



Verbal Input of Parents with Young Children with Autism Spectrum Disorders: A Scoping Review

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Abstract:

Introduction: The aim of this study was to identify and synthesize research evidence on the verbal inputs displayed by parents of children with Autism Spectrum Disorder (ASD) during naturalistic play interaction. **Methods:** A scoping review of peer-reviewed studies published from 2008 until 2019 was performed across several electronic databases with hand searching of reference lists based on the inclusion and exclusion criteria. Specific search terms were created for identification of eligible and related articles. **Results:** From 925 identified articles, 10 articles were included in the final step of the review. Within the continuum of parental interactional style, there are two types of parent verbal input; responsiveness and directiveness, that are associated with the child's language and social outcomes. Parents of ASD children need to practice compensatory strategies to provide significant impact towards children's communication skills as well as their cognitive skills. In addition, these findings have implications for interventions intended to target responsiveness of parents and child communication. **Conclusion:** Knowledge derived from this review provides preliminary understanding of and justifies greater knowledge towards the concept of verbal input of parents with young children with ASD.

Keywords: Parent verbal input, autism spectrum disorder, naturalistic play interaction, scoping review



Introduction:

Autism Spectrum Disorder (ASD) is a complex, pervasive, and heterogenic disorder defined by diagnostic criteria that include the impairment in social communication and social interaction, and exhibition of restricted, repetitive, and stereotyped pattern of behaviours, interest, and activities (American Psychiatric Association, 2016). ASD has pervasive impacts across multiple facets of development including social reciprocity, understanding nonverbal communication, as well as developing and maintaining relationships, and are generally lifelong disabilities for the majority of affected individuals.

Research on the limitations and difficulties faced by children with ASD have been documented extensively in the literature. Children with ASD are reported to have difficulties in sharing attention to an event, object, or person of mutual interest with their social partner (Dauterman & Stolen, 2012, Wetherby, Watt, Morgan, & Shumway, 2007) as they have difficulties in developing, maintaining, and understanding relationships. They are often seen as having limited and deviant ways in socializing and interacting with others such as showing less social orientation or engagement (Dawson et al., 2004), and unlike their typically-developing (TD) peers, children with ASD tend to ignore or reject the social initiatives from their parents (Adamson, Bakeman, Deckner, & Nelson, 2012).

The parental verbal input during the interaction with their children with ASD have been found to be influential on children's communication outcomes too (Haebig, McDuffie, & Weismer, 2013). Parents who provide verbal input at a time and in a way that enables their children to more optimally extract and process the linguistic knowledge may compensate for the attention-following difficulty as faced by children with ASD (McDuffie & Yoder, 2010). The contribution of the parent may be especially important in determining the progression of language acquisition. Understanding parental verbal input may be crucial in facilitating better intervention plan for children with ASD, as the fundamental component of communication intervention for children including those with ASD is parental involvement (National Research Council, 2001). Therefore, this review is aimed to provide latest discussion on verbal input presented by parents of children with ASD as observed during free-play interaction.

Methods:

A scoping review of literature was pertinent to meet the objectives of this study. This scoping review was conducted using the methodological framework proposed by Arksey and O'Malley (2005).

Identifying the research question

The purpose of this review was to explore the verbal input used by parents of children with ASD. The scoping review addressed the following question: What is known from the literature about the category of verbal inputs displayed by parents of children with ASD during naturalistic play interaction?

Identifying relevant studies

The inclusion and exclusion criteria were developed to ensure the comprehensiveness of this scoping review.

Inclusion and exclusion criteria

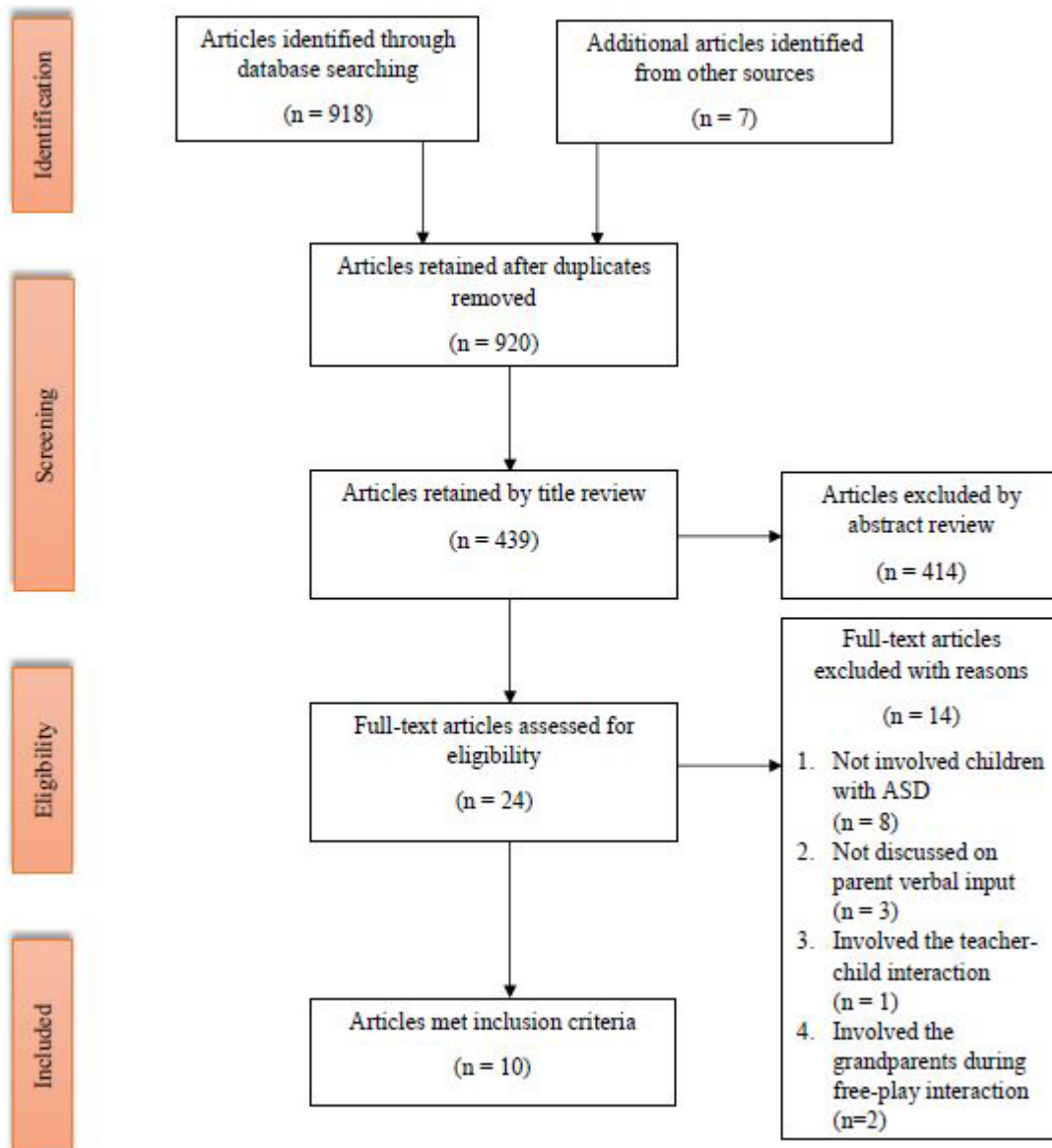
To be included in the review, any peer-reviewed articles, must meet the following criteria: (1) available in English, (2) involved parents of children with ASD, (3) involved non-verbal or verbal ASD children aged below 5 years, and (4) the findings demonstrated at least one aspect of parent verbal input. Articles were excluded if: (1) they are not published in English, (2) they focused on children over 5 years old, or (2) the outcome measure was not reported.

Search strategy

Five databases were identified and searched, which included Eric, SAGE, ProQuest, Taylor & Francis, and SciDirect for articles published from 2008 until 2019. The following search keyword were used: "parent verbal input" OR "parent responsiveness" OR "parent directiveness" AND "autism spectrum disorder" AND "free-play interaction" OR "naturalistic-play interaction" OR "parent-child interaction". Reference lists of selected articles were also scrutinized for additional relevant articles.

Study selection

Figure 1 illustrates the process of searching and reviewing the articles. Overall, 925 articles were found using the above search terms and databases. A total of 21 articles were excluded. The remaining articles were then manually and independently screen by two reviewers for the eligibility based on the inclusion and exclusion criteria. However, only 24 abstracts met the



selection criteria and thus selected for full-text review. Of these, 10 articles were deemed to qualify to be included in the final step of the review.

Charting the data

The Microsoft Excel spreadsheet was utilized for the data charting purposes. The charted data points are summarized in Table 1 which included the author(s), title, publication year, country of origin, sample size, participant characteristics, and findings. All data have been reported in the findings section below.

Collating, summarizing and reporting results

All identified abstracts were read for their eligibility to inclusion and exclusion criteria. Studies that met the first level review criteria by review of title and/or abstract were advanced to full text screening. The articles which did not meet the inclusion criteria were excluded. Then, full-text versions of articles were retrieved and screened independently by two reviewers. Any disagreement during this process were discussed between the authors to reach a consensus.

Table 1: Summary of findings on parent verbal input during parent-child interaction

Author (year) country	Parent	Comparison group and sample size	Results
Meirsschaut et al., (2010) Belgium	16 mothers	15 TD children	Imperative initiatives, declarative initiatives, neutral
McDuffie & Yoder (2010) USA	29 parents	None	Follow-in comments, follow-in directives linguistic mapping, repeats and expansions
Flippin & Watson (2011) USA	16 mothers 16 fathers	None	Any utterances that related to the child's focus of attention and had semantic relationship to the child's focus of attention (i.e., linguistic mapping, labelling, commenting)
Venker et al., (2011) USA	7 parents	Delayed- treatment group; 7 dyads of parent and ASD child	Follow-in commenting, linguistic mapping, expansions, prompts, and redirects.
Burns (2012) Canada	15 parents	15 TD children	Responsive object label
Haebig et al., (2013) USA	33 mothers and 7 fathers	None	Parent verbal responses to the child's focus of attention (follow-in comments, parents describing their own action, follow-in directives, and three control variables) Parent verbal responses to child communication act (linguistic mapping and expansion)
Santhanam (2014) India	16 parents	NA	6 aspects of maternal responsiveness: level of affect, maintenance of interaction, directiveness, contingency, initiation, and level of movement.
Venuti et al., (2012) Italy	60 mothers	NA	Affect-salient speech, information-speech information, child-name, and other
Walton and Ingersoll (2014) USA	44 mothers	16 TD children (mean age = 24.13)	Follow-in demanding, follow-in non- demanding, not follow-in demanding, and not follow-in non-demanding.
Karaaslan (2016) Turkey	27 mothers and 27 fathers	16 Down syndrome children	Responsive, affect, and achievement/directive

Result:***Coding system***

Several different coding systems were used to measure the types of parent verbal input during the interaction with their children. The coding systems used in the studies were Maternal Behaviour Rating Scale (Mahoney & Perales, 2003) (n=1), Social Interaction Rating Scale (Ruble, McDuffie, King, & Lorenz, 2008) (n=1), and Systematic Analysis of Language Transcript (Miller & Iglesias, 2006) (n=1). One study (n=1) used an adapted coding scheme from Yoder et al., (2007) to observe the responsiveness of parents during free-play, while some of the authors of the articles (n=6) did not stated the coding system used in their studies.

From 10 studies, one study used the Maternal Behaviour Rating Scale (MBRS) to measure the quality of parent interaction during playing with their ASD children (Karaaslan, 2016). As the focus of the current study was to catalogue the parental verbal input, only three out of seven items were considered as referring to parental verbal input and thus taken into account, which were parent's sensitivity to the child's responsivity, verbal praise, and directiveness. In addition, the Social Interaction Rating Scale (Ruble et al., 2008) was used in a study by Santhanam (2014) which aimed to examine the factors related to children with ASD that influence maternal responsiveness.

Participant characteristics

The participants' characteristics are explained in the Table 2. The sample size ranged from 7 to 39 participants of children with ASD and their age ranged from 1 year and 6 months to 4 years and 10 months old.

Parent Verbal Input

Within the continuum of parental interactional style, there are two types of parent verbal input; responsiveness and directiveness.

Parent verbal responsiveness

Based on the articles retrieved, five studies were identified to categorize types of parent responsiveness into two categories: 1) responsiveness to the child's focus of attention, and 2) responsiveness to child communication. Responsiveness to the child's focus of attention were defined as any parent verbal input that

follows the child's lead and verbally interpreting the child's action, without directing the child's focus of attention. While responsiveness to child communication acts includes parental verbal input that are contingent on the child's preceding gestural or verbal acts of intentional communication.

In a study by McDuffie and Yoder (2010), they identified two types of responsiveness to the child's focus of attention: follow-in commenting and follow-in directing, and three types of responsiveness to child communication acts: linguistic mapping, repeats, and expansion. Several studies also reported similar types of parent responsiveness as observed during the interaction with children with ASD (Burns, 2012; Flippin & Watson, 2011; Haebig, McDuffie, & Weismer, 2013; Venker, McDuffie, Weismer, & Abbeduto, 2011).

Follow-in comment as reported in several studies (i.e., Flippin & Watson, 2011; Haebig et al., 2013; Karaaslan, 2016; McDuffie & Yoder, 2010) was commonly observed during object-focused engagement. It includes the parent's verbal action that followed child's focus of attention without suggesting the child to change some aspect of his or her action with the current focused-object, and there was evidence of parent's awareness to the child's interests and understand towards the child's activity (Mahoney, Boyce, Fewell, Spiker, & Wheeden, 1998).

Next, a verbal input was recognized as linguistic mapping if the parent the presumed meaning of the child's communication act into words by either providing labels towards the referent, verb, or function word implicit in the child's act (Flippin & Crais, 2011; Haebig, McDuffie, & Weismer, 2013; McDuffie & Yoder, 2010; Venker et al., 2012). Meanwhile, follow-in directive, as exhibited by parents of children with ASD in the studies by Haebig et al., (2013), McDuffie and Yoder (2010), Santhanam (2014), Walton and Ingersoll (2015), was commonly observed during object-focused engagement in which the parent stimulated the child with verbal language that followed into the child's focus of attention. Other types of responsiveness to the child communication acts were repeats and expansions, as they could be observed during the parent's attempt to sustain the engagement, where the parent responded verbally to child acts of communication by repeating what the child said or adding additional linguistic information to the child's preceding spoken utterances.

Venuti et al., (2012) in their study exploring the maternal functional language directed to children with developmentally delayed during play interaction including Down's syndrome children and children

with ASD, evaluated two main aspects of maternal speech; affect-salient speech and information-salient speech. Affect-salient speech was used by parents to foster child motivation to communicate and interact which includes expressive, idiomatic, or meaningless statements such as encouragement, singing, and greetings (Camaioni, Perucchini, Muratori, Parrini, & Cesari, 2003). Additionally, the moment where parents provided information about the dyad and the environment which include questions, descriptions, and directives, were referred to information-salient speech (Bornstein et al., 1992).

Parent verbal directiveness

Directiveness is referred to parent verbal input that influences the attention of the child and may interrupt the natural flow of the direction (Warren & Brady, 2007). It is also may direct the child's attention or actions toward a new focus toward something of current interest either. Redirects, a type of verbal directiveness in several studies involving parents of children with ASD (Karaaslan, 2016; Venker et al., 2011; Walton & Ingersoll, 2015) should be distinguished from follow-in directives. Redirects was identified as a parent's attempt to direct the child to change the way they are exploring the object-focused and required the child doing something different with the same toys or doing the same action with different toys (McDuffie & Yoder, 2010).

Another type of parent-verbal directiveness are follow-in and not follow-in demanding language (Walton and Ingersoll (2015). The maternal utterances were identified and categorized based on two independent domains: relationship to child focus of attention (follow-in and not follow-in) and degree of demandingness (demanding versus non-demanding). Parent's follow-in demanding verbal behaviour demand the child to produce a word or phrase that is related to the child's current focus of attention. Likewise, not-follow in demanding request the child to utter a word or phrase but the demand is unrelated to his or her current focus of attention. Several longitudinal studies (i.e., Haebig, McDuffie, & Weismer, 2013; McDuffie & Yoder, 2010; Walton & Ingersoll, 2015) have indicated that parents' use of both follow-in demanding language, may provide positive contributions to child language growth over time.

Meanwhile, Meirsschaut et al., (2011) conducted a study of social behaviour of young children with ASD and their mothers during free-play observation within two different dyads in which it focused on the interaction strategies adopted by mothers of children

with ASD during the social interaction. The results reported that, in comparison with mothers of TD children, ASD mother addressed more social initiatives, more imperative and less declarative initiatives and more denying responses towards their child.

Discussion:

There is an increasing number of studies on verbal input by parents of children with ASD. Parents of children with ASD have been reported to practice compensatory strategies to somehow adopt to their child disabilities. However, the amount and types of verbal input varied between studies, depending on the children's language level. The contribution of these types of studies provides significant impact towards the children's communication skills as well as their cognitive skills. Naturalistic studies of parent-child interactions in ASD have indicated that parents who follow their child's lead during playtime will have a child with better social-communication skills that can be developed over time. It is also indicated that parental follow-in utterances are also likely to elicit appropriate child speech within a single conversational turn.

Majority of the studies demonstrated that parent verbal input had significant association with children's language gains (Haebig, McDuffie, & Weismer, 2013; Karaaslan, 2016; Meirsschaut et al., 2011; Venuti et al., 2012). Based on the studies, the parents of children with ASD may need to do modification to scaffold their children's need. It has been shown that children with ASD demonstrated a greater gain in prompted communication acts, as their parents use prompts during the treatment study. Additionally, the parental responsive verbal input that follow the child's lead and support contingent and positive response to child communication and interaction can promote early language learning in children with ASD. However, the relationship between parental verbal input and child's language gain may vary depending on the child's stage of development (Haebig, McDuffie, & Weismer, 2013).

Additionally, parents of children with ASD may attempt to compensate their children's difficulty by utilizing additional cues during free-play interaction (Walton & Ingersoll, 2015). In regards of child's expressive skills, when parents of children with ASD prompted the child to use language and follow their child's focus of attention, the child was most likely responded verbally. The retrieved literature have suggested that responsive verbal input delivered by parents were beneficial for children's language

growth (McDuffie & Yoder, 2010; Meirsschaut, Roeyers, & Warreyn, 2011; Venker et al. 2011). Follow-in commenting may encourage child language growth by helping the children with ASD to use and rehearse emerging vocabularies. In line with the previous statement, Haebig et al., (2013) found that, parent verbal directives also promote language growth of children with ASD.

The limited and impaired social skills of children with ASD yielded a significant impact on the daily interaction patterns between parent and child. Parents of children with ASD faced difficulties to initiate and maintain the interaction with their children. By continuously providing verbal input that follow the child's focus of attention, it may decrease the cognitive and affective demands on the child to coordinate attention to both people and objects. Children with ASD often face difficulties and are slower and less flexible in learning new play and social skills which consequently caused the parents to display mainly directive interaction style during their dyadic interaction.

Limitations:

This review only included studies that were published within 10 years, which was from 2008 to 2019 as it was aimed to review the most recent updates on the verbal input of parents of children with ASD. Thus, there are some noteworthy limitations noted in this review. The majority of the studies included were conducted in the United States and the articles were published in English. It is important to acknowledge that verbal input of parents of children with ASD may differ from country to country due to their respective cultures.

Conclusion:

There is an increasing amount of research evidence regarding the parent verbal input during naturalistic interaction with their parents. In summary, despite the potential importance of parent verbal input, and despite published studies over the decades of research, several critical issues remain unresolved. Although most researchers were able to distinguish between a more responsive and a more directive style, the characteristics defining each verbal input often differ greatly across studies. This perhaps accounts for some of the inconsistencies in links to children's outcome measures, and, ultimately, restricting the usefulness of these concepts. Therefore, more in-depth research related to cross-cultural interaction as a broad primary outcome measure is needed to cater and manage children with ASD.

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