



The object play of young children on the autism spectrum: A narrative review of strengths-based literature

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Abstract

ABSTRACT

Purpose: The play in young children with autism has been historically seen as deficits-based, with a focus on the limitations of autistic object play. More recently, there has been a shift towards a strengths-based view of autistic object play, where their play preferences and skills are viewed as vehicles for meaningful engagement and as having potential for learning. The aims of this narrative review are two-fold: to identify themes in the existing literature regarding the object play of young children with autism; and, to summarize the existing literature specifically examining object play in young autistic children from a strengths-based point of view. A neurotypical framework will be utilized to categorize autistic play, under sensorimotor, functional, and pretend play. *Methods:* The databases CINAHL Complete, APA PsychInfo, Pubmed, and ERIC (ProQuest) were systematically searched from January 2000 to June 2023 with key search terms and search strategies. Peer-reviewed articles with an age range of children with autism six months to nine years old were included. *Results:* Sensorimotor play is predominant in young children with autism, in both amount of play and type of play. Functional play has more recently been shown to be present in young autistic children, although with sensorimotor properties. There is a clear lack of pretend play in autistic children. In the final screening, 11 studies were included that used strengths-based practice principles in viewing children with autism's object play. *Conclusions:* A sensorimotor object play bias is proposed. There is a need for experimental research that uses a strengths-based perspective in examining autistic object play. Future studies should focus on exploring the sensorimotor object play bias through a strengths-based framework.

Keywords: object play; object exploration; play in children with autism; strengths-based view of autistic play; strengths-based practice

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INTRODUCTION

Autism is a neurological disorder characterized by speech and communication delays, differences in social skills, and differences in play and interaction with the environment.¹ The typical age of diagnosis is 43.18 months among young children with autism diagnosed before the age of ten although diagnosis varies throughout early childhood.² Formal assessments are provided at the time of diagnosis, including examining the child's play preferences. Studies have explored autistic play as early as six months old and have been able to determine differences in their play throughout early childhood.³

Young children with autism have different play preferences than their neurotypical peers. Studies have shown that children with autism have an object bias, or object preference, over the social or face preference which is ubiquitous among neurotypical children.^{4,5} This means that children with autism look at objects longer and more frequently than they do at faces, and they interact with objects more than their neurotypical peers.^{5,3} The object preference in children with autism generalizes to a preference for object play over peer play. Object play occurs through a child's natural drive to explore, wherein the child is actively engaged and interacting in play with one or more objects.⁵ Object exploration is conceptualized as any goal directed action requiring active exploration or manipulation.

Object play in neurotypical children generally falls into one of three hierarchical stages as first described by Jean Piaget and later modified by Alan M. Leslie.⁶ The most primary play level is sensorimotor or exploratory play, wherein the child explores sensory features of the object such as mouthing a toy car, shaking a rattle, or feeling a crinkle book. The next level of play is considered functional play or relational play, defined as using the play object for its appropriate purpose such as rolling a toy car along a surface, coloring with markers, or bouncing a ball. The most complex form of play is symbolic or pretend play, which requires abstract thought and symbolic representation of objects such as using a banana as a phone or pretending to drive a car. The existing hierarchical standards for play can be seen as modifications of Piaget's original observations of play development from a cognitive development approach. Currently, there is no stage theory of or framework for the levels of object play seen in children with autism.

Occupational therapy practitioners and researchers compare children with autism against neurotypical standards with regards to their object play. This ultimately leads to a deficits-based point of view, where the child with autism is seen to have restricted and repetitive interests.¹ The deficits-based lens focuses on a child's limitations, thus restricting the child with autism's potential for learning through object play. There has been a call to use a strengths-based approach in viewing a child with autism's play behavior.⁷ This approach stems from self-determination theory, a meta-theory of motivation which identifies a human's three core psychological needs as autonomy, competence, and relatedness.⁸ A strengths-based lens acknowledges the differences in the child with autism. The practitioner who utilizes strengths-based practice takes time to observe the autistic child's play patterns. Instead of viewing the play differences as deficits, the strengths-based approach considers them as opportunities to facilitate meaningful engagement in occupation. A strengths-based perspective of autistic play is necessary to view their primary occupation of object play as meaningful to them. When autistic play is viewed as inherently meaningful to the child, practitioners can focus on using their play as a means for engagement and learning. A strengths-based lens expands a child's potential for learning through engagement in their meaningful play preferences.

This review will examine the object play in young children with autism from a strengths-based point of view, where the child's object play preferences are seen with potential for learning and active engagement. There are two aims of this narrative review. The first is to summarize the existing literature and identify patterns in the object play of young children with autism, as they relate to object exploration. The second is to summarize the existing literature specifically examining object play in young autistic children from a strengths-based point of view wherein strengths-based practice principles are utilized. To date, there is no review of strengths-based literature as it relates to the object play patterns in young autistic children. The necessity of this review lies in the paradigm shift moving towards strengths-based practice. Occupational therapists must be equipped to adopt strengths-based practice and thus ought to know the relevant literature.

Given that there is currently no existing categorical framework for autistic object play, the neurotypical framework of play hierarchy will be used. Within the three main play levels, the literature can be analyzed over time with various emergent patterns. A brief note on terminology used throughout this article. In aligning with the neurodiverse community on preference for identity-first language, this article will refer to the population under study as "autistic children" interchangeably with "children on the spectrum" or "children with autism."⁹

METHODS

The search was carried out in four electronic databases that were determined to be the best fit for the topic: CINAHL Complete, APA PsychInfo, PubMed, and ERIC (ProQuest). OTseeker was not utilized because of its lack of funding since 2016 and their

recommendation to refer to other established databases. Due to the paucity of research exploring a strengths-based approach to autistic object play, the search strategy included relevant studies in English published from January 2000 until June 2023. The search terms were “object play” or “play” and “autism” or “young children with autism” or “autistic children” and “strengths based perspective” or “strengths-based.” To get a more targeted search, the stated words were combined with other more specific words such as “sensorimotor play” and “functional play.” For some of the databases, specific subjects were also selected for a more targeted search, such as “childhood” or “early education.” All study types were included. Peer-reviewed studies with young children with autism were included, with an age range spanning from six months old to nine years old. This age range was identified to include infants who were found to display differences in object exploration as well as to capture studies which included early school-aged children. An article’s eligibility was determined by the primary researcher, with its relevancy determined based on the article’s use of strengths-based practice principles. Specifically, the study was included if it used strengths-based terminology in examining or describing autistic play, if it observed autistic play from a non-critical standpoint and focused on capabilities, and if it viewed autistic play as having potential for learning and active engagement.^{10,11} Studies which included autistic children with comorbid physical disability conditions were excluded from this review, as well as studies which included adolescents or adults with autism. Studies which included autistic children with comorbid learning disabilities were included in this review, such as significant learning disability (SLD).

RESULTS

The researcher found 16,463 articles from the four databases in the initial search. After title and abstract screening, 66 articles were included. 27 duplicates were then removed, for a total of 38 articles for full-text screening. The final count after full-text screening was 11 included studies. See Figure 1 for a display of the screening process. Originally, a significant number of articles were found due to the vast amount of research done around play in autistic children. However, the majority of the research is deficit-based. Strengths-based terminology has begun to be used in relation to children’s play over the past 20 or so years, as is reflected in the included studies in Appendix 1.

“Place Figure 1 Here”

Figure 1. Flowchart of screening process for included strengths-based autistic play studies

Sensorimotor Play of Young Children with Autism

Before the 2000’s, literature regarding sensorimotor play in children with autism labels play as restricted and repetitive.¹ Over time the literature deems sensorimotor exploration as an autistic child’s primary means of play, and one that can facilitate learning in multiple domains. In a 2003 review, Williams found that infants later diagnosed with autism display an interest or preoccupation in object parts, particularly displaying more visual examination of objects than their neurotypical peers.¹² In 2006, Dominguez et al. conducted an observational study reviewing video footage of free play and found that young autistic children engaged in sensorimotor and exploratory play more than their neurotypical peers.¹³ Young children on the spectrum have been found to display much more exploratory use of objects during object play such as spinning, dropping, and mouthing.¹⁴ Pierce found that toddlers 18-24 months on the spectrum engaged in higher proportions of exploratory play and less functional and symbolic play.¹⁵ Holmes and Willoughby corroborated previous findings saying it is common for children with autism to choose play objects that evoke sensory or motor stimulation.¹⁶

The literature continues to establish and categorize sensorimotor play as dominant in young autistic children. Richler et al. looked at the restricted behaviors and interests of two-year-old children on the spectrum and followed them longitudinally at three, five, and nine years old. Through a diagnostic interview, the researchers found that the restricted and repetitive behaviors including unusual object play (sensorimotor play) increased and remained present as the child aged.¹⁷ Cervantes et al. conducted a study with a large sample size of autistic children aged 17-39 months old and found that they engaged with objects in an unusual manner, such as twirling a string or prolonged visual inspection, much like previous researchers had found.^{12,18} This unusual, or rather *unique*, play with objects seems to be characteristic of autistic play. Koterba et al. found differences in object exploration in infants as young as six and nine months old, specifically with differences in visual and oral exploration as compared to neurotypical peers.³

Kaur et al. followed infants who were later diagnosed with autism longitudinally from six to 15 months and conducted object exploration tasks.¹⁹ The researchers found that at each age interval, children diagnosed with autism had object exploration differences compared to neurotypical children. For example, children with autism who were 9-12 months did not purposefully drop a rattle from a highchair in the way that neurotypical children do in order to learn about cause and effect, but rather the autistic children engaged in more gazing at the rattle, confirming previous findings about the prevalence of visual inspection in autistic infants.

Ruff and Saltarelli included visual inspection as an active form of exploratory play behavior.²⁰ This active exploration is conducive to learning. Barber found that repetitive behaviors in autistic children are object focused.²¹ Researchers have argued that repetitive behavior is indeed play behavior for autistic children.²² In an exploratory study, Jacques et al. found that children with autism display more repetitive behavior compared to neurotypical peers, but autistic children who engaged in repetitive behaviors and object exploration did not decrease frequency and duration of object exploration.¹⁰ This more recent research posed a strengths-based and more positive outlook, explaining that restricted and repetitive behaviors did not significantly limit the object exploration in young autistic children. The trends in the literature regarding object exploration in sensorimotor play continue to develop, with a shift towards viewing their sensorimotor play as functional and meaningful, and not solely as limited.

Functional Play of Young Children with Autism

The research is mixed regarding children with autism's engagement in functional play. Some literature, as explained previously, demonstrates that autistic children spend most of their play time in sensorimotor play. Recent literature, however, demonstrates the presence of functional play in young autistic children comparably to sensorimotor play, albeit in a different form from neurotypical peers. Desha et al. conducted a study observing preschool children with autism during unstructured object play and found that autistic children engaged in functional play behaviors at 39% of total play behaviors and have particular play object preferences.²³ The researchers' definition of functional play was quite broad and encompassed a wide range of possible play activities. Desha et al. also found that the play items most frequently used were the ones eliciting a repetitive sensorimotor response.²³ Thus, while the preschool autistic children did engage in functional play, they utilized and interacted with sensorimotor features of the play objects.

Williams found that young children with autism do engage in functional play, just less so than neurotypical children. Young children with autism often used objects stereotypically (or repetitively) rather than functionally.¹² Play objects with salient sensorimotor properties were most used. In an observational study by Mulligan which looked at the play patterns of three children with autism during a semi-structured play time, the children did engage in functional play the same amount as sensorimotor and exploratory play, however, their functional play was not complex or diverse and was repetitive.⁵ In an observational study, Thiemann-Bourque et al. addressed the differing research results on functional play and matched children with autism and neurotypical children for language and cognition.²⁴ The researchers found that children with autism engaged in higher rates of exploratory play but also show comparable competencies in functional play as compared to their neurotypical peers. In an observational study, Holmes and Willoughby found that children with autism aged four to eight engaged in functional play 25% of the time during an observational play period at a school setting.¹⁶

The differing findings in the functional play of young autistic children could be due to the various definitions of functional play used in each study. While some definitions have been broadly categorized, more recent studies are finding the variability within functional play itself. Hancock conducted an observational study of children with autism's (aged 3-11) free play.⁴ She categorized functional play in children with autism as interaction with one and more objects, with the self, with the environment, and other subcategories. This study investigated a category of play previously seen as superficial in children with autism. For example, Hancock described a child's interaction with the table as interacting with a play object, demonstrated by rolling a car under it or repeatedly moving around it.⁴

Much of the literature has established that autistic children engage in more sensorimotor play, but as shown above, many studies are increasingly demonstrating that they do indeed engage in functional play in a repetitive manner and with objects that produce a sensorimotor response. Over time, researchers have come to recognize that children with autism have the capacity and ability for functional play despite repetitive and restricted behaviors.²⁵ Researchers have begun to explore functional play as a distinct play type in autistic children. Functional play is now seen as complex, and despite qualitative and quantitative differences, is still meaningful in young autistic children.²⁶

Pretend Play of Young Children with Autism

The literature clearly shows that young children with autism have deficits in pretend or symbolic play. González-Sala et al. conducted a scoping review looking at symbolic play in young children with autism.²⁷ Their findings involved 22 articles that confirmed the symbolic play deficit, especially during free play. Various theories have been presented to explain the phenomenon. Some researchers have labeled the lack of pretend play as a cognitive deficit resulting in various cognitive theories: some say a theory of mind deficit, others an attention deficit, and yet others fault a generativity issue related to an executive function deficit (i.e. difficulty coming up with novel and varied play schemes).²⁸⁻³¹ Jarrold hypothesized that autistic children have the competency to engage in pretend play, but they do not perform pretend play acts because it is not meaningful or motivating to them.³²

In an unstructured observation of object play in preschoolers with autism, Desha et al. found that symbolic or pretend play was the least engaged play type in relation to objects chosen – the play objects that would elicit pretend play (dolls, plastic animals) were least used by the children with autism.²³ This raises the question of motivation and interest; the lack of pretend play could in part be explained by a lack of interest in the play objects. Many studies have shown the lack of symbolic or pretend play in young children with autism, and thus researchers attempt to remediate the deficit by teaching symbolic or pretend play skills.^{30,33-35} Lee et al. conducted a study targeting object substitutions as a way to improve symbolic play skills in young children with autism.³⁵ While these researchers and others alike do state the benefits of starting from the current play skills of the child, the focus of their approaches is on remediation. A strengths-based approach, however, focuses on the way a child with autism prefers to play rather than on remediating play deficits. Since children with autism do not display the same play trajectory as their neurotypical peers, it is possible that children with autism do not acquire the same amount or type of information for learning from the higher forms of play.

Regardless of the theory behind the pretend play deficit, the research clearly displays a significant lack of pretend play skills typical to neurotypical peers. In a retrospective video analysis study, children between 9-12 months old and 12-15 months old who were later diagnosed with autism engaged in much less symbolic play than neurotypical peers.³⁶ Similarly, Thiemann-Bourque et al. conducted an observational study of free play and semi-structured play; results showed much less symbolic play in autistic children than neurotypical peers.²⁴ There is much yet to be learned about the clear lack of pretend play in autistic children, and further research is required to determine if the lack of pretend play is a functional deficit in the children or a limitation in the observers' understanding of autistic play patterns.

Strengths-Based Practice in Autistic Object Play

A review of the studies that used strength-based practice principles resulted in 11 included studies (see Appendix 1). One included study was a review article. Williams¹² conducted a review comparing the solitary object play and parent child interactions of young children with autism and typically developing children. The study was included in the final count as a strengths-based study because it focused on the autistic child's play preference, namely solitary object play. Williams used a non-critical view to autistic play when comparing typically developing children's play. The review article was oriented around a child with autism's actual play preferences (solitary play) and the article discussed the play differences as qualitative and quantitative differences rather than of deficits requiring remediation. Four of the included studies were observational studies, wherein the spontaneous play of young autistic children was observed, described, and examined. These studies were included as strengths-based studies because they sought to explore the play of the young children with autism, and to establish play preferences in various naturalistic environments. Resultingly, they did not report a deficits-based view focusing solely on the limitations of their play.^{4,13,16,23} Three of the included studies were descriptive studies, all posing new ways of considering autistic play.³⁷⁻³⁹ Cosden et al. argued for the value of strengths-based assessment.³⁷ Kasari et al. posed a new view of the lack of pretend play in autistic children as not a lack of competence, but due to a lack of joy or meaning coming from pretense.³⁸ Mottron proposed a naturalist developmental intervention as an alternative to intensive behavior-based early intervention, wherein the autistic child's play would enhance their well-being.³⁹ These articles reported on the strengths of children with autism including their play patterns, and proceeded with novel practice principles under the assumption that autistic play is meaningful and able to be used for learning. Two of the included studies were strengths-based exploratory studies.¹⁰⁻¹¹ Jacques et al. explored restricted and repetitive behaviors in young children with autism and found that this characteristic did not interfere with the autistic children's object play. The researchers took their findings further in determining the importance of using the child's interests and in viewing their play behaviors as avenues for learning.¹⁰ Parsons et al. utilized strengths-based methodology in centering the autistic child's voice through Digital Stories. This allowed the children to report their play preferences and experiences and allowed the researchers to focus their study on the child's strengths and interests.¹¹ One of the included studies was survey-design. Case-Smith and Kuhaneck surveyed the parents of young children with autism on their child's play preferences. The results reported on the actual play patterns and preferences of the autistic children, rather than focusing on their deficits in comparison to neurotypical peers.⁴⁰

The included studies were determined to use strengths-based principles. However, there is an apparent lack of experimental research or systematic reviews that examine strengths-based practice in relation to autistic play. Since the shift towards strengths-based practice in the occupational therapy field, researchers have begun to center the autistic experience as being meaningful and are moving away from deficits-based models that attempt to remediate deficits to fit a neurotypical mold. Non-experimental studies have been conducted which are strengths-based in principle. However, experimental research including randomized control trials is needed to determine rigor and generalizability of this practice for children with autism.

Implications for Occupational Therapy Practice

Play has been used for both assessment and intervention in occupational therapy practice but it has largely been looked at through a neurotypical framework, and thus through a deficits-based lens.^{4,23} The imperative now for occupational therapists is to cultivate

the natural preferences and skills in the play of young children with autism. Occupational therapy practitioners and researchers can facilitate meaningful, active engagement in the object play of children with autism by advocating for a strengths-based view. This shift in the assumption of object play will lead to increased potential for meaningful engagement in the autistic child's primary occupation, through use of their preferred object play. Preferred play patterns and play objects can be used to drive intervention and facilitate learning opportunities when working with young children with autism. Practitioners can also view a child with autism's core psychological needs of autonomy, competence, and relatedness as central to their well-being.⁸

DISCUSSION

Over the years, the literature on autistic children's play has shifted from deficits-based, focusing on their play limitations, to more strengths-based, where researchers are finding value in the play patterns in which autistic children do engage.²³ One of the reasons for why the discrepancies in the object play of young children with autism have been found could be because of procedural differences in observation studies analyzing unstructured object play. Most studies use different sets of objects, which then produce different object and environmental affordances. The objects are not always equally distributed to elicit a particular play type.

There is a lack of pretend and symbolic play engagement in children with autism, that much is clear. What is more unclear is the question of whether researchers and practitioners should be attempting to remediate this deficit, or rather find ways to engage autistic children in their preferred play types. Mastrangelo advocates promoting play in young autistic children by creating opportunities for play as an end in itself.²² She states that their pattern of preferring objects in play and preferring sensorimotor play can be useful for learning. Research should focus on cultivating skills within the preferred play of young autistic children.

The evidence suggests that young children with autism tend towards sensorimotor play. Their play is often repetitive and comprised of unique interactions with objects. Researchers are identifying that young children with autism do indeed display functional play.⁴ There are sensorimotor properties to their functional play as displayed in the repetitiveness and types of objects used most often. The object exploration described in the studies similarly has a predominance of sensorimotor play components. Thus, young children with autism can be described as having a sensorimotor object play bias.

A limitation of this study is its narrowed scope. The focus of the narrative review is on object play in young autistic children from a strengths-based view, which resulted in a limited number of relevant studies. Expanding the search to include different types of play (i.e. peer play) could expand the relevant data on strengths-based play studies. Another limitation is that four databases were used in this review. Expanding the number and variety of databases used could expand the search for relevant studies. Future research should be conducted which focuses on strengths-based view of autistic object play to expand the literature that supports this shift in perspective. Future research is required to further examine the sensorimotor object play bias proposed in this review.

AUTHOR'S DECLARATION OF AUTHORSHIP CONTRIBUTION

The author contributed to the conception of this review, the conducting of the literature search strategy and successive search, the extraction of themes from the literature, and the final write-up of the paper.

FUNDING STATEMENT

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

CONFLICT OF INTEREST

The author has no conflict of interest to declare.

ACKNOWLEDGEMENTS

[removed for anonymous peer review]

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