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When a Flower Does Not Bloom: Design a School Group Play Programme for Reducing Anxiety in Children Aged 4 to 6 Years with and without Autism Spectrum Disorder- A Scoping Review

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ABSTRACT

This research designed a peer-mediated play programme for reducing anxiety for children aged 4 to 6 years with autism spectrum disorder (ASD) based on a scoping review in preparation of a systematic literature review. Specifically, the research sought to identify the prevalence of concurrent anxiety disorders and autism spectrum disorder, and the needs of children with comorbid anxiety and ASD. The methodology utilised a scoping review of the literature regarding the available non-pharmacological play-based intervention to reduce anxiety in children with concurrent anxiety and ASD. Six databases were selected, and search terms included "autism", "anxiety", "worry", "children", "intervention", "group", "therapy", "peer", "lego", "duplo", and "play therapy". Results showed that the majority of the approaches were cognitive behavioural therapy (CBT) (41), one Lego-Based Therapy, and eight play-based approaches. This paper will report on the effectiveness of the eight other approaches which has never been discussed. Based on these findings, we propose an innovative, overarching group intervention to be conducted in school settings. This research makes a valuable contribution to knowledge in the area of early intervention and ASD studies. It expands the scope of Universal Design by applying a UDL framework to early intervention. It also proposes an overarching framework to place children in their bio-ecological context and incorporate neurodiversity, contributing to Hong Kong, Ireland and beyond.

keywords: anxiety; early intervention; autism spectrum disorder; play-based intervention; Lego-based therapy

1. Introduction

No learning can happen if a young child is anxious (Goleman, 1995). Therefore, it is important to have a better understanding of anxiety in children. Anxiety is defined as "anticipation of future threat." A continuum from normal responses to a more clinical range of presentation, when such a reaction becomes excessive and impairs daily functioning, is classified as having an anxiety disorder (American Psychiatric Association, 2013).

This article will begin with the prevalence and onset of anxiety disorders in children, followed by the expression of these disorders in children. Definitions of autism and extra challenges with anxiety will also be explored. The rationale of group intervention in children will follow. The key highlights of this paper will be a scoping review of peer-mediated interventions for children with concurrent anxiety and autism Spectrum Disorders (ASD). Subsequently, future directions

and recommendations for the development of an overarching programme for preschool children, with the use of play, and peer-mediated intervention will be elucidated.

1.1 Prevalence and Onset of Anxiety Disorders in Children

Cartwright-Hatton et al. (2006) reviewed 11 studies and reported the prevalence of anxiety disorders in children aged under 12 years was about 3% in the United States to 41.2% in Japan. A later study found the onset of anxiety disorders before age 5 years (Dalrymple, 2007). In the community, 19.6% of three-year-old children met the criteria for at least one anxiety disorder (Dougherty et al., 2013). In light of the above, efforts to identify the precursors of anxiety in preschool children as well as developing interventions to offset these risk factors can have a significant impact in reducing individual and societal burdens. Having reported the above, attention now turns to the expression of anxiety disorders in children.

1.2 Expression of Anxiety Disorders in Children

Children with anxiety disorders tend to be worriers and can seem irritable or easily embarrassed. It should be noted that social anxiety disorder, selective mutism, and generalized anxiety disorder (American Psychiatric Association, 2013) are common types of childhood anxiety disorders. Children with anxiety disorders are more likely to exhibit behaviours (Beesdo et al., 2009). For instance, the behaviour of regression, such as wetting the bed beyond the age of toilet training. In fact, the causes of anxiety disorders are not well understood but may involve a combination of factors such as genetics (i.e., family history of anxiety disorders), temperament, and environmental factors (Hudson & Rapee, 2004).

2. Definition of Autism and Extra Challenges with Anxiety

The focus of this current section is to determine the most appropriate operational definition of autism for the proposed programme of research. Due to variability in the functional experiences of individuals with autism, the debate regarding the definition of autism has been evolving for decades. To elucidate this, the debate has variably centred on issues related to causes (the evolution of the aetiology), symptoms, course, medical issues, and as such a determination that autism should be referred to as a spectrum. We will deconstruct what a definition is—social or scientific—and the relationship between a definition and a diagnosis. Key highlights to be reviewed in this section include a critical analysis of the diagnostic criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM), the International Classification of Diseases (ICD), and ASD as a social construct. Based on this exploration of the central tenets of the argument, a determination will be made regarding the most appropriate operational definition of autism for the current research. Firstly, however, attention is directed towards a brief history of the concept of autism.

The development of the concept of "autism" will be reviewed before the use of manuals in the 1980s by two main official sources for autism diagnosis: DSM by the American Psychiatric Association and ICD (published by the World Health Organisation). DSM is mainly used in America while ICD is mainly used in Europe, both influenced each other in their revision of diagnostic criteria.

2.1 The Development of the Concept of "Autism"

"Autism" originated from the Greek word "autos", meaning "self", discovered by a psychiatrist Bleuler in 1911, to describe the phenomenon of children living in their own world, who were reluctant to connect with the outside world. At that time, Bleuler described these symptoms as

related to childhood-onset of schizophrenia (Volkmar and Klin, 2005). The symptoms were further developed by an Austrian-American psychiatrist and physician Kanner (1943) who first used the term "early infantile autism" to synthesise the behavioural characteristic of 11 children. In keeping with Kanner's perspective, the second edition of the DSM, the DSM-II, published in 1952, defined autism as a psychiatric condition — a form of childhood schizophrenia marked by a detachment from reality. Kanner (1943) stated that the cause is a lack of motherly love during infancy and described the mothers as "refrigerator mothers". This idea led to parents being discouraged from visiting their children in residential schools. The 'refrigerator mother' concept was disproved in the 1960s to 1970s, as a growing body of research showed that autism has biological underpinnings and is rooted in brain development. The concept of a mental disorder of schizophrenia was dismissed in 1980. Differently, an Austrian child psychologist, Hans, who did a lot of research in the 1930s, described signs or so-called symptoms based on his observations of four children. These children did not show specific delays in language development and showed average or above-average cognitive ability. A collective term "Asperger's Syndrome" was used to describe these symptoms, named after Asperger (1994). In the 1970s, a psychiatrist Wing and a clinical psychologist Gould (1979) recorded several children aged below 15 years with autistic behavioural symptoms, and used the Triad of impairments to describe their social, communication difficulties, and restricted behaviour and interests.

From this historical review, it can be seen that the concept of autism has developed historically from the early work of Kanner (1943) to the more contemporary interpretation of the Triad of impairments by Wing and Gould (1979). Having explored the brief history of the concept of autism, attention now turns to a critical analysis of how autism is defined by the scientific and medical community. Before a detailed analysis of the approach adopted by the ICD, the first element of this critical analysis will refer to the approach adopted by the DSM. After both sets of analyses, a discussion will seek to determine the extent to which these different approaches are comparable and can co-exist. In doing this the appropriate operational definition of autism for the current program of research will be elucidated.

2.2 Diagnostic and Statistical Manual

Since the 1980s, the Diagnostic and Statistical Manual, mainly used in America in the field of psychiatry, kept revising the diagnostic criteria for mental disorders, for more consistent diagnosis, and to advise pharmaceutical treatment. The DSM-III added a series of childhood disorders, and autism was included in the section on Pervasive Developmental Disorders. Pervasive Developmental Disorders were a group of disorders characterized by delays in the development of socialization and communication skills, difficulty with changes in routine, and repetitive behaviour patterns. Types include autism, Asperger's, Rett's Disorder, and Childhood Disintegration Disorder. Typical onset was before age three (American Psychiatric Association, 1980).

The DSM-IV added PDD-NOS (Pervasive Development Mental Disorders-Not Otherwise Specified) to the existing types of autism (more severe symptoms), Asperger (average or above-average cognitive ability), Rett's Disorder, and Childhood Disintegration Disorder (American Psychiatric Association, 2000).

The DSM-5 used a collective term autism spectrum disorder (ASD) to include all the previous terminology and excluded Rett's Disorder because of a different aetiology. The new definition stressed ASD being a Neurodevelopmental disorder, with core characteristics or symptoms of (a) Deficits in social communication and social interaction, and (b) Restricted, repetitive patterns of behaviour. Symptoms present in the early stages of development and cause

significant impairment in functioning (American Psychiatric Association, 2013). The attention now turns to the critical analysis of the approach adopted by ICD.

2.3 International Classification of Diseases

The ICD, mainly used in Europe in the field of psychiatry, repeatedly revised the diagnostic criteria for mental disorders to advise pharmaceutical treatment. The ICD-10 presents several possible autism profiles, such as childhood autism, atypical autism and Asperger syndrome. These profiles are included under the Pervasive Developmental Disorders heading, defined as "A group of disorders characterized by (a) qualitative abnormalities in reciprocal social interactions and (b) in patterns of communication, and (c) by a restricted, stereotyped, repetitive repertoire of interests and activities. These qualitative abnormalities are a pervasive feature of the individual's functioning in all situations" (World Health Organization, 1990, p. 252). A revised edition (ICD-11) is expected in January 2022. Appendix 1 presents a summary of the definitions by DSM-III, DSM IV-TR, DSM-5 and ICD-10.

2.4 Comparison of DSM-5 and ICD-11

A comparison of DSM-5 and ICD-10 will reveal that DSM-5 used a collective concept spectrum to represent different symptoms while ICD-10 resembled an earlier version of DSM to use a group of autism profiles. Secondly, DSM-5 grouped the Triad of impairment into Dyad, grouping together the social and communication problems which meant that individuals with varying language abilities were included in the diagnosis of ASD in DSM-5, while ICD-10 kept abnormalities in patterns of communication as a diagnostic criterion. On the other hand, the ICD-11 differs from the DSM-5 in two ways. Because the ICD is intended for global use, it also sets broader, less culturally specific criteria than the DSM-5 does. For instance, it puts less emphasis on what games children play than on whether they follow or impose strict rules on those games. The ICD-11 also makes a distinction between autism with and without intellectual disability and highlights the fact that older individuals and women sometimes mask their autism traits. Apart from DSM and ICD, we will discuss an alternative to viewing ASD as a social construct in the following section.

2.5 ASD as a Social Construct

The social construction of ASD is different from expertise's predominant focus on assessment and diagnosis. The social construction of ASD examines how the understanding, identification, and interpretation of autism are shaped through organizations of medicine, psychiatry, and psychology. It is a metaphor for how we understand normality and difference. It was proposed as an alternative to the diagnosis by DSM or ICD issues such as the problems of over-medicalisation, political, economic, and cultural biases (Milton, Kapp, Bovell, Timimi, and Russell, 2019).

Similarly, Nadesan (2005) explored the bio-political and socioeconomic implications of framing autism within medical work. She believed that the conditions permitting the diagnosis of a child were more rooted in the cultural practices and economy of their times than in the biology of their condition. Nadesan (2005) aimed to provide a non-reductionist presentation of autism, that is, personal identity over time was a 'further fact', thus, suggesting it derives from obtaining physical or psychological continuity. However, this was challenged by the positivist models concerned with positive facts and phenomena (Nadesan, 2005). Positive facts are verified by the methods of the empirical sciences. According to this view, phenomena are explicable by scientific criteria.

Nadesan (2013), herself the mother of an autistic child, argues for constructing autism as a dialectic of biology and culture, nature and mind. This approach opens up the space for exploring how socially constructed standards of normalcy, embedded in cultural values and practices can shape our interpretations of autism while also contributing to the production and transformation of people labelled with the disorder. For example, Huws and Jones (2011) summarized the limitations of presentations in newspapers in portraying autism in a standardised and homogenised way. However, such portraits failed to recognise human diversity. According to Nadesan (2013), psychiatry is sovereign over body-brain and psychology over mind. Despite philosophical rejection by advocates in both fields, the object-subject dichotomy continues to dominate clinical practice (Nadesan, 2013). Concerning the twentieth-century study of autism strongly influenced by these dualisms, Nadesan (2005) suggested that ASD was both socially constructed and materially engraved. Specialising in biopolitics, Nadesan (2008) focused on how expert understandings and technologies shaped experiences and treatment of our bodies and minds. Nadesan (2013) argues that it is the social factors involved in its identification, interpretation and remediation that determine what it means to be autistic, despite a biogenetic component to the condition.

Furthermore, Nadesan (2013) provided the theoretical framework for exploring how autism, particularly high-functioning forms of autism, can be understood in a way that interpretation and remediation reflect cultural preoccupations and concerns.

> "Although research and therapies targeting autism have value, in my opinion, they are extremely unlikely to be successful in identifying a definite set of biogenetic factors mechanistically causing or capable of curing all, or even most, forms of autism." (Nadesan, 2013, p. 23).

Nadesan (2013), therefore, warned that the current tendency for researchers and clinicians to emphasize the biological component of autism can lead to a devaluation of psychologically-based therapeutic interventions. Examples of this include behavioural modification therapy (rooted in behaviourist psychology) or play therapy (rooted in person-centred theory).

Nadesan (2013) explored that biological diseases, particularly autism, and the clinical practices developed to "cure" them as fundamentally cultural in origin. She argued that cultural practices, values, and frameworks of interpretation always fill the emergence, identification, and treatment of disease. Nadesan (2013) concluded that the social construction of "ideas" about the origin and remediation of the "autistic" patient is loaded with material consequences for parents, researchers, therapists, and physicians.

In summary, autism has been characterised by shifting paradigms; representative of the historical period validating them (Eyal, 2010). Currently, autism is considered a neurological disorder (Baron-Cohen, 2009). Timimi et al. (2016) and Eyal (2010) argued that this change was primarily ideological and represented how society viewed social and emotional competence, rather than the formation of a new scientific discovery. The authors illustrated how the medicalisation of boys' and men's social and emotional behaviour had a close relationship to social, political, economic, and cultural changes that had occurred in Western culture in recent decades. Their conclusion was controversial - the concept of autism had become a hindrance rather than a help and so according to these authors our whole approach to its diagnosis needed re-consideration. That brings us to re-consider the limitations of DSM and ICD below.

2.6 Limitations of DSM and ICD

There were arguments that DSM and ICD's revisions were influenced by the commercial drug industry and health insurance companies, and thus over-medicalisation of mental health problems (Khoury, Langer, and Pagnini, 2014). Therefore, the construction of definitions of ASD was not free from bias, value, or culture. While it is important to note the limitations, when using DSM or ICD we are viewing a person through the lens of psychiatry. It is also widely recognised that there are other lenses such as psychology and counselling where the individual is viewed as a whole. After all, the classification of diagnosis is but one way of viewing the world at one point in time (World Health Organization, 1990).

Furthermore, in an attempt to deconstruct what a definition is—social or scientific—and the relationship between a definition and a diagnosis, Milton, Kapp, Bovell, Timimi, and Russell (2019) aimed to deconstruct the diagnosis of ASD. The first four authors with various disciplinary backgrounds (one is a social scientist, one an ethicist, one a psychiatrist, and one a developmental psychologist) paid to attend a training course in the diagnostic tool, Autism Diagnostic Observation Schedule Second Edition (ADOS-2) (Lord et al., 2012, 1994). While they differed in the diagnostic tool's usefulness, all critiqued the tool's lack of transparency, lack of recognizing context and emotion, differences in interpretation, and power imbalances as playing an unidentified role in the assessment process (Milton et al., 2019).

Aware of the limitations of DSM and ICD, the current authors argue that the definition of ASD by DSM-5 and ASD as a social construct can coexist: ASD is a neurodevelopmental disorder (NDD), with core symptoms present in the early stages of development and causing significant impairment in functioning. These impairments may take the form of deficits in social communication and social interaction or restricted, repetitive patterns of behaviour (American Psychiatric Association, 2013). The two reasons for adopting the definition by DSM-5 include, firstly, it added sensory difficulties in the 'non-social' clusters of symptoms, and secondly, evaluation of severity (level 1, 2 and 3) is an integral part of the diagnosis. In addition, ICD has a similar perspective to DSM-5 but the latest version ICD-11 is not yet accessible. At the same time, we are aware of the limitations of DSM-5, and we propose adopting the up-to-date social construction in the definition of ASD. And considering the social interpretation of the conditions permitting the diagnosis of a child were more rooted in the cultural practices and economy of their times. In doing so, we will focus on the sample recruited, and explore its efficacy in data collection in the methodology chapter.

In this section, the origin and history of the concept of autism were explored for the proposed research. Due to variability in the functional experiences of the individual with ASD, the wide variety of symptoms associated with ASD, multidisciplinary involvement, and the debate regarding the definition of ASD has been difficult to make. For example, the debate on causes, symptoms, medical issues, and a determination regarding autism should be referred to as a spectrum. Key highlights in this section included a critical analysis of the diagnostic criteria outlined in the DSM and ICD, and consideration of ASD as a social construct. Based on the exploration of the argument, a determination on the most appropriate operational definition of ASD was made for the current research.

3. Prevalence of Concurrent Anxiety Disorders and Autism Spectrum Disorder

The focus of this current section is to review the comorbidity rate of anxiety disorders in children with ASD for the proposed research programme. Challenges to estimating the prevalence of ASD and anxiety disorders include changing definitions and labelling practices over time, as well as the high probability of co-occurring conditions that fall under the umbrella term of ASD. For example, Van Steensel et al. (2011) reported a diagnostic overlap between

ASD and OCD, and ASD and social anxiety disorder. Key highlights to be reviewed in this section include the prevalence of anxiety disorders in children with ASD globally, in Ireland and Hong Kong. Based on an exploration of the argument, a determination of the prevalence of anxiety disorders in children with ASD will be made for the current research.

3.1 Prevalence of ASD

A rise in the prevalence of ASD in the past decades has been observed, estimated by the World Health Organization in 2021 citing that about one in 160 children has an ASD (Mayada et al., 2012). According to the Centers for Disease Control and Prevention (CDC), prevalence rate of ASD is estimated at 1.85% (1 in 54) children in the U.S. (Maenner et al., 2020).

3.2 Prevalence of Concurrent ASD and Anxiety in Children

More importantly, around 50% of individuals with ASD have anxiety that affects their daily lives (Davis Iii et al., 2017), and updated research is needed to inform practices in education and early intervention. Specifically, the comorbidity rate of children with ASD and anxiety disorders is high, with results of 43% of the total sample met screening cut-off criteria for at least one anxiety disorder (Sukhodolsky et al., 2008). These authors examined the frequency and correlation of parent-rated anxiety symptoms in a sample of 171 children aged 5-17 years with Pervasive Developmental Disorders in a clinical setting. The instrument used was twenty items of the Child and Adolescent Symptom Inventory (CASI) to measure anxiety. Higher levels of anxiety on the 20-item CASI scale were associated with higher IQ, the presence of functional language, and higher levels of stereotyped behaviours. They concluded that anxiety is common in PDD and warrants consideration in clinical evaluation and treatment planning.

Likewise, White, Oswald, Ollendik, and Scahill (2009) reviewed 40 studies in 1990-2008 for children and youth aged 6-18 years diagnosed with ASD. This review indicated that between 11% and 84% of children with ASD experience some degree of impairing anxiety. Most of these studies examine the prevalence of different types of anxiety disorders including GAD, separation anxiety disorder, specific phobia, social phobia, and OCD. Some studies report a higher prevalence of clinical anxiety in children with ASD compared to the prevalence of clinical anxiety in typically developing (TD) children (Russell et al., 2005) and children with other clinical diagnoses such as conduct disorder (Green et al., 2000), language impairment (Gillott et al., 2001), and Down syndrome (Evans et al., 2005). In addition, children and youth (aged 7-16 years) with ASD may experience significantly more diagnoses including specific phobias than those without ASD (Settipani et al., 2012). In the unique studies to examine anxiety disorders in ASD, de Bruin, Ferdinand, Meester, de Nijs, and Verheij (2007) found that over 55% of the sample met the criteria for at least one anxiety disorder and Simonoff et al. (2008) reported an overall anxiety disorder diagnosis rate of nearly 42%. Examples of the most frequently reported anxiety disorders and symptoms in children with ASD are simple phobias, GAD, separation anxiety disorder, obsessive-compulsive disorder, and social phobia. The above findings all highlighted the need for effective intervention. Moreover, the assessment of anxiety disorders in ASD should be conducted using multiple informants and modalities, as children with ASD often do not display age-typical symptoms of anxiety.

Consistent with White et al. (2009)'s review, a meta-analysis of data shows that 39.6% of children and adolescents with ASD have at least one anxiety disorder (Van Steensel et al., 2011). Van Steensel et al. (2011) aimed to clarify which of the specific DSM-IV anxiety disorders occur mostly in children and adolescents with ASD. They used methods of meta-analytic techniques to identify 31 studies involving 2121 young people (age<18 years) with ASD, where the presence of anxiety disorder was assessed using standardized questionnaires

or diagnostic interviews. Results found that across studies, 39.6% of young people with ASD had at least one comorbid DSM-IV anxiety disorder, the most frequent being specific phobia (29.8%) followed by OCD (17.4%) and social anxiety disorder (16.6%). Associations were found between the specific anxiety disorders and ASD subtype, age, IQ, and assessment method (questionnaire versus interview). They concluded that the rate of anxiety observed is consistent with previous reviews of the ASD literature (e.g., White et al. (2009). There is a diagnostic overlap between the anxiety subtypes and the criteria for ASD, especially between ASD and OCD, and ASD and social anxiety disorder.

With a different focus, Van Steensel et al. (2013) aimed to examine ASD traits in children with clinical anxiety, in a sample of 42 School-aged children (mean age 12.5) diagnosed with anxiety disorders in a clinical setting, compared to 42 typically developing children. Results reported by parents showed that over one-third of children with anxiety disorders, but no known history of ASD exceeded at least one of the three ADI-R thresholds for early childhood clinically significant ASD symptoms. The instrument used was Autism Diagnostic Interview-Revised (ADI-R, Lord et al., 1994). Children with anxiety disorders showed significantly more ASD symptoms in early childhood than typically developing children. Furthermore, early ASD symptoms were found to be related to current ASD-like behaviours as well as current symptoms of a social anxiety disorder (Van Steensel et al., 2013). They concluded that children with anxiety disorders had higher scores than typically developing children, for both ASD traits in early development as well as current ASD symptoms. A specific association was found between symptoms of Social Anxiety Disorder and ASD traits early in life.

Trying to explain the large variation in the prevalence of concurrent ASD and anxiety, Kurtz (2018) highlighted the difficulties to identify anxiety in children with ASD. Diagnostic overshadowing and a lack of sound diagnostic criteria often result in symptoms of anxiety being overlooked within the ASD population. However, atypical behaviours such as self-stimulatory and stereotyped behaviours, which are common features of autism, can be increased by the presence of anxiety. Furthermore, given children with autism struggle to identify emotions in themselves and others, inaccuracy in reporting can cloud a clinician's ability to provide a comorbid diagnosis of anxiety (MacNeil, Lopes & Minnes, 2009).

3.3 Prevalence in Ireland and Hong Kong

Differently, the prevalence of anxiety disorders in children with ASD was estimated to be 1.5% in Ireland. The authors feel that this is a more accurate reflection of the prevalence rate in this particular cohort. This is similar to the Department of Education figure of 1.5% which is based on the number of children with a diagnosis of ASD who are availing of additional teaching supports in schools (Boilson et al., 2016).

Although the exact prevalence rate was not documented in Hong Kong, a most relevant epidemiological report on children with anxiety disorders and anxiety problems during the two years of 2012 and 2013, found an incidence rate of 3% of the total referral to Child Assessment Service (CAS). Among these 570 children diagnosed with anxiety disorders/problems, the common comorbid condition was ASD at 13.5% (Chan and Chan, 2014). They concluded that given the common comorbidity of childhood anxiety with a developmental disorder of ASD, and the possible confusion of symptoms presented by ASD and social anxiety, careful investigations of children's emotional problems should be included in our clinical practice. Furthermore, in the coming future, more work has to be done on public education so that sensitivity to children's emotional health and problems can be raised. Early preventive work and identification of problems in childhood will certainly help to promote the general mental health of society in the long run.

3.4 Why Focus on Childhood Education?

Limitations of previous research include few studies reporting on anxiety in preschool children (Hayashida et al., 2010) or lower functioning (Bradley, Ames, & Bolton, 2011) children with ASD. Limitations include particularly a lack of examination of the precursors of anxiety symptoms in children, and rates of subclinical anxiety symptoms in children with ASD. Niditch, Varela, Kamps, and Hill (2012) reported that about 20% of preschool children (<6 years) and 9% of early elementary school children (6–9 years) with ASD had subclinical levels of anxiety. Strang et al. (2012) found that 21% of children with ASD exhibited subclinical anxiety, but this was across a broad age group of children (6–18 years). Subclinical or subthreshold symptoms are important because they reflect a potentially evolving anxiety disorder or a previous anxiety disorder that has partially remitted. This is of particular interest in the development of future approaches or interventions. Thus, data on both clinical and subclinical anxiety provide a more comprehensive picture of the course of anxiety in children with and without ASD. Identifying subclinical anxiety is also critical for prevention and intervention (Vasa et al., 2013). For example, Ginsburg (2009) found that high-risk TD youth, as defined by those with a parental history of anxiety disorder, who received cognitive-behavioural therapy (CBT) had a significantly lower risk of developing anxiety disorders after one year compared to children assigned to a waitlist control condition. The majority of the children with clinically elevated anxiety symptoms aged 8 to 11 years followed a trajectory in which moderate preschool anxiety gradually increased over time (Baribeau et al., 2020). The preschool stage presents an important opportunity for prevention of or early intervention for anxiety in ASD. Children with a high insistence on sameness as pre-schoolers were very likely to have a high insistence on sameness in middle childhood as well as elevated current and/or future anxiety symptoms (Baribeau et al., 2020). Given the high and impairing rate of anxiety disorders in this ASD population, prevention studies recruiting preschool-aged or early school-aged children are needed.

3.5 The Needs of Children with Comorbid Anxiety and ASD

Children with comorbid anxiety and ASD have a need for connectedness. Although it is often assumed that individuals with ASD prefer isolation and low social contact, many of them are intensely aware of their social disconnectedness and appear to wish it could somehow be different (Attwood, 2000). Currently, anxiety is not considered a phenomenological characteristic of ASD.

The presence of comorbid anxiety can aggravate core symptoms of ASD (Sukhodolsky et al., 2008), impair daily living skills (Drahota et al., 2011) and negatively impact relationships with peers, teachers, and family (Kim et al., 2000). For children with ASD, the co-occurrence of anxiety disorder could compound the overall social impairment. For example, social anxiety may lead to avoidance of social situations, awkward interactions with peers, and contribute to further isolation from same-age peers (Myles et al., 2001). Therefore, anxiety may have bidirectional effects on the social disabilities of ASD. Given these findings, a developmental approach to understanding how anxiety develops, and how it may interact with the core disabilities of ASD, is important.

Children, despite their symptoms of anxiety disorders and ASD conditions, like all children, have a need for being wanted, understood, respected, and accepted as human being worthy of dignity (Axline, 1969). Therefore, a need exists for intervention strategies that address these children's emotional, social and behavioural problems. However, most traditional counselling is conducted through talk therapy, which requires cognitive rationalising and expression through language. Non-verbal or minimally verbal children would experience challenges

participating in talk therapy. Children with characteristics of anxiety disorders and ASD may be limited in their verbal expressions of experiences, emotions, and a sense of insecurity. Hasn't been used previously for this population with dual conditions, approaches using play are appropriate for children with additional needs since it is free from language or verbal communication issues. Toys and play are relatively universal and not restricted by children's verbal language abilities. It has been found that children could express their experiences and emotions more freely through play than by using language (Axline, 1950).

The focus of this current section was to review the comorbidity rate of anxiety disorders in children with ASD for the proposed research programme. Challenges to estimating the prevalence of ASD and anxiety disorders include changing definitions and labelling practices over time are addressed, as well as the high probability of co-occurring conditions that fall under the umbrella term of ASD. For example, the change of diagnostic criteria from DSM-III to DSM-5. Key highlights reviewed in this section included the prevalence of anxiety disorders in children with ASD globally, in Ireland and Hong Kong. Based on the needs of children with ASD and anxiety disorders, a determination was made for the current research programme to focus on the pre-school stage using a play approach.

4. Scoping Review of Play-Based Group Interventions for Children with Concurrent Anxiety and Autism Spectrum Disorders

4.1 Materials and Methods

The methodology was scoping review of the literature regarding the available non-pharmacological play-based intervention to reduce anxiety in children with concurrent anxiety and ASD. Six databases were selected in the areas of Social Sciences, Education, Psychology, Medical, and multidisciplinary respectively, and dissertations and Theses. The following databases were searched on 13th April 2021: *Academic Search Complete, ERIC, Psycinfo, Medline, and Web of Science (core collection). ProQuest Dissertations & Theses: A & I.* Some examples of the search terminologies include: "autism", "Asperger", "ASD", "anxiety", "worry", "children", "intervention", "group", "therapy", "peer", "lego", "duplo", and "play therapy".

The review was limited to published empirical studies and unpublished dissertations from 1996 and onwards. Only studies containing participants with children and with autism spectrum conditions (aged 2-12 years) were included. Adolescents and adults with autism spectrum conditions or children with anxiety-related conditions but not on the autism spectrum were excluded from this review. In addition, studies that only described interventions but did not deliver intervention using group or play or LEGO therapy to children with autism spectrum conditions were also excluded. Results were also limited to articles published in English in peer-reviewed journals/unpublished doctoral dissertations/grey literature.

4.2 Aim of the Scoping Literature Review

In this current section, the researchers will report on the initial findings of a scoping review of the existing intervention options—both behavioural and psychosocial—for children with dual diagnoses of anxiety and ASD and explore alternative intervention options that warrant further study. The scoping review specifically focused on peer-mediated and play-based interventions.

4.3 Results of the Scoping Literature Review

Results showed that the majority of the approaches were cognitive behavioural therapy (CBT) (41), one Lego-Based Therapy, and eight play-based approaches. This paper will report the effectiveness of the eight other approaches.

Among the relevant studies, 6 relevant empirical papers reported cognitive behavioural therapy (CBT) about anxiety outcome ($N = 6$) were found within this area, one Lego-Based Therapy ($N = 1$) and eight other approaches ($N = 8$). Table 1 showed the results of the scoping review. This section of the paper will summarize the effectiveness of the eight other play-based group approaches and suggest future recommendations for the development of an innovative, and overarching programme for the current research. Scoping reviews of CBT and Lego-Based Therapy were published recently (Choy, Mc Guckin and Twomey, 2021; Choy, Mc Guckin and Twomey, 2022).

Table 1.
Play-based approaches of the 15 empirical studies in reducing anxiety in the scoping review

CBT (6)	Five studies demonstrated effectiveness in reducing anxiety in children
Lego-Based Therapy (1)	Demonstrated partial effectiveness in reducing anxiety in children
others (8)	
The Secret Agent Society Social Skills program x2 Dramatherapy x1 Social recreational program x1 Theatrical Play Programme x1	Demonstrated effectiveness in reducing anxiety in children
Social skills training SOSTA-FRA x1 Improvisational drama group x1 A Play-Based, Peer-Mediated Pragmatic Language Intervention x1	Did not demonstrate effectiveness in reducing anxiety in children

Among the eight empirical research studies (Appendix II), five studies showed effectiveness in reducing anxiety in children. Namely, The Secret Agent Society Social Skills program (Beaumont, Rotolone, Sofronoff, 2015; Beaumont, Pearson, Sofronoff, 2019), Dramatherapy (Godfrey and Haythorne, 2013), Social recreational program (Goh et al., 2011, Sung et al., 2011), and Theatrical Play Programme (Mpella et al., 2018). On the other hand, three of the studies did not demonstrate effectiveness in reducing anxiety in children. These studies included the Social skills training SOSTA-FRA by Freitag et al. (2013) who reported that the mean anxiety and depression ratings by parents as well as self-reporting were already below the clinical range prior to the commencement of the study. Therefore considering these floor effects, strong improvement in these symptoms was not to be expected. Improvisational drama group (McIlwee, 2016) reported a survey of parents of children with autism and mental health providers was another study which did not demonstrate effectiveness in reducing anxiety. Similarly, Parsons et al (2019) report that their intervention focusing on pragmatic language: A Play-Based, Peer-Mediated Pragmatic Language Intervention did not have a successful outcome on anxiety.

Five of the empirical studies that showed effectiveness in reducing anxiety in children with ASD will be summarized as follows. In The Secret Agent Society Social Skills program, Beaumont, Rotolone, and Sofronoff (2015) reported the effectiveness in improvements in emotion regulation abilities, social skills, and behaviour at school and at home, maintained at a 6-week follow-up. The program's duration was 10 weeks, designed for children aged 7-12

years, conducted by school staff such as special education teachers (38.9%), guidance officers/counsellors (33%), learning support staff (22.2%), and classroom teachers (5.6%) in a school setting. The effectiveness strategies are both structured and unstructured interventions. However, the structured intervention generally led to superior treatment outcomes.

Similarly, Beaumont, Pearson, Sofronoff (2019) reported the effectiveness of the program in reducing children's overall anxiety as reported by parents ($F(2, 25) = 8.57$, $p = 0.001$, partial $\eta 2 = 0.41$), and children's social anxiety as reported by themselves ($F(2, 25) = 7.14$, $p = 0.004$, partial $\eta 2 = 0.36$). All significant treatment effects were maintained at a six-week follow-up. The program's duration was 9-weeks, including interventions of 90 minutes, for children aged 7-12 years, conducted by university psychology clinical interns, in a community setting. The effective strategies included weekly parent group training sessions, home missions (skills practice tasks) and weekly tip sheets that informed school staff about the skills that children were learning, as well as how they could support them in applying these skills in the classroom and playground.

Using a different approach, Godfrey and Haythorne (2013) reported the effectiveness of the dramatherapy program designed for children and teenagers aged 11-17 years, conducted weekly by psychologists and dramatherapist in school settings. The parents and teachers gave feedback on themes including Feelings: a safe place to explore; Peers: being included and making friends; Social skills: role play provides a shortcut to learning about and practising social skills; Structure: predictability lessens anxiety; and Families: supporting the whole system. There were no negative comments about the dramatherapy treatment recorded on the feedback forms. Effective strategies included the basic structure of a session that remains the same every week in order to increase confidence and reduce anxiety related to change.

In a social recreational program, Goh et al. (2011) and Sung et al. (2011) reported on the effectiveness in reducing generalized anxiety and overall anxiety symptoms at a 6-month follow-up on SCAS-C. Clinician ratings on the CGI-S demonstrated an increase in the percentage of participants rated as ''Normal'' and ''Borderline'' for both programs. The program was 16 weeks in duration with a 90 minutes manualized program developed by Psychologists and Research Assistants, for ages 9-16 children and young people, conducted by therapists in a therapy setting. Effective strategies utilised in this study included the use of structure and visual cues to encourage behavioural regulation expected in a group setting. For example, a session structure of greeting at the beginning and goodbye at the end, with three activities in the middle. In addition, visual cues of participants' names and stickers were shown about behaviours were encouraged. With these strategies in place, group activities provided the participants with opportunities to learn and practice pro-social skills through cooperative games such as board games and treasure hunts. In their interaction with others, the participants were reminded of social etiquette such as taking turns and playing fair. Homework tasks given included related activities the participants could try outside of therapy sessions.

In the Theatrical Play Programme, Mpella et al. (2018) reported that all six children reduced anxiety risk. The Programme was 16 educational sessions 45 minutes for eight weeks, for ages 9.1-11.4 children, conducted by a physical education teacher and six integration classroom teachers, in a school setting. Effective strategies included cooperation with their peers, role-playing and various improvisation games. The activities took place in a very positive and fun environment, where a total of 960 acts were performed.

4.4 Summary and Future Recommendations Group, Play-Based Interventions for Children with Concurrent Anxiety and Autism Spectrum Disorders

Summary of this scoping review is included as follows. Future recommendations as an implication of the current review will follow as they could then be linked to the proposed overarching framework to include CBT, eight play-based approaches, and Lego as some possibilities.

Age

The five empirical studies that were effective in reducing anxiety were reported for participants aged 7-12. This confirmed the age gap for interventions for preschool children ages 4-6.

Setting

Three studies were conducted in a school setting (Sofronoff, 2015; Godfrey and Haythorne, 2013; Mpella et al., 2018). While one study was in a community setting **(**Beaumont, Pearson, Sofronoff, 2019) and one study was in a therapy setting **(**Goh et al.,2011 and Sung et al., 2011). This confirmed the feasibility of a school-based programme.

Duration

The duration ranged from 45 minutes (Mpella et al., 2018) to 90 minutes (Goh et al., 2011 and Sung et al., 2011). This confirmed the effective duration of 45 minutes to 90 minutes.

Frequency

The frequency ranged from 10 weeks **(**Beaumont, Rotolone, Sofronoff, 2015) to 16 weeks (Goh et al., 2011 and Sung et al., 2011), mostly once a week to twice a week (Mpella et al., 2018). This confirmed the future recommendation of 10 to 16 weekly sessions.

Effective strategies

Six strategies were found to be effective in reducing anxiety for children with anxiety and autism, namely structure, visual cues, group activities, parent group training sessions, home missions, and a positive and fun environment.

First of all, structured intervention was found to be effective in reducing anxiety for children as reported in four studies **(**Beaumont, Rotolone, Sofronoff, 2015), the basic structure of a session remains the same every week **(**Godfrey and Haythorne, 2013; Goh et al., 2011 and Sung et al., 2011).

In addition, the use of visual cues was found to be effective for children with anxiety and autism to reduce their anxiety (Goh et al., 2011; Sung et al., 2011). For example, having the children's names and the time of the session written down made the children feel consistent and safe.

Moreover, group activities were found to be one of the effective strategies (Goh et al., 2011; Sung et al., 2011); cooperation with their peers, role-playing and various improvisation games (Mpella et al., 2018) were some examples of group activities.

More importantly, parent group training sessions (Beaumont, Pearson, Sofronoff, 2019) were found to be effective in supporting the children in coping with their anxiety.

Furthermore, home missions which included skills practice tasks, together with tip sheets **(**Beaumont, Pearson, Sofronoff, 2019; Goh et al., 2011; Sung et al., 2011) helped children to have generalization of skills beyond the sessions.

Last but not least, the activities that took place in a very positive and fun environment (Mpella et al., 2018) were important elements of the intervention where children feel they were doing something they were good at, rather than having a lot of problems.

Therefore, these evidenced-based strategies of structure, visual cues, group activities, parent training sessions, home missions, and a positive environment will be included in the future intervention program.

Conducted by teachers or professionals

Two studies reported school staff conducted the programs: a physical education teacher and six integration classroom teachers **(**Mpella et al., 2018) and school staff such as special education teachers, guidance officers/counsellors, learning support staff, and classroom teachers (Beaumont, Rotolone, Sofronoff, 2015). While the other three studies reported varied professions in conducting the programs: university psychology clinic interns **(**Beaumont, Rotolone, Sofronoff, 2015), psychologist and dramatherapist **(**Beaumont, Pearson, Sofronoff, 2019), and therapists (Godfrey and Haythorne, 2013). It is proposed for the current research that more school staff or multi-disciplinary professions to conduct the programme in a school setting.

Overarching framework

An overarching framework such as the bio-ecological model (Bronfenbrenner, 1979) considers children's contexts in their development. That is involving important people around the child in the early intervention program. Examples are parents, peers, school personnel, and so on. This framework is highlighted in research to address risk factors of anxiety issues in children (Rubin, Coplan, and Bowker, 2008). In this current scoping review, among the five programs, only Beaumont, Rotolone, and Sofronoff (2015 and Beaumont, Pearson, and Sofronoff (2019) included the parent training sessions. We propose for young children below 7 years of age, their parental involvement is important to support them for early intervention to be comprehensive.

4.5 Contributions

The educational impact of this scoping review has confirmed the gap for intervention for ages 4-6 children as well as a lack of an overarching framework to support children with ASD and anxiety. To address the practice gap, an innovative overarching framework is proposed by this current research for children experiencing anxiety in this age group, which is not already catered for. Early intervention is emphasised for these children. The anticipated outcomes include reducing anxiety in young children and enhancing understanding of anxiety in educational settings. The future program will adopt from this scoping review the evidence of the effective strategies and autism-friendly strategies: use of structure and visual cues, group activities, parent training sessions, home missions and a positive and fun environment. From this scoping review, we propose to develop several toolboxes the children, parents, and teachers can use in the resource packages, with a UDL framework at the beginning. This new programme can be conducted by school staff and multidisciplinary professions in a school setting. Tentatively designed to be 45 to 90 minutes in duration, comprising 10 to 16 sessions.

Taking into account the partially supported effectiveness in reducing anxiety in children aged 9-18 years in one study (Nguyen, 2017), an innovative overarching framework is proposed by this current research for a younger age group. A more overarching framework incorporating a UDL perspective, to develop a new programme considering more factors such as context (peers, parents, and school staff) is needed to help children in a variety of settings.

Based on these findings, we propose an innovative, overarching group intervention to be conducted in a school setting. It will be unique to expand the scope of Universal Design by applying a UDL framework to early intervention for future implementation and development. It also proposes an overarching framework to place children in their bio-ecological context and neurodiversity, contributing to Hong Kong, Ireland and beyond.

5. Conclusion

In summary, this article first defined the construct of anxiety in children. The prevalence and onset of anxiety disorders in children, followed by the expression of anxiety disorders in children were discussed. The definition of autism and extra challenges with anxiety were also examined. Concurrent anxiety and ASD in children were investigated in terms of the scoping review of existing interventions. Five out of eight empirical studies using other approaches were reported to be effective in using play-based group intervention for reducing anxiety in children. One article using Lego-Based Therapy to improve anxiety in children was partially supported. Nevertheless, evidence-based strategies from the literature could be adopted to explore an alternative intervention that addresses risk factors of anxiety, i.e., a combination of genetics, temperament, and environment. Conceivably, the development of an overarching programme for preschool children, with the use of play, and peer-mediated intervention could be elucidated.

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Appendix 1. Definitions of autism by DSM-III, DSM IV-TR, DSM-5 (APA, 1980, 2000, 2013) and ICD-10 (WHO, 1990)

DSM and ICD	Definitions of autism		
DSM-III	Rett's Disorder	**Pervasive Developmental Disorders**: a group of disorders characterized by delays in the development of socialization and communication skills. Difficulty with changes in routine, repetitive behaviour patterns. Types include Autism, Asperger, Childhood Disintegration Disorder. Typical onset before age 3 (APA, 1980).	No PDD-NOS (not otherwise specified)
DSM-IV	Rett's Disorder	**Pervasive Developmental Disorders**: Autism (more severe symptoms), Asperger (average or above-average cognitive ability), Childhood Disintegration Disorder (APA, 2000).	Added PDD-NOS (not otherwise specified)
DSM-5	exclude Rett's Disorder because of different aetiology.	**Autism Spectrum Disorder**: Stress on Neurodevelopmental disorder, core symptoms (a) Deficits in social communication and social interaction, (b) Restricted, repetitive patterns of behaviour. Present in the early stages of development and cause significant impairment in functioning (APA, 2013).	qualitative abnormalities in patterns of communication not a criterion
ICD-10	Rett's Disorder not mentioned	It presents several possible autism profiles, such as childhood autism, atypical autism and Asperger syndrome. These profiles are included under the **Pervasive Developmental Disorders** heading, defined as "A group of disorders characterized by (a) qualitative abnormalities in reciprocal social interactions, and (c) by a restricted, stereotyped, repetitive repertoire of interests and activities. These qualitative abnormalities are a pervasive feature of the individual's functioning in all situations" (WHO, 1990).	characterized by qualitative abnormalities (b) in patterns of communication