

Review of Nonverbal Communication in Parent–Child Relationships: Assessment and Intervention

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Abstract Nonverbal processes are crucial to parent–child communication, but are seldom the focus of therapeutic intervention once a child is over 12 months of age. This paper reviews the literature on nonverbal communication in parent–child interaction. We outline assessment tools and interventions designed to measure and improve nonverbal communication, identify gaps in publications describing existing practice, and discuss implications for further intervention research and development. We searched Medline and PsycInfo databases for theoretical and empirical articles that defined, conceptualized, measured and intervened with parent–child nonverbal interaction. Although we found a number of validated and reliable assessment measures, these were not routinely used to inform development of interventions that directly targeted nonverbal communication. Additionally, we identified very few interventions that met established criteria for evidence-based practice, that directly focused on nonverbal communication as a target for change. Interventions that were included in this review utilized play, creative arts mediums and psycho-education to work therapeutically with nonverbal processes. Given the importance of nonverbal communication for effective parenting and parent–child communication, we recommend that nonverbal communication is assessed and addressed explicitly as a core part of parent–child intervention, development and evaluation. Intervention development may additionally be informed by existing nonverbal assessment tools, many of which already have established good

reliability and validity, and therefore may assist with intervention as well as outcome measurement.

Keywords Nonverbal communication · Parenting · Parent–child relationships · Assessment · Intervention

Introduction

Downcast eyes, hands on hips, or a stroke on the arm—these are just some of the ways parents and children communicate without words. Nonverbal communication (NVC) is critical to parent–child relationships, facilitates attachment, and functions to co-regulate emotion and behavior (Schachner et al. 2005). Nonverbal cues give information about a child’s emotional intensity and nuance, and provide meaning and context (Mandal and Ambady 2004). Although not routinely the focus of parents or professionals once a child begins to speak and understand language, nonverbal processes play a key role in how children learn and develop (Halberstadt et al. 2013), as well as impacting their socialization (Dunsmore et al. 2009). A vast body of literature from fields such as developmental, clinical, family and social psychology, psychobiology, and the social sciences more broadly attests to the important role of NVC in parent–infant relationships; however the evidence is much more limited about the influence of NVC after a child’s first year.

NVC skills, defined from a social information processing perspective as the ability to accurately send and receive nonverbal information, are essential for managing relationships (Nowicki and Duke 2013). NVC includes facial expressions, gesture, and vocal tone (Boice and Monti 1982). NVC skills are critical to social success and

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emotional wellbeing in all cultures (Scherer et al. 2011), and are linked to a range of developmental outcomes for children (Halberstadt et al. 2013).

In parent–child relationships, the way parents respond to their children’s expressions of emotion influences how securely a child is attached to their parent, and can therefore affect a child’s relational experience and their experience of later adult relationships (Carton et al. 1999; Schachner et al. 2005). Children’s NVC skills are shaped by their parents’ responses through social referencing and observational learning (Eisenberg et al. 1998), modeling (Morris et al. 2007), and mirroring (Coan et al. 2007). Where parents respond consistently and sensitively to their child’s nonverbal cues, children are more resilient (Savage-McGlynn et al. 2015), are assisted to regulate their emotional arousal (Trehub et al. 2010), develop an internal locus of control (Carton and Carton 1998), and learn how to effectively maintain relationships (Nowicki and Duke 2013). A mother’s touch and nonverbal vocalizing stimulates the production of oxytocin and engages neural systems that cue a sense of safety in children, assisting the development of physiological regulation and social connectedness (Porges 2001; Seltzer et al. 2010).

Children use NVC strategies to achieve relational, instrumental, pro-social and rule-oriented goals in a range of social contexts, including their relationship with their parents (Zeman and Shipman 1998). Strategies may include altering facial expressions, or engaging in activities to manage emotions (Dunsmore et al. 2009).

A parent’s ability to understand and respond to their child’s nonverbal cues, which may communicate the need for support, signal relational distress, or function to activate caregiving behavior (Schachner et al. 2005), is essential to ensure parents can effectively regulate their children’s affect, physiology and behavior, protect them from threat, and provide guidance about how to respond to environmental events (Pally 2001).

Parents shape their children’s behavior partly through NVC about what is acceptable or unacceptable (Casey and Fuller 1994); this is strengthened when verbal and nonverbal parental messages are unambiguous and congruent. When nonverbal signals directly contradict verbal messages, children may have difficulty recognizing emotions, and their self-perception may be negatively affected (Grebelsky-Lichtman 2014). Parents’ dismissing or punitive responses to children’s expression of negative emotions has been linked to children’s somatizing difficulties such as medically unexplained headaches etc. (Gilleland et al. 2009) that may communicate nonverbally a child’s emotional state (Privitera 2013).

Children rely on their parents’ ability to accurately interpret their emotions; when this does not occur a child’s feelings may be falsified or negated (Crittenden 2009). This may affect a child’s capacity to clearly express emotional

arousal, which is necessary so a parent can gauge what level of support may be required (Trees 2005). Children’s responses may additionally be shaped by their parents’ meta-emotion philosophy (beliefs about emotions), which may promote or inhibit expression of emotion necessary for the development of emotion regulation (Gottman et al. 1997). A parent’s sensitivity to their child’s NVC is important well beyond infancy, with studies showing that reciprocal nonverbal approach and avoidance behaviors are associated with shame and contempt in parent–adolescent relationships (Kahlbaugh and Haviland 1994), and nonverbal communication of anger predicts poorer outcomes for parent–adolescent conflict (Eisenberg et al. 2008).

A parent may convey an understanding of their child’s emotional state nonverbally from birth, and this forms part of a capacity to mentalize, or reflect on a child’s state of mind (Fonagy and Target 1997). When a parent is unable to do this, the child may experience a lack of integration between their internal and external experiences, resulting in a tendency to orient more to nonverbal bodily and physical cues rather than verbal cues to make sense of their interpersonal environment (ibid). For parents and children who require professional assistance as a consequence of these difficulties, it may be particularly important that intervention provides opportunities for nonverbal expression that may allow emotions to be shared and understood (Zilberstein 2014).

Difficulties in NVC are intra and interpersonal, and they may impact parenting and child functioning. Identification of these difficulties, and how they may then shape the development of problems in parent–child interaction, is crucial for the development of effective therapeutic intervention. Parents’ difficulties with NVC may impact not only their general functioning, but also their parenting capacity. Empirical studies of factors influencing parental NVC have found that parents’ ability to be sensitive to their children’s nonverbal cues may be negatively affected by adverse early experiences (Berenbaum 1996), levels of marital conflict, meta-emotion philosophy (Gottman et al. 1997), vagal tone (Skowron et al. 2013) and physical illness (Tulipani et al. 2010). Psychopathology may also affect a parent’s capacity to notice and sensitively respond to their child, with studies finding mothers with Borderline Personality Disorder (Elliot et al. 2013) and parents deemed to be at high risk of abusing their child, who were also experiencing stress and depressive symptoms (Asla et al. 2011) having greater difficulties in accurately recognizing their child’s nonverbal expression of emotions. Depression and anxiety are characterized by changes in voice frequency and motor expression of affect (Ellgring and Scherer 1996) which may both reflect parental psychopathology and influence children’s responses through the social learning mechanisms described earlier. Parents with these challenges may give minimal or ambiguous nonverbal cues to their child (Crittenden 2008).

This may set in motion and entrench negative reciprocal cycles of interaction, with detrimental implications for open parent–child communication, and for the child’s social and emotional development (Ehrlich et al. 2015).

Alexithymia, meaning ‘no words for emotions’ (Taylor and Bagby 2004) is a condition present in approximately 10% of the population, characterized by deficits of nonverbal emotion recognition and expression which create interpersonal problems (Spitzer et al. 2005). Alexithymia has been associated with parenting difficulties, including parents’ ability to effectively respond to their children (Kliwer et al. 2015), a tendency to overprotect and parent intrusively (Thorberg et al. 2011), and a reliance on dependency- and achievement-oriented strategies alongside authoritarian parenting (Cuzzocrea et al. 2015). Parents may draw on these strategies where they are either not able to accurately interpret the nonverbal behavior of their child, or appreciate the impact of their own nonverbal responses on their child’s experience and behavior (Bugental 2005). Parents may not be able to model helpful ways of expressing emotion nonverbally, may demonstrate nonverbal and verbal responses to their child’s emotions that communicate disapproval or dismissiveness, and may not have the skills to teach their child about nonverbal as well as verbal cues that guide awareness and expression of emotions, with negative consequences for their child’s emotional competence (Eisenberg et al. 1998). Parents with these difficulties may require targeted intervention to help them develop skills in NVC.

Children may also experience difficulties in NVC. The parent–child relationship is the main environment where children’s NVC patterns are initially formed and subsequently reinforced. Children who have not learned effective ways to express their emotions nonverbally, and to accurately interpret the nonverbal expressions of others may be ill equipped to cope with the demands of social interaction (Schechter et al. 2006). Childhood psychopathology has been linked to problems with accurate interpretation of nonverbal cues (Magill-Evans et al. 1995). In one study, boys from a clinical population differed from a community sample in their ability to recognize and interpret other children’s nonverbal signals, suggesting that faulty nonverbal information processing may contribute to aggressive behavior (Russell et al. 1993). Associations have been found between NVC processing deficits and depression (van Beek and Dubas 2008) and social anxiety in children and adolescents (McClure and Nowicki 2001).

NVC problems are further linked with children’s and adolescents’ mentalizing difficulties as the result of either misunderstanding or missing nonverbal expressions of anger, for example (Sharp and Venta 2012). These difficulties may also be associated with problems with emotion dysregulation, meaning that children may become driven by unhelpful cycles of interaction where repeated

misunderstanding of the nonverbal cues of others generate a negative response from caregivers and peers. These may reinforce children’s aggressive and emotionally labile reactions, which may then lead to behavioral problems (Beauchaine et al. 2007). Exposure to traumatic events may shape children’s maladaptive nonverbal expression of and response to emotions where interpersonal environments incubate prolonged states of high negative emotional arousal, and where interactive repair is not provided by a caregiver (Schore 2013). Persisting difficulties using nonverbal as well as verbal communication in social contexts may additionally be understood from a neurodevelopmental perspective, classified as Social (Pragmatic) Communication Disorder (American Psychiatric Association 2013); this is thought to co-occur with a number of behavioral disorders in children including Attention Deficit Hyperactivity Disorder and Conduct Disorder (Norbury 2014). Children who experience these difficulties may therefore require targeted interventions helping them develop skills that will assist them to notice, understand and therefore accurately interpret the NVC of others, which may then assist them to respond differently. Interventions that work with children and their parents together may allow for skills to be learned within naturally occurring parent–child interactions.

In summary, NVC skills are of critical importance for healthy parent–child relationships, effective parenting, and children’s development. Difficulties in expressing and understanding nonverbal cues are associated with a range of problems that may affect parents’ and children’s wellbeing. While there is now considerable literature identifying the importance of NVC and how difficulties in NVC are related to poorer outcomes, there is less clarity about how best to assess these problems or intervene with them.

Therefore, this review aims to examine the literature in order to ascertain how NVC in the parent–child relationship needs to be considered in assessment and intervention for children in the years following infancy. To do this, we have reviewed the assessment and intervention literature on parent child NVC. We detail the methodology used for conducting a review of the NVC assessment and intervention literature before presenting the findings. We then consider the different theoretical frameworks that inform this literature when identifying the gaps in existing interventions, and discuss the implications for further development and evaluation of NVC in intervention.

Method

Identification of Source Material

In order to discover what assessment tools and interventions have been developed to assist parents and children with

NVC, we conducted a review of the literature. We searched PsycINFO and Medline databases for theoretical and empirical articles that defined, conceptualized, measured and intervened with parent–child nonverbal interaction. We drew search term and keyword combinations (with Boolean connectors) from preliminary reading of the theoretical and empirical literature in order to focus the search to articles that met criteria for evidence-based practice as defined by the ‘Standards of Evidence’ guidelines developed by the Society for Prevention Research (Flay et al. 2005); these included parenting, parent-child relationships, nonverbal communication, assessment, and intervention. We identified a list of 417 relevant journal articles, books and dissertations. We then examined the reference lists of those articles to identify any additional articles that did not appear in the initial literature searches. We also examined research outcome studies and manuals describing established evidence-based parent–child interventions known to us that had not appeared in the initial search, to determine whether NVC was addressed within a broader therapeutic framework. Following examination of the initial list, we selected 21 articles about observational assessment and 7 articles about intervention with nonverbal communication in parent–child relationships for inclusion. (Fig. 1)

Inclusion and Exclusion Criteria

We selected only peer-reviewed, English-language articles for inclusion. Papers found were published between 1978 and 2016. The studies included were those examining NVC in parent–child interaction in assessment or intervention research that used measurement tools with reported reliability and/or validity information; we selected studies where both clinical and nonclinical samples were used, and with children from 12 months to 31 years. We excluded studies focusing on assessment and intervention with parents and children under 12 months.

Many disciplines have made an important contribution to understanding the role of NVC in parent–child relationships, and qualitative research plays a valuable role in the development of theory that may inform assessment and intervention. For the purposes of this review, however, we have chosen to include only literature describing theory and intervention outcomes that has been both shaped by and subjected to processes required to develop evidence-based practice as defined above (Flay et al. 2005), and excluded studies using only qualitative methodologies. Theories most frequently cited that met this criteria include attachment, emotion socialization, family systems, social learning, social information processing and developmental theory. Other primary frameworks referenced include psychobiology, mindfulness, and resilience.

We excluded studies targeting populations where deficits in nonverbal communication were due to organic impairment that is unlikely to respond to interventions targeting parent-child interaction (e.g., severe hearing loss). We also excluded studies that targeted nonverbal elements of social functioning more broadly (e.g., Magill-Evans et al.’s (1995) Child and Adolescent Social Perception Measure which assesses young people’s sensitivity to NVC and how these skills correlate with popularity).

Studies Selected that Examined Assessment of Nonverbal Communication

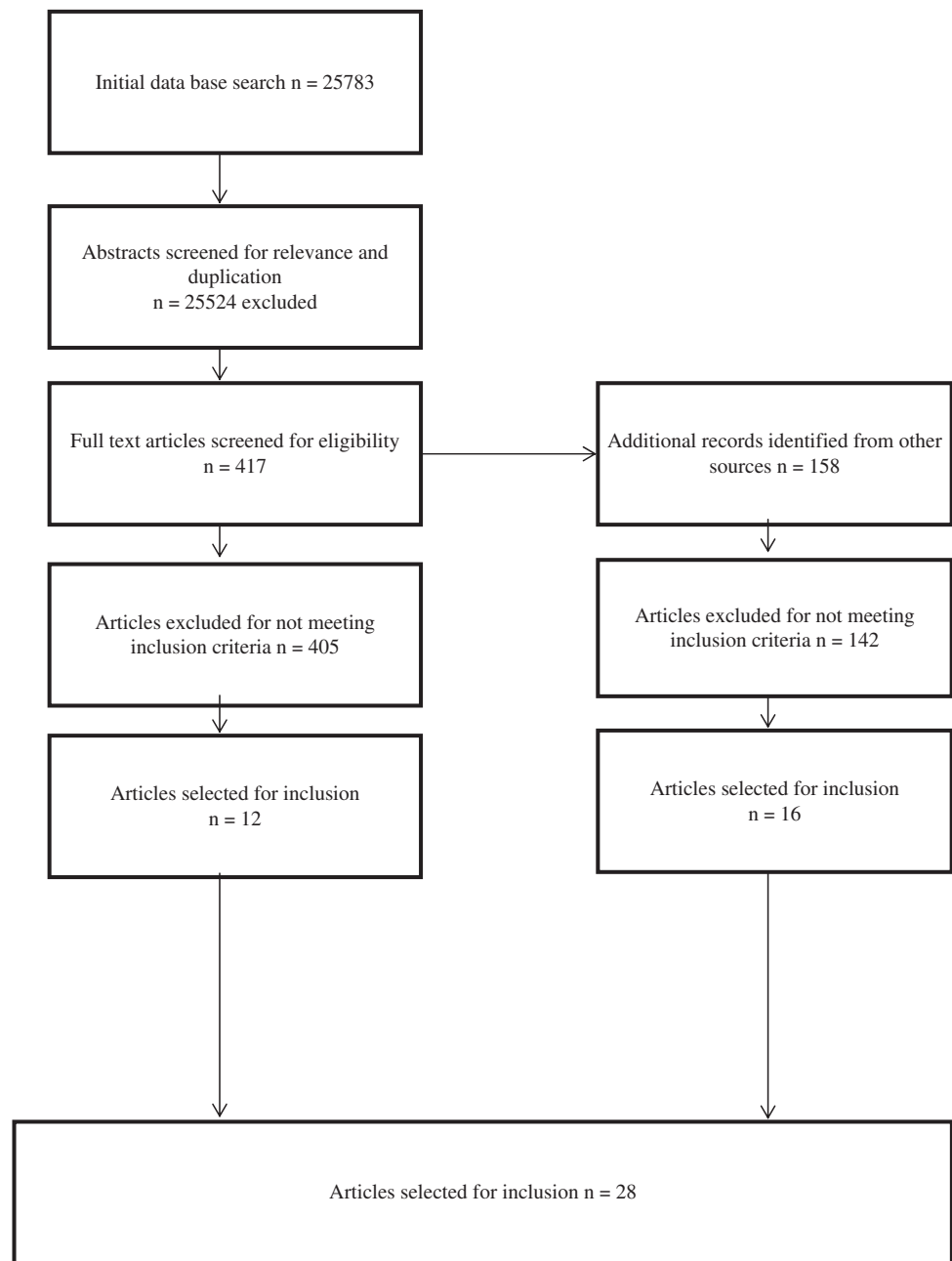
We considered a number of different research methodologies when reviewing assessment of NVC. We included research that used observational measures in addition to parent-report and/or child-report (via questionnaires and/or interviews) to assess NVC. In addition, we selected articles using assessment methods that identified and systematically coded specific components of nonverbal behavior (e.g., vocal pitch). We excluded methods that used broader observational parameters to describe nonverbal behavior, due to lack of specific description of the NV behavior being assessed (e.g., ‘parent withdrawal’ cf. ‘parent looks away from child’).

Table 1 provides an overview of research studies using observational assessment tools, and then the author/s who developed the assessment tool (in some cases the developer/s of the assessment tool has also conducted a research study, so the same reference is listed in both columns). The primary theoretical framework utilized in the study (listed first) and assessment tool developers (listed second) is then noted, followed by a brief description of what is being assessed, the NVC behaviors used to inform assessment, and the study sample of interest. Reliability data are reported from either research studies (first column) and/or assessment tool development (where the same study appears in columns 1 and 2). Validity information is provided where the developer of the assessment tool has made this available. Assessment tools marked with an asterisk* refer to measures used with interventions listed in Table 2.

Studies Selected that Examined Interventions with Nonverbal Communication

A small number of articles that empirically tested interventions to assist parents and children with their NVC utilized randomized control trials with longitudinal follow-up data. We found few studies that met ‘gold standard’ criteria as described by the Society for Prevention Research that defines the conditions by which an intervention has established research confirming efficacy, effectiveness or dissemination (Flay et al. 2005).

Fig. 1 Flow Diagram—
Identification and selection of
articles



We included intervention studies that addressed nonverbal behavior, and that used individual and group modalities of delivery. As psycho-education has been shown to be of critical importance for parents who have difficulty decoding NVC (Kliewer et al. 2015), we included parent psycho-education programs where goals included the enhancement of NVC in parent-child relationships ($n = 3$). We excluded parent-child interventions which did not specifically state they addressed NVC in publicly available research studies and manuals, interventions that assessed but did not address nonverbal parent-child interaction, and interventions that addressed NVC but were not subject to

empirical evaluation. Two sections now follow; the first on assessment of parent-child NVC, and the second on interventions that improve parent-child NVC.

Results

Assessment of Nonverbal Communication in Parent-Child Relationships

Identification of the importance of NVC in parent-child interaction has led to the development of tools for clinical

Table 1 Overview of studies of nonverbal assessment in parent–child interaction

Authors: study	Assessment tool/author	Theoretical model/s	What is assessed	Nonverbal behaviors	Study sample	Reliability/validity
Jacobsen 2012	* Assessment Parent–Child Interaction, Jacobsen <i>ibid</i>	Attachment theory	Parent–child interaction including a strong focus on turn-taking	Auditory cues (music), gesture, facial expression, vocal cues	18 parents at risk of abuse/ neglect; 34 nonclinical parents, children 5–12 years	Validity established; Interrater reliability (IRR) .73–.89; Test-retest reliability (TRR) .70–.89
Kahlbaugh and Haviland 1994	NV approach/avoidance behaviors Kahlbaugh <i>ibid</i>	Attachment theory	NV approach and avoidance behaviors in parent–child dyad	Facial expression, orientation, posture, gesture	30 parent–child dyads 7–16 years	All scales – $\alpha = .77–.86$ IRR .91
Lemche et al. 2004	Strange Situation Ainsworth et al. 1978	Attachment theory	Effect of attachment on development of alexithymia	Movement, gesture and vocalization	42 mothers and toddlers	IRR attachment classifications A, B, C, .75; D .88
Ehrlich et al. 2015	Parent–Adolescent Conflict Coding Interaction System Ziv et al. 2002	Developmental theory Systems theory	Discrepancy between self-report and observed conflict	Head nodding, voice level, eye contact, sighing, movement	189 16 year old girls and their parents	Intraclass correlation coefficients (ICC) > 80
Eisenberg et al. 2008	Behavioral Measure of Adolescents Emotion Eisenberg et al. 2008	Developmental theory	Positive and negative affect in parent-adolescent conflict	Facial cues and expression, tone of voice, gesture, movement	162 adolescents 11–16 and their mothers	ICC .83 (T2), .88 (T3); + Affect mothers .93, teens .92; Anger: mothers .74, teens .71
Moed et al. 2014	Kahen Affect Coding System. Gottman et al. 1996 Family and Peer Process Code Stubbs et al. 1998	Developmental theory Emotion socialization	Parent-adolescent conflict	Vocal tone, facial expression, posture, gesture	139 parents and adolescents 11–16	ICC for composite scales: anger – parents .74, teens .71 Sad/anxious—parents .65, teens .71
Hodgins and Koestner 1993	Profile of Nonverbal Sensitivity (PONS) Rosenthal et al. 1979	Social development	Adult decoding skills related to experience of being parented	Vocal cues (audio decoding) at T2	T1: 379 mothers and children 5 years, T2: 72 children 31 years	Internal consistency audio PONS .68
Dunsmore et al. 2009	Diagnostic Analysis of Nonverbal Behavior (DANVA-2) Nowicki and Duke 1994	Emotion socialization Social information processing	Children’s recognition of parents’ emotions	Facial expression	40 parents and children 9–10 years	Test-retest reliability for child subscale .74
Schechter et al. 2015	CARE Index Crittenden 2006	Emotion socialization Attachment theory	Maternal sensitivity to child’s emotional communication	Facial and vocal expression, body contact, turn-taking	60 mothers with PTSD, children 12–42 months	Validity established, IRR .86
Katz and Gottman 1995	Specific Affect Coding System (SPAFF) Gottman and Krokoff 1989	Vagal tone Emotion socialization	Parent–child and couple interaction	Facial expression, voice pitch, volume and tempo, posture, gesture	56 families with children 5 and 8 years	IRR .86–.97
Main & Cassidy 1988	Attachment Classification System, Main <i>ibid</i> .	Attachment theory	6 year old children’s responses to reunion with parent	Proximity seeking Physical contact Body orientation	(1) 40 and (2) 50 children 6 years and their mothers	Validity established, IRR .62–.92 across both studies
Teti and Gelfand 1997	Preschool Assessment of Attachment Crittenden 1992	Attachment theory	Maternal depression and child’s attachment	Movement Facial and vocal expression	54 parent-preschool child dyads	Validity established; IRR .77–.99

Table 1 continued

Authors: study	Assessment tool/author	Theoretical model/s	What is assessed	Nonverbal behaviors	Study sample	Reliability/validity
Vaughn and Waters 1990	Attachment Q-Sort Waters and Deane 1985	Attachment theory	Children's security, dependency and sociability	Proximity seeking, crying, laughing, movement	58 children 12 and 18 months and their mothers	Validity established; IRR .58–.73
Hitchcock et al. 2008	* Marschak Interaction Method Rating Scale O'Connor et al. 2001	Attachment theory	Parent's provision of structure, challenge, nurture and engagement	Eye contact Physical interaction	15 adolescent–mother dyads; 16 adult–child dyads	Validity established; IRR .82; ICC .73–.79
Grebel'sky-Lichtman 2014	Facial Action Coding System (FACS) Ekman and Friesen 1978 Kestenberg Movement Profile (KMP) Kestenberg et al. 1996	Action assembly theory Psychobiological theories Developmental theory	Verbal and nonverbal congruence in parent–child interaction	Facial expression Posture	80 parents and children 4 years	Validity established; IRR .88–.93 across both measures
Savage-McGlynn et al. 2015	Home Observation for Measurement of the Environment (HOME) Caldwell and Bradley 1984	Resilience Bio-psychosocial development	Children's resilience where mother has post-natal depression (PND)	Movement, gesture, facial/vocal expression	6500 mothers with PND and children 8 months/II years	Validity established; IRR – 80 % - 90 %; internal consistency .44 –.89 across multiple studies (Totsika and Sylva 2004)
Peterson et al. 2007	Video-recorded coding of interpersonal distance and touch, Peterson et al. <i>ibid</i>	Social support	Parents' interpersonal distance and touch behavior in children	Interpersonal space, distance and touch behaviors	Parents and children 3–12 years	Construct validity established, IRR .75–.83
Trees 2005	Facial Action Coding System Ekman and Friesen 1978	Systems theory Psychobiological theories informing emotion research	Support-seeking in adult children and their parents	Facial expression	77 mothers and their children 17–29 years	Validity established; IRR .68–.89
Eyberg et al. 1981	Dyadic Parent–Child Interaction Coding System Eyberg <i>ibid</i>	Family systems and social learning theories	Parent–child interaction	Facial expression, Vocal/auditory cues, gesture, movement	Parents and children all ages	Validity established; IRR .73–.99
Lindahl and Malik 2000	System for Coding Interactions and Family Functioning (SCIFF) Lindahl and Malik <i>ibid</i>	Family systems and social learning theories	Family interaction	Interpersonal space, facial expression, tone of voice	60 families	IRR .59–.92
Duncan Coatsworth et al. 2015	Iowa Family Interaction Rating Scales (IFIRS) Melby and Conger 2001	Mindfulness Family systems theories	Congruence between self-report and observed parent–child interaction	Use of silence, smiles, hugs, pauses in discussion, body position	375 mothers and their year 7 children	Validity established; IRR .42–.73; ICC .38–.83

Table 2 Interventions targeting parent–child nonverbal communication

Intervention	Author/s	Sample	Theory	NV modalities targeted	How NVC is addressed	Outcomes	Empirical evidence
<i>Interventions directly addressing nonverbal communication (NVC)</i>							
<i>Music therapy</i> Dyadic therapy	* Jacobsen et al. 2014	18 parents at risk of emotional abuse/neglect, children 5–12 years	Attachment Developmental Family systems theories	Aural, gestural, facial expression	Music games, turn-taking, lead/follow exercises help parent read child's NV cues	Improved parent attunement, child autonomy, parent-child communication (PCC)	1 RCT conducted (n = 18), large effect sizes PCC d = .82; PC interaction d = 1.77
<i>Theraplay</i> Dyadic therapy	Jernberg and Booth 2001; Siu 2009, 2014; Wettig et al. 2011	Parents and children 2–7 years with behavioral and/or developmental problems	Attachment theory Developmental theory	Movement, gesture, facial expression, vocalization	Play activities that promote parental engagement, nurturing, structure and challenge	Improved attachment status, enhanced developmental outcomes	2 RCTs (n = 38; 46); 1 longitudinal study (n = 22), small–medium effect sizes internalizing, PCC (d ≤ .58)
<i>Interventions that attend to nonverbal communication as part of a broader therapeutic approach</i>							
<i>Child-Parent Psychotherapy</i> Dyadic therapy	Lieberman and Van Horn 2005	Parents and children up to 6 years exposed to family violence	Developmental Social learning Attachment Psychoanalytic Trauma theories	Parent response to child's crying, tantrums, proximity seeking and aggressive behavior	Modeling, verbal interpretation of nonverbal processes, play, touch	Re-establishment of trust in body sensations restoring reciprocity, improved emotion regulation	2 RCTs (n = 100; 76); medium effect sizes mothers d ≤ .41; children d ≤ .63
<i>Mentalization-Based Treatment (MBT) Group</i> dyadic therapy	Bateman and Fonagy 2009	Parents with Borderline Personality Disorder (BPD), children 0–4	Mentalization	Parent responsiveness to child's crying and behavior	Modeling of containment, affect mirroring, verbal reflection	Improved parent capacity to think about child's internal states and intentions	RCT (n = 134) shown MBT is effective for BPD (d ≤ .95); not yet conducted for parent intervention
<i>Mindful Parenting</i> Parent education group	Dawe and Harnett 2007; Coatsworth et al. 2010; 2015	Non-clinical, children of all ages	Mindfulness	Parental sensitivity to child's vocal, facial, movement expression of meaning/needs	Psycho-education includes teaching parent nonjudgmental acceptance, awareness, empathy for self/child	Improved parenting, parent–child affection, increased emotion regulation	3 RCTs (n = 64; 65; 432) small effects on most outcome variables (d ≤ .35)
<i>Tuning in to Kids/Teens</i> Parent education group	Havighurst et al. 2010/13/15; Wilson et al. 2012; Kehoe et al. 2014	Parents of children 4–18 years	Emotion socialization theory	Parent's response to child's proximity seeking and behavioral expression of emotion	Psycho-education includes identifying NVC of emotion, use of NV response to help child's emotions	Improved parent awareness of and response to child's emotions and needs	5 RCTs (n = 216, 54; 204; 128; 225) shown medium /large effects on most outcome variables (d ≤ .1.08)

assessment of parent–child NVC. The most widely used assessments for parents with conditions affecting NVC such as alexithymia were self-report questionnaires e.g., the Toronto Alexithymia Scale - TAS-20 (Bagby et al. 1994; Thorberg et al. 2011). These measures unfortunately rely on capacities that people with this condition find most difficult, namely recognition of internal states and reflective functioning (Taylor and Bagby 2004). A summary of four decades of research on alexithymia has identified the need for the development of additional measures, including observational assessment of NVC that can inform accurate diagnosis as well as direct effective treatment (Samur et al. 2013). The following review examines primarily observational assessment tools that are used in addition to parent and/or child-report to measure NVC in parent–child relationships. We have considered each of these in relation to the specific nonverbal behaviors of interest, the theoretical frameworks utilized and the contribution of these to what is being assessed.

Description of Included Studies

The 21 studies included seven reports of use of measures with clinical samples and testing of reliability and validity of the measures; the remainder ($n = 14$) were a small sample of studies, each representing a different NVC assessment tool, that utilized nonverbal observational and self-report measures to examine relations between NVC and other variables using a variety of study designs including correlational and comparison research studies, baseline data collected as part of randomized controlled trials (RCTs), and longitudinal studies. Observational measures were more likely to be used as a primary source of assessment information with preschool children, and where the need for observation was identified as critical for accuracy (and self-report was more likely to be problematic)—for example, discrepancy between observed and stated levels of conflict between parents and adolescents (Ehrlich et al. 2015). Studies used nonclinical populations ($n = 14$) or clinical populations including parents at risk of abusing their children ($n = 3$), or parents diagnosed with Alexithymia ($n = 1$), Post-Traumatic Stress Disorder ($n = 1$), or Post-Natal Depression ($n = 3$).

Nonverbal Communication Behaviors: What is Being Assessed?

NVC behaviors that are often of interest include movement, facial expression, posture, gesture, voice quality and tone, sense of timing, interpersonal distance, touch, and more (Boice and Monti 1982). Two of the studies reviewed used facial expression data only (Dunsmore et al. 2009; Trees 2005), meaning that they may have overlooked a large

amount of nonverbal behavioral information. The remaining studies examined vocal volume, pitch and tempo (Ehrlich et al. 2015; Katz and Gottman 1995); tone (Eisenberg et al. 2008; Lindahl and Malik 2000; Moed et al. 2014); vocal cues including sighing (Ehrlich et al. 2015) and nonverbal vocal expression (Savage-McGlynn et al. 2015; Schechter et al. 2015; Teti and Gelfand 1997); gestures including head nodding (Ehrlich et al. 2015), nonverbal indication of turn-taking (Jacobsen 2012; Schechter et al. 2015) and body position (Duncan et al. 2015; Kahlbaugh and Haviland 1994; Main and Cassidy 1988); eye contact (Ehrlich et al. 2015; Hitchcock et al. 2008); movement including use of interpersonal space (Lindahl and Malik 2000; Peterson et al. 2007) and proximity seeking (Main and Cassidy 1988; Vaughn and Waters 1990); and touch (Main and Cassidy 1988; Peterson et al. 2007; Schechter et al. 2015).

The above-listed NVC behaviors were assessed in order to determine whether a parent was able to accurately recognize what emotions their child was communicating through auditory and visual cues, gesture and movement (Schechter et al. 2015). Children's ability to recognize their parents' facial expression of emotions was examined in relation to parents' beliefs about emotions and how this translated to masking of emotional expression (Dunsmore et al. 2009). One study examined parents' responses to their toddlers' vocalizing and gestures to determine whether this gave information about the correlation with attachment status and alexithymia (Lemche et al. 2004).

Studies looked at the effects of parents' nonverbal behavior on children's coping and functioning; for example one study measured voice pitch, volume and tempo, gesture and posture, and facial expression to determine levels of parents' hostility while fighting with each other when assessing how these behaviors may affect their children (Katz and Gottman 1995). In another study, children's resilience was assessed based on their capacity to indicate a need for proximity to their parent by observing their posture and gestures (Savage-McGlynn et al. 2015). Behaviors such as head nodding and sighing were observed in order to explore congruence between verbal and nonverbal parent and adolescent reports of conflict in their relationship in one study (Ehrlich et al. 2015), and facial expression, vocal tone, posture, gesture and movement were assessed to give information in addition to verbal content about the intensity, duration and nature of parent–child conflict in four studies (Duncan et al. 2015; Eisenberg et al. 2008; Kahlbaugh and Haviland 1994; Moed et al. 2014).

Theoretical Frameworks

The literature we reviewed drew on a range of theoretical frameworks to consider the function of NVC in parent–child interaction. Table 1 outlines the primary

theoretical framework referenced in each article and assessment tool. The assessment foci of the different studies we reviewed were dependent on the theoretical frameworks informing the enquiry—for example a social information processing theory—informed study stated it was measuring ‘parental cooperation’ (Grebelsky-Lichtman 2014), whereas ‘parental sensitivity’ was assessed in a paper citing emotion socialization theory (Schechter et al. 2015). Such differences highlight the importance of articulating underlying theoretical positions about the purpose of NVC, which may then inform how it is observed and assessed.

Attachment, Developmental and Emotion Socialization Theories

Studies citing attachment theory focused on parental sensitivity to their child’s emotional cues (Jacobsen 2012), examined whether nonverbal approach and avoidance behaviors affected the quality of parent–adolescent interaction (Kahlbaugh and Haviland 1994), and explored whether insecure attachment was related to children’s development of alexithymia (Lemche et al. 2004). Studies primarily informed by developmental theory were concerned with the role of NVC in parent–adolescent conflict (Ehrlich et al. 2015; Eisenberg et al. 2008; Moed et al. 2014), and adults’ ability to decode nonverbal cues related to their early experiences of being parented (Hodgins and Koestner 1993). Studies drawing on emotion socialization theory were interested in emotion recognition and sensitivity to emotion—i.e., children’s recognition of their parent’s nonverbal expression of emotions (Dunsmore et al. 2009), and mothers’ sensitivity to their child’s emotional communication (Schechter et al. 2015). Studies were also interested in children’s wellbeing when exposed to marital conflict (Katz and Gottman 1995).

Several assessment tools were informed by attachment theory; these included Ainsworth’s Strange Situation (Ainsworth et al. 1978), the Attachment Classification System (Main and Cassidy 1988), the Preschool Assessment of Attachment (Crittenden 1992) and the Attachment Q-Sort (Waters and Deane 1985). These measures observe a child’s nonverbal behaviors of movement and vocalization to determine whether they seek or avoid proximity and comfort with their parent in order to assess attachment status. Measures used to capture this also included the CARE index (Crittenden 2006) that was developed to assess a child’s attachment to their caregiver by noting a child’s facial and vocal expressions, amount of body contact with their parent, the way the child physically positions their body in relation to their parent, and the extent to which a parent is able to understand their child’s gestures to inform turn-taking games. Jacobsen’s Assessment of Parent–Child Interaction—APCI (Jacobsen 2012) assessed parents with

children 5–12 years, and observed how both child and parent used gestures, visual and auditory cues to interact while playing music games. These target nonverbal interactional processes such as parental attunement and emotional support in order to observe the way early attachment processes may affect current relating, and have been used to inform a clinical music therapy intervention for parents at risk of emotional abuse or neglect and their children 5–12 years (Jacobsen et al. 2014). The Marschak Interaction Method (O’Connor et al. 2001) observed parent nonverbal behaviors such as eye contact and physical interaction to assess their capacity to nurture, engage, provide structure and opportunities for learning for their child. This measure guides treatment through Theraplay, a play therapy for parents and their children 2–7 years (Bojanowski and Ammen 2011).

Assessment tools using a primarily developmental lens included the Kestenberg Movement Profile (Kestenberg et al. 1996), Eisenberg’s Behavioral Measure of Adolescent’s Emotion (Eisenberg et al. 2008), the Profile of Nonverbal Sensitivity (PONS) (Rosenthal et al. 1979), and Caldwell and Bradley’s Home Observation for Measurement of the Environment (HOME) (Caldwell and Bradley 1984). These measures observe children’s and parents’ NVC to determine whether posture, facial expression, tone of voice or gesture may indicate intensity of emotional distress, levels of conflict and parental nonverbal sensitivity, in order to assess potentially negative implications for children’s development that may require intervention (Totsika and Sylva 2004).

Assessment tools informed by emotion socialization theory included Gottman and Grotkoff’s Specific Affect Coding System (SPAFF) (Gottman and Grotkoff 1989), which codes nonverbal vocal qualities including volume, tempo and pitch as well as facial expression, posture and gesture to determine the nature and intensity of interpersonal conflict. Although initially developed for use with distressed couples, more recent research has utilized the SPAFF for assessment of parent–child interaction and parent–adolescent conflict (Coan and Gottman 2007; Hollenstein and Lewis 2006). Gottman has made extensive use of information about nonverbal parent–child processes to inform the development of Emotion Coaching, a framework which aims to explore the relationships between these aspects of the parent–child relationship (and parenting) and children’s emotional competence (Gottman et al. 1996).

Social Learning, Social Information Processing and Family Systems Theories

Studies and assessment tools informed primarily by social learning, social information processing and family systems theories measured topics such as parents’ recognition of

their children's emotions (Nowicki and Duke 1994), parent's interpersonal distance and touch behavior when supporting their child to have painful oncology procedures (Peterson et al. 2007), verbal and nonverbal congruence in parent–child interaction (Grebelsky-Lichtman 2014), and support seeking (Trees 2005). Assessment tools focused on problematic non-verbal elements of parent and child behaviors that may become the target for therapeutic intervention, such as parental facial expressions, vocal cues and body language signaling rejection or withdrawal, or children's nonverbal expressions of opposition or defiance (Eyberg et al. 1981; Lindahl and Malik 2000). Eyberg's Dyadic Parent–Child Interaction Coding System (Eyberg et al. 1981) used a behavioral coding method to identify children's nonverbal as well as verbal expressions of both positive and negative affect, and parents' tone of voice and physical touch as well as statements used to convey praise, enthusiasm and encouragement, or conversely inflict pain or be experienced by the child as intrusive. Children's (non-verbal) actions in response to their parent's indirect (verbal) commands were also coded. These were used to assess the quality of parent–child social interaction, provide a baseline pre-treatment assessment of behaviors that may require intervention, and measure therapy progress and outcome. Lindahl and Malik's System for Coding Interactions and Family Functioning (SCIFF) (Lindahl and Malik 2000) assessed families' behavior when they disagree, in order to inform family therapy intervention. The SCIFF observed negativity and conflict by measuring tone of voice, negative facial expressions including eye rolling or frowning, and body position including crossed arms and fidgeting. These were also used to evaluate the emotional climate and cohesiveness of family interaction. The tool was designed to capture family interaction more broadly, rather than dyadic or individual behavior.

Other Frameworks

Other frameworks informing assessment of the nonverbal aspects of parent–child communication included psychobiology, mindfulness, and resilience. Studies looked at the effect of vagal tone on a child's nonverbal behavior in response to parental conflict (Katz and Gottman 1995); the effectiveness of mindfulness training on parents' ability to read their children's nonverbal communication (Duncan et al. 2015); and a child's capacity to communicate non-verbally at 15 months of age where the parent was diagnosed with post-natal depression (Savage-McGlynn et al. 2015). Many different studies, using a range of different theoretical perspectives, assess NVC because these skills are seen as being central to different aspects of functioning, and are therefore amenable to intervention or change.

Interventions for Improving Nonverbal Communication in Parent–Child Interaction

Evidence-based approaches to intervention that aim to improve parent–child relationships tend to focus on the verbal aspects of the relationship and work this way therapeutically, for example in systemic family work (Heatherington et al. 2015). Approaches included in this review also focus on NVC, in order to improve functioning. The following studies include interventions that either directly address NVC in order to improve parent–child relationships, or attend to nonverbal processes as part of the overall intervention package.

Although programs for parents and their children may utilize assessment of nonverbal domains of parent–child interaction to both inform intervention and measure outcomes, NVC is not routinely targeted for change, with the exception of interventions for parents of pre-verbal children (Lieberman and Van Horn 2005).

Descriptions of strategies for both parents and therapists may assume rather than clearly spell out that NVC should be attended to; or imply that because nonverbal processes are deemed automatic, they are therefore not amenable to therapeutic change in their own right, except as an adjunct to working on verbal strategies. Examples include therapists instructing parents to imitate their child's play, and to use positive affect while doing so (Greco et al. 2001), or the therapist is directed to model appropriate (nonverbal) cues and responses with the child for the benefit of the parent (Lieberman and Van Horn 2008).

Where nonverbal strategies are clearly articulated, parents are instructed to modify their awareness of or response to their child's NVC, for example “Often it can be enough to listen quietly or respond non-verbally” (Havighurst et al. 2012). However, for parents who may lack NVC skills, assistance may be required. We consider each of the following studies in relationship to the specific nonverbal behaviors targeted for intervention, the theoretical frameworks utilized, how parents are assisted to develop NVC skills, intervention outcomes, and to what extent evidence to support the intervention has been established.

Table 2 provides an overview of interventions that directly address NVC in parent–child relationships, and of interventions that attend to NVC as part of a broader therapeutic approach. First, the intervention name and type of intervention is listed, then in the second column the author/s of the intervention and RCT/longitudinal studies conducted. The clinical sample that the intervention is designed to assist is briefly described, then the primary theoretical frameworks are listed. Next, NVC modalities targeted for change and how NVC is addressed are summarized, followed by intervention outcomes. Finally in the far right column of the table, a summary of RCTs and longitudinal

studies conducted to test the intervention's efficacy is included.

Description of Included Studies

We included studies in this review of interventions with a focus on NVC where nonverbal behavior was addressed either as part of a verbally-focused intervention ($n = 5$)—for example, where the facilitator was instructed to model affect mirroring in a Mindful parenting program (Duncan et al. 2009), or more specifically ($n = 2$)—for example, where the therapist provided structured activities for parent and child that promote acquisition of NVC skills (Jernberg and Booth 2001). We included only studies subject to empirical evaluation with quantitative data on outcomes (see Table 2). Interventions were with both individual and group parent-child dyads. Because we found so few empirically validated interventions that directly address nonverbal processes in parent-child interaction, and because psycho-education has been shown to be helpful for parents who have difficulty decoding NVC (Kliewer et al. 2015), we broadened our criteria to include parent psycho-education programs where goals included the enhancement of NVC in parent-child relationships ($n = 3$).

Selected intervention studies focused on nonclinical populations ($n = 4$), parents and children at risk of marginalization or abuse ($n = 2$), children exposed to family violence ($n = 1$), children with behavioral problems ($n = 2$) and parents diagnosed with Borderline Personality Disorder ($n = 1$). Three interventions could be modified for use with children of all ages, three were targeted at parents with young children, one was developed for parents and children 5–12 years, and one was specifically developed for parents and their adolescent children.

Interventions Directly Targeting Parent-Child Nonverbal Communication

Two interventions (Jacobsen et al. 2014; Jernberg and Booth 2001) directly targeted parent-child NVC, both designed for use with single parent-child dyads. Both drew on attachment theory and developmental theory to inform play and music therapy approaches; these frameworks support goals of teaching parents how to understand gesture, touch, nonverbal vocal cues, and facial expression as information about a child's experience, emotional state or intention, or to use these to effectively respond to their child.

Jacobsen's music therapy intervention uses a mix of therapist- and client-directed musical activities such as structured games to help parents at risk of abuse or neglect interact appropriately with their child (5–12 years). The intervention aims to enhance NVC in order to improve

parental attunement to their child, the child's autonomy, and the child's attachment status (Jacobsen et al. 2014). An RCT compared parent-child music therapy sessions ($n = 9$) with treatment as usual ($n = 9$), and found the music therapy condition resulted in significantly higher parenting competencies, positive parent-child interaction and reduced parental stress compared with the treatment-as-usual group. Strengths of this approach included the use of music to directly address parent-child NVC; limitations include the small sample size and limits to replicability, the therapy has not yet been manualized, and only music therapists are able to deliver the intervention.

Theraplay (Jernberg and Booth 2001) employs a series of sequential and developmentally sensitive interactive play activities to help parents who are struggling to positively interact with their children (2–7 years) to communicate safety and trust, establish connection, transmit positive affect, and to assist emotional co-regulation using nonverbal elements of play such as positive touch. Goals include improved developmental outcomes for the child and improved parent-child attachment. Two RCTs found significant outcomes for 23 children with internalizing symptoms 7–9 years (Siu 2009) and improved social communication for 23 children with developmental disabilities (Siu 2014) compared with matched control groups, and an uncontrolled study found improved assertiveness, self-confidence and trust, expressive and expressive communication and reduced social withdrawal for 22 children diagnosed with language disorder and social anxiety, with gains maintained at 2-year follow-up (Wettig et al. 2011). Strengths of this intervention are its focus on NVC using play; limitations include that it has yet to be empirically tested with children under 6 years and nonclinical samples.

Interventions That Target Parent-Child Nonverbal Communication as Part of an Overall Approach

We found five interventions that attend to parent-child NVC indirectly, rather than targeting NVC as an independent goal. Two are designed for use with individual dyads (Lieberman and Van Horn 2005; Nijssens et al. 2012), and three are parent education groups entitled 'Mindful Parenting' (Duncan et al. 2009), 'Tuning in to Kids' (Havighurst and Harley 2007) and 'Tuning in to Teens' (Havighurst et al. 2012).

Child-Parent Psychotherapy (Lieberman and Van Horn 2005) is an intervention that integrates psychodynamic, attachment, trauma, cognitive-behavioral and social learning theories to help parents and their preschool children restore their relationship, and improve children's wellbeing after the experience of family violence. NVC is addressed by use of positive touch to re-establish trust in bodily sensations, and play is utilized to integrate children's affect

with their narrative about traumatic experiences. Two RCTs have been conducted, finding 34 children had reduced anxiety, avoidance, resistance and anger and higher partnership with their mother post-intervention (Lieberman et al. 1991), and 38 preschoolers (Lieberman et al. 2005) had reduced symptoms of post-traumatic stress and behavioral problems post-intervention compared with controls. Strengths include use of modeling of NVC to assist attuned parent–child interaction; limitations are that intervention has focused on parents and young children only.

The Mindful Parenting program addresses NVC from a mindfulness theoretical framework, where paying attention to nonverbal processes appears to arise naturally from a non-judgmental and close focus on the moment-to-moment experience of parent–child interaction (Duncan et al. 2009). Psycho-education is used to stress to parents the importance of NVC when conveying awareness, acceptance of and empathy toward their child's emotion. Three RCTs were conducted, and found significant reductions in rigid parenting attitudes, child abuse potential and child behavioral problems in 32 methadone-maintained parents who received a brief intervention compared with a control group (Dawe and Harnett 2007), and improvements in child and youth functioning, parent-child relationship quality and parent wellbeing for fathers and mothers comparable to other parenting programs (Coatsworth et al. 2010; Coatsworth et al. 2015). Strengths of this intervention include the use of psycho-education to improve parental awareness of and response to their child's NVC; limitations include that effects were not always positive (e.g., young people reported negative effects in their fathers' listening, self-regulation and awareness of emotions in Coatsworth et al.'s 2015 study).

The 'Tuning in to Kids' and 'Tuning in to Teens' parenting programs are informed by emotion socialization, and translate Gottman's Emotion Coaching framework to psycho-education for parents of children (Kehoe et al. 2014) 4–18 years. The program teaches parents how to coach emotions to help their child learn to regulate emotion (Gottman et al. 1997), and addresses NVC by raising parents' awareness of both what their child is conveying behaviorally about their emotions (e.g., via 'bids for connection'), and by assisting parents to respond nonverbally and verbally to their child's emotions via processes such as 'turning toward' and 'sitting with' (Havighurst and Harley 2007; Havighurst et al. 2012). Five RCTs have been conducted, and shown improved parent awareness of and response to their child's emotions with 106 and 64 parents of preschoolers (Havighurst et al. 2010; Wilson et al. 2012), 27 parents of preschoolers with clinical behavioral problems (Havighurst et al. 2013), 102 parents of primary school age children with conduct problems (Havighurst et al. 2015), and with 125 parents of Grade 6 children (Kehoe et al.

2014) compared with controls. Strengths of this approach include its direct attention to NVC; limitations include its reliance on psycho-education to address nonverbal aspects of emotional competence and emotion coaching.

Discussion

Although the assessment tools reviewed here successfully measure a range of NVC domains in parent-child relationships for both clinical and nonclinical groups, and for children of all ages, these are not routinely used when interventions are being evaluated unless a child is preverbal, or where the reason for doing so is deemed central to the clinical issue or research question being investigated (e.g., congruence between self-report and observed parent-child interaction). This is particularly surprising, given the rigor of empirically based theory-building that has informed thinking about the importance of NVC in parent-child relationships, for example in parents' socialization of their children's emotions and the resulting implications for children's development (Gottman et al. 1997). This may reflect a clinical assumption that verbally oriented approaches will be effective in addressing nonverbal processes that may drive and entrench problematic parent-child interaction. The emerging awareness in clinical research and practice of the important role of NVC in attachment, emotional competence and consequently children's development means that observational assessments of NVC are more routinely conducted; however this has not yet translated into inclusion of NVC as a key part of intervention.

A handful of interventions have been developed that directly target nonverbal parent-child interaction processes using play and the creative arts; however many of these have not been subject to empirical evaluation, nor have they utilized validated nonverbal assessment tools to either inform intervention or measure outcome. The delivery of these interventions may require specialized training in creative arts or play therapies, rather than being able to be administered by professionals who routinely work with parents and their children, meaning that the extent to which they may be more widely available may remain limited. Play and music have been used to directly work with NVC in interventions with parents and children across all age groups, and play- or music-informed interventions may be further developed for use by therapists from a range of disciplines.

Several of the interventions discussed in this paper do not utilize the reviewed assessment tools to inform intervention; those that do employ nonverbal assessment measures do not then use this information to directly address nonverbal processes. Nonverbal assessment information may more commonly be used to measure outcomes of

verbal intervention strategies, or to provide baseline information about client characteristics that may facilitate or limit intervention effectiveness (Lumley et al. 2007). With the exception of Jacobsen's APCI (Jacobsen and Killen 2015) and the Marschak Interaction Method (Bojanowski and Ammen 2011), nonverbal assessment information does not appear to directly inform formulation of nonverbal intervention strategies that may then be re-evaluated to measure intervention effectiveness.

Limitations

This review was subject to a number of limitations; in particular that only a small number of interventions were found that met our search criteria, and that only English language publications were included. It is possible that by widening our search to include studies published in other languages, or to use different search terms that we may have discovered other inclusive interventions. It is also possible that many interventions do address NVC, but do not make this explicit when publishing outcomes. For example, the 'Exploring Together' program pays considerable attention to NVC in the unpublished manual but not in publically available articles (Hemphill and Littlefield 2001). This meant for the purposes of this review it was difficult to determine whether or not NVC is targeted in many published interventions.

Future Directions

The need to translate empirically based theory and research findings into intervention development has been identified in the literature (Samur et al. 2013), and is supported by this review. Intervention development may additionally be informed by existing nonverbal assessment tools, many of which already have established good reliability and validity, and therefore may assist with intervention formulation as well as outcome measurement. This may further indicate a need for therapists to better acquaint themselves with these tools to measure their therapeutic impact. Interventions targeting NVC may be reliant on experiential mediums (e.g., creative art therapies) that facilitate nonverbal ways of working with nonverbal processes. Given the crucial importance of NVC for effective parenting and parent–child communication, we recommend that NVC is assessed and addressed explicitly as a core part of parent–child intervention, development and evaluation.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

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