated that only 15% of treatment change can be attributed to therapeutic models and techniques. Expectancy refers to what is sometimes labelled as "placebo effects"; the belief and hope that therapy *will* work, which was also estimated to contribute to 15% of treatment change. Relationship factors are commonly described as the *therapeutic*

alliance; the working relationship between a therapist and client that encompasses a therapeutic bond, collaboration on therapeutic tasks, and common treatment goals (Bordin, 1979), which the authors argue account for 30% of treatment change (Miller et al., 1997). The remaining 40% of treatment change can be attributed to client and extratherapeutic factors. These latter factors collectively describe intrapersonal (e.g., presenting problem, intellectual ability) and interpersonal characteristics (e.g., family functioning, external resources) of the client that impact treatment process factors. Process factors of therapy are a subgroup of common factors that broadly refer to universal aspects of treatment, which unfold from moment to moment over the course of therapy. For example, process factors may include client behaviour within therapy sessions, such as the quality of participation, and outside the therapy environment, such as adherence to at-home skill practice. These factors are believed to uniquely contribute to symptom change, beyond particular elements of any specific therapeutic modalities (Sprenkle & Blow, 2004).

Historically, theoretical frameworks and empirical research of process factors have been conducted in the context of adult treatment. When examining common process factors in mental health treatment for youth, specific aspects of the developmental period need to be considered. For example, children and adolescents are often not self-referred to therapy, and may not be fully involved in decision-making or understand the need to take part in treatment (Karver et al., 2005). The relation between expectancy and treatment outcome for youth is therefore likely to differ from what has been observed in adults. Similarly, extratherapeutic factors for adults tend to focus on individual characteristics. For youth, individual characteristics may be equally as relevant, but should be considered in relation to parent or family factors because of the important role the family system plays during childhood and adolescence (Cox & Paley, 1997). Thus, the

common factor model described above (Miller et al., 1997) may be inadequate for understanding process factors in therapy for youth.

Child Engagement in the Therapy Process

Researchers have expanded on how process factors are conceptualized in child therapies, focusing on the role of child engagement. Within the child treatment literature, the term "engagement" has mainly captured a set of constructs interchangeably referred to as "involvement" or "participation" in therapy (Karver et al., 2005; Karver et al., 2006). Engagement is defined as a dynamic, multifaceted process that includes: behavioural components, such as participation during and outside of therapy session, and collaboration with the therapist; cognitive components, such as the beliefs about the need for therapy or treatment effectiveness; and affective components, such as emotional involvement, positive attitude toward therapy, or therapeutic bond with a therapist (King et al., 2014). In attempting to establish a unified definition of engagement, King et al. (2014) described an engaged client as one that:

> "Has a *hopeful stance* (an optimistic attitude, as well as trust in the process and therapist); is committed to intervention goals and convinced about the need for treatment (*conviction*); and feels able to carry out intervention tasks (*confidence*). In this optimal state, the client is enthusiastic about intervention, believes that the offered or chosen treatment will be effective, and sees the intervention plan as manageable" (p. 4).

Child engagement in treatment involving autistic youth has only started to receive attention by researchers. When providing mental health treatment for autistic youth, clinicians may encounter unique challenges related to the core diagnostic features of autism, including limited social-communicative skills, restrictive interests and rigid thinking, and reactivity to sensory stimulation. Spain and Happé (2020) surveyed expert clinicians and clinical researchers to determine ways to optimize CBT for autistic people. Following three rounds of surveying, there

was 100% agreement among experts that the following components were important for enhancing engagement, specifically for autistic clients: creating suitable clinical space (e.g., reducing sensory stimuli); using language appropriate for developmental level and cognitive ability; allowing client input on how to improve comfort of therapy environment; establishing common emotion-specific vocabulary; using diverse communication methods; reducing the potential for misinterpretations; having open discussion about the meaning and impact of autism for the client; and accommodating communication and social skill difficulties. In terms of increasing engagement in homework, experts agreed that explicitly identifying ways to help clients to generalize to contexts outside of the therapy sessions is critical. Although experts were able to offer suggestions on how to promote engagement based on their own clinical experience, little research has explored whether the recommendations made in Spain and Happé's (2020) study do in fact increase engagement for autistic clients, and subsequently augment therapeutic benefits.

Outside of the autism field, Becker et al. (2018) expanded on how engagement is conceptualized by proposing a measurement framework. The authors offer the REACH acronym to organize measures of engagement in child treatment: Relationship (i.e., therapeutic alliance), Expectancy (e.g., beliefs about treatment effectiveness, readiness, or motivation to participate), Attendance (e.g., presence at sessions), Clarity (e.g., understanding about treatment approach and roles), and Homework (i.e., homework completion; *in-session* participation).

Relationship Factors. Relationship factors refer to the therapeutic alliance (Becker et al, 2018), the working relationship between a therapist and client that is based on therapeutic bond, collaboration on tasks, and consensual treatment goals (Bordin, 1979). Relationship factors are the most well-researched component of engagement in the youth literature. The latest meta-

analytic review (Karver et al., 2018) identified 28 studies examining the association between the therapeutic alliance and treatment outcome, which yielded an overall moderate-size effect—in line with previous alliance-outcome associations observed in child-focused therapies (Karver et al., 2006; Shirk & Karver, 2011). There is notable variation observed in alliance-outcome associations across studies, which may be attributed in part to clinical (e.g., type of presenting problem; treatment type and setting) and methodological factors (e.g., timing of measurement, reporting source; Karver et al., 2018; McLeod, 2011). Relationship factors also appear to be the most well-studied aspect of engagement in mental health treatment for autistic youth. Studies of the therapeutic alliance between therapists and autistic children (Albaum et al., 2020; Burnham Riosa et al., 2019; Kerns et al., 2018; Klebanoff et al., 2019) and adolescents (Brewe et al., 2020) show that a stronger therapeutic alliance predicts greater improvement in symptoms post-treatment, though there is some variation in effect size, which may be attributed to the reporting source (e.g., therapist vs. child vs. parent) and measurement timing (e.g., during treatment vs. post-treatment). Some evidence suggests that therapeutic alliance may be impacted by pre-treatment levels of emotion dysregulation (Albaum et al., 2020), as well as depression and autism symptom severity (Brewe et al., 2020).

Expectancy. Expectancy involves the client's beliefs about treatment effectiveness, as well as their readiness or motivation to take part in the therapy (Becker et al., 2018). Several studies have examined different aspects of expectancy in relation to outcome in child-aged samples (Adelman et al., 1984; Dew-Reeves & Athay, 2012; Lewin et al., 2011; Wergeland et al., 2016; Wergeland et al., 2015). Child motivation to participate in therapy has been shown to positively predict treatment outcome immediately after the completion of therapy (Adelman et al., 1984) and at one-year follow-up (Wergeland et al., 2016), and to negatively predict dropout

in community-based services (Wergeland et al., 2015). Expectations about the benefits of therapy, as rated by youth, have also been found to predict treatment completion: when more favourable, expectations were associated with greater (Lewin et al., 2011) and faster (Dew-Reeves & Athay, 2012) symptom reduction for mental health challenges. Within the autism literature, no known studies have examined how youth expectancy is related to outcome. Some authors have suggested that integrating children's specific interests, for example through contingencies of reinforcement, may increase motivation and willingness to participate in therapy (Moree & Davis, 2010). However, the effectiveness of such modifications has yet to be explored empirically.

Attendance. Attendance simply refers to client presence at the treatment setting at the scheduled time (Nock & Ferriter, 2005). Attendance has emerged as one of the main indicators of engagement in research on child therapy (Becker et al., 2018; King et al., 2014). Treatment attendance is a significant concern in child therapy because of associated reductions in cost-effectiveness in mental health service systems, and the potential impact attrition can have on the validity of study findings (e.g., reduced statistical power; different results for intent-to-treat versus treatment-completer analyses; Nock & Ferriter, 2005). Attendance has been operationalized in various ways across studies, including attendance at first session, continuation (i.e., the number of sessions attended), attrition or premature termination against the advisement of the service provider, cancellations or no-shows, and punctuality (Becker et al., 2018; Nock & Ferriter, 2005). In research on therapy involving autistic youth, attendance has been considered as a metric of treatment feasibility and treatment quality. Meta-analytic reviews have reported on attrition in studies evaluating the efficacy of CBT for autistic youth, indicating drop-out rates between 0 and 27% (Vasa et al., 2014). Though attendance is evidently necessary for change to

occur, studies that assess engagement based on mere presence at sessions fail to capture the *quality* of engagement while attending sessions (Becker et al., 2015; Nix et al., 2009). Moreover, engagement-related issues may actually contribute to poor attendance or treatment termination. Additional research is needed to understand whether youth who complete their treatment and those who terminate it early differ, and if these differences can be addressed by clinicians to increase engagement.

Clarity. Clarity involves the client's understanding of the treatment approach, the therapy structure and goals, and the roles each person has in the treatment process (Becker et al., 2018). Clarity is an under-researched aspect of engagement in child therapy. In a study looking at child participation in consent for psychotherapy, Adelman and colleagues (1984) assessed whether children understood the purpose of therapy, and why they were referred to treatment. The authors found that the majority of children (88%) understood what would happen when they attended therapy, but the authors did not explore possible associations between child understanding and subsequent treatment change. More recent research has assessed clarity using observational methods (Chu & Kendall 2004; 2009) and found variability in children's understanding about in-session content; however, this was also not directly studied in relation to treatment outcome. There are no known studies that have examined the construct of clarity in therapy for autistic youth. While some authors have made several recommendations for clinicians working with autistic clients to ensure a good understanding of concepts and skills covered in therapy (Spain & Happé, 2020; Walters et al., 2016), there is no empirical evidence available to indicate whether client understanding is enhanced by applying adaptations that are associated with clarity, or whether client understanding indeed leads to treatment effectiveness.

Homework. Homework, as included in the REACH acronym, encompasses not only skill practice outside of therapy sessions, but also in-session participation (Becker et al., 2018). For therapy involving children, in-session participation has been defined as a "willingness to behaviourally participate in therapy activities… self-disclose, ask questions, and mentally engage in therapeutic material" during treatment sessions (Chu & Kendall, 2004, p. 821). While homework is thought to be an integral part of psychotherapies such as CBT, and may be particularly important in therapy for adults (Kazantzis et al., 2016), there are mixed findings about the association between homework compliance and treatment effects in children (Arendt, Thastum, & Hougaard, 2016; Hughes & Kendall, 2007; Park et al., 2014). A meta-analysis examining in-session participation and homework completion in the child treatment literature identified 13 studies; four of which only included single-item measures about child participation (Karver et al., 2006). There was substantial variability across studies, with an overall moderate effect size between child participation and treatment outcome. There are no known studies that have considered homework completion or in-session participation in relation to therapeutic outcomes in mental health treatment of autistic youth.

Parent Involvement in Treatment

While the REACH framework identifies common child engagement variables, other authors have highlighted the importance of parent involvement as a common factor for treatment change in therapy for youth. Karver et al. (2005) describe a participating parent as "cooperating with, being involved in, making suggestions about, and/or completing therapeutic tasks, … [and] would also be one who completed therapeutic homework and in-session assignments" (p. 44). Parents' willingness to participate in their children's treatment has been found to be a moderately-sized predictor of child improvement (Karver et al., 2006), while parent therapeutic

alliance between parents and therapist, and parent participation in and out of sessions, predicts a small portion of variance (Karver et al. 2006; McLeod, 2011). Including parents in children's therapy has been associated with greater improvement in youth symptoms compared to therapies where children participate independently (Brendel & Maynard, 2014; Dowell & Ogles, 2010; Kreuze et al., 2018), though not all studies found this advantage (Carnes et al., 2019; Karver et al., 2006; Thulin et al., 2014). Manassis et al. (2014) examined data from 18 randomized controlled trials evaluating CBT, and coded the type of parent involvement for each intervention as either 'low involvement' or 'active involvement'. The authors found that studies with active involvement reported greater treatment effects. Further, parents with the highest degree of active involvement reported the strongest long-term effects.

Parent involvement is considered a critical component of treatment success for autistic youth (Moree & Davis, 2010; Reaven, 2011; Walters et al., 2016). This may be because autistic children commonly experience communication difficulties that can make it difficult for them to participate without support from their parent (Reaven & Hepburn, 2006). As well, therapists often rely on parents to facilitate skill generalization and maintenance outside of sessions (Reaven, 2011; Reaven & Hepburn, 2006). A meta-analytic review of CBT for autistic youth revealed that parent involvement was a significant moderator of treatment outcome, with larger treatment effects observed in programs where parents were involved in their child's treatment compared to child-only therapy (Perihan et al., 2020). Understanding parents' roles in the therapeutic process factors in relation to treatment outcome for autistic youth may offer a new avenue to promote meaningful therapeutic change in mental health treatment.

Literature Gaps

There are a number of limitations to the existing research on child process factors in mental health treatment for autistic youth. Research examining process factors in mental health treatment has almost exclusively involved children who do not have autism, thus limiting the applicability of any findings and insights for autistic children. However, these children often require the same treatments as children without autism, albeit with adaptations. There is a growing interest in understanding the factors that may contribute to positive treatment outcomes for autistic youth, warranting a thorough review of the literature to outline the current state of this research area. In addition, there appears to be minimal empirical research on specific factors related to engagement in therapy for autistic youth and how these affect treatment outcomes.

Focus of Dissertation

The overall aim of this dissertation is to examine the role of therapeutic process factors in the mental health treatment for autistic youth through two studies: 1) a systematic review of empirical research that has examined process factors in mental health treatments for autistic youth, and 2) a longitudinal study evaluating multiple indicators of child engagement in relation to treatment outcome in a CBT trial that targeted emotion regulation in autistic children. By providing an overview of the available evidence and highlighting gaps in the existing literature, and by generating knowledge about treatment process factors as gleaned from therapist and independent-observer reports (multiple informants) taken at different time points, this research will contribute to the literature on mechanisms of therapeutic change in child-focused therapies and help mental health care providers better support autistic youth.

Chapter 2: A Systematic Review of Therapeutic Process Factors in Mental Health Treatment for Autistic Youth

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A Systematic Review of Therapeutic Process Factors in Mental Health Treatment for Autistic Youth

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Abstract
Understanding the role of therapeutic process factors in treatment change may prove useful for discerning why some autistic youth benefit from psychosocial interventions that target emotional and psychological aspects of mental health, while others do not. The aim of the current study was to synthesize what is currently known about therapeutic process factors in mental health treatment of emotional and psychological challenges for autistic youth, regarding how process factors have been measured in past research, and the relation between process factors and treatment outcome. A systematic review of the literature was conducted to narratively synthesize all articles published up until June 2021. Methodological quality of included studies was appraised. Twenty-five studies met inclusion criteria. Process factors assessed across studies included relational factors; treatment expectations, readiness, and satisfaction; and treatment engagement from youth and their parents. Process-outcome associations were reported for a limited number of constructs. There is a limited, albeit growing, body of high-quality research evaluating the role of process factors in the treatment of mental health issues for autistic youth. Future research should continue to examine process factors in relation to treatment outcome, and validate measures to accurately capture process-related constructs in mental health treatment for this population. Greater understanding of therapy processes can lead to developing evidence-informed strategies that clinicians can implement to promote positive expectations, relationships, and engagement.

Keywords Systematic review · Process factors · Autism · Youth · Mental health · Psychotherapy

Background

Autistic children and adolescents often experience emotional and psychological challenges related to mental health, such as anxiety, mood, and associated behavioural problems (Lai et al., 2019; Salazar et al., 2015). These mental health issues may be attributed in part to a limited capacity to regulate emotions (Mazefsky & White, 2014; Weiss, 2014) and can manifest as tantrums or meltdowns, self-injurious behaviour, or aggression towards others. In addition to the occurrence of sub-clinical mental health challenges, approximately 70% of autistic youth[1] are estimated to meet criteria for at least one psychiatric disorder (Mattila et al., 2010; Simonoff et al., 2008), with even higher rates reported for youth receiving mental health services (Brookman-Frazee et al., 2018).

There is emerging evidence supporting the use of psychosocial interventions to address mental health challenges for verbally able autistic youth. Cognitive behaviour therapy (CBT) is the most well-researched intervention to date and has largely focused on reducing anxiety-related symptoms (Ameis et al., 2018; Weston et al., 2016). Recent research suggests CBT may also be useful in promoting emotion regulation skills (Weiss et al., 2018). Early-stage research on other psychosocial treatments, such as mindfulness-based interventions, also show promise for promoting psychological well-being in young autistic people (Hartley et al., 2019). Nonetheless, a notable portion of autistic children who take part in psychosocial interventions do not exhibit clinically meaningful improvements upon therapy completion (e.g., Wood et al., 2009, 2020). For example, a systematic review of anxiety treatment for autistic youth indicated that up to 71% of youth responded to CBT; in other words,

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[1] The term "youth" is used here to describe young people under the age of 18 years. "Children" refers to youth 12 years of age and younger, and "adolescents" refers to youth between 13 and 17 years of age.

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at minimum, almost one-third of those who participated in therapy *did not* demonstrate clinically significant improvement (Vasa et al., 2014). Additionally, meta-analytic results indicate that only 23% of autistic youth who participate in CBT show complete recovery from anxiety symptoms (Warwick et al., 2017). Beyond anxiety, it has been shown that approximately half of autistic youth receiving modified CBT for obsessive–compulsive symptoms do not show meaningful improvement at the end of treatment (Jassi et al., 2021), and one-third have been deemed non-responders in regard to changes in emotion regulation (Swain et al., 2019). Understanding the specific factors that contribute to treatment success may prove useful for discerning *who* benefits from treatment and *why*, and could potentially lead to enhanced treatment effectiveness for youth who are particularly susceptible to mental health challenges.

Common therapeutic factors may play a role in some of the variation observed in mental health outcomes for autistic youth who take part in psychosocial interventions. The common factor approach recognizes the importance of therapy-specific techniques for effecting change (e.g., thought records or behavioural activation in CBT), but also emphasizes the influence of factors that are common across therapeutic modalities (Thomas, 2006). For example, client pre-treatment characteristics, such as symptom severity, expectations about therapy, or developmental level, are believed to impact the therapeutic process, regardless of the type of therapy (e.g., CBT, psychodynamic; Karver et al., 2005). *Process factors* are a subgroup of common factors that broadly refer to universal aspects of treatment, which unfold from moment to moment over the course of therapy (Orlinsky, 2001). At the individual level, these factors may include client behaviour within treatment sessions, such as the quality of participation in-session tasks, and outside the therapy environment, such as adherence to at-home skill practice. The therapeutic process may be influenced by pre-treatment factors that evolve and become part of the therapy process, such as treatment expectation or willingness to participate. Interpersonal factors, such as the working relationship between the client and therapist, known as the therapeutic alliance, or parental scaffolding during home practice (in the case of child-focused therapies) may also affect the therapy process. Process factors are believed to contribute to symptom change, beyond unique technical elements of any specific therapeutic modality (Brown, 2015; Sprenkle & Blow, 2004).

There is a growing interest in process-related factors within the field of youth-focused therapy. Over the past two decades, several reviews and meta-analyses have been conducted to summarize process-related constructs in association with youth treatment outcome (Becker et al., 2018; Fjermestad et al., 2009; Karver et al., 2006, 2018; Kazantzis et al., 2016). Process factors that have been assessed in the youth treatment literature include therapeutic alliance with both youth and parent, youth and parent willingness to participate in treatment, youth and parent involvement, as well as therapist-specific factors, such as use of self-disclosure, therapist experience, and perceived competency. Relationship factors are the most well-understood process factor in the youth literature outside of autism-related research. The latest meta-analytic review (Karver et al., 2018) identified 28 studies examining the association between therapeutic alliance and treatment outcome, which yielded an overall moderate-sized effect—in line with previous alliance-outcome associations observed in youth-focused therapies (Karver et al., 2006; Shirk & Karver, 2011). Several studies have also examined youth treatment expectations and motivation to participate in therapy, which have been shown to predict whether youth complete treatment or terminate early, and which are positively related to symptom reduction in mental health-related outcomes (Adelman et al., 1984; Dew-Reeves & Athay, 2012; Lewin et al., 2011; Wergeland et al., 2015). Treatment engagement (interchangeably referred to as "involvement" or "participation") encompasses participation both within and outside of therapy sessions. Based on findings from 13 studies, meta-analysis of in-session participation and treatment adherence (i.e., homework completion) in the youth treatment literature indicated an overall moderate-sized association between child participation and treatment outcome (Karver et al., 2006).

In addition to youth-focused process factors, numerous studies have examined parent-focused factors that may contribute to therapeutic change. Parents' willingness to participate in their children's treatment has been found to be a moderate-sized predictor of youth improvement (Karver et al., 2006). Therapeutic alliance between parents and therapist, and parent participation in and out of sessions, predicts a small portion of variance in youth mental health outcomes (Karver et al., 2006; McLeod, 2011). Across youth and parent-related process factors, small to moderate-sized effects have been reported for process-outcome associations within the youth treatment literature (Karver et al., 2006, 2018).

Findings from existing studies largely apply to youth treatment in general and have often failed to specify whether any of the included research involved autistic youth. It is unclear whether similar effect sizes are observed, or whether process factors can be validly and reliably measured in the context of therapy for this population. It is plausible that the therapeutic process unfolds differently for autistic youth, relative to peers without autism, because of common difficulties with social-communication and restrictive patterns of thinking, as well frequent co-occurring challenges, like inattention, executive dysfunction, and oppositionality (Demetriou et al., 2018; Salazar et al., 2015). For example, therapeutic alliance may have a disparate relation to treatment outcome for youth who struggle with social relationships.

Given how commonly occurring mental health problems are (Lai et al., 2019) and the marked portion of autistic youth who do not improve from psychotherapy (e.g., Vasa et al., 2014), it is important to establish a strong knowledge base on addressable factors that can contribute to therapeutic success for this population. The aim of the current study was to synthesize what is currently known about therapeutic process factors in mental health treatment for autistic youth, in regard to how process factors have been measured in past research, and the relation between process factors and treatment outcome.

Method

Search Strategy

A systematic review of empirical research examining process factors in mental health treatment for autistic youth was conducted in accordance with the standards described by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA; Moher et al., 2009) guidelines. The review protocol was prospectively registered with the PROSPERO international review database (ID: CRD42021240272; https://www.crd.york.ac.uk/prospero/). A concurrent search of Ovid MEDLINE, PubMed, and PsycINFO was conducted on June 7, 2021 to identify all articles published to date. The final search strategy is provided in Supplemental Table 1. Based on the previous review of therapeutic process factors completed by Karver et al. (2006), 29 process-related search terms were selected. The search strategy also included autism-related terms (i.e., autis*, Asperger syndrome) and terms describing youth age range (i.e., child*, pediatric, youth, adolescen*, and kid), which were combined with the process-related terms. When possible, terms were modified to align with database-specific index terms (e.g., MeSH terms for PubMed).

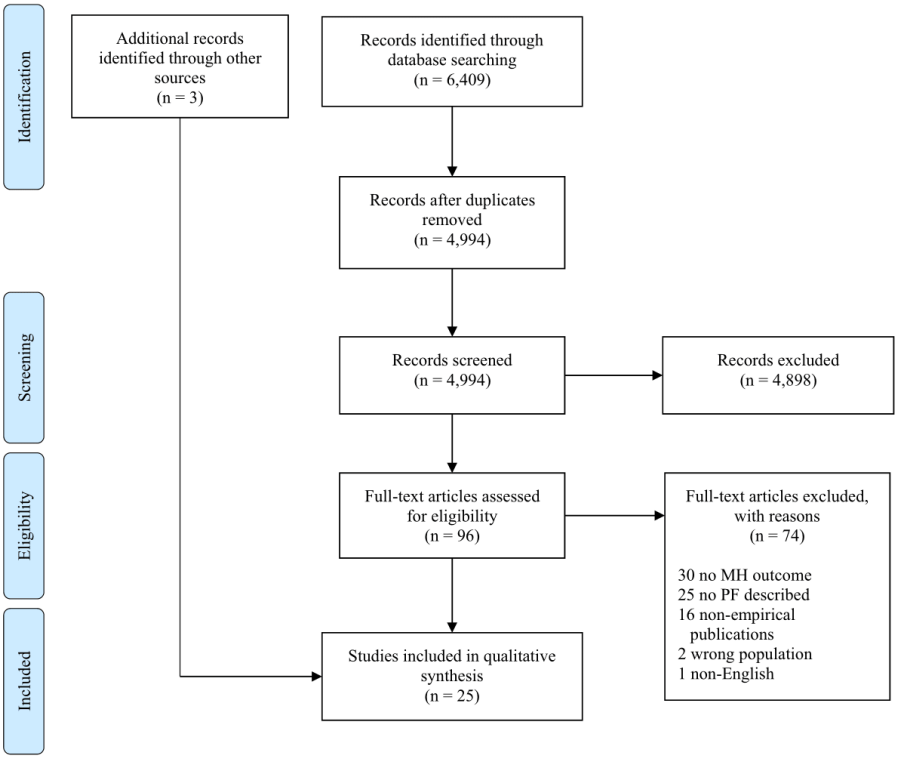
Selection Criteria

Studies identified through the searches were included based on the following criteria: (a) evaluated or described a psychosocial intervention addressing an emotional or psychological mental health-related outcome (as either a primary or secondary outcome; e.g., anxiety, depression); (b) at least a portion of the sample included youth under the age of 18 years, with a previous diagnosis of autism or related disorder (e.g., Asperger syndrome); (c) assessed and/or described at least one process-related factor; and (d) was available in English. Exclusion criteria were: (a) interventions addressing disruptive behaviour only (e.g., opposition, defiance, conduct problems) without consideration of the emotional and psychological aspects of mental health; (b) non-empirical publications (e.g., editorials, commentaries, books, book chapters, theoretical papers); (c) reviews or meta-analyses; and (d) unpublished dissertations or theses. Notably, there is a large body of literature (e.g., studies evaluating applied behavioural interventions) that has focused on reducing "disruptive" behaviours (e.g., self-injurious behaviour; aggression towards others) without evaluating the role of internalized emotional and psychological experiences (e.g., anxiety, depression, emotion regulation) that may explain the observable behaviour. Although it is not uncommon for autistic youth to demonstrate disruptive behaviour that stems from emotional and psychological issues, it is uncertain whether these problems are a targeted treatment outcome of an intervention when there is a lack of direct measurement. For clarity and consistency, the decision was made to focus on studies that explicitly assessed emotional and psychological outcomes related to mental health.

To identify eligible studies, all titles and abstracts of articles retrieved through database searches were independently screened by two authors (CA and NV). For the screening phase, disagreements were resolved through discussion until consensus was reached between the two authors. All articles that underwent full-text review were also independently reviewed by each author. Disagreements for full-text review were resolved through discussion and consultation with the senior author (JW).

Quality Appraisal of Included Studies

The Mixed Methods Analysis Tool (MMAT; Hong et al., 2018) was used to assess the methodological quality of studies that met inclusion criteria, which was developed for empirical studies based on the study design. To determine whether a study is considered empirical, reviewers respond "Yes" or "No" to two screening questions regarding clarity of research questions and adequacy of data collection for addressing research questions. For studies that fail to meet screening criteria, quality appraisal is not conducted. For articles that meet screening criteria, reviewers respond "Yes" or "No" to five methodological-related questions that vary depending on study design (e.g., qualitative vs. randomized controlled trial). If there is insufficient information provided in the article to answer the question, reviewers may respond with "Can't Tell". As per the MMAT guidelines (Hong et al., 2018), methodological quality of each study is considered based on responses to individual criterion, versus a global rating or overall score. Included studies were assessed by one of two reviewers (CA or NV), and approximately 30% of studies ($n = 8$) were coded by the other reviewer as a reliability check. Reviewers were recused from rating articles that they authored. There was substantial agreement across raters (Fleiss $\kappa = 0.77$). Disagreements in ratings were resolved through discussion. The MMAT has



Notes. MH = Mental health; PF = Process factor.

Fig. 1 PRIMSA flow diagram illustrating study selection

been used as a quality appraisal tool in other review studies focused on developmental disabilities literature, including autism (Albaum et al., 2021; Doherty et al., 2020).

Results

Search Results

Search results are illustrated in Fig. 1. An initial search of the databases using the search strategy described above yielded 6,409 articles. After duplicate articles were removed, 4,994 articles remained for review. The two authors screening titles and abstracts agreed on whether studies should be excluded or undergo full-text review for 97% of articles ($n = 4849$ articles). Title and abstract screening resulted in 4,898 articles being excluded. The full-text for the remaining 96 articles were again reviewed by both authors. Authors agreed regarding eligibility for 82% of articles ($n = 79$). Full-text review resulted in an additional 74 articles being excluded (see Fig. 1 for exclusion reasons), leaving 22 articles for data extraction and synthesis. Reference lists from included articles were reviewed for potentially relevant studies that were not identified in the original search, which resulted in inclusion of three additional studies (Brown et al., 2015; Jassi et al., 2021; White et al., 2013).

Study Characteristics

Study characteristics are detailed in Table 1, including study location, study design, sample characteristics, description of intervention, mental health outcomes, and process factors identified. Twenty-five studies derived from 21 unique samples were identified; four of the included articles utilized the same sample (Albaum et al., 2020; Burnham Riosa et al., 2019; Thomson et al., 2015; Weiss et al., 2018). Although there was no lower date bound set for inclusion criteria, all studies identified through the search were published from

Table 1 Characteristics of included studies

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
Albaum et al. (2020)	Canada	Quantitative, descriptive	Intervention: CBT Dosage: 10 weekly sessions, 60 min. each (first session, 90 min.) Format: Individual; Full parent involvement Setting: University Provider: Three post-doctoral fellows and 19 graduate students MH Outcome: Emotion regulation	*n*: 48 Age: 8 to 12 years ($M = 9.60$, $SD = 1.25$) Gender: 92% male Dx confirmation: Diagnostic report provided; SCQ and SRS-2; ADOS administered when report unavailable ($n = 2$)	Treatment readiness; Youth-therapist alliance	Yes
Backman et al. (2018)	Sweden	Mixed methods	Intervention: Psychoeducation Dosage: 8 modules Format: Internet-based; Weekly access to modules; Weekly check-ins with clinician; No parent involvement Setting: Virtual Provider: Clinicians ("coaches") MH Outcome: Anxiety, depression	*n*: 28 Age: 16 to 25 years ($M = 20.62$; $SD = 2.60$) Gender: 57% female Dx confirmation: Diagnostic report provided; Dx verified by clinical psychologist or OSU Autism Rating Scale	Treatment expectations; Treatment satisfaction	No
Brewe et al. (2021)	USA	Quantitative, descriptive	Intervention: Mindfulness-based intervention Dosage: 16 weekly sessions, 45 to 60 min. each Format: Individual; No parent involvement Setting: University, multi-site Provider: Three clinical psychologists, one post-doctoral fellow, two master's-level clinicians, nine graduate students MH Outcome: Anxiety, depression, emotion regulation	*n*: 37 Age: 12 to 21 years ($M = 15.28$; $SD = 2.21$) Gender: 78% male Dx confirmation: ADOS	Youth-therapist alliance	Yes

Table 1 (continued)

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
Brown et al. (2015)	UK	Quantitative, descriptive	Intervention: CBT or counselling Dosage: NR Format: Individual; Partial parent involvement Setting: Child and adolescent mental health centres, multi-site Provider: Three consultant child psychiatrists, one clinical psychologist, and one counsellor MH Outcome: Anxiety	*n*: 13 Age: 12 to 18 years ($M = 15.23$; $SD = 1.24$) Gender: 54% male Dx confirmation: ADOS and ADI-R	Youth-therapist alliance	No
Burnham Riosa et al. (2019)	Canada	Quantitative, descriptive	Intervention: CBT Dosage: 10 weekly sessions, 60 min. each (first session, 90 min.) Format: Individual; Primary caregiver involved for full duration of all sessions Setting: University Provider: Graduate students and post-doctoral fellows MH Outcome: Emotion regulation	*n*: 20 Age: 8 to 12 years ($M = 9.75$; $SD = 1.29$) Gender: 95% male Dx confirmation: Diagnostic report provided; SCQ and SRS-2	Parent-therapist alliance; Treatment adherence; Youth involvement; Youth-therapist alliance	No
Chlebowski et al. (2018)	USA	Qualitative	Intervention: Psychotherapy/counselling Dosage: NR Format: Individual; Parent-mediated Setting: Community-based mental health Provider: 17 therapists (59% staff, 41% trainees; 18% licensed in clinical discipline) MH Outcome: Challenging behaviour, psychiatric comorbidities	*n*: 29 Age: Age range NR ($M = 9.8$ years; $SD = 2.06$) Gender: 90% male Dx confirmation: NR	Parent involvement; Parent-therapist relationship	NA

Table 1 (continued)

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
Drmic et al. (2017)	Singapore	Mixed methods	Intervention: CBT Dosage: 10 weekly sessions, 60 to 90 min. each Format: Small groups (2–3 youth); Partial parent involvement Setting: Mainstream secondary school Provider: 23 allied educators trained to facilitate intervention; 19 supervising psychologists ("coaches") MH Outcome: Anxiety	*n*: 44 Age: 13 to 15 years (*M* and *SD* NR) Gender: 86% male Dx confirmation: "Known diagnosis" made using clinical practice guidelines (i.e., use of ADOS/ADI-R)	Parent involvement; Therapist direct influence skills Treatment readiness; Youth motivation	NA
Edgington et al. (2016)	UK	Mixed methods	Intervention: CBT Dosage: 8 weekly sessions, 45 min. each Format: Group; Email communication with parent-only Setting: Mainstream secondary school Provider: NR MH Outcome: Anxiety	*n*: 7 Age: 11 to 16 years ($M = 13.91$; $SD = 1.45$) Gender: 100% male Dx confirmation: Statement of Special Education Needs (SEN) provided for "most" participants	Group cohesion; Parent involvement; Youth motivation	NA (process factors result of qualitative analysis)
Gordon et al. (2015)	UK	RCT	Intervention: Psychoeducation Dosage: 6 weekly session, 90 min. each Format: Group; Parallel parent-only sessions Setting: NR Provider: Clinical psychologists MH Outcome: Psychopathology, self-esteem	*n*: 48 Age: 9 to 14 years ($M = 11.45$; $SD = 1.55$) Gender: 83% male Dx confirmation: 3Di-sv	Treatment adherence; Treatment satisfaction	No

Table 1 (continued)

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
Hillier et al. (2012)	USA	Non-randomized	Intervention: Music program Dosage: 8 weekly sessions, 90 min. each Format: Group; No parent involvement Setting: University Provider: Music education and psychology students (with professor supervision) MH Outcome: Anxiety, self-esteem	*n*: 22 Age: 13 to 29 years ($M = 18$, *SD* NR) Gender: 82% male Dx confirmation: Proof of prior diagnosis required for eligibility	Treatment satisfaction	No
Jassi et al. (2021)	UK	Non-randomized	Intervention: CBT with ERP Dosage: 14 to 30 sessions (Mode = 20); Frequency and duration NR Format: Individual; Partial parent involvement Setting: Mental health clinic + trigger-related environments (e.g., home) Provider: Clinical psychologists MH Outcome: OCD symptoms	*n*: 34 Age: 11 to 17 years ($M = 15.18$; $SD = 1.70$) Gender: 68% male Dx confirmation: ADOS and/or ADI-R for 68% of sample	Family accommodation; Treatment satisfaction	No
Jones and Jassi (2020)	UK	Qualitative	Intervention: CBT Dosage: 20 sessions over 24 weeks, 60 min. each Format: Individual; Full parent involvement + 6 parallel parent-only sessions Setting: Clinic- and home-based Provider: Two clinical psychologists MH Outcome: OCD symptoms	*n*: 1 Age: 16 Gender: Male Dx confirmation: NR	Family accommodation	No

Table 1 (continued)

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
Kang et al. (2021)	USA	Quantitative, descriptive	Intervention: Social skills intervention Dosage: 5 h. per day, 5 days per week for 6 weeks Format: Group; No parent involvement Setting: Community-based Provider: Head therapist and two support therapists; Supervised by MA-level therapist MH Outcome: Social anxiety	*n*: 34 Age: 9 to 16 years ($M = 12.41$, $SD = 2.06$) Gender: 79% male Dx confirmation: SCQ or SRS-2	Youth-therapist alliance	Yes
Kerns et al. (2018)	USA	Quantitative, descriptive	Intervention: CBT Dosage: 16 weekly sessions, 60 to 90 min. each Format: Individual; Partial parent involvement Setting: University Provider: NR MH Outcome: Anxiety, internalizing and externalizing problems	*n*: 64 Age: 7 to 16 years ($M = 10.81$, $SD = 2.25$) Gender: 81% male Dx confirmation:—ADOS, ADI-R, and clinical judgment	Parent-therapist alliance; Youth-therapist alliance	Yes
Klebanoff et al. (2019)	USA	Quantitative, descriptive	Intervention: CBT Dosage: 16 to 32 sessions (time duration NR), 90 min. each Format: Individual; Full parent involvement Setting: NR Provider: Two doctoral-level psychologists; 11 graduate students MH Outcome: Anxiety	*n*: 64 Age: 5 to 15 years ($M = 10$; $SD = 2.0$) Gender: 77% male Dx confirmation: ADOS and ADI-R	Parent-therapist alliance; Youth-therapist alliance	Yes

Table 1 (continued)

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
London et al. (2020)	Australia	Qualitative	Intervention: Animal-assisted occupational therapy involving dogs Dosage: Five weekly sessions, 60 min. each Format: Individual; Full parent involvement Setting: Assistance Dogs Australia Provider: Occupational therapists; Four assistance dog trainers MH Outcome: Emotion regulation	*n*: 17 Age: 4 to 19 years ($M = 8.88$; $SD = 4.32$) Gender: 94% male Dx confirmation: NR	Youth engagement	NA
Lordo et al. (2017)	USA	Non-randomized	Intervention: Social skills intervention Dosage: 14 weekly sessions, 90 min. each Format: Group; Parallel parent-only sessions Setting: NR Provider: NR MH Outcome: Emotion regulation, internalizing and externalizing symptoms, positive and negative affect	*n*: 16 Age: 12 to 17 years ($M = 15.07$; $SD = 1.40$) Gender: 75% male Dx confirmation: GARS-3	Treatment adherence	No
McNally Keehn et al. (2013)	USA	RCT	Intervention: CBT Dosage: 16 weekly sessions, 60 to 90 min. each Format: Individual; Two parent-only sessions Setting: University Provider: Clinical psychologist MH Outcome: Anxiety	*n*: 22 Age: 8 to 14 years ($M = 11.26$; $SD = 1.53$) Gender: 95% male Dx confirmation: ADOS and ADI-R	Treatment adherence	No

Table 1 (continued)

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
Pahnke et al. (2014)	Sweden	RCT (quasi-experimental)	Intervention: ACT Dosage: 12 biweekly sessions (i.e., over six weeks), 40 min. each; 6–12 min. mindfulness exercise daily Format: Group; No parent involvement Setting: Specialized secondary schools, multi-site Provider: Graduate student supervised by ACT therapist; Classroom teachers MH Outcome: Emotional and behaviour problems, psychological distress, stress-related behaviour	*n*: 28 Age: 13 to 21 years ($M = 16.5$; $SD = 2.0$) Gender: 75% male Dx confirmation: NR	Treatment adherence; Treatment satisfaction	No
Storch et al. (2015)	USA	Quantitative, descriptive	Intervention: CBT Dosage: 16 weekly sessions, up to 90 min. each Format: Individual; Full parent involvement Setting: NR Provider: Clinical psychologists, post-doctoral fellows, graduate students MH Outcome: Anxiety	*n*: 24 Age: Age range NR ($M = 10.42$; $SD = 2.55$) Gender: 79% male Dx confirmation: ADOS and ADI-R; Review of records	Family accommodation	Yes
Swain et al. (2019)	USA	Non-randomized	Intervention: CBT Dosage: Nine weekly sessions, 60 min. each Format: Group; Parallel parent sessions Setting: University-associated community clinic; Hospital Provider: Masters and doctoral-level clinicians; Supervised by clinical psychologist MH Outcome: Emotional problems, emotion regulation	*n*: 18 Age: 4 to 7 years ($M = 6.16$; $SD = 0.99$) Gender: 89% male Dx confirmation: NR	Treatment satisfaction	Yes

Table 1 (continued)

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
Thomson et al. (2015)	Canada	Non-randomized	Intervention: CBT Dosage: 10 weekly sessions, 60 min. each (first session, 90 min.) Format: Individual; Full parent involvement Setting: University Provider: Post-doctoral fellow and four graduate students MH Outcome: Anxiety, emotion regulation, internalizing and externalizing problems	*n*: 14 Age: 8 to 12 years ($M = 10.40$; $SD = 1.30$) Gender: 93% male Dx confirmation: Diagnostic report provided; SCQ and SRS-2; ADOS administered when report unavailable	Parent-therapist alliance; Treatment adherence; Treatment satisfaction; Youth involvement; Youth-therapist alliance	No
Walsh et al. (2018)	USA	Quantitative, descriptive	Intervention: CBT Dosage: 14 weekly sessions, 90 min. each Format: Multifamily groups; Full parent involvement Setting: University-affiliated outpatient clinics, multi-site Provider: 34 mental health professionals (e.g., clinical/counselling psychologists; social workers) and graduate students MH Outcome: Anxiety	*n*: 80 Age: 8 to 14 years ($M = 11.11$; $SD = 1.97$) Gender: 84% male Dx confirmation: ADOS and SCQ	Treatment satisfaction	Yes
Weiss et al. (2018)	Canada	RCT	Intervention: CBT Dosage: 10 weekly sessions, 60 min. each (first session, 90 min.) Format: Individual; Full parent involvement Setting: University Provider: Post-doctoral fellows and graduate students MH Outcome: Anxiety, emotion regulation, internalizing and externalizing problems	*n*: 68 Age: 8 to 12 years ($M = 9.75$; $SD = 1.27$) Gender: 88% male Dx confirmation: Diagnostic report provided; SCQ and SRS-2; ADOS administered when report unavailable	Treatment adherence; Treatment satisfaction; Youth involvement	No

Table 1 (continued)

Study	Country	Study design	Intervention description	Sample description	Process factor description	
					PF described/assessed	PF examined in relation to outcome?
White et al. (2013)	USA	RCT	Intervention: CBT Dosage: 12–13 individual sessions, 60–70 min. each; 7 group sessions, 75 min. each (frequencies NR) Format: Individual + group; Partial parent involvement Setting: University-affiliated clinic Provider: Clinical psychologist and four graduate students MH Outcome: Anxiety	*n*: 30 Age: 12 to 17 years ($M = 15$; *SD* NR) Gender: 77% male Dx confirmation: ADOS and ADI-R	Treatment adherence; Treatment satisfaction; Youth involvement	No

3Di-sv Developmental Diagnostic Dimensional Interview, short version, *ACT* Acceptance and commitment therapy, *ADI-R* Autism Diagnostic Interview, Revised, *ADOS* Autism Diagnostic Observation Schedule, *CBT* cognitive behaviour therapy, *Dx* autism diagnosis, *ERP* exposure and response prevention, *GARS-3* Gilliam Autism Rating Scale, Third Edition, *MH* mental health, *NA* not applicable, *NR* not reported, *OCD* obsessive compulsive disorder, *PF* process factor, *RCT* randomized controlled trial, *SCQ* social-Communication Questionnaire, *SRS-2* Social Responsiveness Scale, Second Edition

2012 onwards, with 68% of studies ($n = 17$) being published within the past six years (i.e., after 2015). Of the 25 included studies, 64% ($n = 16$) were conducted in North America and 28% ($n = 7$) in Europe; one study occurred in Asia, and one study occurred in Australia. In terms of study design, most studies were quantitative-descriptive in nature (36%, $n = 9$). Five studies (20%) conducted quantitative, non-randomized intervention trials, and five studies were randomized controlled trials. Three studies (12%) employed qualitative designs, and the remaining three studies used a mixed methods approach, involving quantitative and qualitative methods.

Across studies, participants ranged in age from 4 to 29 years. Nine studies (36%) involved adolescents (i.e., 13 years of age or older) and nine included both children and adolescents; five studies (20%) included children only (i.e., 12 years of age or younger), and two did not report on the age range of the sample. The mean age reported across studies was 12.6 years ($SD = 3.41$; range: 6.2 to 20.6). On average, samples comprised 82.3% males ($SD = 13.2\%$, range: 43% to 100%). Sixteen studies (64%) reported that the majority of participants in the sample identified as White/Caucasian, 11 of which included samples with more than 75% White/Caucasian participants; one study sample comprised 100% Asian participants (i.e., Chinese, Indian, or Malays; Drmic et al., 2017), and one study comprised 100% Latinx participants (Chlebowski et al., 2018). Seven studies (28%) did not report on the ethnicity or racial identity of participants. Most studies (80%, $n = 20$) reported using autism diagnostic (e.g., ADOS; ADI-R) and/or screening tools (e.g., SCQ; SRS-2), or having participants share a report from a licensed healthcare provider to confirm autism diagnostic criteria were met. The majority of studies excluded participants with a diagnosed intellectual disability or who had limited intellectual abilities (e.g., IQ < 70; 76%, $n = 19$); five studies (20%) did not specify level of intellectual functioning. One study included a single participant with an intellectual disability, as reported by parents (London et al., 2020).

Regarding the interventions, the majority of studies (64%, $n = 16$) involved treatment programs that were based on CBT. Other forms of psychosocial treatment included psychoeducation (Backman et al., 2018; Gordon et al., 2015), social skills interventions (Kang et al., 2021; Lordo et al., 2017; White et al., 2013), mindfulness-based interventions (Brewe et al., 2021; Pahnke et al., 2014), counselling or psychotherapy (Brown et al., 2015; Chlebowski et al., 2018), music programs (Hillier et al., 2012), and animal-assisted occupational therapy (London et al., 2020). Fifteen studies (60%) involved individualized treatment and 36% ($n = 9$) used group formats; one study involved a combination of individual and group sessions (White et al., 2013). Parents were fully involved in treatment (i.e., were present for the entire duration of all sessions) in 40% of studies ($n = 10$), and partially involved for another 40% of studies (e.g., present for only a portion of each session; attended some, but not all sessions; participated in parallel parent-only sessions). For 20% of studies ($n = 5$), the extent of parent involvement was not reported. Mental health outcomes that were commonly targeted included anxiety (60% of studies, $n = 15$), emotion regulation (28%, $n = 7$), internalizing and externalizing symptoms broadly (16%, $n = 4$), depression (8%, $n = 2$), and obsessive–compulsive symptoms (8%, $n = 2$). Studies also examined other mental health-related outcomes such as general psychopathology and psychiatric comorbidity, psychological distress and stress-related behaviour, emotional and behaviour problems, positive and negative affect, and self-esteem.

Quality of Included Studies

Study quality was appraised using the MMAT (Hong et al., 2018). All studies were deemed to have clear research questions and collected appropriate data to address the research questions, and thus met MMAT screening criteria to proceed for further appraisal. Eight studies (32%) met 100% of the MMAT criteria for the respective study design; 10 studies (40%) met 80% of criteria; four studies (16%) met 60% of criteria; one study (4%) met 40% of criteria; and two studies (8%) met 20% of criteria. Summary of responses to questions regarding methodological quality are provided in Table 2.

Process Factors Assessed in Quantitative Studies

Among studies that employed quantitative methods ($n = 22$; including randomized and non-randomized, descriptive, and mixed methods designs), the following process factors were identified: family accommodation, parent-therapist alliance, treatment adherence, treatment expectations, treatment readiness, treatment satisfaction, youth involvement, and youth-therapist alliance. Details regarding the measures used to assess each process factor are provided in Table 3. As shown in Table 1, approximately 62% of studies described process factors as indicators of treatment feasibility, without examining process-outcome associations. For example, several studies described homework completion as an indication of treatment adherence (e.g., McNally Keehn et al., 2013; Thomson et al., 2015), but did not report correlations between homework completion and treatment outcome. Eight studies explicitly evaluated the relation between process factors and treatment outcome, and six studies assessed relations among process factors. An overview of study results for each process factor follows below.

Table 2 Quality appraisal of included studies based on Mixed Methods Appraisal Tool (Hong et al., 2018)

Study (by design)	Methodological quality criteria				
Qualitative studies	Qualitative approach appropriate to answer research question?	Data collection methods adequate to answer research question?	Findings adequately derived from data?	Interpretation of results sufficiently substantiated by data?	Coherence between qualitative data, sources, collection, analysis, and interpretation?
Chlebowski et al. (2018)	Y	Y	Y	Y	Y
Jones and Jassi (2020)	Y	Y	Y	Y	Y
London et al. (2020)	Y	Y	Y	Y	Y
Randomized controlled trials	Randomization appropriately performed?	Groups comparable at baseline?	Complete outcome data?	Outcome assessors blinded to the intervention provided?	Participants adhered to assigned intervention?
Gordon et al. (2015)	Y	Y	Y	N	Y
McNally Keehn et al. (2013)	Y	Y	Y	N	Y
Pahnke et al. (2014)	Y	Y	Y	N	Y
Weiss et al. (2018)	Y	Y	Y	N	Y
White et al. (2013)	Y	Y	Y	N	Y
Non-randomized studies	Participants representative of target population?	Measurements appropriate for both outcome and intervention?	Complete outcome data?	Confounders accounted for in design/analysis?	Intervention administered as intended?
Hillier et al. (2012)	Y	Y	N	Y	Y
Jassi et al. (2021)	Y	Y	Y	Y	Y
Lordo et al. (2017)	Y	Y	Y	N	Y
Swain et al. (2019)	Y	Y	Y	Y	Y
Thomson et al. (2015)	Y	Y	Y	Y	Y
Quantitative descriptive studies	Sampling strategy relevant to research question?	Sample representative of target population?	Measurements appropriate?	Risk of nonresponse bias low?	Statistical analysis appropriate to answer research question?
Albaum et al. (2020)	Y	Y	Y	N	Y
Brewe et al. (2021)	Y	Y	Y	Y	Y
Brown et al. (2015)	Y	Y	Y	N	Y
Burnham Riosa et al. (2019)	C	Y	Y	N	Y
Kang et al. (2021)	Y	C	Y	N	Y
Kerns et al. (2018)	Y	Y	Y	N	Y
Klebanoff et al. (2019)	N	Y	Y	N	Y
Storch et al. (2015)	N	Y	Y	N	Y
Walsh et al. (2018)	Y	Y	Y	Y	Y
Mixed methods studies	Adequate rationale for mixed methods design to address research question?	Different components of study effectively integrated to answer research question?	Outputs of integration of qualitative/quantitative components adequately interpreted?	Divergences/inconsistencies between quantitative and qualitative results adequately addressed?	Different components of study adhere to the quality criteria of each tradition of methods involved?
Backman et al. (2018)	N	N	N	Y	N
Drmic et al. (2017)	N	N	N	Y	Y
Edgington et al. (2016)	N	N	N	N	Y

C Can't tell, *N* No, *Y* Yes

Table 3 Characteristics of process factor measures used in included studies

Process factor	Measure	Included studies that used measure	Measurement timing	Mode of administration	Scale description
Family accommodation	Family Accommodation Scale (Calvocoressi et al., 1995)	Jassi et al. (2021), Jones and Jassi (2020)	Pre- and post-treatment During treatment	Parent report	13 items assessing family members' accommodation of OCD symptoms Two subscales: Involvement in Compulsions; Avoidance of Triggers 5-point Likert-type scale (0 = Never, 4 = Daily) Overall and subscale sums; Higher scores = greater accommodation Score > 13 indicates clinically significant accommodation
	Pediatric Accommodation Scale (Benito et al., 2015)	Storch et al. (2015)	Pre- and post-treatment	Parent report (clinician-administered)	14 items assessing frequency of family accommodation and impact on child/family functioning Three subscales: Frequency (frequency over previous week, across all items); Parent Impact (4 items); Child Impact (7 items) Three global items: Accommodation from primary and secondary caregivers, and first sibling 4-point Likert-type scale (0 = Never/None; 4 = Always/Extreme) Subscale mean scores; Higher scores = greater accommodation

Table 3 (continued)

Process factor	Measure	Included studies that used measure	Measurement timing	Mode of administration	Scale description
Parent-therapist alliance	TPOCS-A (McLeod & Weisz, 2005)	Burnham Riosa et al. (2019)	During treatment (early, middle, and late sessions)	Independent-observer-report	9 items assessing two aspects of therapeutic alliance: Therapeutic Bond (6 items) and Task Collaboration (3 items) 6-point Likert-type scale (0 = Not at all; 5 = Great deal) Overall sum; Higher scores = stronger alliance
	TASC-R (Shirk & Saiz, 1992)	Kerns et al. (2018); Klebanoff et al. (2019)	During treatment (following at least two sessions; Klebanoff et al., 2019) Post-treatment (Kerns et al., 2018)	Parent report	12 items assessing two aspects of alliance between therapist and parent: Task (6 items) and Bond (6 items); Kerns et al. (2018) used 7-item version 4-point Likert-type scale (1 = Not at all; 4 = Very much) Overall sum; Higher scores = stronger alliance
	Single-item used in two related studies	Burnham Riosa et al. (2019), Thomson et al. (2015)	During treatment (following each session)	Therapist-report	"How would you describe the quality of the therapeutic relationship during the session with the parent?" 7-point Likert-type scale (1 = Very poor; 7 = Very good) Single-item rating; Higher scores = stronger alliance

Table 3 (continued)

Process factor	Measure	Included studies that used measure	Measurement timing	Mode of administration	Scale description
Treatment satisfaction	Various unnamed questionnaires used in ten studies (two related)	Backman et al. (2018), Gordon et al. (2015), Hillier et al. (2012), Jassi et al. (2021), Pahnke et al. (2014), Swain et al. (2019), Thomson et al. (2015), Walsh et al. (2018), Weiss et al. (2018), White et al. (2013)	During treatment (following each session; Backman et al., 2018; Thomson et al., 2015; Walsh et al., 2018; Weiss et al., 2018) Post-treatment (Gordon et al., 2015; Hillier et al., 2012; Jassi et al., 2021; Swain et al., 2019; White et al., 2013) NR (Pahnke et al., 2014)	Parent report (Hillier et al., 2012; Jassi et al., 2021; Swain et al., 2019; Thomson et al., 2015; Walsh et al., 2018; Weiss et al., 2018; White et al., 2013) Therapist-report (Thomson et al., 2015; Walsh et al., 2018) Youth-report (Backman et al., 2018; Gordon et al., 2015; Hillier et al., 2012; Jassi et al., 2021; Pahnke et al., 2014; Thomson et al., 2015; Walsh et al., 2018; Weiss et al., 2018; White et al., 2013)	Variable across studies

Table 3 (continued)

Process factor	Measure	Included studies that used measure	Measurement timing	Mode of administration	Scale description
Youth-therapist alliance	TPOCS-A (McLeod & Weisz, 2005)	Albaum et al. (2020), Brown et al. (2015), Burnham Riosa et al. (2019), Kang et al. (2021)	During treatment (multiple time points per participant for all studies except Brown et al., 2015)	Independent-observer-report	9 items assessing two aspects of therapeutic alliance: Therapeutic Bond (6 items) and Task Collaboration (3 items) 6-point Likert-type scale (0 = Not at all; 5 = Great deal) Overall sum; Higher scores = stronger alliance
	TASC-R (Shirk & Saiz, 1992)	Kang et al. (2021), Kerns et al. (2018), Klebanoff et al. (2019)	During treatment (following at least two sessions; Kang et al., 2021; Klebanoff et al., 2019) Post-treatment (Kerns et al., 2018)	Therapist-report Youth-report	12 items assessing two aspects of alliance between therapist and youth: Task (6 items) and Bond (6 items); Kang et al. (2021) used 13-item version 4-point Likert-type scale (1 = Not at all; 4 = Very much) Overall sum; Higher scores = stronger alliance
	Vanderbilt Therapeutic Alliance Scales Revised, Short Form (Shelef & Diamond, 2008)	Brewe et al. (2021)	During treatment (four time points)	Independent-observer-report	5 items assessing aspects of therapeutic alliance 6-point Likert-type scale (anchors NR) Overall sum; Higher scores = stronger alliance
	Single-item used in two related studies	Burnham Riosa et al. (2019), Thomson et al. (2015)	During treatment (following each session)	Therapist-report	"How would you describe the quality of the therapeutic relationship during the session with the child?" 7-point Likert-type scale—Anchors indicate quality (1 = Very poor; 7 = Very good) Single-item rating; Higher scores = stronger alliance

Table 3 (continued)

Process factor	Measure	Included studies that used measure	Measurement timing	Mode of administration	Scale description
Youth treatment engagement (i.e., adherence; involvement)	Percentage of homework completion used in four separate studies	Gordon et al. (2015), Lordo et al. (2017), McNally Keehn et al. (2013), White et al. (2013)	During treatment (following each session)	Therapist-report (White et al., 2013) NR (Gordon et al., 2015; Lordo et al., 2017; McNally Keehn et al., 2013)	At least partial completion of between-session assignments (White et al., 2013); Completion not defined (Gordon et al., 2015; Lordo et al., 2017; McNally Keehn et al., 2013) Frequency count; Percentage/number of sessions for which homework was completed
	Rate of participation for between-session skills practice	Pahnke et al. (2014)	During treatment	NR	Number of training occasions at school, between sessions Frequency count
	Single-item rating homework completion used in three related studies	Burnham Riosa et al. (2019); Thomson et al. (2015); Weiss et al. (2018)	During treatment (following each session)	Therapist-report	"Did the client complete the home mission that was assigned?" 3-point scale (1 = None; 2 = Partially; 3 = Fully) Single-item rating; Higher scores = greater adherence
	Single-item rating in-session involvement used in four studies (three related)	Burnham Riosa et al. (2019), Thomson et al. (2015), Weiss et al. (2018), White et al. (2013)	During treatment (following each session)	Therapist-report	Three related studies "How involved was the client during the session?" 5-point Likert-type scale (1 = Completely uninvolved; 5 = Actively involved) Single-item rating; Higher scores = greater involvement White et al. (2013) Item description NR 4-point Likert-type scale (1 = Uninvolved; 4 = Actively involved) Single-item rating; Higher scores = greater involvement

Table 3 (continued)

Process factor	Measure	Included studies that used measure	Measurement timing	Mode of administration	Scale description
Youth treatment expectations	Treatment Credibility Scale (Borkovec & Nau, 1972)	Backman et al. (2018)	Pre- and post-treatment	Youth-report	5 items assessing expectations of improvement and treatment credibility 11-point visual analogue scale (0 = Low credibility/Not at all; 10 = High credibility/Very much) Overall mean; Higher scores = greater credibility
Youth treatment readiness	Three items used in one study	Albaum et al. (2020)	Pre-treatment	Youth-report	3 items assessing interest, readiness, and willingness to participate in treatment 9-point Likert Scale (0 = Not at all; 8 = Very, very much) Overall mean; Higher scores = greater readiness

NR Not reported, *OCD* Obsessive compulsive disorder, *TASC-R* Therapeutic Alliance Scale for Children, Revised, *TPOCS-A* Therapy Process Observational Coding Scheme, Alliance scale

Family Accommodation

Family accommodation is described as the tendency for family members to engage in behaviours that aim to prevent the child from experiencing anxiety or aid the child in avoiding anxiety-provoking stimuli (Lebowitz et al., 2012), such as providing unnecessary reassurance or adapting routines to intentionally avoid situations that cause anxiety (Lebowitz et al., 2014). Three studies measured family accommodation of youth anxiety or obsessive–compulsive symptoms (Jassi et al., 2021; Jones & Jassi, 2020; Storch et al., 2015) using two different parent-report measures (details provided in Table 3). All three studies assessed family accommodation pre- and post-treatment, and two studies also assessed family accommodation at multiple timepoints during, and three-months following the end of treatment (Jassi et al., 2021; Jones & Jassi, 2020). All three studies cite evidence for the valid use of the selected measures based on previous research involving youth without autism; however, psychometric properties (e.g., metric of internal consistency) based on the study sample were not reported in any of the studies.

Only one of these studies considered family accommodation in relation to treatment outcome. Storch et al. (2015) assessed parent accommodation of youth anxiety symptoms prior to and following participation in CBT. In comparison to those considered non-responders, families of youth who responded to treatment had a lower frequency of symptom accommodation at the end of treatment, and accommodation had less of an impact on *parents*' activities and work schedules, family routine, and family distress. There was no significant difference between responders and non-responders in terms of the impact of accommodation on youth treatment outcomes. Family accommodation was the only process factor measured in this study, and thus could not be examined in relation to other process factors. Jassi et al. (2021) reported clinically elevated levels of family accommodation at baseline, which significantly improved by the end of treatment, with changes maintained at 3-month follow-up. However, the authors did not examine the relation between reduction in family accommodation and reduction in OCD symptoms found at post-treatment. Similarly, in their case study of an autistic adolescent receiving modified CBT for treatment-resistant OCD, Jones and Jassi (2020) noted improvements in family accommodation and OCD symptoms, but did not assess the association between the two variables.

Parent-Therapist Alliance

Four studies examined therapeutic alliance between parents and therapists; three of these studies assessed parent-therapist alliance at multiple points during treatment (Burnham Riosa et al., 2019; Klebanoff et al., 2019; Thomson et al., 2015), and one measured alliance post-treatment (Kerns

et al., 2018). Two studies used the parent-report Therapeutic Alliance Scale for Children, Revised (TASC-R; Shirk & Saiz, 1992) as a measure of alliance, with one reporting adequate internal consistency among scale items (Kerns et al., 2018). Two other studies (derived from the same larger clinical trial; Weiss et al., 2018) relied on therapist-report using a single-item (Burnham Riosa et al., 2019; Thomson et al., 2015). Burnham Riosa et al. (2019) also used the Therapy Process Observational Coding Scheme, Alliance scale (TPOCS-A; McLeod & Weisz, 2005) for independent-observer ratings of parent-therapist alliance, which strongly converged with the single-item therapist ratings. The authors reported good to excellent inter-rater reliability across items, and acceptable to good internal consistencies for TPOCS-A subscales.

Two studies examined therapeutic alliance between parents and therapists, in association with child treatment outcomes. Klebanoff et al. (2019) found parent-therapist alliance, as reported by parents, predicted greater reduction in child anxiety severity post-treatment, with a stronger alliance-outcome correlation for older children (i.e., 10 years or older) compared to younger children (i.e., under 10 years). In contrast, Kerns et al. (2018) did not find a significant relation between parent-therapist alliance and improvements in child anxiety following treatment, nor did they find a difference in parent-therapist alliance between treatment responders and non-responders. In terms of the relation among process factors, Klebanoff et al. (2019) found a moderate correlation between parent-therapist alliance and therapist-reported alliance with youth, whereas Kerns et al. (2018) did not find a significant association. Other studies aimed to examine the psychometric properties of therapeutic alliance measures (Burnham Riosa et al., 2019) or included parent-therapist alliance as an indicator of treatment feasibility (Thomson et al., 2015), and did not report on process-outcome or process-process correlations.

Treatment Satisfaction

Treatment satisfaction has not been consistently operationalized, but generally refers to the perceived helpfulness, enjoyment, and/or acceptability of treatment. Treatment satisfaction was the most commonly reported process factor in included studies. Four studies had participants provide ratings of treatment satisfaction following each session, and five studies included a single satisfaction rating provided at the end of treatment. Treatment satisfaction was rated by youth, parents, and/or therapists, with four studies involving a single informant (Backman et al., 2018; Gordon et al., 2015; Pahnke et al., 2014; Swain et al., 2019), and six studies involving multiple informants (Hillier et al., 2012; Jassi et al., 2021; Thomson et al., 2015; Walsh et al., 2018; Weiss et al., 2018; White et al., 2013). Measures were typically developed to assess satisfaction for the specific

intervention program being delivered, and thus tended to vary across studies. None of the studies reported on psychometric properties of treatment satisfaction measures.

The majority of studies that reported on treatment satisfaction did not describe process-outcome or process-process associations, but reported on satisfaction as an indication of treatment feasibility. In general, participants reported being satisfied with the treatment they received. Only two studies measured the relation between treatment satisfaction and mental health outcomes. Walsh et al. (2018) examined the association between youth and parent ratings of treatment acceptability, and improvements in anxiety following participation in CBT. The authors found that for sessions focused on exposure to anxiety-provoking stimuli, acceptability ratings from both parent and youth respondents negatively predicted anxiety severity following treatment. For sessions that focused on psychoeducation, neither parent nor youth ratings of acceptability predicted treatment outcome. Across all sessions, parents indicated greater satisfaction with treatment compared to youth. Swain et al. (2019) also assessed satisfaction in treatment targeting emotional problems and emotion regulation, and found that treatment satisfaction did not differ between treatment responders and non-responders.

Youth-Therapist Alliance

Eight studies measured therapeutic alliance between therapists and youth; six of which measured alliance at multiple time points during treatment, one which measured at one point during treatment (Brown et al., 2015), and one which measured post-treatment (Kerns et al., 2018). Four studies used independent-observer ratings based on the TPOCS-A (McLeod & Weisz, 2005), which collectively reported good to excellent inter-rater reliability across items (Albaum et al., 2020; Brown et al., 2015; Burnham Riosa et al., 2019; Kang et al., 2021), good to excellent internal consistencies across subscales (Albaum et al., 2020; Burnham Riosa et al., 2019), temporal stability of ratings (Kang et al., 2021), and strong convergence with single-item therapist ratings of alliance (Burnham Riosa et al., 2019), although no convergence with youth-rated alliance (Kang et al., 2021). Brewe et al. (2021) also relied on independent-observer reports of youth-therapist alliance based on the Vanderbilt Therapeutic Alliance Scales Revised (Shelef & Diamond, 2008), which was found to have good internal consistency and excellent interrater reliability. Three studies used therapist and/or youth reports of alliance based on the TASC-R (Shirk & Saiz, 1992), and reported good to excellent internal consistencies (Kang et al., 2021; Kerns et al., 2018; Klebanoff et al., 2019), temporal stability (Kang et al., 2021), and moderate convergence between therapist and youth ratings of alliance (Kerns

et al., 2018; Klebanoff et al., 2019). The two studies derived from the same larger clinical trial also used a single-item to assess therapist ratings of youth-therapist alliance as part of a psychometric evaluation of therapeutic alliance measures (Burnham Riosa et al., 2019), or as an indicator of treatment feasibility (Thomson et al., 2015).

Five studies focused on the relation between youth-therapist alliance and treatment outcome (Albaum et al., 2020; Brewe et al., 2021; Kang et al., 2021; Kerns et al., 2018; Klebanoff et al., 2019). Across studies, there was some association between youth-therapist alliance and improvement in mental health outcomes for autistic youth following psychosocial intervention. Two studies employed measures that relied on therapist and youth reports of therapeutic alliance (Kerns et al., 2018; Klebanoff et al., 2019), which found that higher therapist ratings of youth-therapist alliance were related to greater reduction in parent- and clinician-rated youth anxiety and global symptom severity. Comparatively, results from both studies indicated that youth-reported alliance was not significantly related to treatment outcome. Kerns et al. (2018) also found that therapist-reported alliance was stronger for treatment responders compared to non-responders (categorized based on clinician-ratings of symptom improvement), but there was no significant difference between groups in terms of youth-reported alliance. These findings were consistent with results from Kang et al. (2021), who reported a non-significant association between youth-reported alliance and changes in youth self-reported social anxiety. Three studies (Albaum et al., 2020; Brewe et al., 2021; Kang et al., 2021) used measures of therapeutic alliance that relied on independent-observer ratings and found some associations with improvements in emotion regulation. Brewe et al. (2021) indicated that stronger observer-reported alliance was associated with reduced feelings of dysphoria, but not with changes in emotional reactivity, while Albaum et al. (2020) found that observer ratings of therapeutic alliance taken late in treatment, but not early, were related to improvements in parent-reported emotional lability and negativity post-treatment. However, observer-reported alliance did not predict youth-reported treatment outcomes (Albaum et al., 2020; Kang et al., 2021). Two studies further examined specific components of therapeutic alliance relative to treatment outcomes with mixed results; findings from Albaum et al. (2020) indicated task-collaboration, but not therapeutic bond, was a significant predictor of treatment outcome, while Klebanoff et al. (2019) found that bond predicted treatment outcome, but agreement on therapeutic tasks did not. Notably, the two studies differed in terms of reporting source (i.e., therapist-report vs. independent-observer) and the mental health outcome assessed (i.e., anxiety and global symptom severity vs. emotion dysregulation). Two other studies reported on associations between youth-therapist alliance and other process factors. Observer-reported alliance was not related to pre-treatment youth ratings of treatment readiness (Albaum et al., 2020). Burnham Riosa et al. (2019) found moderate to strong correlations between observer ratings of alliance and therapist-rated treatment adherence (i.e., homework completion) and youth involvement in therapy sessions.

Youth Treatment Engagement

Eight studies assessed different aspects of treatment engagement, none of which examined associations between engagement and outcome. All eight studies described indicators of treatment adherence, including rates of homework completion or between-session skills practice, and collected information regarding adherence following each therapy session. Adherence was most often rated using therapist-report on a single-item with "yes/no" or similar categorical response format (e.g., "Did the client complete the assigned homework?"). Four studies also included therapist-reported youth in-session involvement; three of which were derived from the same sample (Burnham Riosa et al., 2019; Thomson et al., 2015; Weiss et al., 2018). As with treatment adherence, in-session involvement was measured using a single-item (e.g., "How involved was the client during the session?") completed by therapists at the end of each session. None of the included studies reported analytic results of treatment engagement beyond basic descriptive statistics (i.e., frequency; mean and SD).

Youth Treatment Expectations

Treatment expectation was assessed in one study (Backman et al., 2018), which measured adolescents' perceptions of treatment credibility regarding the autism-specific psychoeducation program being provided. The authors did not examine the relation between treatment credibility and mental health outcome but found a large- sized improvement in treatment credibility from pre- to post-intervention ($\eta^2 = 0.30$). Psychometric information about the measure used to assess treatment credibility was not provided.

Youth Treatment Readiness

One study included a measure of youth treatment readiness (Albaum et al., 2020), which was assessed pre-treatment using three items that asked children to rate their interest, readiness, and willingness to participate in therapy. The authors examined the association between treatment readiness and youth-therapist alliance both early (i.e., first half) and late (i.e., second half) in treatment, and found no significant relation. Psychometric information of validity and reliability were not provided, and the authors did not evaluate treatment readiness in relation to outcome.

Process Factors Described in Qualitative Studies

Four of the included studies conducted qualitative analyses to evaluate participants' experiences with mental health interventions (Chlebowski et al., 2018; Drmic et al., 2017; Edgington et al., 2016; London et al., 2020), which resulted in several emerging themes of process-related factors. Three studies identified themes related to parent involvement in mental health treatment for autistic youth. For example, strong, consistent support from stakeholders (including parents), such as parent enthusiasm for their child's treatment, was described as an important factor for facilitating and implementing CBT for anxiety in autistic adolescents (Drmic et al., 2020). Themes related to challenges with parent involvement also emerged, such as difficulties with obtaining information from adolescents when parents are not directly involved in treatment (Edgington et al., 2016), and different perceptions between therapists and parents in terms of the expected role parents play in mental health treatment for children (e.g., expecting child to take part in sessions independently, without parent involvement; Chlebowski et al., 2018). Youth motivation was a relevant theme in considering the feasibility of implementing an intervention program, and participants' acceptability and skill application. Identifying motivated adolescents to participate in treatment was important for establishing positive rapport and facilitating enjoyable sessions (Drmic et al., 2020), and self-motivation was relevant for unprompted use of coping strategies (Edgington et al., 2016). Relatedly, a lack of readiness from adolescents to participate in groups was described as a barrier for coaches to facilitate sessions smoothly (Drmic et al., 2020). Other process factors that were mentioned in qualitative themes included group cohesion (e.g., importance of group dynamics; Edgington et al., 2016), therapist direct influence skills (e.g., ability to carry out program delivery; Drmic et al., 2020), the relationship between parents and therapists (Chlebowski et al., 2018), and youth engagement in relation to treatment progress (London et al., 2020).

Discussion

Therapeutic process factors are known predictors of treatment outcome and may serve as mechanisms for fostering change in psychosocial interventions. Research evaluating process factors has largely involved youth without autism, restricting the generalizability of findings to interventions that target mental health concerns for autistic children and adolescents. The current literature search yielded 25 studies that involved autistic youth (i.e., under 18 years of age) who took part in psychosocial interventions to address the emotional and psychological aspects of mental health issues, such as anxiety, depression, or related challenges (e.g., emotion dysregulation, stress-related behaviour). Across studies, various factors were described or assessed that can be classified into three overarching domains: relational factors (e.g., therapeutic alliance); expectations, readiness, and satisfaction; and treatment engagement (e.g., involvement; adherence).

Relational Factors

Relational factors comprise constructs that describe different aspects of the relationships between therapists, clients, and caregivers, both within and outside therapy sessions. Consistent with the non-autism literature (Fjermestad et al., 2009; Karver et al., 2006), relational factors appear to be the most well-understood aspect of the therapeutic process in mental health treatment for autistic youth. Several studies examined therapeutic alliance between therapists and autistic youth. Therapeutic alliance refers to the working relationship between therapist and client, based on bond, collaboration on therapeutic tasks, and agreed upon treatment goals (Bordin, 1979). Preliminary psychometric evidence suggests that youth-therapist alliance can be validly assessed through different informants (e.g., youth, therapist, independent-observer) at multiple points during treatment, making it possible to conduct longitudinal analyses using multiple perspectives. Within the general child literature, variation in alliance-outcome associations has been attributed in part to reporting source (e.g., youth vs. therapist; Karver et al., 2018). Researchers should, therefore, consider incorporating measures that rely on multiple perspectives when evaluating alliance with autistic clients to help determine the predictive validity of ratings provided by different informants. Findings across studies indicate that it is not only possible for clinicians to form a strong working relationship, but that therapeutic alliance may be an important contributor to improvements in anxiety (Kerns et al., 2018; Klebanoff et al., 2019) and emotion regulation (Albaum et al., 2020; Brewe et al., 2021) for autistic children and adolescents. Therapeutic alliance with autistic youth was also found to be positively associated with youth involvement during therapy sessions, and treatment adherence outside of sessions (Burnham Riosa et al., 2019), though further research is needed to understand the transactional pattern that occurs between these factors over the course of therapy. Given the inherent social-communication challenges associated with autism that can make it difficult for youth to form meaningful relationships, it is critical to consider therapist factors that may contribute to establishing and maintaining alliance with these clients. For example, clinicians' lack of knowledge and experience, poor competence, and low confidence about working with autistic adults have been identified as barriers to treatment for these clients (Maddox et al., 2020). A recent study also found that therapists are less likely to treat autistic youth compared to

youth with ADHD, which was partly explained by differences in therapist attitudes about working with each population, their knowledge about mental health for autistic clients, and the normative pressures they felt about treating autistic youth (Roudbarani et al., in press). In light of the association between therapist attitudes and intention to treat, and the proposed theoretical connection between therapist attitudes and process factors (Karver et al., 2005), it is important to evaluate how these attitudes may influence relational aspects of the therapeutic process that are relevant for treatment outcome. For instance, researchers may aim to answer questions such as: *Do more favourable therapist attitudes predict stronger therapeutic alliance? Does the formation of therapeutic alliance strengthen therapist attitudes about working with autistic clients? Are more favourable therapist attitudes related to greater improvement in treatment outcome, and is this association mediated by the quality of therapeutic alliance?* Addressing these research questions may involve assessing therapist attitudes prior to beginning therapy, and then repeatedly measuring attitudes and therapeutic alliance over the course of treatment to determine whether there is a shift in therapist attitudes, and if there is bidirectional link between attitudes and alliance. In addition, therapists may find it beneficial to have youth and parents complete brief measures of therapeutic alliance (e.g., TASC-R) to monitor their perspectives on the relationship, and then actively work to strengthen the relationship with autistic clients by addressing areas of concern that have been indicated.

Review findings suggest that family accommodation may also be a relevant relational factor to consider when addressing mental health concerns with this population. Family accommodation refers to parent and other family members' behaviour that abets the child in avoiding anxiety-inducing experiences (Lebowitz et al., 2012, 2014). Previous reviews of the general child literature (e.g., Karver et al., 2006) have not considered family accommodation as part of the therapy process, though it may be a pertinent factor to consider when parents and family members are involved in a child's treatment. For youth without autism, family accommodation is positively related to child anxiety levels, and reductions in family accommodation have been linked to greater symptom improvement (Lebowitz et al., 2014; Merlo et al., 2009). Three studies identified through the review indicated progressive reduction in parent-reported family accommodation over the course of therapy (Jassi et al., 2021; Jones & Jassi, 2020; Storch et al., 2015), with one study finding a negative association between family accommodation and treatment response (i.e., treatment responders reported lower levels of accommodation compared to non-responders; Storch et al., 2015). Shifts in family accommodation may be particularly relevant to the therapeutic process when parents are involved in their child's treatment, as is often the case for autistic youth (Reaven, 2011). However, based on literature currently available, it is still unclear whether *changes* in family accommodation are related to changes in mental health outcomes, and if family accommodation is associated with other aspects of the therapeutic process, such as parent-therapist alliance or parent beliefs about treatment.

Expectations, Readiness and Satisfaction

Client expectations regarding the efficacy, relevance, and importance of treatment, as well as their readiness or motivation to participate, are thought to be key factors related to treatment attendance and adherence (Karver et al., 2005; King et al., 2014). Although treatment expectations have been considered pre-treatment characteristics (Karver et al., 2005), evidence from the current review suggests that beliefs about treatment may not necessarily be fixed, as Backman et al. (2018) found that participants' perceptions of treatment credibility shifted over the course of therapy. Within the context of interventions for children and adolescents without autism, both youth *and* parent expectations and readiness may have a dynamic association with treatment participation, in turn influencing therapeutic outcome (Karver et al., 2006). Minimal research has explored these processes for autistic youth, either in terms of construct validity or treatment outcome. None of the studies identified in the review assessed parent expectations and willingness to participate in their child's treatment. Qualitative analyses indicate that youth motivation may be relevant to therapist capacity to establish rapport and facilitate sessions, and treatment adherence on the part of the youth outside of therapy sessions. Parent expectations regarding their role in their child's treatment was also described as pertinent to the provision of mental health treatment for autistic adolescents (Chlebowski et al., 2018). As noted above, Backman et al. (2018) quantitatively assessed youth perceptions of treatment credibility during the receipt of psychoeducation about autism, and found that perceived credibility improved over the course of the intervention. However, the authors did not examine whether credibility was associated with changes in youth anxiety or depression. Similarly, a second study assessed children's readiness and willingness to take part in treatment prior to participating in CBT and found a non-significant relation between treatment readiness and child-therapist alliance (Albaum et al., 2020). The authors reported a considerable range in the degree of child readiness across participants, suggesting that autistic youth who take part in mental health intervention likely vary in their willingness and commitment to participate; however, they did not assess the association between treatment readiness and changes in mental health outcomes following treatment completion. Thus, there is a lack of empirical evidence available on the expectations autistic youth and their parents have regarding therapy, and how motivation or readiness for treatment is

related to the therapy process and positive outcomes. It may be worthwhile for researchers to evaluate client beliefs about therapy prior to starting treatment, and track expectations and motivation during treatment. Findings from research of this nature could help to determine whether there are common patterns in the ways autistic clients' beliefs about therapy change over the course of treatment, and if certain trajectories are associated with better outcomes. Establishing an evidence base on the connection between clients' beliefs and treatment outcome could help inform adaptations to therapeutic techniques, such as motivational interviewing (Feinberg et al., 2021; Rogers et al., 2019), which can be used by clinicians to promote expectations, motivation, and treatment readiness for autistic youth and their parents.

Related to client expectations is the extent to which these expectations are met, and whether they are satisfied in their therapeutic experience, based on perceived helpfulness, relevance, and enjoyment. It has been hypothesized that treatment satisfaction may contribute to active involvement and better compliance, though the mechanistic pathway between these process-related variables is poorly understood (Karver et al., 2005). Within the autism literature, it appears that treatment satisfaction is often reported as an indicator of overall feasibility or acceptability of the intervention. Satisfaction was often analyzed descriptively, with various studies reporting high ratings of satisfaction from both parents and youth. Only two studies reported on relations between treatment satisfaction and symptom improvement (Swain et al., 2019; Walsh et al., 2018), with mixed results. Researchers who are evaluating interventions and choose to include measures of treatment satisfaction should consider exploring shifts in satisfaction that may occur throughout treatment, and possible interactions with other key therapeutic processes (e.g., compliance, adherence) that may contribute to variation in treatment effectiveness.

Treatment Engagement

Engagement in treatment is considered critical for successful outcomes (Becker et al., 2018). Within the general youth literature, the term "engagement" tends to be used interchangeably with "involvement" or "participation", and refers to the active, effortful, and collaborative role that youth and parents have during and between therapy sessions (Karver et al., 2005). Research has yet to explore treatment engagement in relation to outcome within the context of mental health intervention for autistic youth. Several studies identified through the review provided quantitative descriptions of treatment adherence, generally operationalized as homework completion outside of sessions (e.g., Gordon et al., 2015; Pahnke et al., 2014); however, homework completion or between-session practice was typically dichotomized as "complete" or "incomplete", failing to consider other factors, such as ease or difficulty of assigned practice, that may be relevant to the overarching construct of engagement. Youth involvement within therapy sessions was also described in several studies (e.g., Weiss et al., 2018; White et al., 2013), but relied solely on global therapist ratings on a single-item. Developing valid and reliable measures that consider nuanced behavioural indications of in-session participation can lead to greater understanding of how engagement contributes to treatment success, and can equip clinicians with the knowledge and skills needed to promote participation during sessions with autistic clients.

Parent involvement was an overarching theme in multiple studies that employed qualitative methods (Chlebowski et al., 2018; Drmic et al., 2017; Edgington et al., 2016). Direct parent involvement may be particularly important for parents to learn how to best assist their child in practicing the skills being taught (Drmic et al., 2017; Edgington et al., 2016). For younger children, parents may be expected to take on various roles in their children's therapy, such as co-therapists. Incongruence between therapist and parent expectations about the extent of parent involvement can potentially hinder the quality of parent participation both within and outside of sessions (Chlebowski et al., 2018). Prior to beginning therapy, establishing clear, agreed upon expectations between therapists and parents about participation may augment engagement in their child's treatment. Some studies have empirically examined therapeutic alliance between therapists and caregivers of autistic youth who participate in their children's therapy. There is emerging support for the valid measurement of parent-therapist alliance; however, findings are inconsistent in terms of process-outcome associations. Klebanoff et al. (2019) found parent-therapist alliance was associated with greater reduction in anxiety post-treatment, whereas Kerns et al. (2018) did not find a significant process-outcome association. Given that parent involvement is a recommended modification to psychosocial intervention for autistic youth (Reaven, 2011; Walters et al., 2016), it is important to establish stronger empirical knowledge about how parents contribute to their child's treatment success.

Limitations

Review findings should be interpreted within the context of the study's limitations. The current review only offers a narrative synthesis of process factors; meta-analysis of effect sizes was not calculated, thus preventing comparison of potential process-outcome associations. This review only included studies published in English, and additional empirical evidence regarding process factors may be available in other languages. In regard to client characteristics, several studies included samples for which a portion of participants were over the age of 18 years (Backman et al., 2018; Brewe

et al., 2021; Hillier et al., 2012; London et al., 2020; Pahnke et al., 2014), but did not conduct analyses to evaluate potential effects of age (e.g., separating < 18 vs. 18 +; including age as covariate). Samples were also limited in terms of ethnic diversity, with most studies reporting that the majority of the sample comprised participants who identified as White/Caucasian. Finally, results are based on samples that almost exclusively involve autistic youth without co-occurring intellectual disabilities and may not be equally relevant for mental health treatment for youth with limited cognitive abilities and adaptive skills.

Conclusions

There is a limited, albeit growing, body of high-quality research evaluating the role of process factors in the treatment of mental health issues for young autistic people. Researchers have begun to examine constructs related to therapeutic relationships, treatment expectations and satisfaction, and youth engagement throughout treatment, though there is still little understanding of how exactly these factors contribute to therapeutic outcomes. Future studies should continue to focus on better understood process factors, such as therapeutic alliance, and address gaps around less well-known factors, such as in-session participation and parent involvement. Specifically, researchers should examine process-outcome associations, providing metrics of effect size that can eventually be included in meta-analyses once a sufficient pool of results exists. Considering associations amongst process factors over the course of therapy, such as the youth-therapist and parent-therapist alliance, or youth and parent engagement, may also be a fruitful research direction to pursue. Further, validation of measurement tools that accurately capture process-related constructs within the context of treatment for autistic youth is necessary. It will be important for researchers to explore process factors with samples of autistic youth who represent the full spectrum of functioning in regard to social-communicative skills, and intellectual and adaptive functioning. Immediate and direct implications for clinical practice include establishing a strong therapeutic alliance with autistic youth and their parents, clarifying expectations about parent involvement in their child's therapy, and encouraging active involvement from both youth and parents during and between therapy sessions. Greater understanding of therapy processes can provide a knowledge base that allows for evidence-informed strategies to be implemented by clinicians to promote positive expectations, relationships, and engagement. By addressing process-related barriers, therapists may be able to improve the effectiveness of mental health treatment for autistic youth.

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Declarations

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Supplemental Table 1. Search strategy

Database	Search strategy
MEDLINE	1. Autistic Disorder/ 2. Autism Spectrum Disorder/ 3. Asperger Syndrome/ 4. 1 or 2 or 3 5. Child/ 6. Adolescent/ 7. Pediatrics/ 8. 5 or 6 or 7 9. Therapeutic Alliance/ 10. Empathy/ 11. goals/ 12. collaboration.mp. 13. resistance.mp. 14. therap* relationship.mp. 15. positive regard.mp. 16. congruence.mp. 17. therap* rupture.mp. 18. impasses.mp. 19. therapy repair.mp. 20. Self Disclosure/ 21. Countertransference/ 22. relational interpretation.mp. 23. Motivation/ 24. Patient Preference/ 25. Assimilation.mp. 26. attachment.mp. 27. engagement.mp. 28. treatment induction.mp. 29. openness.mp. 30. bond.mp. 31. comfort.mp. 32. Cooperative Behavior/ 33. treatment difficulty.mp. 34. treatment involvement.mp. 35. willingness.mp. 36. Patient Participation/ 37. treatment transaction.mp. 38. warmth.mp. 39. Trust/ 40. therap* process.mp. 41. 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 42. 4 and 8 and 41

PsycINFO	(child* OR mainsubject(Pediatrics) OR noft(youth) OR noft(adolescen*) OR noft(kid)) AND mainsubject(Autism Spectrum Disorders) AND ((mainsubject(Therapeutic Alliance) OR mainsubject(Empathy) OR mainsubject(Goals) OR mainsubject(Collaboration) OR mainsubject(Resistance) OR mainsubject(Psychotherapeutic Resistance) OR mainsubject(Self-Disclosure) OR mainsubject(Countertransference) OR mainsubject(Expectations) OR mainsubject(Preferences)) OR (mainsubject(Assimilation (Cognitive Process)) OR mainsubject(Attachment Behavior) OR mainsubject(Openness to Experience) OR mainsubject(Bonding (Emotional)) OR mainsubject(Cooperation) OR mainsubject(Involvement) OR mainsubject(Participation) OR mainsubject(Trust) OR mainsubject(Therapeutic Processes) OR mainsubject(Treatment Process AND Outcome Measures)) OR (noft(therap* relationship) OR noft(positive regard) OR noft(congruence) OR noft(rupture) OR noft(impasses) OR noft(repair) OR noft(relational interpretation) OR noft(treatment induction) OR noft(comfort) OR noft(treatment difficulty)) OR (noft(willingness) OR noft(treatment transaction) OR noft(warmth)))
PubMed	(((autism spectrum disorder[MeSH Terms]) OR (autistic disorder[MeSH Terms]) OR (asperger syndrome[MeSH Terms])) AND (("child"[MeSH Terms]) OR (pediatrics[MeSH Terms]) OR (adolescent[MeSH Terms]))) AND ((("therapeutic alliance"[MeSH Terms]) OR (empathy[MeSH Terms]) OR (goals[MeSH Terms]) OR ("self disclosure"[MeSH Terms]) OR (countertransference[MeSH Terms]) OR (motivation[MeSH Terms]) OR ("patient preference"[MeSH Terms]) OR ("object attachment"[MeSH Terms]) OR ("patient comfort"[MeSH Terms]) OR ("patient compliance"[MeSH Terms]) OR ("patient participation"[MeSH Terms]) OR (trust[MeSH Terms]) OR ("psychotherapeutic processes"[MeSH Terms]) OR (process assessment health care[MeSH Terms]) OR (collaboration[Title/Abstract]) OR (resistance[Title/Abstract]) OR ("therapy relationship"[Title/Abstract]) OR ("positive regard"[Title/Abstract]) OR (congruence[Title/Abstract]) OR ("rupture"[Title/Abstract]) OR (impasses[Title/Abstract]) OR ("repair"[Title/Abstract]) OR ("relational interpretation"[Title/Abstract]) OR (assimilation[Title/Abstract]) OR (engagement[Title/Abstract]) OR ("treatment induction"[Title/Abstract]) OR (openness[Title/Abstract]) OR (bond[Title/Abstract]) OR ("treatment difficulty"[Title/Abstract]) OR ("treatment involvement"[Title/Abstract]) OR (willingness[Title/Abstract]) OR (warmth[Title/Abstract])))

Chapter 3: Treatment Engagement as a Predictor of Therapy Outcomes Following Cognitive Behaviour Therapy for Autistic Children

A growing body of evidence suggests that cognitive behaviour therapy (CBT) may help to reduce mental health challenges for some autistic children (Ameis et al., 2018; Weston et al., 2016). Elevated rates of co-occurring mental health issues in autistic young people are well-documented (Lai et al., 2019; Salazar et al., 2015), and may be related to overarching limits in emotion regulation abilities (Mazefsky & White, 2014); the capacity to monitor, evaluate, and modify emotional responses for the purpose of goal achievement (Thompson, 1994). For example, autistic children demonstrate more intense negative affect during frustrating situations and are more likely to employ maladaptive emotion regulation strategies, such as avoidance and venting, relative to peers without autism (Jahromi et al., 2012). They may also be more emotionally labile due to sensitivity to environmental change, and have difficulty using flexible, adaptive emotion regulation strategies (e.g., altering thoughts to be balanced and realistic) because of core challenges with rigidity (Mazefky & White, 2014). CBT has largely focused on reducing anxiety in autistic youth (Weston et al., 2016), but emotion regulation can also be targeted using a transdiagnostic approach in CBT (Conner et al., 2019; Weiss et al., 2018). Although early findings are promising, it is important to recognize that a notable portion of autistic children who participate in CBT show little to no improvement in their symptoms (Warwick et al., 2017). Research that focuses on the nuances of the therapeutic process may help to identify addressable and modifiable factors that contribute to variation in treatment success.

Active engagement in one's treatment is a key contributor to successful outcomes (McKay & Bannon, 2004). Child engagement is defined as a therapeutic process involving: *behaviour*, such as participation during and outside of therapy session, and collaboration with the

therapist; *cognitions*, such as beliefs about the need for and efficacy of therapy; and *affect*, such as the emotional attitude about therapy (King et al., 2014). Poor treatment engagement in mental health services for youth, in general, is recognized as a "significant public health concern" (Becker et al., 2018). Research on child engagement in therapy is difficult to synthesize due to the inconsistency in how engagement has been operationalized and measured across studies. To help establish consistency in research, Becker et al. (2018) proposed an organizational conceptual framework called *REACH* that outlines key aspects of the broader construct of engagement: **R**elationship (e.g., therapeutic alliance), **E**xpectancy (e.g., beliefs, readiness, or motivation for treatment), **A**ttendance, **C**larity (e.g., understanding about treatment approach and roles), and **H**omework (i.e., in-session involvement and homework completion).

In the literature on youth therapy in general, certain aspects of treatment engagement have been researched more extensively than others. In regard to the *Relationship* component of engagement, there is increasing interest in the role of the therapeutic alliance in child-focused therapies. The most recent meta-analysis of alliance-outcome associations in child psychotherapy identified 28 studies, yielding a small to moderate-sized effect relative to treatment outcome (Karver et al., 2018). The association between alliance and outcome was shown to be moderated by several factors including study design (i.e., RCT vs. non-RCT), presenting problem (e.g., internalizing vs. externalizing), treatment type (e.g., behavioural, non-behavioural), and treatment setting (i.e., inpatient vs. outpatient). Regarding *Homework*, defined in the REACH acronym as participation both within and outside of sessions, a meta-analysis of 13 studies that assessed youth participation in therapy indicated a moderate effect, on average, in relation to treatment outcome (Karver et al., 2006). However, there was large variability in effect sizes across studies, which may be attributed in part to differences in the measures used to assess

participation (e.g., parent vs. therapist-report). In a more recent review, Fjermestad et al. (2009) found two studies that measured child involvement using an observational coding scheme (Chu & Kendall, 2004; 2009). Both studies showed small treatment effects for child involvement, with ratings of involvement taken later in therapy having a stronger association with treatment outcome compared to ratings taken at earlier sessions. In terms of the relation between homework completion (i.e., between-session participation) and treatment outcome in CBT for youth, research findings have been mixed. In some studies involving children and adolescents with anxiety, homework completion was not found to be related to treatment change (Arendt et al., 2016; Hughes & Kendall, 2007), whereas other studies found that homework completion predicted clinical improvement for adolescents who participated in therapy to address concerns of depression (Simons et al., 2012), and for children and adolescents with obsessive-compulsive disorder (Park et al., 2014). *Attendance,* one of the main indicators of engagement measured in research on child therapy, has been operationalized in numerous ways, such as the number of sessions attended and/or rates of attrition (Becker et al., 2018). Although attendance is necessary for treatment engagement, attributing engagement to mere presence at sessions fails to capture the *quality* of engagement during sessions, or the relation between engagement and early termination. Other aspects of engagement, including *Expectancy* and *Clarity*, have received almost no attention. The scant research examining child expectancy (i.e., beliefs in the success of, and willingness to participate in therapy) has suggested that although children provide consent to treatment, only a subset of participants indicate interest or motivation for participation (Adelman et al., 1984), and many demonstrate some reluctance or dissatisfaction with their involvement in therapy (Taylor et al., 1985). Interestingly, Karver et al.'s (2006) meta-analysis found only one study on the association between youth *willingness* to participate in treatment and

outcome (i.e., Adelman et al., 1984), which indicated a moderate effect size, with no new studies identified since then.

Across the studies described above, there is little to no mention of autistic children, making it unclear whether results generalize to mental health treatment for these youth. As with research in the general child population, the relationship aspect of engagement (i.e., therapeutic alliance) seems to be the most well-studied construct in research involving autistic youth. Findings from several studies suggest that a stronger therapeutic alliance predicts greater symptom improvement following therapy for autistic children and adolescents (Albaum et al., 2020; Brewe et al., 2021; Kerns et al., 2018; Klebanoff et al., 2019). Attendance has been examined in the autism literature as an indicator of treatment feasibility and study quality, focusing mainly on rates of attrition and intervention length (i.e., number of sessions), with little emphasis on the association between attendance and treatment outcome. To our knowledge, there are no studies that have explored other aspects of child engagement, including in-session involvement or homework completion, as well as expectations and clarity about treatment in relation to treatment outcome.

The aim of the present study was to assess multiple indicators of child engagement in relation to CBT treatment outcomes for autistic children using a longitudinal design. Specifically, this study focused on the link between indicators of engagement, including the child-therapist relationship, in-session involvement, and homework completion, and treatment outcome for autistic children who took part in a CBT program that focused on emotion regulation. Indicators of engagement were assessed at early, middle, and late stages of treatment to consider temporal patterns of association that may be overlooked with single time-point data or averaged scores. It was hypothesized that a stronger relationship between child and therapist,

greater in-session involvement, and homework completion would predict greater improvements in emotion regulation. Based on findings from the general child literature (e.g., Fjermestad et al., 2009), indicators of engagement measured later in the treatment process were expected to have a stronger association with treatment outcome compared to those measured earlier in treatment.

Method

Participants

Participants included 60 autistic children (86.7% male; M_{age} = 9.58 years, *SD* = 1.44 years, Range: 8 – 13 years) who were involved in one of two randomized waitlist-controlled trials (RCTs) evaluating CBT for emotion regulation. Children were eligible to take part in the trials if they had a documented diagnosis of autism or related disorder (e.g., Asperger syndrome) made by a licensed healthcare professional, were between 8 and 13 years of age, demonstrated at least average intellectual functioning, and exhibited at least some willingness to take part in therapy. Children were excluded if there were significant concerns regarding disruptive behaviour (e.g., physical aggression, destruction of property) or if the child had an intellectual disability. Based on the *Wechsler Abbreviated Scale of Intelligence, 2nd Edition* (WASI-II; Wechsler, 2011), IQ for the full sample ranged from 79 to 140 ($M_{Full\text{-}Scale\ IQ\text{-}2}$ = 106.63, *SD* = 14.46). Autism symptom severity, based on the *Social Responsiveness Scale, 2nd Edition* (SRS-2; Constantino, 2012), ranged from Normal to Severe ($M_{T\text{-}score}$ = 73.78, *SD* = 8.98, Range: 51 – 90). The majority of children were identified by their parents as White (75%), and family household income was over $100,000 CAD for 53.6% of the sample (Note: 17.9% preferred not to disclose household income).

Measures

Child Engagement. For the current study, child engagement was operationalized as: (a) the therapeutic relationship between child and therapist, (b) in-session involvement, and (c) homework completion.

Therapeutic Relationship. The therapeutic relationship (TR) between child and therapist was measured using a single item rated by therapists at the end of each session. Therapists were asked "How would you describe the therapeutic relationship with the child?" Ratings were provided on a 7-point Likert-type scale, ranging from 1 ('Very poor') to 7 ('Very good').

In-Session Involvement. In-session involvement (ISI) was measured using the *Child Involvement Rating Scale* (CIRS; Chu & Kendall, 1999), an observational coding scheme assessing child engagement during therapy sessions. The CIRS includes 10 items; six positive and four negative behaviours indicative of treatment involvement: (1) initiating discussion; (2) making suggestions for therapy tasks; (3) demonstrating enthusiasm; (4) self-disclosure; (5) asking the therapist questions; (6) elaborating on therapist's point or demonstrating understanding; (7) withdrawal or passivity; (8) inhibition or avoidance; (9) distracting away from activities; and (10) oppositionality towards therapist. Each item is rated on a 6-point scale ranging from 0 ('Not at all present') to 5 ('A great deal present'). Negative indicators are reverse-coded, and an overall involvement score is calculated by summing ratings for the ten items. Higher scores indicate more positive in-session involvement. The CIRS was found to have strong internal consistency and interrater reliability in studies involving children without autism who participated in CBT for anxiety (Chu & Kendall, 2004; 2009). This was the first known study to use the CIRS in a sample of autistic children. Internal consistency for the current sample was acceptable for early, mid, and late treatment ratings (Cronbach's $\alpha = .62 – .74$). Information regarding interrater reliability is provided in the Procedure section below.

Homework Completion. Homework completion (HC) was reported by the therapist at the end of each session. Therapists were asked to indicate whether participants fully completed (‘2’), partially completed, (‘1’) or did not complete the homework (‘0’) assigned at the previous session. Few participants were rated as having not completed the homework (early sessions, n = 7; mid sessions, n = 4; late sessions, n = 8). Thus, homework completion was subsequently dichotomized as either ‘incomplete’ (i.e., combined scores of 0 or 1) or ‘complete’ (i.e., 2) for the purpose of this study.

Treatment Response. The primary treatment outcome for the CBT trials was emotion regulation. Treatment response was assessed using the 24-item *Emotion Regulation Checklist* (ERC; Shields & Cicchetti, 1997). The ERC is a parent-reported measure that assesses effective and ineffective emotion regulation processes displayed by children, comprising two subscales: (1) Lability/Negativity (i.e., emotional reactivity and intensity; dysregulated emotional responses; unstable mood); and (2) Emotion Regulation (i.e., adaptive/effective strategies for managing emotions; stable affect). Responses are provided using a 4-point scale (1 = ‘Never’, 4 = ‘Almost always’), and mean subscale scores are calculated by averaging ratings across subscale items. The ERC was found to have good to excellent internal consistency when used with youth without autism (Shields & Cicchetti 1997; 1998), and acceptable to good internal consistency in previous research involving autistic youth (Albaum et al., 2020; Weiss et al., 2018).

Procedure

Secondary analysis of data collected from these trials received approval from the Research Ethics Board at York University. For the original RCT, data were collected from 2013 to 2017. Data collection for the second RCT began in 2018, and was discontinued in March 2020

as a result of the COVID-19 pandemic. Children who were enrolled in the second RCT but whose participation was impacted by the COVID-19 pandemic were excluded from the current study; only children who completed the intervention and post-treatment assessment prior to the pandemic are included. Study recruitment was done through online advertisements on local autism advocacy websites. Study information was also sent to community care providers (e.g., healthcare professionals, social workers) who were encouraged to share with the families they serve. Families who were interested in taking part in the treatment trial contacted the study coordinator to begin the screening process and determine eligibility. Parents provided written consent and children provided written or verbal assent. Parents also provided written consent to use video-recordings of therapy sessions for research purposes.

Once eligibility was confirmed, families were randomly allocated to either begin treatment the week following baseline assessment or wait 12 weeks after the baseline assessment before starting the program (i.e., waitlist condition). Children in the waitlist condition completed a second assessment following the waiting period, prior to beginning treatment (i.e., pre-treatment score). All children completed a post-treatment assessment within a week following completion of the program. For the purposes of the current study, children in either condition who completed the therapy intervention in its entirety and had post-treatment data available were combined to form one treatment group. Notably, approximately 14% of participants who began the intervention program opted to terminate treatment early, consistent with attrition rates reported in RCTs evaluating CBT (Fernandez et al., 2015). For the original RCT, there were no statistically significant differences between completers and non-completers in regard to demographic and clinical characteristics. Additional details regarding attrition for this trial are available in Weiss et al. (2018).

Intervention. Children participated in the *Secret Agent Society: Operation Regulation* (*SAS:OR*; Beaumont, 2013), a CBT program focused on emotion regulation. *SAS:OR* is a 10-session, individual therapy program that is provided on a weekly basis. Sessions are one hour in length, except for the first session, which is 90 minutes to allow extra time for introductions and rapport building. The child and their primary caregiver are both present for the full session time for all ten sessions. Each session involves homework review, psychoeducation, in-session skill practice, computer games, and planning for home practice. For both trials, *SAS:OR* was provided by post-doctoral fellows and graduate students in clinical and clinical-developmental psychology programs, and were supervised by registered clinical psychologists. Therapists demonstrated acceptable fidelity with the treatment manual (85% ± 11%, Range: 50 – 100%; Weiss et al., 2018).

Measurement Timing. Given the moderation effect that has been documented for measurement timing (i.e., measures taken later in the course of treatment being more strongly associated with outcome compared to measures taken earlier; Chu & Kendall, 2004; 2009), indicators of child engagement were assessed at the early (i.e., first third), middle (i.e., middle third) and late (i.e., final third) stages of therapy. Measures were not taken from the first or final session as the aims of these sessions (e.g., introducing the child and parent to therapy program, establishing rapport; terminating treatment, planning for the future) tend to differ from the structure and content covered during the intermediary sessions. One early (session 2 or 3), one middle (session 4, 5, or 6) and one late session (session 7, 8, or 9) were randomly selected for each participant. Data for each engagement indicator were based on the same session. For example, therapist ratings of the therapeutic relationship and homework completion, and

observational ratings of in-session involvement were all derived from session 2 if this was the session randomly selected as the early-stage session for a participant.

Coding Plan. Coders included clinical psychology graduate students (CA, TS, NV) who were familiar with the *SAS:OR* therapy program. Due to the extent of involvement in the larger RCT and the content of each session, coders were unable to be completely blind to participant identity and session number. Training began with in-depth review of the CIRS scoring manual (Chu & Kendall, 1999). Coders reviewed and coded practice sessions together to establish a catalogue of behavioural examples for CIRS item ratings. For reliability training, coders independently coded the same session videos until acceptable interrater agreement was achieved (ICC = .87). Once reliability was established, coding methods followed those employed by Chu and Kendall (2009). All three sessions for a given participant (i.e., early, mid, and late) were reviewed and rated by the same coder. Coders watched two 10-minute segments of each video recording, beginning at the 10-minute and then 40-minute marks of the video. For sessions less than 50 minutes in duration (early sessions, $n = 5$; mid sessions, $n = 5$; late sessions, $n = 7$), the second 10-minute segment began at the 30-minute mark of the video.

Interrater reliability was calculated using a random selection of approximately 30% of coded videos. ICC was computed based on the one-way random effects ICC (1, 1) model, which provides an estimate of reliability for each individual observer's rating, allowing for the generalization of results to other single observers (Shrout & Fleiss, 1979). To minimize rater drift, ICC was computed at regular intervals during the coding process, and coders met routinely to discuss ICC results and come to consensus on any rating discrepancies. Consensus ratings were used for videos selected for the reliability analysis. Across treatment stages, interrater reliability was consistently good (ICC = .82 – .88).

Data Analysis Plan

Demographic and clinical characteristics were examined in relation to indicators of engagement and treatment response using non-parametric bivariate correlations for continuous variables, and independent sample comparisons or Chi-square tests for analyses involving categorical variables. Multiple linear regressions were calculated to assess whether indicators of child engagement predicted treatment response, after controlling for baseline levels of emotion regulation. Statistical significance was evaluated at the alpha < .05 level. No adjustments were made to correct for multiple comparisons, as the current study had a small sample size. It was decided that the lack of previous research examining treatment engagement and consideration of significance and relevance of the findings outweighed the risk of increasing a false positive rate (Feise, 2002). Sensitivity analysis using G*Power 3.1 (Faul et al., 2009) indicated that moderate effects could be detected using multiple linear regression analyses including up to five predictors with a sample of 60 children.

Transparency and Openness

We have reported how we determined our sample size, all data exclusions, and all measures in the study, and we have followed the Journal Article Reporting Standards (JARS), as described by Appelbaum et al. (2018). This study's data have not been made publicly available as participants did not consent to affording anyone beyond the research team with access to the data. The Research Ethics Board at York University has indicated data cannot be made openly accessible without explicit consent from participants. Other research materials and analysis code are available upon request. Data were analyzed using IBM SPSS Statistics version 28.0.0.0 (190). This study's design and its analysis were not pre-registered.

Results

Preliminary Analyses

Descriptive statistics for engagement indicators at each phase of treatment are provided in Table 1, and item-level descriptive statistics for the CIRS are presented in Table 2. Raw engagement data were non-normally distributed in terms of either skewness or kurtosis; thus, non-parametric tests were computed to compare scores across treatment phases. Based on related-samples Friedman's two-way ANOVA by ranks, there were significant differences in therapeutic relationship, $F_r(2) = 6.93$, $p = .02$, and in-session involvement, $F_r(2) = 7.94$, $p = .03$, across therapy stages. Follow-up pairwise comparisons indicated mid-stage in-session involvement was greater than late-stage involvement ($p = .01$); there were no significant differences between early-stage and mid- ($p = .06$) or late-stage scores ($p = .44$). Therapeutic relationship at mid-stage was greater than at early-stage ($p = .04$); there were no significant differences between late-stage and early- ($p = .60$) or mid-stage ($p = .12$) therapeutic relationship. In terms of homework completion, Cochran's *Q* test determined there were no significant differences in the proportion of youth who completed homework across stages of therapy, $\chi^2(2) = 4.00$, $p = .14$. Given the observed differences for some engagement indicators across stages of therapy, subsequent analyses considered engagement scores for each treatment stage separately, instead of aggregating engagement scores across time points. Child demographic and clinical factors, including age, IQ, and autism-symptom severity, were not significantly associated with indicators of engagement (all ps > .05), except for child age and mid-stage in-session involvement, $r_s = .27$, $p = .04$.

Correlations

Spearman rho correlations between treatment stages for continuous indicators of engagement (i.e., therapeutic relationship and in-session involvement), and partial correlations

between indicators of engagement and treatment outcome, controlling for baseline scores, are presented in Table 3. Results of Mann-Whitney *U* tests indicated no significant difference between homework completers and non-completers regarding therapeutic relationship or in-session involvement at each stage of treatment (all *p*s > .05). Results of ANCOVA, controlling for baseline scores, indicated no significant differences in post-treatment ERC Lability/Negativity or Emotion Regulation between homework completers and non-completers at early, mid, or late stages of treatment (all *p*s > .05; results available in Supplemental Table 1).

Linear Regressions

Details of linear regression results are outlined in Table 4. Regression assumptions were assessed and met for all models. After controlling for baseline levels, mid-stage, ΔR^2 = .07, p = .04, and late-stage engagement, ΔR^2 = .08, p = .04, significantly predicted post-treatment ERC Lability/Negativity scores. Mid-stage ISI uniquely accounted for 5.76% of variance in post-treatment ERC Lability/Negativity. Late-stage ISI was trending as a unique predictor (p = .05) of post-treatment ERC Lability Negativity, accounting for 3.61% of variance. Overall, early child engagement did not significantly predict post-treatment ERC Lability/Negativity, ΔR^2 = .06, p = .06, but early-stage ISI was trending as a predictor (p = .05) of post-treatment ERC Lability/Negativity, accounting for 3.24% of unique variance.

After controlling for baseline levels, post-treatment ERC Emotion Regulation was not significantly predicted by early-stage, ΔR^2 = .05, p = .11, mid-stage, ΔR^2 = .04, p = .21, or late-stage overall engagement, ΔR^2 = .02, p = .51. Although ΔR^2 was not significant, 4.41% of variance in post-treatment ERC Emotion Regulation was uniquely accounted for by early-stage ISI (p = .02).

Discussion

Focusing on nuances of the therapeutic process can edify what is presently known about the usefulness of CBT for autistic children. Treatment engagement is considered an essential aspect of the therapy process (McKay & Bannon, 2004), but there is a lack of empirical research examining engagement in CBT for youth, and even less attention paid in research on CBT for autistic children. This study evaluated indicators of treatment engagement in relation to treatment outcome for autistic children who took part in a CBT program focused on emotion regulation. Indicators of treatment engagement were selected based on Becker et al.'s (2018) conceptual framework, *REACH*, concentrating on a) the therapeutic relationship between child and therapist, b) in-session involvement, and c) homework completion, as dimensions of engagement (for full details regarding the REACH framework, see Background). Engagement was measured at early (i.e., first third of treatment), mid (i.e., middle third), and late (i.e., final third) stages of therapy to consider the potential influence of measurement timing that has been documented in research involving children without autism (e.g., Chu & Kendall, 2004; 2009). It was expected that greater engagement would predict better post-treatment emotion regulation, after controlling for pre-treatment levels, and that indicators measured later in therapy would have stronger associations with outcome compared to indicators measured earlier in therapy.

In partial support of hypotheses, overall mid- and late-stage engagement were predictive of the change found in emotional lability and negativity (a major target of the intervention) by the end of treatment. This link was primarily driven by in-session involvement, which consistently had small-sized effects in relation to post-treatment improvements in lability and negativity across all three stages of therapy. In contrast, greater in-session involvement during the early stage of therapy predicted a small portion of variance in adaptive regulation improvements post-treatment, as measured by the Emotion Regulation subscale of the ERC,

while involvement in the mid and final third of therapy did not. The difference in the pattern of results between the ERC Lability/Negativity and Emotion Regulation subscales may be attributed in part to differences in change that occur in maladaptive compared to adaptive emotion regulation processes over the course of therapy, within the context of the intervention program being evaluated. Specifically, early sessions of the program focus on education regarding face, body, and voice clues that can signal how others and oneself might be feeling, whereas mid to late sessions focus on skill application, such as implementing relaxation strategies during distressing situations. Youth who are more involved during the early sessions may develop a greater knowledge and awareness of the emotional experiences of themselves and others, which in turn contributes to more adaptive and prosocial emotion regulation skills, such as greater empathy and concern when others are upset, and being able to verbalize when they are feeling unpleasant emotions like anger or anxiety. Although not directly comparable, Chu and Kendall (2004) found similar effect sizes when examining whether in-session involvement in CBT was associated with reductions in anxiety for youth without autism. The authors reported that in-session involvement during the second quarter of treatment accounted for 8% of variance in anxiety symptom change, relative to the approximate 6% observed for mid-session involvement in the present study. The involvement-outcome association is also comparable to meta-analytic findings from the general child literature that indicate a small-sized correlation between youth participation and treatment outcome (Karver et al., 2006), suggesting that in-session involvement may be as relevant for treatment change for autistic children as it is for those without autism.

Current findings suggest autistic youth demonstrate both positive and negative behaviours indicative of involvement during therapy sessions. Both the present study and Chu

and Kendall (2004) examined the positive characteristics of involvement that are pertinent to the therapeutic process for child-focused therapy (Braswell et al., 1985), including initiating discussions related to session activities and goals, demonstrating enthusiasm in therapy-related tasks, self-disclosing relevant information that does not attempt to distract from the focus of the session, and demonstrating understanding of the therapeutic skills. Research involving adult clients suggests that *negative* aspects of involvement, such as hostility or negative reactions towards the therapist, may also be related to treatment outcome (Gomes-Schwartz, 1978; O'Malley et al., 1983). Initial findings using the CIRS indicated that negative externalizing behaviours, such as oppositionality and diversion from session tasks, seldomly occurred in therapy for anxiety in youth without autism (Chu & Kendall, 2004). Due to the infrequent occurrence of these behaviours and concerns regarding the validity of negative items, subsequent studies have excluded these items from analyses when using the CIRS with samples of youth predominantly impacted by internalizing problems (e.g., Chu & Kendall, 2009; Hudson et al., 2014). However, given the common occurrence of oppositional and attentional challenges (Salazar et al., 2015), and emotion dysregulation (Mazefky & White, 2014) demonstrated by autistic youth, items examining these negative aspects of involvement were included for the current study. Indeed, autistic youth who participated in the current intervention varied in the extent to which they demonstrated oppositionality towards therapist, and engaged in off-task behaviour that diverted away from the focus of the session. Previous research suggests that in practice, therapist flexibility is key for adapting therapy for autistic people (Kerns et al., 2016; Spain & Happé, 2020), and may be an essential skill for promoting positive involvement and minimizing disruptive behaviour that can impede therapeutic progress. Therapists that work flexibly to adapt treatment to accommodate child needs are more likely to foster positive client

involvement, in turn contributing to more successful outcomes (Chu & Kendall, 2009). Future research should aim to empirically evaluate the association between therapist flexibility, child in-session involvement, and treatment outcomes for autistic youth to better understand the transactional nature of the therapeutic process for this population.

There were minimal differences between therapy stages (i.e., early, middle, late) on the strength of associations between in-session involvement and outcome, though the strongest relations appeared to emerge with the middle stage. The only other known study using the CIRS in individual CBT reported that later-stage in-session involvement was a predictor of treatment outcome (i.e., anxiety reduction) for children without autism, while early stage was not (Chu & Kendall, 2004). In their study, the measurement of involvement in the 'late' treatment stage was assessed during the second quarter of therapy (i.e., still within first half); involvement was not measured during the second half of treatment, meaning that they only assessed early and middle stages of treatment, and did not examine the actual late stage. Researchers who have used the CIRS to assess involvement relative to other therapeutic process factors for children without autism have found that child involvement tends to peak around the middle of treatment (Hudson et al., 2014). As such, it appears that there is the greatest evidence that involvement in the mid-stage of therapy may be the strongest predictor of treatment outcome, compared to measurements taken earlier or later in therapy. It may be particularly important for therapists to ensure that issues with involvement are addressed early enough in treatment, such that autistic children are able to participate to the best of their ability by the middle stage of therapy. In cases where youth are less involved in the early stages, therapists should continue to encourage participation, as there may be potential for even late-stage involvement to influence treatment outcomes.

Contrary to hypotheses, the therapeutic relationship was not found to be a significant predictor of emotion regulation. These findings are inconsistent with previous research that has examined therapeutic alliance between therapists and young autistic clients (Albaum et al., 2020; Kerns et al., 2018; Klebanoff et al., 2019). Therapeutic alliance, as reported by therapists, has been shown to predict reduction in anxiety symptoms (Klebanoff et al., 2019) and global symptom severity (Kerns et al., 2018). In addition, specific aspects of the therapeutic alliance (i.e., task collaboration), as rated by independent observers, have been found to predict improvements in emotional lability and negativity following CBT (Albaum et al., 2020). Notably, studies that found a significant alliance-outcome association employed more rigorous measures of therapeutic alliance that ask respondents about specific minutiae of the relationship, compared to the single global item used for the current study. Using multi-item measures may encourage therapists to reflect more deeply on the relationship, and can help ensure therapists take the various theoretical components of therapeutic alliance into account (i.e., task collaboration; therapeutic bond; goal agreement), which may be overlooked when describing the relationship globally on a single item. This may be particularly important when comparing the predictive nature of alliance alongside other measures of engagement, such as involvement, which was measured in the present study in a much more robust manner. In addition to therapist-reports, future research may also incorporate multi-informant measures of therapeutic alliance to capture the subjective perceptions of the relationship, as experienced by autistic youth and their parents.

Homework completion was also not found to predict treatment outcomes. Almost all the children in the current sample were rated by therapists as having completed between-session homework at least partially, and differences in treatment change between those who partially

versus fully complete homework may be unnoticeable. To our knowledge, there are no other studies that have examined the relation between homework completion and therapeutic success in CBT for autistic youth. Results are consistent with some research involving children without autism, which also found no relation between homework completion and reductions in anxiety (Arendt et al., 2016; Hughes & Kendall, 2007). For example, following 16 sessions of CBT, average homework compliance, as rated by therapists on a single item at the end of each session, (i.e., "Rate the child's degree of compliance with the homework task.") was not found to predict clinician-rated principal anxiety disorder severity (Hughes & Kendall, 2007). In a more recent study, parent- and youth-reported homework adherence, operationalized as average time spent each day completing session homework, also did not predict improvements in clinician-rated or child self-reported anxiety symptoms at the end of therapy (Arendt et al., 2016). In contrast, Park et al. (2012) found that increased therapist-rated homework compliance predicted reduced clinician-rated obsessive-compulsive symptom severity. Therapists in this study were asked to consider both quantity *and* quality of homework compliance for exposure-based assignments. For example, therapist ratings considered the difficulty of exposure completed, whether exposure to feared stimuli was accidental or deliberate, and the effort put forth by the child in completing the assigned homework. Therefore, it may be important to measure factors beyond mere completion, such as degree of ease or difficulty of homework, concerted effort in completing homework, and client feelings about homework. Although findings of the current study suggest measurement timing may not be particularly relevant when considering homework completion (when most children are rated to either fully or partially complete their homework across stages), tracking homework completion in this more nuanced manner may provide clinicians with insight into other aspects of engagement and treatment progress.

Limitations

Results should be interpreted within the context of the study limitations. Several methodological limitations are important to consider. Firstly, the sample only included children who completed treatment in its entirety. Attrition is a key issue in intervention research generally because of the contribution to reduced sample size (Nock & Ferriter, 2005), but may be even more relevant for research focused on treatment engagement, as there may be pertinent differences between those who complete treatment and those who terminate prematurely in regard to engagement-related factors. Relatedly, small sample size is a ubiquitous issue in psychological research because of the connection to statistical power and the capacity to detect true small-sized effects (Marszalek et al., 2011). Within the present study, *p*-values corresponding to several small-sized effects (e.g., early engagement predicting lability/negativity) did not exceed the threshold for statistical significance (i.e., $p < .05$), which can likely be attributed in part to the small sample size. At the same time, no alpha-level adjustments were made to correct for multiple comparisons, which should be taken into consideration when interpreting statistical results. Coders were not completely blind to session number or participant identity, and measurement tools employed in this study were either developed using samples of children without autism (i.e., CIRS), or were prospectively chosen to assess treatment feasibility in the clinical trials from which the current study was derived (i.e., therapist ratings of homework completion and therapeutic relationship). Measure development and construct validation that incorporate an autistic lens should be research priorities to enhance the quality and replicability of research on treatment engagement in CBT for this population (Raymaker & Nicolaidis, 2013). In addition, the present study focused on some, but not all aspects of engagement. Future research should consider other indicators, such as treatment

expectations, attendance, and clarity, as described by Becker et al. (2018), to generate a more holistic understanding of treatment engagement. Finally, there was a lack of diversity in the sample in terms of ethnicity and socioeconomic status, and a restricted range in terms of intellectual functioning. Researchers should deliberately aim to recruit culturally diverse samples and include autistic children with co-occurring intellectual disabilities.

Conclusions

Treatment engagement is a fundamental consideration in determining whether autistic children will benefit from CBT. Child in-session involvement throughout therapy may be particularly relevant for treatment change. The therapeutic relationship and homework completion should continue to be considered and evaluated in relation to treatment outcomes to better understand the relevance of these factors in CBT for autistic youth. Future research should aim to develop psychometrically sound measures that assess treatment engagement, while taking into consideration the differences in behavioural, emotional, and social functioning displayed by autistic children compared to those without autism. Researchers should also aim to conceptualize and assess treatment engagement in a consistent way to allow for replication and comparability of findings across studies. To continuously monitor treatment engagement, clinicians may find it useful to implement brief post-session surveys assessing youth or parent perceptions of the therapeutic relationship, the relevance of session goals or topics, and homework. Addressing issues related to in-session involvement early in treatment would likely be beneficial for promoting positive engagement from autistic clients for the remainder of therapy, in turn increasing the likelihood of therapeutic success.

Table 1. Descriptive statistics of child engagement indicators across treatment stages

	Early		Mid		Late	
Indicator	*M*(*SD*)	Range	*M*(*SD*)	Range	*M*(*SD*)	Range
Therapeutic relationship	5.50 (1.03)	2 – 7	5.88 (1.01)	3 – 7	5.65 (1.10)	3 – 7
In-session involvement	24.32 (5.43)	6 – 40	25.97 (5.89)	13 – 41	24.02 (5.10)	13 – 37
Homework completion (% complete)	44.8%	–	46.6%	–	59.3%	–

Table 2. Descriptive statistics of CIRS items

	Early			Mid			Late		
CIRS Item	*M*(*SD*)	*Median*	% rated 4 or 5	*M*(*SD*)	*Median*	% rated 4 or 5	*M*(*SD*)	*Median*	% rated 4 or 5
1. Initiate discussion	0.13 (0.43)	0.00	0.0%	0.35 (0.76)	0.00	0.0%	0.17 (0.62)	0.00	0.0%
2. Make suggestions	0.22 (0.52)	0.00	0.0%	0.47 (0.77)	0.00	0.0%	0.28 (0.61)	0.00	0.0%
3. Demonstrate enthusiasm	2.72 (1.06)	3.00	16.6%	2.88 (1.12)	3.00	23.3%	2.62 (0.98)	2.00	20.0%
4. Self-disclose	1.50 (1.08)	1.00	3.3%	2.07 (1.25)	2.00	11.7%	1.58 (1.37)	1.50	8.3%
5. Ask questions	0.60 (0.98)	0.00	1.7%	0.87 (1.10)	0.50	3.3%	0.53 (0.79)	0.00	0.0%
6. Demonstrate understanding	2.07 (1.04)	2.00	11.7%	1.98 (1.27)	2.00	10.0%	2.23 (1.14)	2.00	13.3%
7. Withdrawal or passivity	0.53 (1.02)	0.00	3.3%	0.35 (0.99)	0.00	3.3%	0.38 (0.80)	0.00	0.0%
8. Inhibition or avoidance	0.55 (1.10)	0.00	3.3%	0.78 (1.15)	0.00	3.3%	0.95 (1.40)	0.00	6.7%
9. Distract	1.37 (1.45)	1.00	10.0%	1.22 (1.43)	1.00	10.0%	1.43 (1.31)	1.00	6.7%
10. Opposition	0.47 (1.16)	0.00	5.0%	0.30 (0.74)	0.00	0.0%	0.63 (1.28)	0.00	8.3%

Notes. CIRS = Child Involvement Rating Scale. Possible score range for each item is 0-5. Higher scores for items 1-6 indicate greater involvement, whereas higher scores for items 7-10 indicate less involvement.

Table 3. Spearman rho and partial correlations between continuous indicators of child engagement and treatment outcome

	2	3	4	5	6	7[a]	8[b]
1. Early TR	.25^{+}	.50**	.22^{+}	.51**	.24^{+}	-.26^{+}	-.13
2. Early ISI	-	.04	.64**	.13	.52**	-.36**	.20
3. Mid TR		-	.25^{+}	.62**	.21	-.18	.19
4. Mid ISI			-	.11	.55**	-.34*	.28*
5. Late TR				-	.36**	-.23	.01
6. Late ISI					-	-.28*	.11
7. ERC Lability/Negativity						-	-.31*[a,b]
8. ERC Emotion Regulation							-

Notes. ERC = Emotion Regulation Checklist; ISI = In-session involvement; TR = Therapeutic relationship.
** = $p < .01$; * = $p < .05$; $^{+}$ = $p < .10$
[a] Partial correlation controlling for pre-treatment ERC Lability/Negativity
[b] Partial correlation controlling for pre-treatment ERC Emotion Regulation

Table 4. Linear regression coefficients for child engagement predicting treatment outcome

	ERC Lability/Negativity[a]					ERC Emotion Regulation[a]				
Predictors	*B*	*SE B*	*p*	sr^2	Fit	*B*	*SE B*	*p*	sr^2	Fit
Early Stage					R^2_{adj} = .55*					R^2_{adj} = .55*
Constant	1.18	0.35	.002			1.34	0.31	<.001		
Baseline	0.68	0.09	<.001	.43		0.57	0.09	<.001	.36	
ISI	**-0.02**	**0.01**	**.05**	**.03**		**0.02**	**0.01**	**.02**	**.04**	
HC	0.01	0.09	.92	.00		0.01	0.08	.87	.00	
TR	-0.04	0.04	.41	.01		-0.08	0.04	.06	.03	
Mid Stage					R^2_{adj} = .55*					R^2_{adj} = .54*
Constant	1.07	0.32	.002			0.74	0.34	.04		
Baseline	0.70	0.09	<.001	.51		0.62	0.08	<.001	.48	
ISI	**-0.02**	**0.01**	**.01**	**.06**		0.01	0.01	.09	.03	
HC	-0.03	0.08	.69	.00		-0.02	0.08	.75	.00	
TR	-0.01	0.04	.83	.00		0.03	0.04	.42	.01	
Late Stage					R^2_{adj} = .56*					R^2_{adj} = .52*
Constant	1.12	0.33	.001			1.06	0.32	.002		
Baseline	0.69	0.09	<.001	.51		0.63	0.09	<.001	.48	
ISI	**-0.02**	**0.01**	**.05**	**.03**		0.01	0.01	.44	.01	
HC	-0.11	0.08	.18	.02		0.10	0.08	.23	.01	
TR	-0.02	0.04	.65	.00		-0.02	0.04	.68	.00	

Notes. ERC = Emotion Regulation Checklist; HC = Homework completion; ISI = In-session involvement; TR = Therapeutic relationship. Dummy coding: Homework completion – 0 = Incomplete, 1 = Complete. sr^2 represents semi-partial correlation squared.

[a] Outcome variable

* $p < .001$

Supplemental Table 1. Comparison of treatment outcomes between homework completers versus non-completers controlling for baseline

	Non-Completers *M* (*SE*)[a]	Completers *M* (*SE*)[a]	*F*(*df*)	*p*
Early stage HC (%)	55.2%	44.8%		
ERC Lability/Negativity	2.24 (0.06)	2.20 (0.06)	0.14 (1, 53)	.71
ERC Emotion Regulation	3.01 (0.05)	3.02 (0.06)	0.01 (1, 53)	.93
Mid stage HC (%)	53.4%	46.6%		
ERC Lability/Negativity	2.26 (0.06)	2.17 (0.06)	1.30 (1, 53)	.26
ERC Emotion Regulation	3.02 (0.05)	3.01 (0.06)	0.001 (1, 53)	.98
Late stage HC (%)	40.7%	59.3%		
ERC Lability/Negativity	2.32 (0.07)	2.16 (0.05)	3.58 (1, 49)	.06
ERC Emotion Regulation	2.97 (0.06)	3.07 (0.05)	1.63 (1, 49)	.21

Notes. ERC = Emotion Regulation Checklist; HC = Homework completion.

[a] Estimated marginal means controlling for pre-treatment score

Chapter 4: General Discussion

This dissertation reported on two studies that considered the role of therapeutic process factors in mental health treatment for autistic youth. The first study aimed to provide a comprehensive overview of the empirical evidence on process factors in psychosocial interventions addressing mental health-related challenges for autistic children and adolescents. That study was a systematic review of the literature published before June 2021, comprising research that described a psychosocial intervention, measured a mental health-related outcome for autistic youth, and reported on at least one therapeutic process factor. Findings from this study build on the existing literature by providing a detailed summary on what is currently known about therapeutic process factors and the process-outcome association for autistic youth who take part in psychotherapy. The second study involved original research assessing multiple indicators of child treatment engagement at several timepoints over the course of a ten-session cognitive behaviour therapy (CBT) program that focused on emotion regulation for school-aged autistic children. This study evaluated the relation between child engagement and treatment outcome following completion of the CBT program, and offers original findings that highlight the importance of child in-session involvement, and engagement more generally, for therapeutic success following participation in CBT

Study 1 provided a narrative synthesis of quantitative and qualitative research that reported on process factors in mental health treatment for autistic youth. Eligible studies used a sample that included autistic youth under the age of 18 years, and measured or described at least one process factor. A systematic review of the literature yielded 25 studies that met inclusion criteria, which varied in terms of methodological quality. Process factors that were reported on across studies considered both youth- and parent-related variables, and employed measures that

relied on reports from multiple informants (i.e., youth, parent, therapist, independent observer) at different points in the treatment process. The process factors identified through the review were classified into three overarching domains: 1) relational factors (e.g., therapeutic alliance); 2) expectations, readiness, and satisfaction; and 3) treatment engagement (e.g., involvement; adherence).

Study 2 evaluated child engagement in relation to post-treatment emotion regulation (the primary treatment outcome) for 60 autistic children between the ages of 8 and 13 years who took part in CBT alongside their primary caregiver. Child engagement was operationalized as (a) the therapeutic relationship between therapist and child, (b) in-session involvement, and (c) between-session homework completion. Engagement was measured longitudinally over the course of therapy using multiple informants (i.e., therapist-report and independent observer). Across stages of therapy, in-session involvement consistently predicted greater improvement in emotional lability and negativity, whereas therapeutic relationship and homework completion were not associated with treatment outcome. Early in-session involvement was also found to predict improvements in adaptive emotion regulation.

Collectively, the two studies address key gaps in research on mental health treatment for autistic youth by examining factors that are common across various types of psychosocial intervention, moving beyond evaluation of a specific treatment or therapeutic modality. This dissertation offers insight into the therapeutic process in mental health treatment for young autistic clients, building on previous research and review studies on process factors that have largely centered on youth without autism (e.g., Karver et al., 2006). A summary of findings from each study and integrative synthesis are provided below. Research and clinical implications of the findings are discussed within the context of the dissertation's limitations.

Summary of Findings from Study 1

Findings from the first dissertation study suggest that therapeutic process factors are relevant in mental health treatment for autistic youth, and offer preliminary insight as to why some youth may benefit from taking part in therapy more than others. Over the past decade, there has been exponential growth in the number of studies describing various aspects of the therapeutic process in psychosocial therapies for autistic children and adolescents. Most studies identified in the review were designed and conducted in a way that adequately addressed the research aims, though varied in terms of methodological quality. Across studies, therapeutic process factors were often assessed in relation to ancillary research objectives (e.g., as metrics of treatment feasibility), but researchers have increasingly focused on examining how the therapeutic process unfolds over the course of therapy with the aim of explicating the relation between process and outcome. Process factors included studies of relational factors, such as the therapeutic relationship; client attitudes about treatment, such as expectations, readiness, and satisfaction; and treatment engagement, such as in-session involvement and treatment adherence.

Consistent with the general child literature (Karver et al., 2006; Fjermestad et al., 2009), relational factors are the most well understood process variables in research on psychosocial therapy for autistic youth, in regard to process-outcome association. Several studies evaluated therapeutic alliance between youth and therapists, which generally indicated that the alliance can be validly assessed using measures that incorporate youth, therapist, and independent-observer perspectives (e.g., Burnham Riosa et al., 2019; Klebanoff et al., 2019). Collectively, results from these studies suggest that therapeutic alliance may be an important contributor to treatment outcomes, including improvements in anxiety symptoms (Kerns et al., 2018; Klebanoff et al., 2019) and emotion regulation (Albaum et al., 2020; Brewe et al., 2021), and despite core challenges with social communication and interpersonal skills, clinicians can develop and

maintain a strong therapeutic alliance with young autistic clients who demonstrate average intellectual functioning and are verbally able. There was also evidence to support valid measurement of therapeutic alliance between parents and therapists, but results were mixed in terms of the process-outcome association, with one study finding a significant relation between parent-therapist alliance and reductions in anxiety (Klebanoff et al., 2019), and a second study reporting null findings (Kerns et al. 2018). Family accommodation, which refers to parent or family relatives' behaviour that supports maladaptive avoidance of anxiety-inducing stimuli (Lebowitz et al., 2012), was also a relational process factor described in multiple studies (Jassi et al., 2021; Jones & Jassi, 2020; Storch et al., 2015). Within the general child literature, family accommodation has not been considered as part of the therapy process (e.g., Karver et al., 2006); however, results from the studies identified through the current review indicated a gradual reduction in parent accommodation over the course therapy, which was related to symptom reduction at the end of treatment (Storch et al., 2015). Given the prominent role parents often have in therapy for autistic children (Reaven et al., 2011), it may be important for intervention research to consider parent behaviour, such as anxiety accommodation, as an aspect of the therapeutic process that contributes to symptom change, and that can be addressed to promote positive outcomes.

In comparison to relational factors, less is known about autistic youth's attitudes about treatment, including expectations about therapy, readiness or motivation to participate, and treatment satisfaction, in relation to other aspects of process and outcome. Few studies identified in the current review focused on the role of youth attitudes in the therapeutic process, and none assessed parent expectations or willingness to participate in their child's treatment. One study found a shift in autistic adolescents' perception of treatment credibility over the course of

therapy (Backman et al., 2018), and a second study reported a non-significant association between treatment readiness and child-therapist alliance (Albaum et al., 2020), but neither examined client attitudes in relation to treatment outcome. Qualitative research on mental health treatment for autistic youth highlighted youth motivation and parent expectations about their role in their child's therapy as relevant themes in relation to therapist capacity to provide treatment, and youth adherence to between-session practice. Across studies included in the review, treatment satisfaction was the most frequently measured therapeutic process factor; however, only two studies actually considered the relation between treatment satisfaction and outcome (Swain et al., 2019; Walsh et al., 2018), which had mixed findings. Treatment satisfaction was often only analyzed descriptively (i.e., means, standard deviations) and was reported as an indication of treatment feasibility or acceptability, with most studies reporting high rates of satisfaction from both youth and parents. Overall, these results signify a lack of empirical evidence on the attitudes autistic youth and their parents have regarding therapy, and how they relate to other aspects of process and outcome.

Review findings revealed that child and parent treatment engagement have yet to be examined in relation to outcome within the context of mental health intervention for autistic youth. A few studies quantitatively described treatment adherence (e.g., completion of between-session homework) and youth in-session involvement as indicators of treatment feasibility, which generally indicated adequate engagement from youth, as rated by therapists (e.g., Weiss et al., 2018; White et al., 2013). Treatment engagement was often assessed using therapist ratings on single items, failing to capture distinct behavioural indicators that can be better assessed with more robust measurement tools, and provide greater insight into the relation between engagement and treatment outcome. None of the identified studies quantitively evaluated parent

involvement, but qualitative findings suggest that parent involvement may be especially important for skill application outside of sessions (Drmic et al., 2017; Edgington et al., 2016).

Summary of Findings from Study 2

Findings from Study 2 provide evidence to support the association between child engagement in therapy and symptom improvement at the end of treatment. This study concentrated on specific indicators of treatment engagement, including therapeutic alliance between child and therapist, in-session involvement, and completion of between-session homework during CBT aimed at improving emotion regulation. Therapeutic alliance and homework completion were measured using therapist ratings on single items following each session, and in-session involvement was assessed using independent-observer ratings on the *Child Involvement Rating Scale* (CIRS, Chu & Kendall, 1999), a behavioural coding scheme designed to measure positive and negative behaviours indicative of in-session involvement. Treatment outcome comprised child emotional lability and negativity, and adaptive emotion regulation, which was rated by parents after families had completed the therapy program. Indicators of treatment engagement were assessed longitudinally, with measurements taken at early (i.e., first third of treatment), mid (i.e., middle third), and late (i.e., final third) stages of therapy.

Greater treatment engagement during the mid and late stages of therapy was found to predict greater reductions in emotional lability and negativity from pre to post intervention. The observed relation between treatment engagement and outcome was primarily driven by youth in-session involvement, which was consistently found to have a small-sized effect (approximately 4-6% of variance) in relation to post-treatment improvements in lability and negativity across therapy stages. Only early in-session involvement was found to predict improvements in

adaptive emotion regulation, and it was of a very small effect size. There were minimal differences between therapy stages in terms of the strength of association between in-session involvement and outcome, though the strongest relations appeared to emerge for the middle stage. The involvement-outcome association found in the current study is comparable to that observed in the general child literature, which indicates a small-sized correlation, on average, between youth participation and treatment outcome (Karver et al., 2006), and with research involving youth without autism that employed the CIRS as a measure of in-session involvement (Chu & Kendall, 2004). At the item-level of the CIRS, research involving non-autistic youth has shown that children who primarily experience internalizing symptoms (i.e., anxiety) seldomly display negative indictors of involvement, such as disruptive behaviours within sessions (Chu & Kendall, 2009; Hudson et al., 2014). In comparison, results of the current study suggest that autistic children vary in the degree in which they demonstrate negative involvement, with a portion of children displaying oppositional behaviour towards their therapist, and engaging in off-task behaviour that diverts away from the session focus.

Unexpectedly, the child-therapist relationship and homework completion, as reported by therapists, did not predict changes in parent-reported lability and negativity or emotion regulation from pre- to post-treatment. The non-significant associations are inconsistent with previous research that has shown a positive relation between therapeutic alliance and symptom improvement (Albaum et al., 2020; Kerns et al., 2018; Klebanoff et al., 2019). Notably, the studies that found significant alliance-outcome associations incorporated more robust measures of therapeutic alliance, versus the single-item used in the current study, and considered distinct aspects of the relationship (i.e., therapeutic bond; task collaboration) that may be relevant for therapeutic success. Findings regarding the lack of association between homework completion

and treatment outcome are consistent with some research involving youth without autism (Arendt et al., 2016; Hughes et al., 2007). As with research on the therapeutic relationship, studies that have employed measures that capture nuances of homework adherence (e.g., difficulty with homework; deliberate effort put forth by child) have found a significant association between homework completion and treatment outcome (Park et al., 2012). The use of psychometrically sound measures is necessary for establishing a strong evidence base that can be used to inform clinicians on ways to engage autistic clients in therapy.

Synthesis

With increasing use of psychosocial interventions to address mental health challenges for autistic youth (Ameis et al., 2018; Weston et al., 2016), it is necessary to consider and refine the mechanisms that contribute to variation in treatment success. Common therapeutic factors, specifically process-related factors, may offer some explanation as to why some autistic youth benefit from psychotherapy, while others do not (Thomas, 2006). Previous research on process factors in child-focused therapy has largely excluded autistic youth, restricting generalizability of findings to this population that differs in ways that may be relevant to the therapeutic process. For example, social communication abilities are inherently different for autistic youth, relative to non-autistic peers, and may factor into how the process unfolds in treatments that rely on a therapeutic relationship between therapist and client, such as with psychotherapy. Synthesizing the existing literature through the review conducted in Study 1 revealed a lack of research on youth engagement in therapy, which was addressed in Study 2 through empirical evaluation of treatment engagement in relation to symptom improvement for a sample of autistic children who had participated in CBT. Taken together, results highlight the relative importance of therapeutic alliance between autistic youth and their therapist, and youth in-session involvement for

enhancing the likelihood of positive treatment outcomes. There is a capacity for autistic youth and therapists to create effective therapeutic experiences, and for youth to be actively involved in their treatment in ways that can maximize the benefit of taking part in psychotherapy.

Research & Clinical Implications

This dissertation has key implications for future research, and implications for clinicians working with autistic youth. First, it is critical that researchers conceptualize and assess process factors in a consistent way to permit study replicability, comparability of study findings, and systematic synthesis of effect sizes. Validation of existing measures and development of new measures that accurately capture process-related constructs within the context of treatment for autistic youth is necessary, and should incorporate an autistic lens that considers the differences in behavioural, emotional, and social functioning that autistic youth experience relative to their non-autistic peers. Qualitative research that explores therapist, autistic youth, and caregiver perspectives on the therapeutic process can also contribute to the development of quantitative measures by identifying key aspects of the therapeutic process for this population. Finally, it is important for researchers to deliberately recruit samples of autistic youth that represent the full spectrum of functioning, in terms of social-communicative and intellectual abilities, and capture demographic diversity that is proportionate to the broader population.

Establishing a strong knowledge base on therapeutic process factors can be used to develop and implement evidence-informed strategies to address process-related barriers in clinical practice, such as lack of motivation to participate, ruptures in therapeutic alliance, and disruptive behaviour that hampers positive in-session involvement. Clinicians working with autistic youth should focus on establishing therapeutic alliance with both the child and their parents in the early stages of therapy, and strive to maintain a strong relationship with the family

for the duration of treatment. It is also important for clinicians to encourage active involvement from youth and parents, both within and between session, and try to resolve individual-, family- or system-level issues that may impede their involvement. Therapists may find it helpful to incorporate pre-treatment measures that ask about youth and parent expectations regarding in-session involvement (e.g., *What role does each person play during sessions and between sessions?*) to clarify any misunderstandings about what therapy will look like prior to starting. It may also be useful to administer brief measures at regular intervals over the course of therapy that ask about youth and parent perceptions of therapeutic alliance, and then actively work to address concerns raised by the family. The dissertation findings suggest that monitoring the therapeutic process should begin early in therapy, but addressing process-related issues even in late stages of treatment may enhance therapeutic effectiveness.

General Limitations

Findings should be considered with respect to the limitations of the dissertation. Results of most studies included in Study 1 and findings of Study 2 were based on small sample sizes, which may hinder the capacity to detect the small effect sizes commonly reported for process-outcome associations (Karver et al., 2006), and contribute to increased rates of false negative findings (i.e., Type-II error). Relatedly, study samples generally involved youth who completed treatment, and for whom post-treatment data were available. Early treatment termination is important to consider in intervention research (Noick & Ferriter, 2005), as it contributes to the issue of reduced statistical power, and limits the ability to evaluate potentially relevant differences between clients who complete therapy and those who discontinue. Samples also generally lacked diversity in terms of gender, ethnicity, socioeconomic status, and intellectual functioning. For example, most youth included in studies were reported to identify as male at

rates disproportionate to the gender distribution observed in the autism population, and almost all youth demonstrated at least average intellectual abilities. Study findings may therefore not directly translate to autistic youth who identify as female or non-binary, or the sizeable portion of autistic individuals that have a co-occurring intellectual disability. Most studies that were included in the dissertation, including Study 2, only involved autistic youth, limiting the direct comparability of findings and effect sizes from studies involving youth without autism. Finally, the are several therapeutic process factors that have received minimal attention. For example, there were numerous process factors identified in Study 1 that have yet to be evaluated in relation to treatment outcome, such as client attitudes about treatment or parent involvement. In Study 2, aspects of treatment engagement, including treatment expectations, attendance, and clarity, were not assessed.

Conclusions

Therapeutic process factors are pertinent when evaluating psychotherapy for autistic youth who experience mental-health related challenges, and for informing a holistic framework that illustrates the dynamic mechanisms of change that occur over the course of therapy. This dissertation presents findings from a systematic review of the literature on therapeutic process factors in mental health treatment for autistic youth, and from original research that evaluated multiple indicators of treatment engagement in relation to treatment outcome for autistic children who participated in CBT for emotion regulation. Review findings indicate that high-quality research that focuses on process factors in psychosocial interventions for autistic youth is starting to amass. Quantitative and qualitative research have considered different aspects of the therapeutic process, including relational factors, client attitudes, and treatment engagement; however, what is currently known about the therapeutic process for autistic clients remains scant.

Findings from the second study suggest that treatment engagement is related to improvements in maladaptive emotion regulation. Child in-session involvement throughout therapy may be particularly relevant for treatment change, and therapeutic alliance and homework completion should continue to be considered and evaluated in relation to treatment outcomes**.** Future research should continue to focus on relatively well-researched factors, such as therapeutic alliance, and explore less well-known factors, such as client expectations and motivation, and parent involvement. It is important that process factors be operationalized consistently across studies to allow for comparability and meta-analysis of findings in the future. Clinicians working with autistic clients should be actively striving to form therapeutic alliance with youth and parents, and support positive treatment engagement for the full duration of therapy to enhance the likelihood of therapeutic success.

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