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The Use of Non-directive Therapy for Adolescents with Autism Spectrum Disorder: A Systematic Review

Autism Spectrum Disorder (ASD) is defined as ‘persistent difficulties with social communication and social interaction’ and ‘restricted and repetitive patterns of behaviours, activities or interests’ (this includes sensory behaviour), present since early childhood, to the extent that these ‘limit and impair everyday functioning’ (DSM-5, 2013, sect. II). Recent research suggests one in 54 children in the US (Centers for Disease Control and Prevention, 2020) and one in 100 in the UK (British Medical Association, 2019) hold an ASD diagnosis; implying ASD prevalence is increasing annually. Throughout this article I will refer to adolescents/children with ASD and autistic children/adolescents interchangeably, to reflect the range of terminology within the UK autism community (Kenny et al., 2015).

Large scale research in the U.S conducted by Cardinal et al., (2020) sought to understand the increase in prevalence rates. The findings suggest a wider understanding of the Autism spectrum and behaviours from both **lay people** and professionals, resulting in higher diagnosis rates. Cardinal et al., (2020, p.135) noted a ‘diagnostic migration’ which has resulted in children who would have been given an alternate (and possibly incorrect) diagnosis, being identified with ASD. This research made clear that the number of children with ASD is not increasing rather diagnosis has improved.

Autism has become a focus for policy makers and healthcare providers due to the high economic cost attached to support required and increasing rates of diagnosis. Cakir et al. (2020) suggests an approximate lifetime social cost of \$3.6 million per ASD individual in the USA. The NHS Long-term plan (2019) identified individuals with autism and learning disabilities as a priority group and have promised investment into moving care into the community and stopping the over medication to manage behaviours of this population

(STOMP Programme, NHS, 2019). Collectively this identifies autism as economically and logistically important and highlights the need for the current review.

ASD, Adolescence and Mental Health

Adolescence (11-18 years) is a significant time for any child due to the multitude of changes that take place, e.g., puberty, education transitions and relationships. The Mental Health of Children and Young People Survey (NHS, 2017, p.10) suggests rates of mental health problems increase during adolescence with young people aged 11-16 years nine times more likely to have an emotional disorder (anxiety, depression, mania or bipolar) than two to four year-olds. Paus, Keshavan & Giedd (2008) propose this increase may be related to the aforementioned changes affecting brain development. Autistic adolescents may be more vulnerable to the struggles that teenage years bring due to difficulties in social communication/interaction as well as the stigma encountered for being autistic. This may explain the rise in co-occurring mental health conditions with autistic individuals. Koenig and Levine (2011) suggest individuals with ASD may also present with anxiety, depression and obsessive compulsive disorder (OCD) at higher rates than their neurotypical peers. Anxiety disorder and generalized anxiety disorder appear to be more prevalent for autistic adolescents than other mental health conditions (van Steensel, Bogel & Perrin, 2011). The increased rates of co-occurring conditions, specifically anxiety, depression and OCD, in ASD adolescents identifies a need for improved understanding and therapeutic interventions to better support these individuals. In order to develop this, a literature review of current interventions for the three most common mental health conditions in adolescents with ASD was conducted.

A literature search of MEDLINE, Embase, PsycInfo, Cochrane Library and Campbell Collaboration was conducted between September and November 2019 (search strategy available upon request from corresponding author). The main findings were: 1) a significant

amount of research into directive therapies in contrast to non-directive therapies; 2) sample sizes were relatively small raising a concern for validity and generalisability; 3) interventions were assessed for effectiveness against a waitlist or control group and 4) there were significant time and cost implications for most interventions. With the rise in co-occurring mental health problems alongside the ASD diagnosis, the findings of the literature review create cause for concern. The heavy focus on directive interventions suggests a skewed evidence base from which practitioners can diversify and individualise treatment options. The review revealed that autistic individuals are primarily offered behavioural/directive interventions to alter their ASD behaviours to those deemed more socially acceptable. This may ignore and potentially exacerbate the significant mental health concerns presenting but may also be inaccurate due to lack of research to date. This review is timely as debates have begun within the autism community about directive and non-directive therapeutic interventions e.g., (Whitehouse et al., 2021) with mixed-feelings towards both therapies. However, the autism community have made a call made for 'a range of treatments and support, tailored to individuals.[because] A 'blanket' treatment for all, is not the answer.'(Autistica, 2021); providing further justification for this review.

Anxiety and Autism Spectrum Disorder

Anxiety is suggested to be present in 40% of ASD cases; implying a high rate of co-occurrence between the two conditions (Zaboski & Storch, 2018). Directive interventions for anxiety are based on cognitive behavioural therapy (CBT) frameworks. An example of a directive intervention addressing anxiety in ASD was conducted by Wood et al., (2015) with the modified-CBT programme 'BIACA' (Behavioural Interventions for Anxiety in Children with Autism). The main finding suggested a significant reduction in anxiety scores for those in the treatment vs. the comparison condition, but there are significant limitations to the research which questions the validity of the findings. The main concern is the growing body

of research highlighting the difficulties standard outcome measures hold for individuals with ASD (Proctor & Cahill, 2021). One outcome measure (RCADS) used in this study was identified by Wood et al., (2015, p.12) as ‘not a highly recommended measure’, suggesting additional research into alternate interventions is still required.

Depression and Autism Spectrum Disorder

Depression and ASD have been less researched in contrast to anxiety. Findings suggest a focus on behavioural interventions is common. Research by Santomauro, Sheffield and Sofronoff (2016) investigated an adapted-CBT programme targeting depression in autistic adolescents. The main finding identified no statistically significant change on the Beck Depression Inventory (BDI) for the treatment vs. comparison group, but a trend leaning towards (non-statistical) significance on the Depression Anxiety Stress Scale. The lack of statistical significance from these findings suggests that adapted CBT for depression in adolescents with ASD is no more effective than waitlist. In contrast, research conducted by McGillivray and Evert (2014) suggest group CBT reduced symptoms of depression in autistic adolescents. However, both studies are small-scale and use waitlist as control conditions. This challenges the efficacy of CBT above other treatment options due to the lack of comparison to other therapeutic interventions and questions why CBT is still the most commonly offered treatment in CAMHS.

Obsessive Compulsive Disorder and Autism Spectrum Disorder

Murray et al., (2015, p.8) suggest the ‘prevalence rates of OCD are significantly elevated among individuals with ASD’ and standard CBT treatments are ineffective. Research conducted by Jassi et al., (2020) proposed that adapted CBT for autistic adolescents results in the significant reduction of OCD symptoms; maintained at a 3-month follow-up. However, the programme required additional training of practitioners and an increased

number of sessions. This implies adapted CBT for co-occurring ASD and OCD is more timely and costly than standard CBT programmes. Therefore, CBT collectively cannot be deemed a ‘superior’ treatment and further research into other interventions is necessary.

The current review

This review therefore aimed to systematically explore research on the use of non-directive therapies with adolescents (aged 11-18) with a diagnosis of ASD and synthesise the findings. Specific objectives were first, to discuss and critically analyse previous research; and second, to identify gaps in the research for future research opportunities.

Methods

Search Strategy

Database searches were limited to research conducted between 1980-2020; reflecting the identification of autism as a distinct entity for the first time in the DSM-III (Howlin, 2020). All databases were searched until 6th January 2021 and included PsycInfo, Embase, MEDLINE, Cochrane Library, JSTOR, Campbell Collaboration, Child Development and Adolescent Studies, CINAHL and PEP Archive. The following keywords (and synonyms) were used: ‘autism (autis*), ASD, autistic spectrum disorder’ and ‘adolescent, (adolescenc*) teenager, young adult’ and ‘psychotherapy, therapy, counselling, treatment’. A full search strategy is available upon request from the corresponding author.

Other searches

A Google search was completed to retrieve statistical information from NHS CAMHS data. A reference search of included studies was also completed to check for any studies that were not identified in the original search.

Criteria for inclusion

Studies:

All types of studies, published in English and in peer-reviewed journals were eligible for inclusion. This allowed a broader pool of research in a relatively under-researched area.

Participants:

Participants had to be classed as adolescents to be included (11-18 years). When therapy was long-term and beginning in childhood, the interventions and outcomes were included from adolescent years only.

Diagnosis:

Participants had to be diagnosed with ASD as classified by the ICD-10 (WHO, 1992) or the DSM of any edition or revision from DSM-III to DSM-5 (APA, 1980-2013). This ensured validity in the search results but did remove participants who were undergoing diagnosis, resulting in a smaller sample size.

Setting:

All settings were included in this review to reflect the diversity of non-directive therapies e.g., specialist schools, private practice, in-patient settings.

Co-occurring Mental Health Diagnoses:

ASD is often co-occurring with mental health problems of which there is an increase at adolescence. Therefore, all diagnosed mental health conditions were included. Mental health conditions had to be diagnosed from any DSM edition or revision (APA, 1980-2013) or ICD-10 (WHO, 1992).

Intervention:

Any non-directive therapy was eligible for inclusion. All eligible studies were screened for evidence of a non-directive approach as an isolated intervention or in

combination/contrast with another intervention. Non-directive therapy had to be conducted by a qualified and trained therapist or healthcare professional. This was to maximise reliability, validity and reduce the risk of bias.

To be defined as a non-directive approach, therapy had to be offered in line with the APA (2020) definition: ‘counselor establishes an encouraging atmosphere and clarifies the client’s ideas rather than directing the process. The client leads the way by expressing his or her own feelings, defining his or her own problems, and interpreting his or her own behavior’.

When a quantitative design was used, a comparison between intervention conditions was expected. Comparator interventions could be waitlist, treatment as usual, other form of non-directive therapy, or a form of directive therapy. To ensure high validity in the systematic review, all search outcomes, methods and sub-samples of papers were reviewed. All eligible studies were included regardless of quality, due to the limited evidence-base.

Outcomes:

To reflect the difficulties of assessing outcomes for the ASD population and the differing study designs included, outcome measures were not pre-defined or rigid. This ensured a coherent and comprehensive review took place, which synthesised all current research. For quantitative or mixed methods designs, it was expected there would be a different scale used to assess mental health e.g., BDI (Beck et al., 1961) or GAD-7 (Spitzer et al., 2006), emotional development, wellbeing, behaviour, satisfaction or cognition. For qualitative studies, the outcomes were likely to be self-report measures, case-notes of sessions or observational analysis of the adolescent’s development. This would provide a more subjective assessment of outcome, which needed to be factored into the assessment of study quality.

The duration of treatment or longevity of outcome was included in this review (if available), to enable future comparison between directive and non-directive forms of therapy in relation to time and cost-effectiveness.

Data Analysis

Data extraction reflected on the diverse methods and studies included and provided valid and robust findings to evaluate the external validity of the studies individually. This ensured eligibility was assessed and the systematic review provided a comprehensive view of limited data. The characteristics of included studies are presented in Table 2. The PICOS framework (Schardt et al., 2007) was used to extract data. PICOS stands for: Population, Intervention, Comparison, Outcome and Study design. PICOS was chosen for its applicability when extracting data from both quantitative and qualitative research papers (Methley et al., 2014). See Table 1 for the application of PICOS to the data.

INSERT TABLE 1 HERE

Quality Appraisal

Two methods of quality appraisal were conducted reflecting on qualitative and quantitative studies, as the evidence pool for non-directive therapy with ASD adolescents is currently limited. Therefore, to accurately reflect the current evidence base all types of research were eligible for inclusion and assessed for quality. Qualitative studies were assessed for 'study rigour' using the Critical Appraisal Skills Programme (CASP) **qualitative checklist (2018)**. Study rigour accounts for the methodological strengths and limitations. For quantitative studies the quality of the research was calculated as risk of bias using the RoB 2 measure (Sterne et al., 2019).

Data Synthesis

The database searches yielded N=10 studies for qualitative synthesis, N=1 study for quantitative synthesis and N=1 study of mixed-methods design for both syntheses (see Figure 1). Despite two studies being included with quantitative outcomes, no quantitative analysis could be completed as only one study provided enough data for analysis.

Results

Database searches yielded N=56,648 initial results using the aforementioned terms. After applying filters, exclusions and removing duplicates there were N=3,988 studies to be screened (see Figure 1). Titles and keywords of these studies were checked for eligibility and N=3,843 were removed due to not meeting the inclusion criteria (aforementioned). The abstracts of the remaining N=145 studies were screened for eligibility and a further N=98 were removed. The remaining N=47 articles were then read in full text. An additional N=3 articles were identified from reference lists which were read in full text. N=38 articles were excluded for various reasons (see Figure 1). The remaining N=12(100%) articles were included in this review. The selection process is demonstrated with the PRISMA Flow Diagram (Figure 1) and reasons for exclusion provided.

INSERT FIGURE 1 HERE

Summary of Included Studies

Design

Of the N=12(100%) included studies, 80% (N=10) were case-studies, N=1(10%) was an RCT and N=1(10%) was a mixed-methods design collecting quantitative and qualitative data.

Participants

N=40 participants were included in this systematic review (see Table 1 for demographic information). Sample size across studies varied with N=19 participants included from case-studies, N=19 participants included from an RCT and N=2 from a mixed-methods study. All participants held an ASD diagnosis, although studies did not always identify which diagnostic criteria was used. When not stated, studies noted a psychiatrist had given the diagnosis.

N=4 participants had been given a historic diagnosis of Asperger's or pervasive developmental disorder (PDD). The DSM-V (2013) stated all historic diagnoses of Asperger's or PDD were now categorised under ASD; hence the inclusion in this review. Where a diagnostic method was stated, it was either the DSM-IV-R or DSM-V.

Setting

N=6 different settings were identified in various countries including: the US, England, Israel, Australia and Canada (see Table 2). N=2 studies did not include detail of setting but were conducted in the US. Only N=1 study was conducted in England via NHS CAMHS. The importance of study location will be addressed in the Discussion.

Intervention

From the N=12 included studies, there were N=9 different non-directive interventions reported (See Table 2 for detailed descriptions). The intervention styles included play therapy, sandplay, counselling, long-term individual psychotherapy, narrative therapy, group therapy, mentalization-based therapy, counselling and medication. Some interventions included a combination of the above.

INSERT TABLE 2 HERE

Summary of Findings from Case-studies

All case-studies demonstrated a non-directive approach; were led by the adolescent, with the therapist primarily offering reflection and reframing to develop self-awareness and improve emotional wellbeing. Underlying all interventions was a client-focus, use of the therapeutic relationship as an agent for change, client-led therapy, and the opportunity for the adolescents to be themselves. Each intervention detailed positive outcomes for participants with regard to their emotional and psychological wellbeing and reflected improvements that were meaningful to the adolescent, and suggested a holistic approach to wellbeing.

Summary of findings from RCT

Only one RCT was included. The results suggest both directive and non-directive interventions are equally effective at improving anxiety with no significant difference in efficacy between them. Participants were randomly allocated to either the CBT group (N=17) or counselling group (N=19). The non-directive counselling intervention offered 12 individual sessions followed by five group sessions and utilised: relationship building, empathy, encouragement, and following the clients lead. The RCT used two measures of anxiety: Anxiety disorders interview schedule for children/parents (ADIS-C/P) (Albano & Silverman, 1996) and the Child and Adolescent Symptom Inventory-4 ASD Anxiety Scale (CASI-anx) (Hallett et al., 2013).

The main outcome suggested no significant difference on anxiety scores at a 12-week follow-up for ASD adolescents between CBT and counselling (CASI-anx: $F(1,35)=0.95$, $p=0.95$). The ADIS-C/P differentiated between anxiety types but also showed no significant differences (see Table 3). All effect sizes were small.

INSERT TABLE 3 HERE

Summary of findings from Mixed-Methods

The study investigated the effect of combined non-directive PT and social skills instruction on adolescents' educational goals and social skills. The outcomes were measured qualitatively with case notes and observations. Quantitative data were collected using the psychometric equivalency tested goal attainment scaling for education goals (PET-GAS; Ruble, McGrew & Toland, 2012) and Autism Social Skills Profile (ASSP; Bellini & Hopf, 2007) for social skills. The study presented N=2 adolescents who participated in 15 sessions of 30-minute combined intervention. The results suggest improved social skills and emotional awareness. However due to the combined intervention, the effectiveness of non-directive PT alone cannot be reported.

Quality of included studies

The quality of included studies was assessed as study rigour (N=11 studies, see Table 4) or risk of bias (RCT, See table 5) by the first two authors. Two quality assessments had to be conducted due to the systematic review including both qualitative and quantitative research. All 12 studies identified that participants held an ASD diagnosis given by a professional. There was generally a large amount of information provided to enable replication and a detailed exploration into the findings and therapeutic process. The RCT used standardized measurement tools with high validity. All 12 studies suggested positive outcomes for ASD adolescents receiving non-directive therapy, however statistical significance was only reported for one study. The main validity issues pertain to studies being small-scale and a lack of validated outcome measures being used. **The case-studies collected data via self-report, parent, teacher or therapist report. There was no validated anxiety measure administered which would have enabled further comparison between the RCT and case-study findings.** All eligible studies were included regardless of quality due to the evidence base being small.

INSERT TABLE 4 HERE

INSERT TABLE 5 HERE

Discussion

This systematic review aimed to synthesise current research on non-directive therapy with autistic adolescents and identify subsequent gaps for future research. To our knowledge, this is the first systematic review to date in this area. The main findings suggest non-directive interventions have positive outcomes on a range of wellbeing domains. All interventions utilised collaboration between both parties and were led by the adolescent, with the therapist primarily offering reflection and reframing to develop self-awareness and improve emotional wellbeing. Collectively, non-directive therapeutic intervention promoted holistic acceptance of the adolescent, encouraged self-acceptance, improved mental health (see Table 2). The RCT suggested both directive and non-directive interventions are equally effective at improving anxiety with no significant difference in efficacy between them. This raises concerns for behavioural interventions being the most commonly prescribed. Findings from the mixed-methods study further support the use of non-directive methods, specifically play therapy for adolescents with ASD. This contrasts with previous research questioning the use of play therapy for autistic individuals, due to low cognitive abilities (Muller & Donley, 2019).

Despite the differing methods and interventions (see Table 2 for further detail), there were commonalities across the 12 studies with regards to essential components. These components are summarised below:

1. Collaboration between adolescent and therapist
2. Adolescent-led discussions

3. Reflection and reframing utilised by the therapist
4. Encouragement and acceptance of the adolescent as they were:

All the components reflect Rogers' (1957) core conditions for therapeutic change and encompass non-directive therapeutic techniques. Placing the adolescent at the centre of the therapeutic process encourages agency over their emotions and identity and scaffolds the development of an internal locus of control. The benefit of this is supported in research summarizing the impact of internal locus of control on improved mental health (Marks, 1998). Furthermore, these components promote a move away from 'ableism' in the therapy room. Ableism is defined as: 'a network of beliefs, processes and practices that produce a particular kind of self and body (the corporeal standard) that is projected as the perfect, species-typical and therefore essential and fully human. Disability, then, is cast as a diminished state of being human.' (Campbell, 2001, p.44). Instead, the components suggest an offer of therapy that provides acceptance of the individuals' whole self, with understanding and acceptance of **neurodiversity within society**, without limiting therapeutic interventions and seeing the adolescent as 'less than'.

Researching and offering alternative therapy options are becoming increasingly important as the autistic community begin to challenge directive therapy; specifically behavioural treatments. One such organisation 'Autism Inclusion Meets' (AIM) are protesting against positive behaviour support, a type of directive/behavioural therapy commonly offered to autistic children. AIM believe 'these methods are outdated and reductionist and value compliance over autonomy, human rights and free will' and more generally believe that 'behaviourist interventions harm' (Siegler, 2021).

The findings **of this systematic review and the need for 'alternative therapeutic help' (Siegler, 2021)** identify a gap for further research measuring the four underlying components' effectiveness for autistic adolescents in larger samples. The 4 components hold

similarities with Axline's (1969) eight principles of play therapy. Axline's play therapy principles (1969) promote a non-directive way of working that utilises acceptance of the child, developing a warm relationship, respects the child's ability to solve their problems and gives the child permission to feel however they need to and express themselves freely.

Axline's principles are still the cornerstone of non-directive play therapy and mirror Rogers' person-centred therapy guidance. Play therapy was used as a non-directive intervention in N=3 (25%) of the included studies. This suggests a link between play therapy and non-directive interventions for autistic adolescents that may be worth investigating and creates potential for the therapy room to promote acknowledgement and understanding of autism and neurodiversity more generally.

Additional outcomes from several studies identified a benefit to involving others in the intervention. The inclusion of parents and professionals provided a team of support to the adolescent. This involved psychoeducation and sharing the therapeutic process. Involving parents and relevant others' is supported in research that mirrors positive outcomes for mental health e.g., eating disorders (Hart et al., 2015); wellbeing (García-Carrión, Villarejo-Carballido & Villardón-Gallego); anxiety (Brendel & Maynard, 2014) and externalizing behaviour (Tarver et al., 2019). Collectively, these findings identify a need for research into the benefits of external involvement as well as the best form for this to take (e.g., information sharing or psychoeducation). This future research should carefully address the balance between the benefit of sharing therapeutic work and maintaining client confidentiality.

Finally, the findings also highlighted the importance of therapists' awareness of ASD presentation, adolescent development and knowledge of ASD. This suggests that intervention for autistic adolescents should be tailored to the individual. The concept of tailoring intervention to individuals is already well known in education, and includes the development of Educational Health Care Plans for individuals requiring higher levels of SEN support

(National Autistic Society, 2020). Tailoring interventions is further supported by Axline's (1969) principles with the emphasis on following the child's lead and wholly accepting the child. It is advised that before additional research is undertaken, a study into therapists' perceptions of ASD be conducted. This would pre-empt any barriers to therapist engagement as well as identifying specific areas for investigation.

These results contrast findings from directive methods of intervention, as there is a much wider range of results reported (e.g., Wood et al., 2015; Murray et al., 2015; Santomauro, Sheffield & Sofronoff, 2016). This suggests non-directive methods are more effective at holistically supporting ASD adolescents as there are improvements reported across numerous wellbeing domains and developmental skills.

As only one RCT was included, it is possible that some individuals would benefit from CBT due to the **heterogeneity of autism**. This further supports the call for therapeutic intervention with autistic adolescents being tailored. Although this is only one study, the findings are supported in similar research with ASD adults (Murphy et al., 2017), adding to the study's validity and contributes to a growing body of evidence that non-directive interventions are as beneficial for adolescents with ASD as directive therapies. Therefore, continuing to over-prescribe behavioural interventions may be wasting resources and having a negative impact, e.g., disengagement or exacerbated mental health problems (Casper & Shloim, 2020).

Limitations

This systematic review is limited by the small number of studies included, highlighting a lack of research in this field but accurately representing and synthesizing the current research base. Some researchers did not report on length of intervention or diagnostic criteria used, questioning the validity of findings. The conclusions drawn were taken from

few studies with relatively small sample sizes and only one study being conducted in England. This has implications for summarizing the findings and making recommendations for further research, due to differences in governing bodies and healthcare standards globally and a potential misperception of findings from the authors as English researchers.

Despite this, the systematic review highlights an important problem within the research field in relation to studies/funding being directed towards interventions employing the ‘gold-standard’ of scientific investigation, which can only be achieved with quantitative research. This is detrimental to research into non-directive interventions which may utilise qualitative methods to capture the therapeutic process and holistic outcomes. This further contributes to the publication bias for directive methods over non-directive methods and identifies an urgent need for future research to account for the current review’s limitations.

Conclusion

The review findings make evident an urgent need for research into an under-explored area. The researchers hope to begin addressing the research gaps with research currently being undertaken at the University of Leeds, guided by this systematic review’s findings and the autistic communities’ voices. The collective results of this review and future studies have the potential to inform, develop and diversify non-directive practice with autistic adolescents. In order to ensure every adolescent with ASD receives the best possible therapeutic intervention, the therapeutic community needs to acknowledge the research gaps and biases in current provision and be guided by the population they seek to support. It is hoped that further research into non-directive interventions may translate to improved therapeutic practice and choice for autistic adolescents because of the respect for individuality and acceptance of the person that non-directive therapies enable. It may be these findings also have extendable potential to autistic adults given the increased rates of late-diagnosis (Stagg

and Belcher, 2019). However, until this happens autistic adolescents will continue to receive a disservice and be ignored, marginalised and medicalised in the therapy room due to a lack of individualized and tailored intervention that respects the spectrum nature of their diagnosis.

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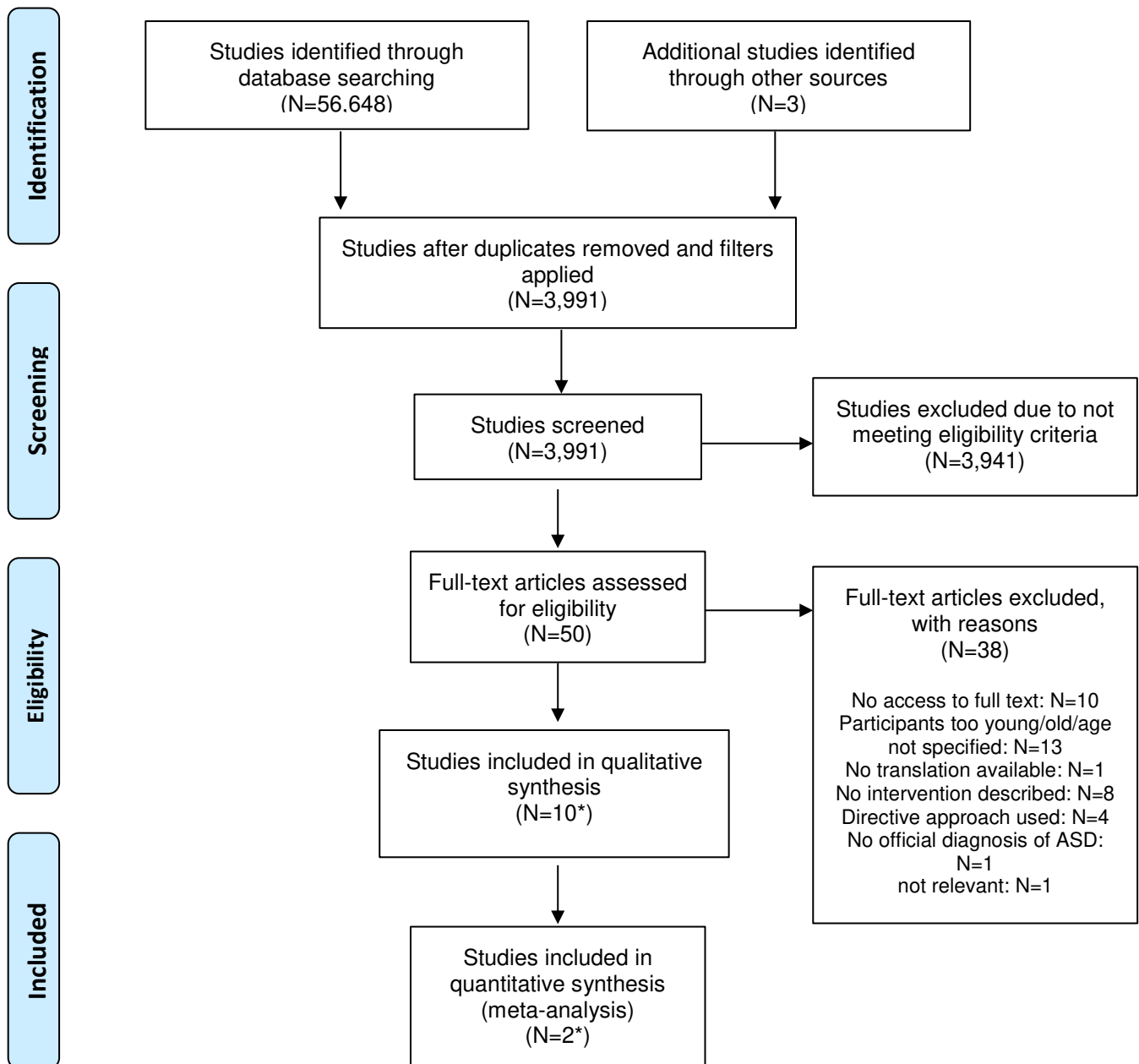
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Figure Caption Sheet

Figure 1. A PRISMA Diagram

Fig 1. A PRISMA Diagram



Notes: *one study is a mixed-methods design so included in both syntheses

Table 1
PICOS Framework

PICOS Framework	Data Extracted
Population	age, gender, diagnosis, co-occurring mental health diagnosis, total number, setting, ethnicity,
Intervention	non-directive therapy, methods used, individual or group therapy, therapist training, duration of intervention
Comparison	(if appropriate) to another therapeutic intervention or waitlist/treatment as usual, sample size
Outcome	effect of non-directive therapy on ASD adolescent, outcome measures, time taken, self-report, results, longevity
Study Design	qualitative, quantitative, case-study, RCT, ethics, risk of bias, allocation

Table 2

Characteristics of included studies

Study (year) Country Setting	Sample Size (N) Gender & Age	Co-occurring Mental Health & Presenting Problems	Study Design	Method/Intervention	Main Findings
Cashin (2008) Australia Medical centre	N=1 M 13 years	ADHD Anger outbursts no sense of belonging	Case study	Adapted Narrative Therapy Initial intervention was two months in duration.	<ul style="list-style-type: none"> • decreased anger outbursts • increased self-awareness • environmental adaptations
Durban (2014) Israel Private Practice	N=1 M 17 years	- Repetitive thoughts affecting daily functioning	Case study	Long-term Individual Psychotherapy five times a week for unspecified length of time	<ul style="list-style-type: none"> • improved communication • better able to make associations • developed a meaningful understanding of dreams • represent himself as linked to world and individual
Atlas and Gerbino-Rosen (1995) America in-patient	N=1 F 16.8 years	Mania delusional ideation anger outbursts	Case study	Counselling and medication, 3 weeks	<ul style="list-style-type: none"> • reduced delusional ideation • fewer anger outbursts • increased confidence • increased self-awareness • greater management of emotions

Sossin (2015) America	N=1 M 11 years	- restrictive interests, family break up, lack of control poor ability to mentalise	Case study	Mentalisation-based Psychodynamic Psychotherapy	<ul style="list-style-type: none">• openness to therapeutic relationship• improved metacognitive abilities• ability to create goals
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<p>Sapountzis and Bennett (2014)</p> <p>America</p> <p>Community Clinic</p>	<p>N=1</p> <p>M</p> <p>–</p> <p>N=4</p> <p>–</p> <p>15–17 years</p>	<p>Anxiety</p> <p>sexuality confusion</p> <p>restricted interests</p> <p>loneliness</p> <p>no sense of belonging</p> <p>Group:</p> <p>Lack of control</p> <p>Confusion about world</p> <p>difficulty connecting with others</p> <p>no sense of belonging</p>	<p>Case study</p>	<p>Long-term Individual Psychotherapy</p> <p>1 year</p> <p>Group Psychotherapy</p>	<p>Individual:</p> <ul style="list-style-type: none"> • greater independence • greater connection to self • increased self-awareness • greater sense of responsibility • fewer restricted interests <p>Group:</p> <ul style="list-style-type: none"> • improved relationships • increased confidence • group engagement • therapist understanding of transference
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Dergicz (2019) Israel Private Practice	N=1 M 16 years	- low functioning ASD, limited communication delayed language development	Case study	Long-term Individual Psychotherapy (10 years) parent involvement	<ul style="list-style-type: none"> • developed emotional and cognitive understanding • improved communication • better understanding of self
Van Schalkwyk and Volkmar (2015) America Community Clinic	N=1 M 15 years	ADHD social issues, restricted interests poor interpersonal abilities	Case study	Long-term Individual Psychotherapy (2 x week/ 3 years)	<ul style="list-style-type: none"> • reduced anxiety • wider perspective on the world • greater understanding of: himself, feelings, social rules and mentalisation
Lu et al., (2010) Canada Special School	N=5 4 x M 1 x F Mean age = 11.2 years	- limited communication, poor symbolising skills poor socialising skills	Case study	Non-directive sandplay	<ul style="list-style-type: none"> • improved ability to express emotions • increased symbolic elaboration in relation to narratives

Kenny and Winick (2000) America	N=1 F 11 years	- Anger outbursts	Case study	Non-directive and directive play therapy	<ul style="list-style-type: none">• decreased anger outbursts• calmer temperament• increased behaviour management• higher self-esteem
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<p>Holloway (2013) Canada Private Practice</p>	<p>N=2 M (Sam) 15 years M (Josh) 16 years</p>	<p>- Sam: self-acceptance and difficulty developing and maintaining relationships Josh: anger outbursts, obsessions with friendships, poor social skills inability to tolerate rejection</p>	<p>Case study</p>	<p>Long-term Individual Psychotherapy Sam: 5 years and continuing Josh: 6 sessions before termination</p>	<p>Sam: • developed ability to relate to others personally • increased self-awareness and self-acceptance • developed new and meaningful relationships Josh: • early termination of therapy = no outcomes/possible adverse outcomes</p>
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<p>Murphy et al. (2017)</p> <p>England CAMHS</p>	<p>N=19</p> <p>12 x M 7 x F</p> <p>Mean age = 15.56 years</p>	<p>Anxiety</p>	<p>RCT, intent-to- treat</p>	<p>Counselling vs. CBT</p>	<ul style="list-style-type: none"> • decreased anxiety across both conditions • CBT is NOT superior to counselling for anxiety in ASD adolescents
<p>Muller and Donley (2019)</p> <p>America Special School</p>	<p>N=2</p> <p>F (Annie) 12.8 years</p> <p>M (Jasper) 11.7 years</p>	<p>Annie: Tourettes poor metacognitive abilities inability to regulate emotions</p> <p>Jasper:- ADHD & Social Anxiety paranoid feelings poor metacognitive abilities</p>	<p>Mixed- methods</p>	<p>Non-directive play therapy & Social Skills instruction</p>	<p>Annie:</p> <ul style="list-style-type: none"> • increased self-regulation • improved social skills • greater self-awareness • improved metacognitive abilities <p>Jasper:</p> <ul style="list-style-type: none"> • improved social skills • improved metacognition • decreased anxiety • developed coping strategies

Table 3

ADIS-C/P Anxiety Scores at 12 Week Follow-Up

Anxiety Type defined by ADIS-C/P	12 week follow-up result
Separation anxiety	$F=(1,35)=2.40, p=.13$
Social anxiety	$F=(1,35)=1.69, p=.20$
Specific phobia	$F=(1,35)=1.57, p=.21$
Generalised anxiety	$F=(1,35)=0.64, p=.42$

Table 4

Study Rigour Assessment for Qualitative Studies

	CASP Qualitative Checklist									
Research	Was there a clear statement of the aims of the research?	Is a qualitative methodology appropriate?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?	How valuable is the research?
Atlas & Gerbino-Rosen (1995)	No	Yes	Not reported	Not reported	Not reported	No	Not reported	Not reported	No	Not very
Cashin (2008)	Yes	Yes	Yes	Not reported	Yes	No	Not reported	Not reported	No	Somewhat
Dergicz (2019)	No	Yes	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Yes	Somewhat
Durban (2014)	No	Yes	Not reported	Not reported	Not reported	No	Not reported	Not reported	No	Not very
Holloway (2013)	Yes	Yes	Yes	Not reported	Not reported	Yes	Not reported	Not reported	Yes	Somewhat
Kenny and Winnick (2000)	Yes	Yes	Yes	Not reported	Yes	Not reported	Not reported	Not reported	Yes	Very
Lu <i>et al.</i> (2010)	Yes	Yes	Yes	Yes	Yes	Not reported	Not reported	Yes	Yes	Very
Muller and Donley (2019)	Yes	Yes	Yes	Yes	Yes	Yes	Not reported	Yes	Yes	Very
Sapountzis and Bennett (2014)	No	Yes	Not reported	Not reported	Not reported	No	Not reported	Not reported	No	Not very
Schalkwyk and Volkmar (2016)	No	Yes	Not reported	Not reported	Not reported	No	Not reported	Not reported	No	Not very
Sossin (2015)	No	Yes	Not reported	Not reported	Not reported	No	Not reported	Not reported	Yes	Not very

Table 5

Risk of Bias Assessment for Murphy et al., (2017)

	Bias arising from the randomisation process	Bias due to deviations from intended interventions	Bias due to missing outcome data	Bias in measurement of the outcome	Bias in selection of the reported result
Murphy et al., (2017)	