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The Relationship Between Father-Child Play Interactions and Child Development

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degree of Doctor of Philosophy in Psychology

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Statements

Statement of Originality

I hereby certify that the work embodied in the thesis is my own work, conducted under normal supervision. The thesis contains no material which has been accepted, or is being examined, for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made. I give consent to the final version of my thesis being made available worldwide when deposited in the University's Digital Repository, subject to the provisions of the Copyright Act 1968 and any approved embargo.

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Acknowledgment of Authorship

I hereby certify that the work embodied in this thesis contains published scholarly work of which I am a joint author. I have included as part of the thesis a written declaration endorsed in writing by my supervisor, attesting to my contribution to the joint publication.

By signing below, I confirm that Erin Louise Robinson contributed to the design, literature search, abstract and full text screening, data extraction, meta-analysis, write-up, and publication of the paper entitled: Robinson E. L., StGeorge. J., & Freeman E. E. (2021). A Systematic Review of Father–Child Play Interactions and the Impacts on Child Development. *Children*, 8(5):389. <https://doi.org/10.3390/children8050389>

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List of Publications

The work within this thesis has led to the following publications, including conference presentations and a journal article.

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- Robinson, E. L. & Freeman, E. E. (2019). The impact of father-child play interactions on child development – A systematic-review. *12th Annual Postgraduate & Postdoctoral Conference – HMRI*, Newcastle. Australia.
- Freeman, E. E. & Robinson, E. L. (2019). The Impact of Father-Child Play Interactions on Cognitive Development. *Psychonomic Society 60th Annual Meeting*, Montreal, Canada.
- Robinson, E. L. & Freeman, E. E. (2020). The Impact of Father-Child Rough-and-Tumble Play on Child Working Memory Outcomes. *13th Annual Postgraduate & Postdoctoral Conference – HMRI*, Newcastle. Australia.
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- Freeman, E. E. & Robinson, E. L. (2021). The Impact of Paternal Mental Health on the Father-Child Relationship: Implications for children's Emotional Control. *Society of Research in Child Development – 2021 – Virtual Biennial Meeting*, New York, America.
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Abstract

Parent-child play begins from birth and has broad impacts for child development. Parental mental health and parental perceptions of play importance, impact both the way in which parents engage in play with their child, and moreover, the frequency of these interactions. While both parents make unique child developmental contributions, there is a need to explore the influences of fathers, as past research has focussed heavily on maternal influences. As many fathers enjoy the physical and competitive rough-and-tumble play (RTP), that involves wrestling, chasing, tickling, and tumbling, more than other play types, this is a particular focus area for the present research. The broad aims of the present research were to increase our understanding of the impact that father-child play has on child development, explore play in Australian families, examine the impact of mental health and parental perceptions on play frequency and quality, and lastly, assess the feasibility of a father-child play intervention for reducing problems behaviours in Australian children. A systematic review, which included 39 publications that have previously examined the relationship between father-child play and child development, was completed. The results indicated that positive parenting behaviours (e.g., sensitivity and involvement) were positively related to favourable child outcomes (e.g., emotional regulation and social skills). An online survey assessed the prevalence of play in Australian families and revealed that while both mothers and fathers engaged in RTP, this was the preferred play type of fathers. An RTP study was conducted with Australian fathers and their children, and these interactions showed relationships with both internalising and externalising behaviour problems for children. Thus, a pilot intervention study was conducted to determine the efficacy of a father-focused intervention for the reduction of child behaviour problems, which achieved promising results. Overall, the present research has provided valuable insights into the relationships between father-child play and child development. This

research presents directions for further exploration into the intricacies of the relationship between father-child RTP, mental health and child development.

Chapter One: Parent-Child Play and Child Development

Parent-child play interactions have broad impacts on child behavioural, cognitive, emotional, and social development. By adopting a paternal lens, through which to view the developmental impacts of play, the aim of this thesis is to increase our understanding of the impact that father-child play has on child development. This chapter provides an overview of the impacts of play on child development and introduces rough-and-tumble play, which is the focus play type for this thesis. The chapter ends with an overview of this thesis, structured by chapter.

Parent-child play interactions begin from birth (Sethna et al., 2017). These interactions are typically reciprocal in nature and allow parents and their children to work together to achieve shared ambitions (John et al., 2013). Play enables parents to teach fundamental cultural skills (Tomasello, 2008) and results in a variety of cognitive, emotional, social, and behavioural skills (Cabrera & Roggman, 2017). Research has found that compared to mother-child interactions, play is more characteristic of the father-child relationship (Cabrera & Roggman, 2017), with fathers spending a greater portion of their time playing with their children, than doing any other activity (Mehall et al., 2009). Despite both parents serving as play partners for their children (Ahnert et al., 2017; Cabrera et al., 2017) research has focussed heavily on maternal influences (Majdandžić, 2017). Fathers have been included in only one third of parent-child play research (Cabrera & Roggman, 2017), with much of this research focussed on father's presence and absence in their children's lives or the financial contributions that can impact upon child development (Cabrera et al., 2000; Tamis-LeMonda & Cabrera, 2002).

However, over the last few decades, research on father-child play has increased (Amato & Rivera, 1999; Popp & St Jerne Thomsen, 2017). This has been driven by fathers

amplified involvement in child rearing and has led to an increase in the body of evidence into the paternal impacts on child development (Bronte-Tinkew et al., 2008; Menashe-Grinberg & Atzaba-Poria, 2017; Yogman et al., 1995). Distinctions in parental play have been found in cultural studies, which have shown that mothers and fathers have similar quality of play (Cabrera et al., 2017; Menashe-Grinberg & Atzaba-Poria, 2017), but the effects of their parenting behaviour result in different developmental outcomes, which can explain additional variance in child behaviour (Cabrera et al., 2017; Möller et al., 2013). Compared to mother play, fathers tend to play more often when undertaking caregiving activities and their play is generally more physical and challenging (Cabrera & Roggman, 2017; Kokkinaki & Vasdekis, 2014). Fathers provide challenging experiences, that mothers may avoid as being too dangerous, while serving as a safe and secure play companion (Grossman et al., 2002; Harkness & Super, 1992; Murphy, 1997). This sensitive support during explorative play, provides a unique paternal contribution to the child's emotional security, while mothers sensitive support is seen predominantly during events of child distress (Grossman et al., 2002). This can be conceptualised through Bowlby's Attachment Theory, in which psychological adaptation depends on the individual's emotional security with others in times of distress, as well as in challenging situations (Bowlby, 1979).

While both parents make contributions to child development (Majdandžić et al., 2014; Popp & Thomsen, 2017), these contributions seem to be unique (Cabrera & Roggman, 2017), with differences found in areas of academic achievement, behavioural and emotional regulation, and cognitive development (Lamb, 1997; 2004; Tamis-LeMonda & Cabrera, 2002). As past research has primarily focussed on mothers, there is a need to further explore the specific features of the father-child relationship and how they impact child development (Paquette, 2004). A broader knowledge base about the psychological resources a father can

provide their children, can allow for the facilitation and optimisation of father-child involvement (StGeorge et al., 2016).

Father-Child Play Types

To explore the paternal contributions to child development, it is important to first consider how distinct types of father-child play can result in different developmental outcomes. Primarily, past research has focussed on general father-child play interactions such as free play and toy play (StGeorge et al., 2016), with physical play such as rough-and-tumble play being a more recent avenue for exploration (Panksepp, 1993; Pellegrini & Smith, 1998). Within many of these general play studies, the focus has been on the comparison between mothers' and fathers' dyadic interactions with their children, with some studies indicating that the quality of parents' play is similar, but yield different developmental outcomes (Grossman et al., 2002; John et al., 2013; StGeorge et al., 2017).

It is critical that we move beyond a general focus on father-child play and appraise different play types as unique contributors to child development. Distinct play types will be explored inclusive of general play types (free play and toy play), creative play (pretend play/make believe), problem solving play (puzzle play), virtual play (video game play), and physical play types (rough-and-tumble play). It is important to note that while these play types will be considered separately, the features of each play type are not exclusive, in that there is overlap between them (Miller & Almon, 2009). For example, when appraising that free play can involve challenging physical interactions seen typically in rough-and-tumble play (Loukaitou-Sideris & Sideris, 2010) and that toys may be used to expand exploration during free play (Newhouse et al., 2017), it is apparent that play features are not confined to specific play types.

Free play

Free play is a child-initiated general play activity that emerges from children's natural inquisitiveness, vivacity, and enjoyment of discovery (Brooker & Edwards, 2010). These activities are "free" in that they are unstructured and voluntary in nature (Hedges & Cullen, 2012), and allow children to explore the world around them, while expanding their imaginations (Møller, 2015). Free play invokes happiness and the promotion of positive feelings, which further encourages creativity and exploration (Lester & Russell, 2008). Through make-believe games, children are constantly evaluating their own behaviours, to send clear messages to their play companions about what they are doing, as well as cognitively looking for signals from their playmates and being able to decipher them in order to maintain their game (Berk & Meyers, 2013).

The primary learning benefits of this form of play are found within the emotion and reward systems of brain development (Lester & Russell, 2008). Free play provides opportunities for children and their parents to strengthen their attachment (Homeyer & Morrison, 2018; Lester & Russell, 2008) along with many individual benefits in terms of cognitive and emotional growth and engagement. Many scholars of child cognitive development, attribute not only free play, but toy play, to the expansion of child thought and understanding (DeVries & Kohlberg, 1990; Gottfried, 1984; Gottfried & Brown, 1986; Piaget, 1962).

Toy play

As infants and young children spend much of their time exploring and playing with toys (Chase, 1992), it is intuitive that this kind of general play activity impacts child development. Toy play can be unstructured with no means-end, or by contrast be goal-focussed and highly exploratory in nature (Gray, 2013). Vast amounts of research on toy play

have demonstrated the importance of toy and object play for child cognitive development (Amato & Rivera 1999; Uzgis & Weizmann, 1977; Yarrow et al., 1975).

Elaborate interactions during toy play between toddlers and their father predicted better emotional regulation outcomes and greater language skills, when compared with less-complex father-child interactions (Roggman et al., 2004). Another study showed that fathers' sensitivity during toy play was positively associated to self-regulation in children, while overall positive toy play was associated with fewer emotional and behavioural problems in children (StGeorge et al., 2017). Thus, it is not only the type of play that impacts positively on emotional and cognitive outcomes for children, but rather many factors, that may include how the play is utilised by the parent in terms of play complexity or parental sensitivity to the needs and interests of their child during the play interaction.

Within father-child toy play interactions a gender effect appears throughout the literature. Toy play with daughters showed more dyad connectedness, less detachment and closer dyad proximity, when compared with father-son interactions (Barnett et al., 2008; StGeorge et al., 2017; Tamis-leMonda, 2004). Across a broader research setting, not limited to play, fathers have shown greater sensitivity and responsiveness during interactions with daughters and display a more authoritarian approach to interactions with sons (Conrade & Ho, 2001; Lindsey et al., 1997a).

Pretend play/make believe

Creative play, such as pretend play, involves dynamic thinking, constantly adjusting play behaviour and coming up with creative ways to outwit the play partner. Make believe play allows pretenders to adopt an “as-if” stance (Garvey, 1990), and project alternative realities onto the real environment (Fein, 1975; Lillard, 1993, Weisberg, 2015). The pretenders create the context of the play, bringing to life inanimate objects and the only limit of the play is the pretender's imagination (Nielsen & Dissanayake, 2000). Past research has

demonstrated that pretend play is related to child development in areas such as executive function (Lillard et al., 2010; Thibodeau et al., 2016; Vygotsky, 1978), language (Bergen, 2020; Lewis, et al., 2000) and theory of mind (Taylor & Carlson, 1997). Lillard (2001) proposed that theory of mind and social competence are improved as make-believe play forces children to pay close attention to social cues (Wellman, 2014).

Video game play

Video game play is a type of virtual play that has also shown social impacts for children. Kahen, Katz and Gottman (1994) explored father-child video game play and found positive relationships between both father affection and responsiveness and child positive affect during play with their peers (Kahen et al., 1994). This same study also found negative relationships between father behaviour (father commands, intrusiveness, derisive humour, criticism) and child positive affect during peer play. As research on father-child video game play is limited, more broadly, shared screen time (inclusive of phones, tablets, computers, gaming consoles and TV) has demonstrated cognitive benefits (Jinxiu & Xiaoming, 2010). The researchers linked these benefits to parents utilising screen time to educate their children, moderate the programs they watch and better understand their child's intelligence.

Puzzle play

Cognitive benefits are also seen in problem-solving play such as father-child puzzle play (Williams, 2004). As children move puzzle pieces into locations, puzzles provide immediate accuracy feedback as to whether the pieces fit or not. This provides a strong foundation for children to build mental rotation skills (e.g., Levine et al., 2005; Williams, 2004). Further benefits were found in research conducted by Levine, Ratliff, Huttenlocher and Cannon (2012). They found that families who engaged in parent-child puzzle play with their 2-4-year-old children, had better spatial ability task performance compared to those who

did not. Researchers noted that parents can expose their children to spatial language while playing with puzzles (e.g., “long”, “curve”, “top”, “curve”, “bottom”), which may improve their spatial language that contributes to better spatial skill formation.

Physical Play

Gender differences are also found in terms of the amount of physical play children engage in with their fathers, with research indicating that, as infants, boys tend to receive a greater amount of physical play compared with girls (Parke & O’Leary 2009; Power & Parke 1982), and also as pre-schoolers (MacDonald & Parke 1986). However, it has been suggested that these differences may be due to boys eliciting more physical play interactions from their parents than their female counterparts (Jacklin et al., 1984; Panksepp et al., 2003). While more research needs to be conducted to explore this gender impact, other play studies report that fathers demonstrate equal amounts of physical play with girls and boys (Flick et al., 2015; Paquette et al., 2003).

More broadly, research on father-child play interactions has demonstrated that fathers take on a more physical and challenging approach to their child play, regardless of child gender, when compared to the more structured approach taken by mothers (John et al., 2013; Lazarus et al., 2016). Furthermore, the literature has shown that fathers encourage their children to explore unfamiliar situations and take chances, while giving them the opportunity to solve problems and overcome obstacles, more so than do mothers, which creates opportunities for positive child development (John et al., 2013; Kromelow et al., 1990). Specifically, quality of loco-motor play has been found to be positively related to lower risks of behaviour problems (Kroll et al., 2016) and aggression (Torres et al., 2014). Further opportunities for child growth and exploration are provided by fathers during physical interactions of rough-and-tumble play, which is a favoured type of father-child interaction within Western societies (StGeorge & Freeman, 2017) and the central focus of this thesis.

Rough-and-Tumble Play (RTP)

Rough-and-tumble (RTP) play is a type of physical play which involves vigorous behaviours such as play fighting, wrestling, jumping, and chasing within a play context (Pellegrini & Smith, 1998). RTP peaks during the late preschool years, around age 4, and accounts for around 8% of total parent-child interactions (Pellegrini & Smith, 1998). These interactions are accompanied by positive affect or mutual enjoyment between the players (Pellegrini, 2009).

RTP provides children with opportunities to manage their physical aggression within novel situations (Anderson et al., 2017). These situations are characterised by elevated emotional and physical engagement with their play counterpart and are both playful and competitive in nature (Anderson et al., 2017). High quality emotional tones during RTP can be seen through shared laughter, animated facial expressions, dramatic movements, and shared interest and engagement in the interaction (Pellegrini, 2009).

During high quality RTP interactions, fathers adjust their own physical capabilities to allow their child to enjoy themselves, while providing challenge and allowing their child to occasionally gain the upper hand (Fletcher et al., 2013; John et al., 2013). As fathers are physically, socially, and cognitively superior to their children, when fathers pretend to lose, this encourages their child's efforts to win (Pellegrini, 2009). This has positive effects in maintaining motivation in the child, encouraging social perspective taking, allowing them to experience dominant and submissive roles through play, all the while strengthening father-child attachment (Pellegrini, 2002).

During RTP, children must coordinate and adjust their play behaviours, through the use of physically aggressive and cooperative strategies, in order to negotiate social dominance within their reciprocal play environment (Fletcher et al., 2013; Pellegrini &

Smith, 1998; Pellis et al., 2005). Research has indicated that RTP interactions create important practice scenarios for complex social interactions that children must learn to master in order to become competent, socially mature adults (Pellegrini and Smith, 1998) and for the establishment of cooperative interactions which leads to the sustaining of relationships (Trezza et al., 2010). Consistent with this notion, RTP has been consistently linked to children's socioemotional competence (StGeorge & Freeman, 2017) and the acquisition of cooperative social dominance strategies with adults (Granic & Patterson, 2006; Pellegrini, 2009; Tremblay, 2008) and peers (Hawley, 1999).

RTP promotes socioemotional competence and behavioural flexibility by providing children with opportunities to distinguish RTP from aggressive behaviours allowing them to recognise emotions, while suppressing impulses and aggression (Nangle et al., 2010, Parke et al., 1992; Pellegrini, 2002, 2009, Séguin and Zelazo, 2005; Zelazo et al., 1997). This socioemotional competence is strongly linked with long-term language, literacy, and numeracy outcomes (Jones et al., 2011; Landry & Smith, 2010; Luecken et al., 2013).

Despite the important contributions of father-child RTP on child development, these interactions remain understudied (Panksepp et al., 2003). Thus, given that fathers are more involved in RTP, and given that they now spend more time with children (Baxter, 2015; Hofferth & Lee, 2015), it is important to understand the influence of physically active play on children's development while addressing the scarcity of literature on this topic.

The Impact of Paternal Mental Health on Father-Child Interactions

Just as different interaction types make distinctive contributions to child development, so to does paternal mental health. Stressed and depressed fathers show less involvement in their child's lives (Roggman et al., 1999) and reduced responsiveness during play (Darke & Goldberg, 1994). Furthermore, research has demonstrated that when fathers are anxious

during play their children are consequently more anxious and this impacts the attachment relationship (Flick et al., 2015). Conversely, when fathers are mentally healthy and display positive behaviours during play (e.g., sensitive and challenging behaviour), their children are more securely attached and feel more confident to explore their play surroundings (Kazura, 2000). Thus, when examining the impact that play has on child development, it is imperative that we additionally consider how paternal mental health influences this relationship. The impacts of paternal mental health and attachment will be further explored in Chapters 4 and 5.

Developmental Considerations for Child Internalising and Externalising Behaviours

Additionally, it is important to consider mental health in children. In 2013-2014 approximately 14% of Australian children experienced a mental health disorder. ADHD was the most common diagnosis among all children (8.2% girls and 11% boys), followed by anxiety disorders (6.1% girls and 7.5% boys) and conduct disorders (1.7% girls and 2.9% boys) (Lawrence et al., 2015). These diagnoses fall into the broader categories of child internalising (anxiety disorders) and child externalising (ADHD and conduct disorders) behaviour problems.

Externalising behaviours can be categorised as outward maladaptive behaviours directed to the child's external environment (Campbell et al., 2000; McMahon, 1994). The behaviours consist of aggressive, hyperactive, and generally disruptive behaviours (Hinshaw, 1987). Common diagnoses within this cluster of problems include Oppositional Defiant Disorder, Attention Deficit Hyperactivity disorder (ADHD): Combined and Hyperactive-Impulsive type and Conduct Disorder (McMahon, 1994). In contrast, internalising behaviours can include anxious, depressed and withdrawn/inhibited behaviours, which, unlike externalising behaviours, primarily impact children's internal psychosomatic environment (Liu, 2004). The most common diagnoses within this cluster of problems include Separation

Anxiety Disorder and Specific Phobias (Dadds, Barrett & Cobham, 1998; Eisenberg et al., 2001). While both of these behaviour problems are linked to persistent psychosocial problems (Dadds, 1997), children with externalising behaviour problems are more likely to go on to develop internalising behaviour problems (Van Lier & Koot, 2010). As such, while this thesis will explore both internalising and externalising behaviours, there will be a more substantial focus on externalising behaviours.

The Present Research

The purpose of the present research is to examine the impact that father-child play interactions have on child development. The goals of this thesis are fourfold. Firstly, I aim to gain a deeper understanding of the research topic by exploring literature on different father-child play types and childhood outcomes across the literature. Secondly, I aim to determine the prevalence and types of play undertaken between parents and their children across Australia by conducting an online survey. The third research aim is to explore father-child RTP to determine how play impacts child development. The fourth and final research aim is to examine fathers as a prospective ally in reducing childhood behavioural problems.

Chapter Summary

An overview of the most prevalent play types examined within this thesis have been presented in this introductory chapter. This thesis is comprised of four studies investigating the relationship between father-child play interactions and the way in which they impact child developmental outcomes. Each chapter maps on to one of the research aims outlined above.

First, a systematic review of father-child play interactions and the impacts of child development is presented in Chapter 2. The focus of this systematic review was to explore the different types of play that have been the focus of past research and determine the impacts they have on child development. Chapter 3 details the findings of our Australian prevalence

study exploring how Australian families are interacting with their children and examining their view on the importance of play. The chapter outlines the survey design, participants, data collection and analysis procedures. While a broad range of interactions (both play and general activities) are explored, this chapter has a particular focus on RTP.

Chapter 4 examines the emotional, social, behavioural, and cognitive impacts of father-child RTP. There is an additional focus on paternal mental health and father-child attachment, and the way in which they relate to play quality. Chapter 5 gives insight into the feasibility of conducting a rough-and-tumble play intervention with fathers. The results, moreover, provide preliminary findings for the viability of a larger scale study and details how play interventions can be used to improve childhood behaviour.

Finally, a comprehensive discussion of the key findings is presented in Chapter 6. The significance of this research, and its limitations, are discussed. The chapter also outlines recommendations of the study and identifies future research possibilities.

Chapter Two: A Systematic Review of Father-Child Play interactions and the Impacts on Child Development

The research contained in this chapter appears in the following publication:

Robinson E. L., StGeorge. J., & Freeman E. E. (2021). A Systematic Review of Father–Child Play Interactions and the Impacts on Child Development. *Children*, 8(5):389.

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Systematic Review

A Systematic Review of Father–Child Play Interactions and the Impacts on Child Development

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Abstract: Father–child play engagement has been linked to a variety of child developmental outcomes. However, the most prevalent types of play and child developmental outcomes utilised in research remains unclear. The aim of this study was to systematically review the literature on father–child play interactions and the association with child developmental outcomes for children aged 0–10 years. Database searches generated 1622 abstracts that matched the specified search criteria. Abstract screening and full-text review resulted in 39 included publications. The systematic review revealed that while some paternal play behaviours resulted in different impacts across play types, others reported similar impacts. The findings of this review have implications for potential interventions and parenting resources.

Keywords: parenting; child development; systematic review; cognition; behaviour; emotion; social; father; child; dyads



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1. Introduction

From birth, children engage in playful social interactions with their caregivers [1]. Play interactions are typically reciprocal in nature and are based around the idea that parents and their children can work together to seek shared goals [2]. These interactions allow parents to positively foster their children’s cultural learning [3] and provide an avenue for young children to gain a variety of cognitive, emotional, social and behavioural skills [4].

Compared to mother–child interactions, play is more characteristic of the father–child relationship in Western cultures [4]. It has been suggested that fathers spend a greater portion of their time playing with their children than doing any other activity [5]. While both mothers and fathers engage in play with their children [6,7], past research has primarily focussed on maternal influences on child development [8], with only one-third of parent–child play interaction research being conducted with fathers [4]. However, in recent decades, the social movement of involved fatherhood has stimulated a research focus on fathers [9,10]. This has led to an increase in the body of evidence examining the paternal contributions, particular through play, to child development [11–13].

Fathers play more often while engaging in caregiving tasks, than do mothers, and their play tends to be more physical, spontaneous and playful [4,14]. Through these challenging play interactions, fathers are able to provide new experiences to their child that mothers might avoid as dangerous (due to differences in parental perceptions of rough-play), while serving as a familiar and safe companion [15,16]. Due to these differences in how parents engage with their children through play, it is unsurprising that research has documented that father–child play makes unique contributions to development, compared with mother–child play interactions [10,17]. These contributions differ particularly in the areas

of academic achievement, behavioural and emotional regulation, and cognitive development [18,19].

Although the effects of father–child play interactions seem to be additive, in that both parents make independent contributions to their child’s development [4], there is still much to learn about the specific features of the father–child relationship during play that most strongly impact upon child development. Furthermore, as society pushes for fathers to be more involved in their child’s life [20], a broader knowledge base about the psychological resources a father can provide their children will allow for the facilitation and optimisation of father–child involvement [21].

There are few systematic reviews that have focussed on father–child play. A recent study explored the frequency of play [22], while other research focussed on involvement [23] or chose to focus on a specific play type (i.e., rough-and-tumble play) [24]. However, there has yet to be a systematic review that adopts a broad perspective on the impacts of different kinds of play on child developmental outcomes. By broadening this approach, we stand to gain a more complete picture of the role that father–child play has in child development.

The aim of the present research was to investigate the relationship between father–child play interactions and child developmental outcomes via a systematic review. In addition, we had three research questions of interest:

1. Firstly, we aimed to gain a broad view on the types of play fathers and their children engage in, and by doing so, increase knowledge on the most utilised forms of play throughout paternal research.
2. Secondly, we sought to obtain an understanding of how play is being measured in terms of objective and self-report forms of measurement. Prior research has demonstrated that self-report measures, relative to objective measures, are limited by the responder’s introspective ability, honesty and most notably by response biases [25]. Thus, the purpose of obtaining this information was to determine whether the findings of the reviewed articles should be interpreted with caution.
3. Finally, we wanted to better understand which childhood outcomes have been the focal point across these studies.

Based on previous research [10,17], we predicted that when fathers engage in positive parenting behaviours, where they are proactively meeting their children’s needs during play, there would be positive relationships with child developmental outcomes. Conversely, when fathers engage in negative parenting behaviours, consisting of more parent-centred approaches to play where behaviour is not modulated to meet children’s needs [26], it was predicted that this would show negative relationships with child developmental outcomes. The objectives of this research were preregistered with the International Prospective Register of Systematic Reviews (PROSPERO). Further protocol information can be found below.

2. Method

2.1. Protocol Registration

The protocol outlining the aims and scope of this systematic review was registered with PROSPERO on the 20 November 2018 [27]. The protocol is available from: http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42018115301.

2.2. Search Strategy

The PsycINFO, Scopus and Web of Science electronic peer-reviewed databases were searched. The search strategy used included key terms relating to father–child play (“father”, “child” and “play”) and development (“development”). The key terms were developed within the PsycINFO database and adapted to be used within the other two databases. The search was limited to human studies, with no additional limits used.

2.3. Study Selection and Data Extraction

The titles and abstracts obtained from the database searches were screened by two independent reviewers to identify studies that included the following elements: (1) a father and child, (2) a child aged between 0 and 10 years of age, (3) a form of play, and (4) a child developmental outcome. Where there was disparity between the reviewer's assessments during the review process, a third reviewer was employed for resolution. Inter-rater reliability for this stage was 89%, indicative of a strong level of agreement between reviewers.

After abstract reviews, eligible studies were retrieved for full-text reviews. Two independent reviewers assessed the eligibility of each full-text article for inclusion in the final full-text review. An additional eligibility criterion was included at this stage (5) typically developing children. However, studies that contained non-typically developing children, but contained a control group, were also included. The reason for this inclusion criteria (5) being added for the full-text stage, and not for the abstract stage, was to allow for full-text screening of non-typical developmental studies, where a control group may not have been mentioned in the abstract alone. Akin to the title and abstract review stages, where there was disparity between the reviewer's assessments during the review process a third reviewer was employed for resolution. Inter-rater reliability for this stage was 94% indicative of a strong level of agreement between reviewers. Reviewers' reasons for study exclusion were documented during the review process.

Data extraction included details of the sample, methodology and measurement objectivity (child outcome measure and measurement of play) and results (e.g., descriptive and inferential statistics). Play types were categorised based upon the interactions described within each publication. In circumstances where data were not reported in an included study, the author was contacted. Of the three authors contacted, none were able to provide additional information. Data extraction was completed by two reviewers to allow for concurrent resolutions of disagreements.

2.4. Assessment of Study Quality

Quality assessment for each included publication was completed by two reviewers. The criteria used included (1) use of a valid and objective measure of the play interaction, (2) use of a valid and objective measure of child development, and (3) sample size acceptable for the statistical analyses utilised. For this research, objective measures were defined as those delivered by the researchers. Thus, self-report measures were not classified as objective. Valid measures were defined as those that had been scientifically validated. Thus, measures that were designed specifically for their respective paper were not classified as valid measures. A score of 0, 1, or 2 was utilised for each criterion (a score of 0 indicated that the criteria were "not satisfied", a score of 1 indicated that the criteria were "partially satisfied" and a score of 2 indicated that the criteria were "fully satisfied" (see Table 1 for details). An aggregate score was given out of a maximum of 8 points. Quality scores were allocated into categories based upon the following standards: poor = 0–2; fair = 3–5; good = 6–8.

Table 1. Point allocations for study quality criterion.

Criterion	0 Points	1 Points	2 Points
(1) Play interaction measure	Neither objective nor validated	Objective or validated	Objective and validated
(2) Child outcome measure	Neither objective nor validated	Objective or validated	Objective and validated
(3) Sample size appropriate for the analysis?			
Means	<15 per group	15–30 per group	>30 per group
Regression	<10 per predictor	10–20 per predictor	>20 per predictor
Correlation	<30	30–50	>50
(4) Sufficient data reported	Insufficient for meta-analysis AND not provided by author on request	Insufficient for meta-analysis but provided by author on request	Sufficient data for meta-analysis included in the publication

Note: Scores ranged from 0 to 8. Categories were applied based on score standards: poor = 0–2, fair = 3–5, and good = 6–8.

3. Results

3.1. Literature Search Process

A PRISMA flowchart illustrating the selection process for the systematic review is presented in Figure 1. The initial search contained 1622 abstracts (1196 were unique). During abstract screening, 1024 publications were excluded due to the following reasons: being a case study, a review, a chapter summary, a conference abstract, an animal study, no father child play, no child related outcomes or written in a non-English language. This resulted in 172 publications being retrieved for full-text review. During full-text review, 133 publications were excluded due to the following reasons: inappropriate study design (i.e., case study or meta-analysis), no English version available (where authors were contacted prior to exclusion), no father–child play, article unable to be retrieved (where the article was published some years ago and authors could not provide a full-text version), child beyond the age range of the study (i.e., <0 or >10 years of age), the article was a summary/review (chapter or special issue with no numerical data), clinical population with no control group, triadic mother/father/child interaction with no dyadic interaction between father and child, and outcomes outside scope of the present study (i.e., outcomes were not child focussed or child outcomes not analysed in terms of father involvement or interactions). This resulted in 39 publications containing 39 samples and 246 outcomes being included in this systematic review. All included publications received a total quality score between 6 and 8, indicative of good study quality (see reference list for respective study quality criterion scores).

The play types were examined alphabetically. For this systematic review, child outcome measures were classified as being either positive or negative. Positive child developmental outcomes of interest such as prosocial behaviour, academic achievement and school readiness, emotional regulation and cognitive development were classified as positive outcome measures. Negative child developmental outcomes of interest such as anxiety/withdrawal, anger/aggression, behaviour problems, peer problems and avoidance behaviours were classified as negative outcome measures. Thus, the associations will be presented as a function of the type of outcomes, whereby negative outcome measures and negative associations indicate positive impacts on child development. The results of the included publications are presented in Tables 2–10.

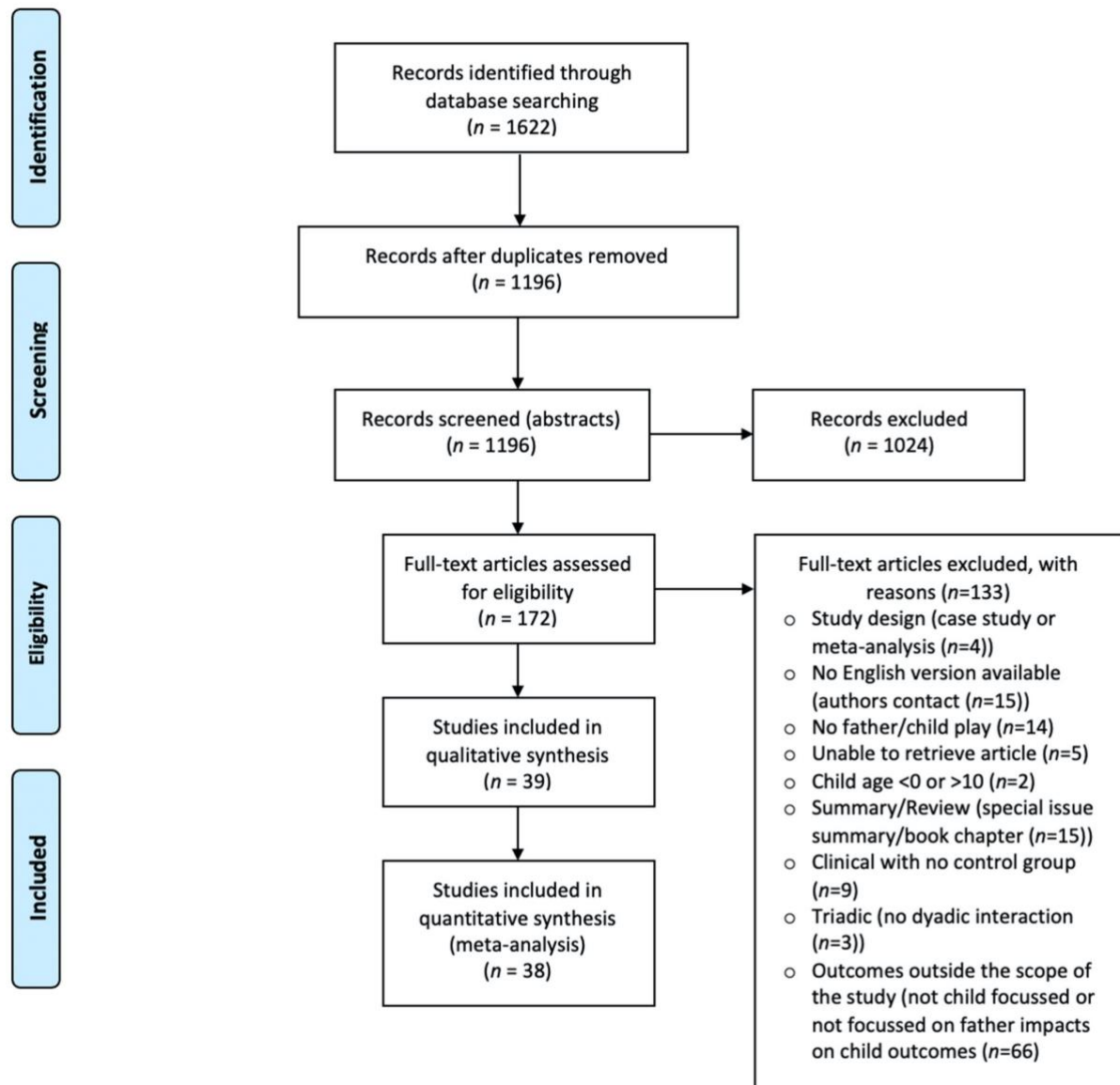


Figure 1. PRISMA flowchart outlining the selection process for the systematic review.

3.2. System Review: Characteristics and Summary of Results by Play Type

The systematic review resulted in the identification of nine play types: Creative Play, Combined Play (which consisted of the combination of two play types), Free Play, Locomotor Play, Puzzle Play, Rough-and-Tumble Play, Structured and Semi-Structured Play, Toy Play and Video Game Play. The 246 outcomes were separated into their respective play types, where characteristics and results summaries were examined (See Tables 2–10). An overview of the activities found within each play type is provided in Figure 2.

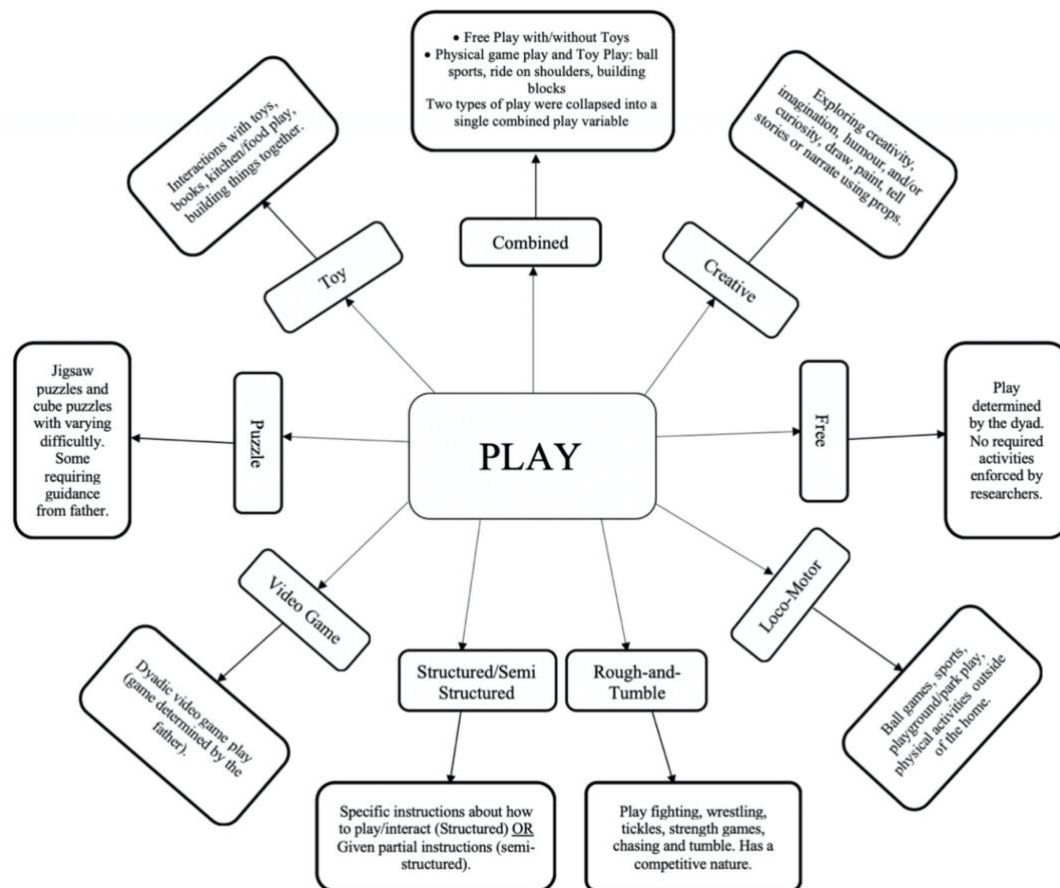


Figure 2. Flowchart providing a brief overview of the various activities found within each play type.

Creative Play was examined by three studies, making up 3% of the systematic review outcomes. Child ages within these studies ranged from 2 to 7 years. Half of the Creative Play studies used objective play and child outcome measures, with the other half drawn from parent self-report information (Table 2). The Creative Play studies focussed on the following childhood outcomes: Achievement, in terms of children's receptive vocabulary ($N = 1$); Emotional/Behavioural, with outcomes inclusive of emotional regulation, withdrawn behaviour, behaviour problems and aggressive behaviours ($N = 5$); and Social/Behavioural, encompassing prosocial behaviours ($N = 2$). Of the eight outcomes, four were interested in negative child outcome measures including child withdrawn behaviour and behaviour problems. Positive associations were found between Creative Play and all Achievement, Emotional/Behavioural and Social/Behavioural outcomes.

Creative Play findings indicated that when fathers undertook positive behaviours during play such as actively engaging their child during the play or being playful, their children showed fewer behaviour problems [28], less aggression [29], better emotional regulation (Emotional/Behavioural) and higher receptive vocabulary (Achievement) [7]. Furthermore, when fathers undertook Creative Play generally, this was positively related to children's displays of prosocial behaviour (Social/Behavioural) [28].

Table 2. Creative play—outcome measure descriptions and results summary.

Study	Sample Size	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[7]	73	Positive	A	1	0
		Positive	EB	1	0
[29]	87	Negative	EB	0	2
[28]	13,717	Positive	SB	2	0
		Negative	EB	0	2

Note: A = Achievement. EB = Emotional/Behavioural. SB = Social/Behavioural.

Within Combined Play, three studies examined Physical and Toy Play interactions, while one study used Free Play and Toy Play, making up 9% of the systematic review outcomes (Table 3). Child ages within this study ranged from 10 months to 5 years. Within combined play, researchers were more likely to utilise parental self-report to obtain measures of play and teacher reports for child outcomes, with self-report data accounting for 18 of the 22 play measures and 15 of the 22 child outcome measures. The remainder were objective measurements. Five childhood outcomes were explored: Achievement, in terms of language development ($N = 1$); Cognitive, encompassing children's intelligence and cognitive development ($N = 3$); Cognitive and Social/Behavioural combined outcome ($N = 1$); Emotional/Behavioural, with a comprehensive examination of emotionality and child internalising/externalising behaviours ($N = 14$); and Social/Behavioural outcomes which explored social competency as rated by teachers ($N = 3$), with 10 of the 22 outcomes interested in positive child outcomes.

The study that examined Combined Play and child Achievement [30] found a positive effect, as did the study interested in Cognitive outcomes [31]. Positive associations were found for Combined Play and child Emotional/Behavioural outcomes for 12 of the 15 outcomes, with 3 finding a non-significant negative effect. The results indicated that fathers' physically active play, within combined play interactions, predicted children's emotional regulation (Emotional/Behavioural) for high-emotionality children (more sensitive or more emotionally reactive) but did not predict emotional regulation for low-emotionality children (less emotionally reactive to a stimulus) [32].

When considering Social/Behavioural outcomes and Combined Play, one study reported that father play positively predicted children's social outcomes [32], while three outcomes suggested that father involvement was negatively associated with child social competency [33]. These negative findings indicated that the more that the father was involved in play, the less social competency the child showed.

Table 3. Combined play—outcome measure descriptions and results summary.

Study	Sample Size	Combined Play Types	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[32]	727	P-T	Positive	SB	1	0
			Positive	EB	1	1
[31]	14	P-T	Positive	C	2	0
[33]	112	P-T	Positive	SB	0	3
			Negative	EB	2	10
[30]	97	F-T	Positive	A	1	0
			Positive	C	1	0

Note: A = Achievement. C = Cognitive. EB = Emotional/Behavioural. SB = Social/Behavioural. F-T = Free and Toy Play. P-T = Physical and Toy Play.

Free Play accounted for the smallest portion of outcomes of the systematic review data, with only three studies examining this type of play, making up 2% of the systematic review outcomes (Table 4). Child ages within this study ranged from 1 to 3 years. All of the studies used objective measurements for both play and child outcomes measurements and were interested in positive child outcomes. Free Play researchers were interested

in child Achievement and Emotional/Behavioural outcomes, with all studies finding positive associations. Achievement outcomes encompassed receptive and general language, while the Emotional/Behavioural outcome involved child emotional regulation.

Table 4. Free play—outcome measure descriptions and results summary.

Study	Sample Size	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[34]	175	Positive	A	1	0
[35]	34	Positive	A	2	0
[36]	90	Positive	EB	1	0

Note: A = Achievement. EB = Emotional/Behavioural.

Free Play findings demonstrated that father positive parenting behaviour during play was positively associated with child outcomes; nurturance was positively associated with child receptive language (Achievement) [34], and sensitive regulation was positively associated with child-regulation compliance (Emotional/Behavioural) [36]. Further positive associations were found for father didactics (father teaching his child) and his child's language development (concurrently and predictive of) [35].

Six studies examined Locomotor Play in their research, making up 11% of the systematic review outcomes (Table 5). Child ages within this study ranged from 9 months to 7 years. Researchers gathered parent self-report information to obtain Locomotor Play measurements for 17 of the 26 studies, with the remainder obtained from objective measurements. However, for child outcome measurements, 73% of outcomes came from objective measures, while the remainder were obtained from parental self-report. A large portion of outcome measures were focussed on Emotional/Behavioural child outcomes ($N = 11$), with the other areas of interest spread between Achievement ($N = 8$), Cognitive ($N = 4$), and Social/Behavioural outcomes ($N = 3$). The Emotional/Behavioural outcomes explored behavioural problems, child anxiety/withdrawal, anger-aggression, internalising behaviours, child temperament, self-regulation, behaviour problems and socio-emotional functioning. Achievement outcomes included literacy, mathematics and school readiness. Cognitive child outcomes incorporated executive functioning and cognitive development and Social/Behavioural outcomes explored prosocial behavioural and social competence. The vast majority of outcomes were concerned with positive child outcome measures ($N = 22$).

Within the study interested in child achievement, negative associations were found for four of the eight outcomes, with father overstimulation during play resulting in negative childhood achievement outcomes [37]. For Locomotor Play and child Cognitive outcomes, there were an equal number of positive ($N = 2$) and negative associations ($N = 2$) reported, with one study suggesting that father overstimulation during Locomotor Play resulted in poorer scores of executive functioning [37], while another reported mixed findings between paternal Locomotor Play and child cognitive development [38].

Positive associations were found in all studies that measured child Social/Behavioural outcomes [28,39]. Of the 12 Emotional/Behavioural child outcomes, associations were mixed—1 found no effect, while 5 reported negative associations and 6 reported positive associations. Quality of play was positively associated with lower internalising scores [6], while father's involvement in play was positively associated with lower risks of behaviour problems [28] and aggression (Emotional/Behavioural) [39]. Negative associations were reported between paternal Locomotor Play and socio-emotional functioning, child temperament and self-regulation [38].

Table 5. Locomotor play—outcome measure descriptions and results summary.

Study	Sample Size	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[6]	103	Negative	EB	0	1
[40]	750	Positive	A	2	0
[28]	13,717	Positive	SB	2	0
		Negative	EB	0	2
[38]	3770	Positive	C	1	1
			EB	0	6
[37]	89	Positive	A	2	4
			C	1	1
[39]	295	Positive	SB	1	0
		Negative *	EB	0	3

Note: A = Achievement. C = Cognitive. EB = Emotional/Behavioural. SB = Social/Behavioural. * = One outcome showed no effect.

Puzzle play was examined by two studies, making up 9% of the systematic review outcomes (Table 6). Child ages within this study ranged from 3 to 5 years. Objective measures were obtained for all play and child outcomes. These studies focussed on child Achievement ($N = 13$) and Cognitive outcomes ($N = 10$). All outcomes were positive child outcome measures ($N = 23$). The Achievement outcomes were interested in literacy, school readiness and mathematics and the Cognitive outcome of interest was child executive functioning.

For child Achievement, positive associations were found for 8 of the 13 outcomes, with father control (negative parenting behaviour) during puzzle play resulting in negative childhood achievement outcomes [37,41]. Results showed a positive association between fathers who supported child autonomy during play (positive parenting behaviour) and child vocabulary [37,41], mathematic achievement and school readiness [37]. For child Cognition, positive associations were found for 6 of the 10 outcomes, with father control during puzzle play resulting in negative childhood executive functioning outcomes [41]. Father autonomy support (positive parenting behaviour) was associated with positive executive functioning outcomes [37]. Results demonstrate that the way in which fathers choose to engage positively by fostering their children's autonomy or negatively by inhibiting their autonomy (control), results in different developmental outcomes for children.

Table 6. Puzzle play—outcome measure descriptions and results summary.

Study	Sample Size	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[41]	110	Positive	A	1	1
			C	2	4
[37]	89	Positive	A	7	4
			C	4	0

Note: A = Achievement. C = Cognitive.

Rough-and-Tumble Play (RTP) was examined in nine studies, making up 24% of the systematic review outcomes (Table 7). Child ages within this study ranged from 9 months to 8 years. Objective measures were gathered for 46 of the 58 rough-and-tumble play measures, with the remainder obtained from parent self-report measurements. However, for child outcome measurements, the reverse was seen with 82.76% of child outcomes acquired through teacher, peer and parent self-report, with only 17.4% of child outcomes measured objectively. Within the RTP literature, the largest portion of outcomes were focussed on child Social/Behavioural functioning ($N = 31$), followed by Emotional/Behavioural outcomes ($N = 26$), with only one reported child Cognition outcome (1). There was a similar spread of positive ($N = 32$) and negative child outcome measures ($N = 26$). For Cognitive outcomes, there was a positive effect between child cognitive scores and father-child RTP [42]. The Emotional/Behavioural outcomes of interest fell broadly across child physical aggression, verbal aggression, conduct problems, total emotional/behavioural problems, emotional problems, hyperactivity problems, anger/aggression, emotional regulation and

anxiety/withdrawal. Of these, the studies reported 16 positive associations between RTP and child outcomes and 8 negative associations. Within the negative associations RTP frequency was positively correlated with child physical aggression when fathers were less directive in play [43,44], and negatively correlated with emotional regulation when fathers were less dominant in play [45]. Furthermore, negative associations were found for challenging parenting behaviours and child anxiety [46], and reciprocal negative affect during play was positively associated to children's verbal aggression [43]. However, other findings reported that involvement in RTP reduced anger/aggression [45,47] and anxiety/withdrawal [39].

The Social/Behavioural child outcomes of interest were social competence, social acceptance, prosocial behaviour, sharing, avoidance and peer problems. A greater number of negative associations were reported between RTP and Social/Behavioural child outcomes, with 19 negative associations compared with 12 positive associations. Of the negative associations, 68% reported that negative affect during RTP (father negative affect or reciprocal negative affect) resulted in various poor Social/Behavioural outcomes such as lower peer rating, social acceptance, and sharing [48]. Interestingly father positive affect during play was associated with negative teacher and peer ratings of social acceptance for girls, and negatively associated with teacher ratings of social acceptance for boys [48]. In addition, father RTP scores and father involvement in RTP were negatively associated with prosocial behaviour and social competence, respectively [48]. A further negative association was found between quality of RTP and child prosocial behaviour [49].

Table 7. Rough-and-tumble play—outcome measure descriptions and results summary.

Study	Sample Size	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[47]	42	Negative	EB	0	2
[42]	1099	Positive	C	1	0
[43]	41	Positive	SB	0	2
[44]	85	Negative	EB	4	0
[45]	34	Negative	EB	1	2
		Positive	EB	1	2
		Negative	EB	2	4
[49]	26	Positive	SB	0	1
		Negative	EB	0	5
[48]	116	Positive	SB	15	9
[46]	132	Negative	EB	1	3
		Positive	SB	0	1
[39]	295	Negative	EB	0	2

Note: C = Cognitive. EB = Emotional/Behavioural. SB = Social/Behavioural.

Structured and Semi-Structured Play was examined by two studies, making up 4% of the systematic review outcomes (Table 8). Child ages within this study ranged from 2 to 10 years. Objective measures were gathered for all play outcomes and 8 of the 13 child outcomes. The remaining five child outcomes were acquired through parent self-report measures. Across the Structured and Semi-Structured Play studies, three outcome categories of interest were identified: Achievement ($N = 6$), Cognitive ($N = 2$) and Emotional/Behavioural outcomes ($N = 5$). The Achievement outcomes were concerned with child literacy and numeracy, with positive associations being found between paternal cognitive stimulation (attempting to further their child's learning and understanding) during semi-structured play and all Achievement outcomes [50]. For Cognitive outcomes, child cognitive ability was investigated, with paternal cognitive stimulation during semi-structured play showing positive associations for cognition [50]. The Emotional/Behavioural outcomes were child negative affect, conduct problems, emotional symptoms, surgency and effortful control with three negative and two positive associations reported. Of the negative child outcomes, parental sensitivity during play was positively associated with child negative affect and emotional symptoms, and negatively associated with child conduct problems. For the positive child outcomes, a positive effect was found

between father sensitivity during play child effortful control, while father sensitivity during play was negatively associated with child surgency [51]. This conveys that while sensitivity seemed to positively impact child emotions, it conversely negatively impacted child temperament, which establishes how we react to that emotion. Furthermore, as surgency is a personality trait which conveys cheerfulness, spontaneity and extraversion, and effortful control dictates how well a child has self-regulation over their emotional reactivity and behaviour, sensitivity appears to improve children's skills in controlling their reactions, which results in lowering impulsiveness and outgoingness.

Table 8. Structured and semi-structured play—outcome measure descriptions and results summary.

Study	Sample Size	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[51]	107	Positive	EB	1	1
		Negative	EB	2	1
[50]	229	Positive	C	2	0
			A	6	0

Note: A = Achievement. C = Cognitive. EB = Emotional/Behavioural.

Twelve studies examined Toy Play in their research, making up 28% of the systematic review outcomes (Table 9). Child ages within this study ranged from 1 to 4 years. Objective measures were obtained for all 68 Toy Play measures and 63 of the children's outcome measures, while 5 self-report measures of children's outcomes were utilised. Within the Toy Play literature, the largest portion of outcomes were focussed on Cognitive Outcomes ($N = 24$), closely followed by child Achievement Outcomes ($N = 23$) and Emotional/Behavioural outcomes ($N = 15$), with six reported child Social/Behavioural outcomes ($N = 6$). There were more positive ($N = 57$) than negative child outcome measures of interest ($N = 11$).

The Cognitive outcomes of interest were cognitive development and cognitive flexibility components of executive functioning and mental development. A total of 16 positive associations and 8 negative associations were found. Fathers' engagement in Toy Play [52], paternal sensitivity [12], fathers responsive-didactic behaviour [53] and paternal positive regard [54] were all associated with positive outcomes, while father detachment, negative regard and negative intrusiveness were associated with negative outcomes in terms of children's mental developmental index scores [54].

Achievement outcomes of interest were language complexity, expressive communication compliance, receptive language ability, math achievement, language development, receptive vocabulary, with more positive associations ($N = 17$) found than negative associations ($N = 6$). Fathers' play behaviour [55,56], mutual compliance [57], high supportiveness [58], dyadic reciprocity [59], sensitivity, cognitive stimulation and positive regard [54] were all associated with positive associations. Negative associations were found between father detachment, intrusiveness and negative regard, and children's receptive vocabulary [54].

The Emotional/Behavioural outcomes were concerned with child minimum engagement of self-control with forbidden toys and child active engagement of self-control (interacted with forbidden toys less), child aggression, percentage of night sleep, emotional regulation and child negativity. Thirteen of the Emotional/Behavioural associations were positive while two were negative. Shared positive emotion, mutual compliance [59], playfulness [12], quality of interactions [60] and engagement in toy play [56] were factors associated with positive associations. Of the negative associations, dyadic reciprocity during toy play was negatively associated with children's minimum and active engagement of self-control (showed less self-control with forbidden toys) [59]. Thus, regardless of the positive shared experiences during Toy Play, children still ignored experimenter instructions and engaged in a play with a forbidden toy but were likely to follow their fathers' verbal instructions. This demonstrates the impact that these dyadic experiences have on

the relationship between father and child but may indicate this compliance does not extend to outside parties.

The Social/Behavioural child outcomes of interest were prosocial behaviour, child-friend interactions, friendship quality and false belief understanding. Positive associations were found for all outcomes. Father–child dyads who engaged in more mutual compliance (dyadic measure) and shared more positive emotion during play had children who were more prosocial [57] and father sensitivity showed positive outcomes for child-friend interactions, friendship quality and false belief understanding [61]. Furthermore, mutual compliance and sharing positive emotions during toy Play were negatively associated with child aggression and positively associated with prosocial behaviours (Social/Behavioural) [57].

Table 9. Toy play—outcome measure descriptions and results summary.

Study	Sample Size	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[52]	62	Positive	C	1	0
[60]	70	Positive	EB	1	0
		Positive	A	6	0
[59]	80	Positive	EB	0	2
		Negative	SB	0	4
		Positive	SB	2	0
[57]	88	Negative	SB	0	2
[55]	60	Positive	A	1	0
[12]	111	Negative	SB	0	4
[58]	200	Positive	A	2	0
		Positive	SB	3	0
[61]	32	Negative	SB	1	0
			A	2	0
[56]	74	Positive	C	2	0
			EB	2	0
[53]	65	Positive	C	2	0
			A	8	4
[54]	111	Positive	C	9	8
[62]	620	Positive	C	2	0

Note: A = Achievement. C = Cognitive. EB = Emotional/Behavioural. SB = Social/Behavioural.

One study [63] used Video Game Play to examine childhood outcomes, making up 10% of the outcomes within this systematic review (Table 10). Child ages within this study ranged from 4 to 6 years. Objective measures were gathered for all video game play measures and child outcome measurements. Within this study, outcomes were focussed on Social/Behavioural outcomes ($N = 16$) and Emotional/Behavioural outcomes ($N = 8$). The Social/Behavioural outcomes of interest included eight positive child outcomes and focussed on positive parallel play with peers, while the eight negative child outcomes, focussed on negative peer play (a negative atmosphere with one play partner dissatisfied with the play). For the Social/Behavioural outcomes there were seven positive associations reported. Five positive associations were reported between father factors in Video Game Play inclusive of derisive humour (mocking/ridicule during play), criticism, enthusiasm, affection and father engagement and child outcome of positive parallel play with peers (side-by-side play where both parties are playing separately with neutral affect), while both engagement and derisive humour were negatively associated with negative peer play. Of the nine negative associations reported for Social/Behavioural outcomes, father enthusiasm, affection, intrusiveness, commands, responsiveness and criticism during play were positively related to negative peer play, while intrusiveness, commands and responsiveness also showed negative associations for positive parallel play with peers. The Emotional/Behavioural outcome of interest was positive affect during peer play. Researchers reported two positive associations and six negative associations. The positive associations were found between father affection and father responsiveness and child outcomes of positive affect during peer play. Father engagement, commands,

intrusiveness, derisive humour, criticism, and enthusiasm during play were associated with negative associations on positive affect during peer play.

Table 10. Video game play—outcome measure descriptions and results summary.

Study	Sample Size	Outcome Measure	Outcome Category	Number of Reported Positive Associations	Number of Reported Negative Associations
[63]	24	Positive	EB	2	6
			SB	5	3
		Negative	SB	6	2

Note: EB = Emotional/Behavioural. SB = Social/Behavioural.

4. Discussion

The systematic review revealed that there were nine play types that fathers engaged in with their children: Creative Play, Combined Play, Free Play, Locomotor Play, Puzzle Play, Rough-and-Tumble Play, Structured and Semi-Structured Play, Toy Play and Video Game Play. Upon further investigation, it was apparent that the most utilised forms of play throughout the studies fell across two play types: Toy Play and RTP, with twelve and nine studies, respectively, focussing on these types of play. These two play types accounted for over half of the studies included in the systematic review. This play type bias, may be representative of the types of play that researchers themselves believe to be the most utilised by fathers, perpetuating the idea that the scope of father–child interactions are limited.

This systematic review also uncovered the childhood outcomes that were the focal points of these studies. Emotional/Behavioural outcomes were included in 22 studies, Cognitive and Achievement outcomes were each included in 12 studies and Social/Behavioural outcomes were included in 10 studies. Consequently, it is apparent that past research has primarily focussed on how play impacts children’s emotional and behavioural development. This highlights the need to explore how paternal play impacts cognition, achievement and their social interactions, as these areas have been overlooked.

It was found that the vast majority of included publications focussed on positive child developmental outcomes (75%). While some play types had a relatively even spread of positive vs. negative outcomes of interest (Creative Play, Combined Play and RTP) others focussed largely (Locomotor Play, Structured and Semi-Structured Play, Toy and Video Game Play) or completely (Free Play and Puzzle Play) on positive child developmental outcomes. This may be indicative of a research tendency to illuminate how paternal behaviour is related to positive outcomes for children, rather than determining what paternal behaviours contribute to negative developmental outcomes.

The ages within this systematic review varied across the play types (see Figure 3). What stands out is the general trend towards investigating the younger years of child development. All play types considered the development of children aged 3 years. Four of the play types included samples of children over the age of 5 and only two included children over 7 years. Given these publications investigated father–child play and child development, there may be a neurological rationale for the focus on younger children. Neurological development is critical within the first 5 years of life, where experiences and practice give rise to rapid change and growth (neuroplasticity) [64]. Research targeting a time of rapid development and paternal behaviour may stand to positively inform parenting practices, thus providing opportunities to benefit child development. In line with this, the Structured and Semi-Structured Play study that considered 10-year-old children was examining the longitudinal developmental effects of play at age 2. Additionally, the RTP study that considered 8-year-old children was a five-year follow-up study from play at age 3. Therefore, it appears that when older samples were included, this was to examine the enduring impacts of father–child play, not the concurrent impacts.

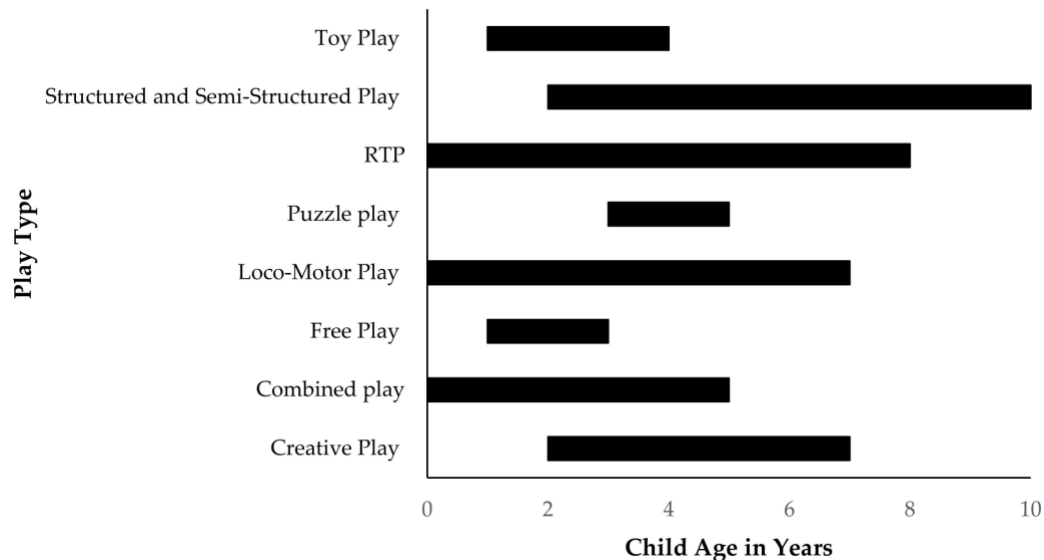


Figure 3. Child age ranges across play types for included publications.

It was also found that the measures used for play outcomes were comprised mostly of objective measures (79.27%), while the remainder came from parental self-report. This is reassuring as it indicates that the play outcomes measured within this systematic review have utilised primarily objective measures, which indicates the outcomes are an accurate and unbiased reflection of the various components of these dyadic interactions [65,66]. The child developmental outcomes also utilised a high percentage of objective measures (65.45%), with parent ratings the subsequently most common measure (19.90%), followed by teacher ratings (12.20%) and combined parent-teacher ratings (2.45%). This is indicative of the reports needed for the outcomes themselves, as some outcomes can be obtained objectively in one research session, whilst others unavoidably require parental input to obtain a holistic view of the child's functioning [67].

Creative Play, Combined Play, Free Play, Structured and Semi-structured Play and Toy Play were all found to be related to child academic achievement outcomes. These different play types, while focussed on unique paternal and dyadic elements of the play, held a common undertone of positive interaction elements. For example, positive relationships were found between Paternal Playfulness (Creative Play), Sensitivity (Combined Play), Nurturance and Dyadic interactions (Free Play), Cognitive stimulation (Structured and Semi-Structured) and dyadic reciprocity, shared positive emotion, mutual compliance, supportiveness, positive regard (Toy Play) and achievement outcomes. This is encouraging as it demonstrates that positive achievement outcomes are not exclusive to a single play type, but instead show that fathers being attuned to their children's needs, interacting in a playful and stimulating manner, and being supportive of their children's needs, consistently foster positive relationships. This could be utilised in future parenting interventions. For example, by encouraging positive play interactions within father-child dyads, there is the potential for school academic outcome improvement.

RTP, Locomotor Play and Puzzle Play were all related to positive Cognitive outcomes. General play involvement (RTP and Locomotor Play), Father involvement and autonomy support (Puzzle Play) were play elements of interest that showed positive relationships with child Cognition outcomes. All these types of play share a common factor in terms of gross and fine motor skills. As motor development impacts on child exploration of their physical environment, which in turn effects cognition, this is an instinctual connection [68,69]. These findings are promising as there has been no research linking puzzle play to the physical elements of RTP or Locomotor Play, which are physical in nature. These findings

provide prospective benefits for low-income families, where access to puzzles may not be possible, allowing them to derive comparable cognitive developmental outcomes for their children through more vigorous play activities. Across the 58 RTP outcome measures, only 1 outcome looked at cognition. Thus, given these findings and that research into RTP has primarily focussed on behavioural outcomes, it is paramount that further research is invested into exploring the cognitive benefits of RTP.

The systematic review suggested that Video Game Play, along with Creative Play and Toy Play, was related to child social/behavioural outcomes. Father enthusiasm, affection, engagement, responsiveness (Video Game Play), general play involvement (Creative Play), sensitivity and mutual compliance were all positively related to child social/behavioural outcomes in terms of positive interactions with their friends and general prosocial behaviours. This demonstrates the importance of modelling the appropriate ways of engaging in social situations. By being amenable, sensitive and responsive to their child's needs during play, fathers demonstrate the correct ways for their children to engage with their peers. Furthermore, by fathers showing enthusiasm and engagement in what their play companion (child) is doing, children appear to transfer the same reverence to their peers. Thus, while these three types of play differ in terms of the activities that they involve, it is apparent that strong translational learning can occur during dyadic play, which can foster positive social relationships for children. This modelling has been well described in Bandura's social learning theory whereby children observe models (people), translate this behaviour and subsequently imitate this learning behaviour [70]. The importance of this is that both positive and negative behaviours can be imitated, thus it is important that fathers are fostering positive social interactions for their children to model.

Creative Play, Free Play, Structured and Semi-Structured Play and Toy Play were all found to be related to child emotional/behavioural outcomes. Sensitivity (Structured and Semi-Structured Play, Free Play), general play (Toy Play) and playfulness (Creative Play) all attained positive outcomes, notably in the area of emotional regulation. This is interestingly contrasted with RTP and Locomotor Play, which showed that general play (Locomotor) and play frequency (RTP) were negatively associated with emotional regulation. This poses the question as to whether there is more nuance in physical play than other play types? Past research has suggested that it is not simply enough to engage in RTP, but instead it needs to be a quality interaction [49]. For example, sharing the winning and losing, sharing of dominance during play and, as there is an element of competition within RTP, fathers praising the child for their efforts. Thus, it is possible that these physical interactions obtained in this review were not quality interactions. Furthermore, as RTP has focussed mainly on behavioural outcomes it is evident that additional exploration is needed to better understand the elements of play that constitute high quality play and thus provide positive impacts to children. By gaining this understanding, we can generate resources for parents, educating them on the positive ways to engage in physical play to ensure beneficial outcomes for their children.

The directions of the relationships between paternal play and child developmental outcomes were in the trend we would expect and in line with our predictions, with the majority of negative outcomes having negative associations reported (77.27%), indicative of positive impacts on child development. For positive outcomes 64.25% found positive impacts on child development. It is important to note that of the negative associations reported, 71% came from negative parenting behaviours such as paternal overstimulation, negative affect, detachment, negative regard, intrusiveness, control, criticism and commands. Thus, consistent with what we would anticipate from these relationships. The positive parenting behaviours that were negatively associated included play involvement, play frequency, engagement, responsiveness, enthusiasm and dyadic reciprocity. As previously stated merely being involved in play does not constitute high quality play [49], thus other unmeasured aspects of the play could be impacting on these associations.

This study has potential limitations. Firstly, due to the broad age ranges considered within this review, the variance in age ranges found for each play type may be problematic.

Some play types demonstrated relatively narrow age ranges (Free Play 1–3 years, Puzzle Play 3–5 years, Toy Play 1–4 years, Video Game Play 4–6 years) while others displayed large age ranges (Creative Play 2–7 years, Combined Play 10 months–4 years, Locomotor Play 9 months–7 years, RTP 9 months–8 years, Structured and Semi-Structured Play 2–10 years). As participation in play interactions have been shown to differ across child developmental periods [71] the different age ranges shown here may affect the generalisability of these findings. While this review does not consider findings within a particular developmental lens, future reviews may consider limiting their searches to a more focussed developmental period.

Secondly, the decision to consider all play types within this review subsequently resulted in a small sample of studies within each play type. Consequently, relatively few studies explored the same play/outcome relationships. Despite this, the consideration of all play types allowed for a comprehensive exploration of how father–child play influences child development. It enabled us to answer our research question regarding the types of play fathers and their children engage in, thus providing information about what forms of play are utilised throughout paternal research (Locomotor Play, RTP and Toy Play). A narrower approach for future research may highlight important outcome similarities and/or differences in specific play types. This could allow researchers to form stronger conclusions about the relationship between a chosen play type and a particular developmental outcome.

In addition, there remain opportunities to explore father–child play from a cross-cultural perspective. The majority of this research has been conducted in Western-individualist populations [21,44] and has not explored these interactions in individualist cultures where father–child interactions may differ [72].

Limitations of systematic reviews more broadly are publication biases (less likely to publish no effect findings) and outcome reporting biases (reporting favourable relationships) [73]. However, the articles obtained reported both favourable and unfavourable results. Thus, while potential publication biases herein may have implications in distorting the true picture of the paternal play/child outcome relationship, outcome reporting bias has not surfaced as a concern for the present research.

The results of this systematic review provide support for a relationship between father–child play interactions and child developmental outcomes. It highlighted the broad range of play types utilised throughout father–child play research (Creative Play, Combined Play, Free Play, Locomotor Play, Puzzle Play, Rough-and-Tumble Play, Structured and Semi-Structured Play, Toy Play and Video Game Play) and identified that play outcomes were measured primarily objectively within the reviewed articles. It was made apparent that the principal outcome of interest in these articles was Emotional/Behavioural outcomes, followed by Cognitive and Achievement outcomes and finally Social/Behavioural outcomes.

The results also demonstrated how the same paternal behaviour can have vastly different associations with child outcomes, both within the same play type and across play types. Additionally, the findings highlighted the need to broaden our understanding about seemingly positive and negative parenting behaviours, as the directions of the relationships were at times unexpected, emphasizing the complexity of dyadic interactions and their associated outcomes. They demonstrated that while particular paternal behaviours may have negative impacts for certain childhood outcomes, the same behaviour can have various positive impacts also. Nonetheless, the overall directions of the relationships between paternal play and child developmental outcomes were in the direction we would expect for both positive and negative parenting behaviours. These findings encourage the further exploration of different types of paternal play interactions.

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Chapter Three: The Prevalence of Parent-Child Interactions in Australian Families

The importance of play as a platform for child development has been well-documented (Kahen, Katz & Gottman, 1994; McElwain & Volling, 2004; Tamis-Lemonda et al., 2004). The systematic review presented in Chapter 2 demonstrated the numerous links between father-child play and child achievement, cognitive, emotional/behavioural and social/behavioural outcomes. Past research has also revealed beneficial relationships between father-child play and academic achievement (Cabrera et al., 2017; Cook et al., 2011), cognition (Baker, 2013; Cabrera et al., 2006), social skills (Fletcher et al., 2013; Isley et al., 1996) and emotional regulation (Flanders et al., 2010; Head-Reeves, 2010). Chapter 2 also revealed that positive behaviours during play (e.g., engagement, responsiveness, enthusiasm) yielded mostly positive child developmental outcomes and the opposite was seen for negative behaviours (e.g., criticism, control, intrusiveness). The results indicated that the same paternal behaviour can result in different child developmental outcomes, dependent upon the type of play in which that parent engaged in. This highlighted the need to explore different types of paternal play interactions to better understand their developmental impact.

It has been well documented that past research has focused on play in general and neglected to report the type of play (Black et al., 1999; Bornstein et al., 1992; Cook et al., 2011) or the frequency in which it is engaged. This makes it cumbersome to try to determine the type of play that is most impactful on child development and whether there are differences in play interactions between mothers and fathers (Majdandžić et al., 2014; Popp & Thomsen, 2017). Furthermore, with some play types being investigated more so than others (i.e., toy play vs rough and tumble play), there is an imbalance of knowledge into the particular relationship between a select play type and child developmental outcomes.

Furthermore, the prevalence of parent-child play interactions across Australia has not yet been explored and given that parental play and involvement make important contributions to child development, this is an important avenue for investigation. Thus, the aim of this study was to examine the prevalence of different play (e.g., RTP, toy play, pretend play and puzzle play) and general parent-child interactions (e.g., screen time sharing and book reading) in an Australian sample using an online survey. The study examined maternal and paternal interactions in families with 0-10-year-old children. Although this study will give us further insight into parent-child interactions, such as playing with puzzles, reading, imaginative play, screen time and toy play, the present research focuses on RTP. Given RTP's status as the most utilised form of play between fathers and their children (Flanders et al., 2010), the shortage of maternal RTP exploration (Paquette et al., 2003) and being the least studied form of human play (Flanders et al., 2010), directed exploration is warranted.

This chapters present the findings on the prevalence of RTP interactions in Australian families. It begins by providing an overview of the different play types that were considered, then discusses the role that perceived importance of play has on play participation. Next, the findings examining the demographic characteristics of our sample and each play type, the differences for mothers and fathers in interactions, the impacts of child characteristics on interactions, and the effects of COVID-19 are presented. This chapter concludes by exploring the impact of these findings and suggestions are made for future research.

Play types: Associated Benefits and Prevalence

The following section explores 6 different parent-child interactions. Some of these interactions are physical (e.g., rough-and-tumble play), some passive (e.g., screen time), some cognitive (e.g., puzzle), some academic (e.g., reading), and some are more creative

(e.g., pretend play/make believe and toy play). The associated benefits of these interactions will be discussed, and the prevalence of these interactions will be explored.

Rough-and-Tumble Play

Rough-and-tumble (RTP) play is a type of physical play which involves vigorous behaviours such as play fighting, grappling, rumbling and chasing within a play context (Pellegrini & Smith, 1998). It's reported that RTP interactions begin during preschool years with peak parent-child RTP occurring around 4 years of age (Haight & Miller, 1993). RTP then increases in the primary school years, with a peak around 8 to 10 years for peer RTP, then decline in early adolescences (Hulle et al., 2007; Pellegrini & Smith, 1998). Gender differences have been reported, with research indicating that, as infants (Parke & O'Leary 2009; Power & Parke 1982) and pre-schoolers (MacDonald & Parke 1986), boys tend to receive a greater amount of physical play compared with girls. Despite these interactions consisting of positive affect and mutual enjoyment between play partners (Pelligrini, 2009) and RTP being coined as one of the most common activities fathers engage in with their 0–10-year-old children, RTP is the least studied type of human play (Flanders et al., 2010). This lack of research has been linked to adults perceiving RTP as aggressive and dangerous (Panksepp, 1993). However, during RTP, children negotiate dominance with their play partner and must adjust their behaviour to the tempo of the game (Fletcher et al., 2013; Pellis et al., 2005). This provides important practice scenarios for children about navigating complex social interactions (Pellegrini & Smith, 1998). Consistent with this notion, RTP has been reliably linked to children's socioemotional competence (StGeorge & Freeman, 2017) and behavioural flexibility (Granic & Patterson, 2006; Hawley, 1999; Pellegrini, 2009; Tremblay, 2008). Furthermore, RTP has been linked to emotional regulation (Nangle et al., 2010, Parke et al.,) and achievement outcomes (Anderson et al., 2019; Landry & Smith, 2010; Zelazo et al., 1997).

While research has looked at the relationship between RTP and child developmental outcomes, research on the frequency of these interactions are sparse. Furthermore, as most RTP studies begin by saying that mothers tend to do more of the care-giving and fathers more of the RTP (e.g., Fletcher et al., 2012; Lamb, 1977; Paquette et al., 2003), research on RTP has neglected mothers.

There has been only one large scale study that has examined the prevalence of RTP and considered both parents engagement in the play. The research focussed on French-Canadian heterosexual two-parent families from Quebec, Canada (Paquette et al., 2003) and found that, contradicting past assumptions of RTP being a predominately paternal activity, 85% of fathers and 73% of mothers were engaging in RTP. The research did show however, that fathers did this more frequently than mothers.

Reading

Fathers and mothers reading to their children has been linked to child reading and language skills as well as cognitive development (Feitelson et al., 1986; Mol & Bus, 2011; Raikes et al., 2006). The two activities most likely to improve child reading skills are reading and being read to (Adams, 1990; McLane & McNamee, 1990; Teale, 1984). Thus, it is instinctive that additive benefits would be found in parent-child reading, whereby this activity stimulates further independent reading in these children (Klab & Van Ours, 2014). Research by Fielding and Rollers (1992) proposed that parent-child reading can help combat low reading involvement in children. They suggest that low involvement may be caused by the books at the child's reading level not being of interest and that the books of choice for children are too difficult. This predicament can be resolved with parent-child reading that exposes children to exciting/challenging stories, allowing them to practice their reading skills while having a positive shared experience with their parents (Clarke-Stewart, 1998).

Klab and Van Ours (2014) conducted an Australian study looking at the impacts of parental reading on child development, using information provided by parents and educators, as well as national reading test and cognitive skills test scores. They found that frequent reading to children at a young age (4-5 years) had significant positive impacts on subsequent reading and cognitive skills spanning to at least 10-11 years old. Although they did not investigate the impacts beyond these years, they suggested that the benefits could continue further into the child's life.

Klab and Van Ours' (2014) research also shed light into the frequency in which Australian children were being read to each week. The rates were similar for boys and girls. At age 4-5 19% of boys and 20% of girls were being read to 0-2 times per week, 23% of boys and 30% of girls were being read to 3-5 times per week and 50% of boys and girls were being read to 6-7 times per week. These rates differed from an American sample of 8-10-year-old children which reported 54% of parents read to their children less than once a week, while 21% of parents read to their children almost every day or every day (Clarke-Stewart, 1998). These differences could be due to parents reading to younger children being more prevalent. Clarke-Stewart (1998) also found that the child's enjoyment of being read to was significantly associated with parent-child reading frequency ($r = .49, p < .001$) and furthermore to how much the child liked reading independently ($r = .83, p < .001$).

Screen time

With concerns for children's safety on the rise, families often discourage unsupervised outdoor exploration in favour of safer, supervised, and structured activities inside the home (Downes, 2002). This has led to an increase in screen time and the impacts of its use have not reached consensus. Downes (2001) explored screen time use and child development within Australia and found that computer use increased problem-solving skills and encouraged risk-taking, supporting past research findings (Haugland, 1992).

Observations of young children within this research found that children explaining what they were doing to their family strengthened their social skills and communication (Downes, 2001). Further studies have also found benefits of screen time (Granic et al., 2014; Przybylski & Weinstein, 2018; Valkenburg & Peter, 2009), while others have reported a negative relationship between screen time and children's wellbeing (Babic et al., 2017; Romer et al., 2013; Rosen et al., 2014).

Researchers in the U.S. explored the relationship between screen time (inclusive of phones, tablets, computers, gaming consoles and TV) and children's psychological well-being (Twenge & Campbell, 2018). In their sample of 2-17-year-old children and adolescents (n= 40,337), they found that over 1 hour of screen use was associated with decreased psychological well-being manifested as difficulty making friends, reduction in emotional regulation, and reduction in curiosity. In the 14-17-year-old population, high screen use was associated with anxiety, depression, and behavioural issue diagnoses. Thus, it is not surprising that in 2018 the World Health Organisation included gaming disorder within their 11th revision to the International Classification of Diseases (WHO, 2018).

However, few studies have examined screen time as a shared activity. Research by Jinqiu and Xiaoming (2010) examined co-viewing of television of 5-year-old children and their parents in Beijing, China. A positive relationship was found between co-viewing and child cognitive performance. The parents within the study reported co-viewing as a platform to educate their children, moderate the programs they watch and to gain an understanding of their child's judgement and intelligence. In line with this 77% of parents within the study explained television content to their child and 66% explained what the child could learn from the program. This phenomenon of parental commentary has been found in past research (Collins et al., 1981; Watkins et al., 1980). Beyond educational benefits, the parents in Beijing also suggested that their child's social skills can be enhanced through communication

during co-viewing and these interactions can strengthen their parent-child bond (Jinqiu & Xiaoming, 2010).

Akin to exploration of co-viewing rates, the prevalence rates of screen time are scarce. The Australian Bureau of Statistics (2019) Multipurpose Household Survey revealed that of children aged 5-14 years, over 90% participated in screen-based activities each week. Of these children, more than half were participating in over 10 hours of screen time per week. There has been no research into the prevalence of parent-child screen time sharing per week in Australia or Internationally.

Puzzles

Parent-child puzzle play contributes to children's mental rotation and spatial skills. As children manoeuvre the pieces into locations, puzzles provide immediate accuracy feedback as to whether the pieces fit or not. This provides a strong foundation for children to build mental rotation skills using jigsaw puzzles (e.g., Williams, 2004) or more difficult mental transformations of 2-dimensional shapes (e.g., Levine et al., 2005). Further benefits were found in research conducted by Levine et al. (2012). They found that families who engaged in parent-child puzzle play with their 2-4-year-old children, had better spatial ability task performance compared to those who did not. Furthermore, this research reported that the frequency of puzzle play was concurrently related to child spatial ability performance and was also predictive of kindergarten spatial skills. While the frequency of play did not differ between boys and girls, boys' parent-child puzzle play was of higher quality. Levine et al. (2012) noted that parents can expose their children to spatial language while playing with puzzles (e.g., "long", "curve", "top", "bottom"), which may improve their spatial language that contributes to better spatial skill formation.

Based off the duration of puzzle play during the study conducted by Levine et al. (2012), they estimate that those who engage in puzzle play do so for slightly over 2 hours per

week. The prevalence rates from other research has considered puzzle play as a part of toy play, not a separate activity, where the average time for parent-child toy play (inclusive of puzzle play) is between 15-30 minutes, in a single sitting, for children aged 2-6 years (Chang & Yeh, 2015).

Toys

Toy play can be unstructured with no means-end, or by contrast be goal-focused and highly exploratory in nature (Gray, 2013). Vast amounts of research on toy play has demonstrated the importance of toy and object play for child cognitive development (Amato & Rivera 1999; Uzgisir & Weizmann, 1977; Yarrow et al., 1975). Elaborate interactions during toy play between toddlers and their parents predicted better emotional regulation outcomes and greater language skills, when compared with less-complex parent-child interactions (Roggman et al., 2004). Another study showed that parental sensitivity during toy play was positively associated with self-regulation in children, while overall positive toy play was associated with fewer emotional and behavioural problems in children (StGeorge et al., 2017).

Within parent-child toy play interactions a gender effect appears throughout the literature. For father-child play, toy play with daughters showed more dyad connectedness, less detachment and closer dyad proximity, when compared with father-son interactions (Barnett et al., 2008; StGeorge et al., 2017; Tamis-leMonda, 2004). Research examining mother-child toy play, has found that mothers comply more and ignore less of their sons' responses, compared to interactions with daughters. Furthermore, compared to fathers, mothers modelled higher facilitative and cooperative behaviour during play (Lindsey et al., 2010).

While there is vast research examining the impact of toy play on child development, there is limited research on prevalence. Namely, one study by Chang and Yeh (2015)

reported 15 to 30 minutes as the average amount of time parents/caregivers spend sharing toy-play interactions with their 2-6-year-old child during a single sitting. The amount of parent-child toy-play outside of this age range has not been explored.

Pretend play/make believe

Pretend play encompasses an “as-if” stance (Garvey, 1990), where the pretenders develop layers of alternative realities onto the real environment (Fein, 1975; Lillard, 1993; Weisberg, 2015). Inanimate objects or beings can be treated as animate, mental representations become authentic and the pretenders create the context (Nielsen & Dissanayake, 2000). These interactions are related to child development in areas such as executive function (Lillard et al., 2011; Thibodeau et al., 2016; Vygotsky, 1978), language (Bergen, 2020; Lewis et al., 2000) and theory of mind (Taylor & Carlson, 1997). Lillard (2001) explains that make-believe play forces children to pay close attention to social cues, boosting theory of mind, which predicts children’s social competence (Wellman, 2014). Children begin pretend playing around their first birthday (McCune-Nicolich & Fenson, 1984) and the play increases in complexity with age (Carlson et al., 1998; Lillard et al., 2010; Taylor & Carlson, 2000).

Past research has shown that after its emergence between 1-2 years of age, pretend play increases to its peak at around 3-4 years of age (Haight & Miller, 1993) and then declines after age 6 (Piaget, 1962). More recent research suggests this continues into middle childhood stopping completely (on average) at 11 years of age, although some adults continue to pretend play (Smith & Lillard, 2012). While there have been decades of research looking into the developmental impacts of pretend play, the prevalence rates are yet to be examined.

Perceived Play Importance: Impacts on Prevalence

Perceptions of play importance impact how often parents engage in play with their child. This is due to diverse perceptions of how children develop (Fogle & Mendez, 2006), and parents placing more importance on the desired competencies that they want their child to develop (Ogbu, 1988; Roopnarine et al. 1994; Tamis-LeMonda et al., 2002). Research by Chao (1996, 2000) found that Asian parents believed that good education prepares children for a successful life, while middle-class parents living in the United States, believed that play built the social and cognitive skills necessary for children to succeed at school and in their future undertakings. More recent research surmised that Confucian heritage culture, which dominates Chinese society, views play as flippant or harmful for children's academic learning (Luo et al., 2013). This is not to say that Chinese parents do not view play as important for development, but instead, that it does not serve the purpose of preparing them for academic endeavours (Farver et al., 1995; Lin & Li, 2018). Similarly, Taiwanese parents preferred for their children to engage in academic learning activities, as opposed to play (Lin & Yawkey, 2013). This position on play and academic learning, has also been found in collectivist mainland China and Chinese immigrant parents living in the United States (Jiang & Han 2016). Within individualist cultures, Parke and Black (1997) found that Caucasian parents' attitudes towards play were positively related to their participation in play. Further cross-cultural research has shown that American and Turkish mothers engage in child-focused play more frequently than Guatemalan, Korean-American and East Indian mothers who view play as mere amusement (Farver et al., 1995; Göncü et al., 1991). Research by Farver and Wimbarti (1995) has shown that Indonesian mothers who perceived play to be an important factor in keeping children busy and content, engaged in more pretend play with their child, compared to mothers who believed play was making greater contributions to social skill development and intelligence. This demonstrates that perceptions of play

importance not only impact the prevalence of play, but the types of play parents are engaging in with their children.

A study by Holmes (2011) explored the kinds of play caregivers encouraged their children to engage in and the extent to which they themselves participated with the child in play. This research investigated the play attitudes of 92 parents, grandparents, and other adult guardians of primarily Japanese, part Hawaiian and Filipino heritage. For child independent play, caregivers were most likely to encourage sporting/outdoor play. This was followed by make-believe, thinking games, video/electronic play, and toy play, with reading books being the least encouraged form of independent play. When caregivers were asked about the types of play activities they engaged in with their child, comparable to independent play, the most utilised form of play was outdoors activities. This was followed reading books, toy play, make-believe, puzzle play, rough-and-tumble play and screen time sharing. Thus, while caregivers encouraged certain types of play more so than others (make believe and thinking games vs toy play and book reading), this did not map consistently onto the types of play parents themselves engaged in most with their child (book reading and toy play). While the frequency of each play type was not described, caregivers reported on general play frequency. The majority of the caregivers reported that played with their child every day (62%), on days off/weekends (11%), two-four times per week (8%), often (6%), with the remainder reporting not as often as they would like (6%), as often as possible (3.5%) or once-twice per month (3.5%). Thus, while past research has been successful in outlining the types of play parents engage in with their children, there is still much to learn about play prevalence rates and the relationship with parents' perceptions of play importance.

The Current Study

The aim of this study was to explore the frequency with which Australian parents engage in a range of play and general interactions with their 0-10-year-old children and the

importance they place on each type of play for child development. In keeping with the overarching focus of this thesis, the results presented here will predominantly focus on RTP. The central questions of focus are: 1. Do Australian fathers participate in more frequent RTP than mothers? 2. Does the frequency of RTP vary dependent upon parental perception of the play (i.e., importance or enjoyment)? 3. Is the frequency of parent-child RTP related to child age and/or gender? 4. Is the frequency of RTP similar to other types of non-physical interactions? 5. How has the global pandemic impacted RTP frequency?

We predict that Australian fathers participate in RTP more frequently than mothers and that mothers engage more frequently in non-physical play interactions compared to fathers. Given RTP's status as the most utilised form of play between fathers and their children (Flanders et al., 2010), we expect this activity to be more frequently engaged in compared to other activities under investigation for fathers. Furthermore, as research has suggested that mothers tend to do engage in care-giving more so than play, we anticipate that book reading will be the activity with the highest engagement frequency for mothers. We expect, in line with past research, that RTP interactions will be more frequent with children around 4 years of age and that play perception will impact on RTP play frequency (higher reported enjoyment and perception of importance positively related to RTP frequency). We hypothesise that boys will engage in more frequent bouts of RTP compared to girls. Furthermore, we predict that RTP frequency will show a decrease compared to pre-COVID-19, due to elevated stress levels that arise in infectious disease outbreaks (Chua et al., 2004; Brooks et al., 2020).

Method

Participants

Three hundred and seventy-nine respondents (85% mothers) participated in the current study. The participants were recruited online via Facebook and through the University of Newcastle's SONA experimental management system. Facebook advertising captured participants from the general population, while SONA participants consisted of either undergraduate students enrolled in a psychology course at the University of Newcastle or volunteers. There was no incentive provided to the general population for participation and SONA participants received 1 course credit for participation. All participants identified themselves as Australian parents and responded to questions about their child aged 0-10 years. This project was approved by the University's Human Research Ethics Committee, Approval H-2019-0063.

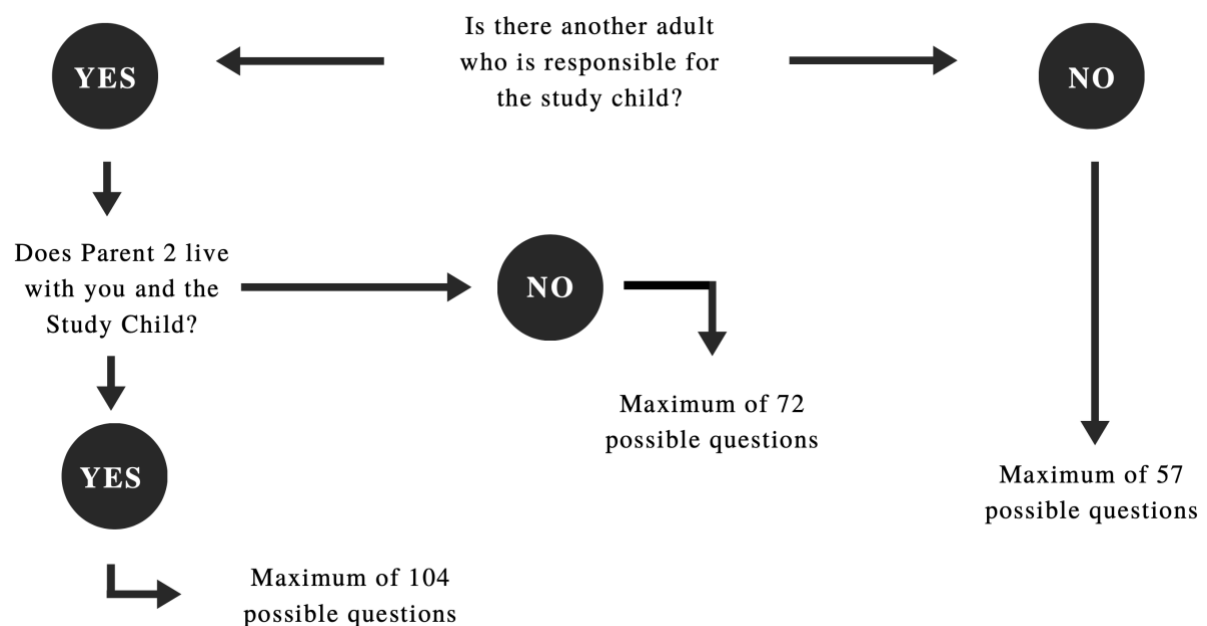
Online Survey

Parents completed the Australian Parent-Child Play Study (APCPS) survey online through LimeSurvey. The questions in the survey can be found at <https://limesurvey.newcastle.edu.au/index.php/347555?lang=en>. The survey consisted of forced choice and open-ended questions. The survey varied in question length depending on participants answer to two key questions as displayed in Figure 3.1. The survey consisted of demographics questions for the participant and additional demographics questions about their parenting partner (secondary respondents) if they indicated there was another adult responsible for the study child. Subsequently, participants were asked about their engagement in various play activities with their child: RTP, reading, screen time, puzzles, toys and pretend play/ make believe. If parents indicated that they did participate in a particular play activity with the study child, they were asked about how much they and the child enjoy that

activity and how important they believe the activity to be. If the parent indicated that they did not participate in an activity with the study child, they were only asked how important they believe that activity to be. Where applicable, after the completion of the responses about the participant and the study child's engagement in play, the participant was then asked about the secondary respondent's engagement in these activities. Thus, resulting in various question lengths for each participant based on their responses as shown in Figure 3.1. At the end of the survey, participants were invited to leave any additional comments about their parent-child play interactions, that the survey did not capture.

Figure 3.1

Maximum number of questions asked as determined by participant responses to key questions.



General testing procedure

All testing for participants was conducted online and via the use of their own devices and internet connection. All participants were asked the questions in the same standard order: demographic information, followed by questions regarding RTP, reading, screen time,

puzzles, toys and pretend play/make believe. Each survey took approximately 30 minutes to complete.

Data manipulation and Analysis

JASP was used for the analysis (JASP Team, 2020). Descriptive statistics were generated, and independent samples t-tests were used to explore the differences in RTP factors (e.g., enjoyment for parent and child, motivation for child to win, how often does the child initiate RTP interactions etc.) for mothers and fathers. ANOVAs were utilised to examine the frequency for each parent-child interaction and COVID-19 impacts, as well as for exploring the impact of child age, gender, and parental perception of RTP on RTP frequency. Pearson's correlations explored the relationship between various demographic factors (e.g., average income, education, age of child, birth order of child) and RTP play factors (play frequency, importance, initiation, enjoyment). Linear regression analyses were conducted to examine the predictive association between various demographic factors (e.g., education, age and gender), perception of play (e.g., enjoyment and importance) and RTP frequency.

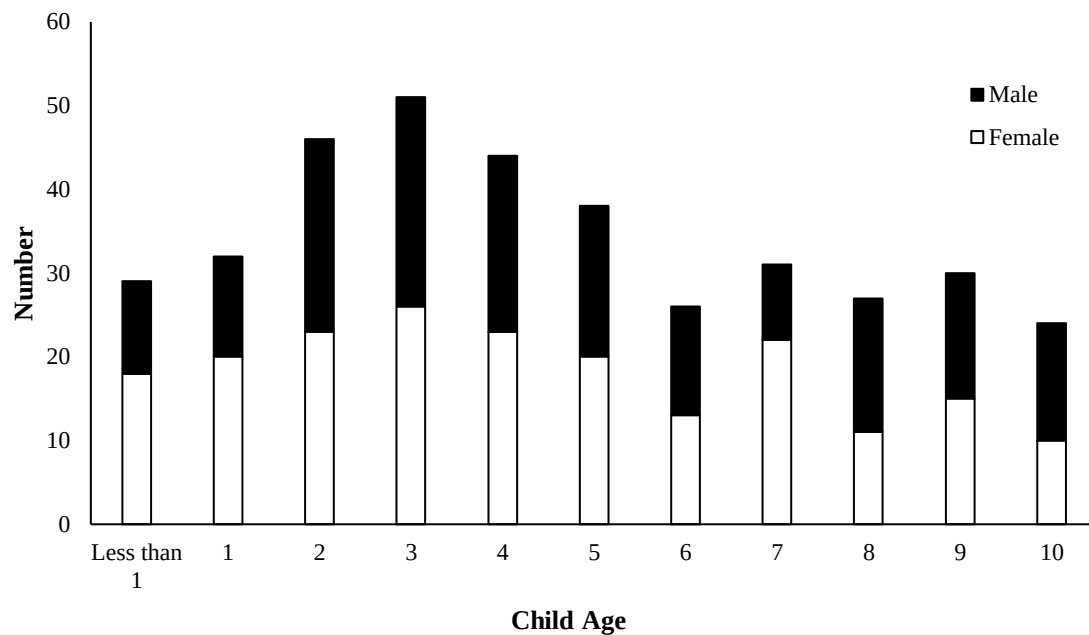
Results

Demographic Characteristics of the Sample

The child sample consisted of 201 female and 177 males, ranging from 0-10 years ($M = 4.61$, $SD = 2.96$) (See Figure 3.2). Seventy-three percent were 1st born children, fifteen percent were 2nd born children, seven percent were 3rd born children and five percent were 4th (+) born children. Children attended school (41%), day care (27%), preschool (11%) or were full time at home (21%).

Figure 3.2

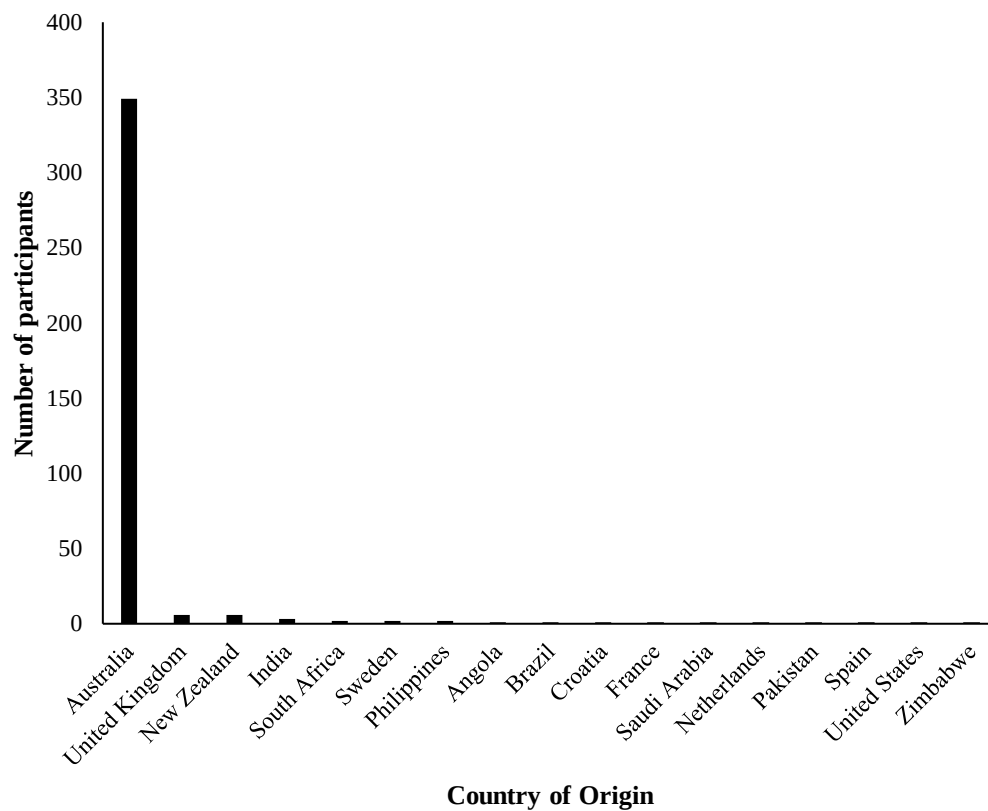
Child sample spread by age range.



The primary respondents (those who filled in the survey) consisted of 334 female, 44 male and 1 Nonbinary participants, and ages ranged from 18-68 ($M=33.77$, $SD=8.58$). Most of the primary respondents lived in regional ($n=167$), outer suburbs ($n=92$) and metropolitan areas ($n=75$), with a smaller number of participants hailing from inner city urban ($n=30$) and remote areas ($n=14$). Over three quarters of the primary respondents were married ($n=208$) or living together as a couple ($n=83$), while the remainder were single ($n=65$), separated ($n=15$) or divorced ($n=8$). Ninety Two percent of primary respondents reported Australia to be their country of origin ($n=348$), with other respondents hailing from United Kingdom ($n=6$), New Zealand ($n=6$), India ($n=3$), Philippines ($n=2$), South Africa ($n=2$), Sweden ($n=2$), with all other countries obtaining single observations (See Figure 3.3).

Figure 3.3

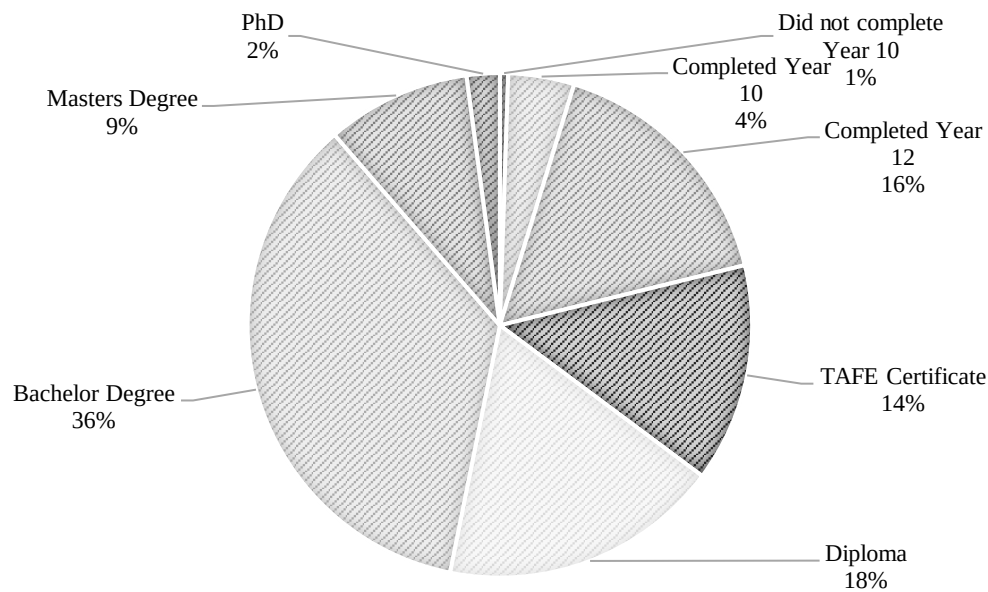
Primary respondents reported country of origin.



Seventy nine percent of primary respondents reported having tertiary qualifications (See Figure 3.4), with 60% of participants being employed either part or full-time, 21% full time parents, 16% students and 3% unemployed. On average the primary respondents spent 2.5 days working outside of home ($SD = 2.02$). Primary respondents experienced an income drop from pre COVID-19 ($M = \$83,500$, $SD = \$40,000$) to post COVID-19 ($M = \$68,500$, $SD = \$30,500$). The average primary respondent had 1.92 children ($SD = 1.05$), and predominantly reported being the study child's primary carer (89.68%). Primary respondents were principally biological parents ($n = 340$), with a smaller number of respondents identifying themselves as relatives responsible for raising the study child ($n = 17$), guardians ($n = 9$), adoptive parents ($n = 6$) and step-parents ($n = 4$).

Figure 3.4

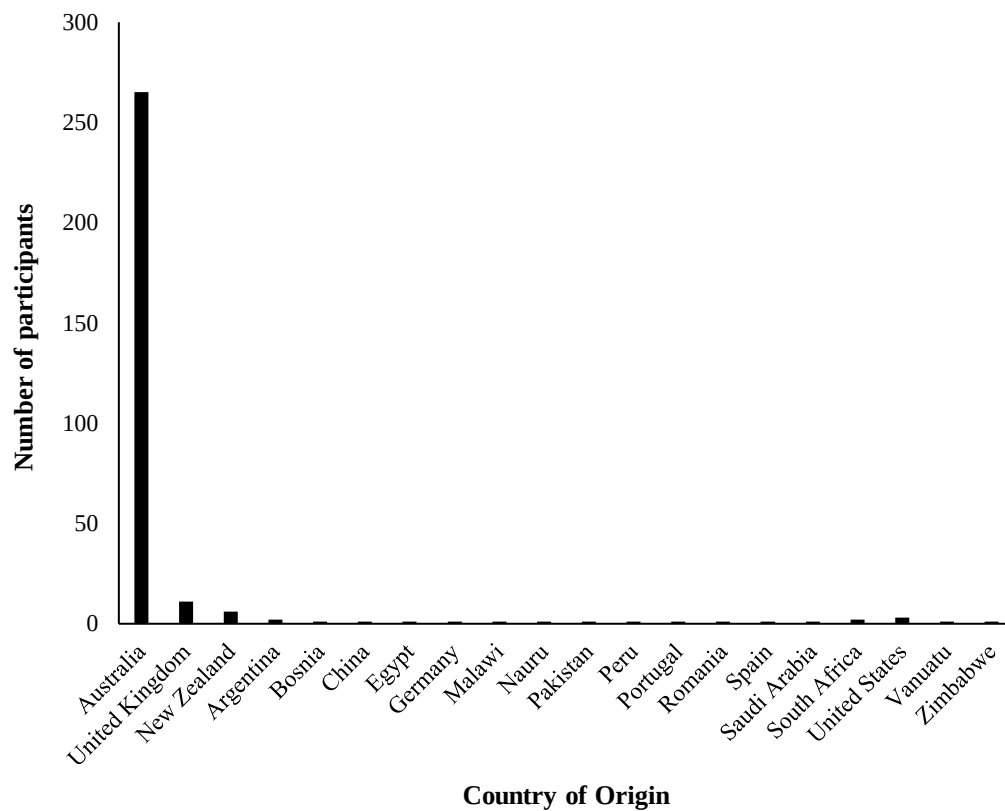
Primary respondents reported education level



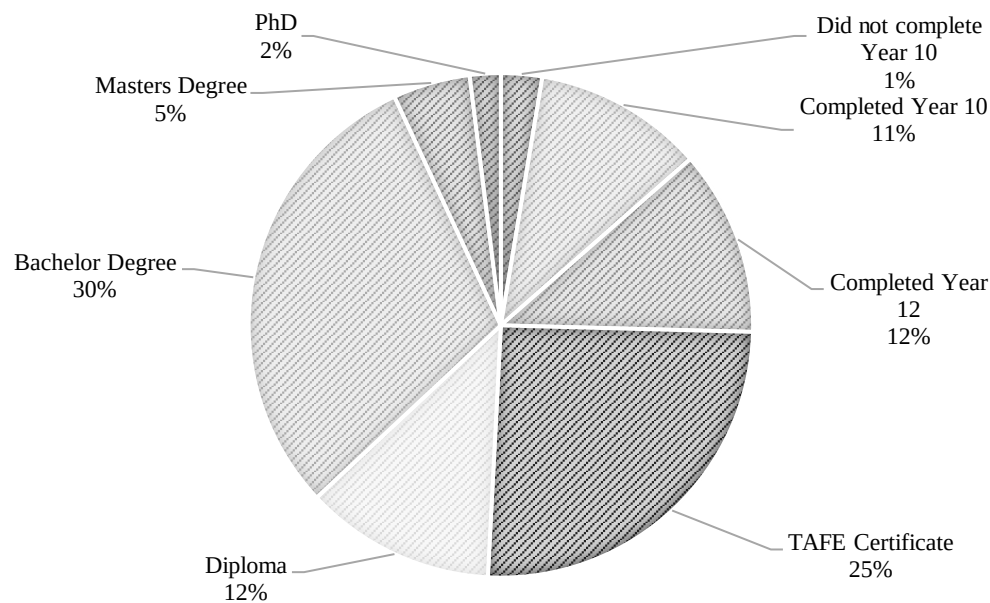
Primary respondents also had the option of filling in the questions for the study child's other primary carer (secondary respondents). The primary respondent based these responses upon their perception of the secondary respondent. The secondary respondents were 245 males and 56 females, with ages ranging from 18-64 ($M = 36.73$, $SD = 8.17$). Ninety percent of the secondary respondents were reported to be married ($n = 202$) or living together as a couple ($n = 70$), while the remainder were single ($n = 20$), separated ($n = 9$) or divorced ($n = 1$). It was reported that 87% of secondary respondent's country or origin was Australia ($n = 265$), with other respondents hailing from United Kingdom ($n = 11$), New Zealand ($n = 6$), United States ($n = 2$), Argentina ($n = 2$), South Africa ($n = 2$), with all other countries obtaining single observations (See Figure 3.5).

Figure 3.5

Secondary respondents reported country of origin.



Seventy five percent of secondary respondent were reported to have tertiary qualifications (See Figure 3.6), with 84% of participants being employed either part or full-time, 10% full time parents, 2% students and 4% unemployed. On average the secondary respondents spent 4.29 days working outside of home ($SD = 1.75$). Secondary respondents were reported to have experienced an income drop from pre COVID-19 ($M = \$103,000$, $SD = \$40,000$) to post COVID-19 ($M = \$99,500$, $SD = \$41,000$). The average secondary respondent was reported to have 1.99 children ($SD = 1.04$), and over half were reported to be the study child's primary carer (58.94%). Secondary respondents were reported as being principally biological parents ($n = 283$), with a smaller number of respondents identified as step-parents ($n = 8$), guardians ($n = 10$), adoptive parents ($n = 4$) and relatives responsible for raising the study child ($n = 3$).

Figure 3.6*Secondary respondents reported education level****Descriptive Statistics for each Activity Type***

Frequency distributions were produced to examine the frequency in which mothers (See Figure 3.7) and fathers (See Figure 3.8) undertake different activities with their children. Within this section ‘mothers’ and ‘fathers’ reflect a combination of primary and secondary respondents. Nearly half of mothers in our sample read to their child ‘everyday’, while fathers reported ‘1-2 times per week’ most frequently. The activity that received the highest ‘everyday’ frequency for fathers was RTP and albeit higher, this frequency was similar to mothers. This comparable trend continued for 5-6, 3-4 and 1-2 times per week frequencies of RTP. For screen time with children, most mothers and fathers reported ‘1-2 times per week’ as the most common occurrence. One third of mothers were engaging in toy play daily with their child and ‘3-4 times per week’ was the second most frequent answer. This was divergent from fathers where 10% were utilising toy play daily and ‘1-2 times per week’ was the answer with the highest frequency. Puzzle play was reported as having the lowest weekly engagement for both mothers and fathers, with mothers reported ‘1-2 times per week’ most

frequently and fathers reported ‘1-2 times per month’ most frequently. Puzzles also obtained the highest ‘never’ ratings, where parents had never engaged in that activity with their child. Pretend play held similar ‘never’ ratings, with most fathers reporting engaging in pretend play ‘1-2 times per month’ and most mothers reporting they played pretend ‘everyday’.

Figure 3.7

Activity Frequency by Activity Type for Mothers

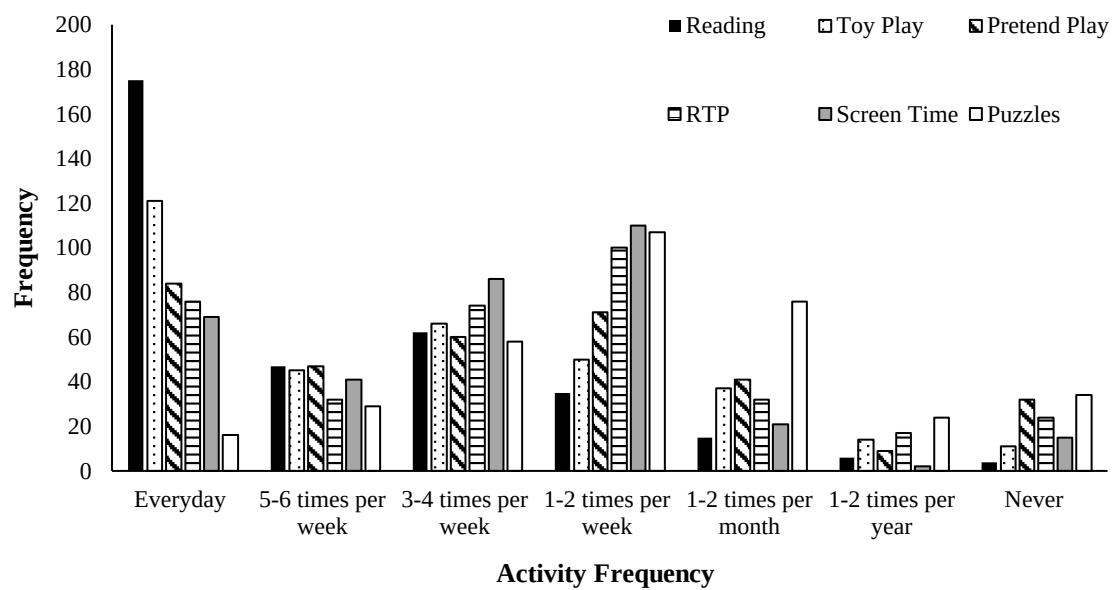
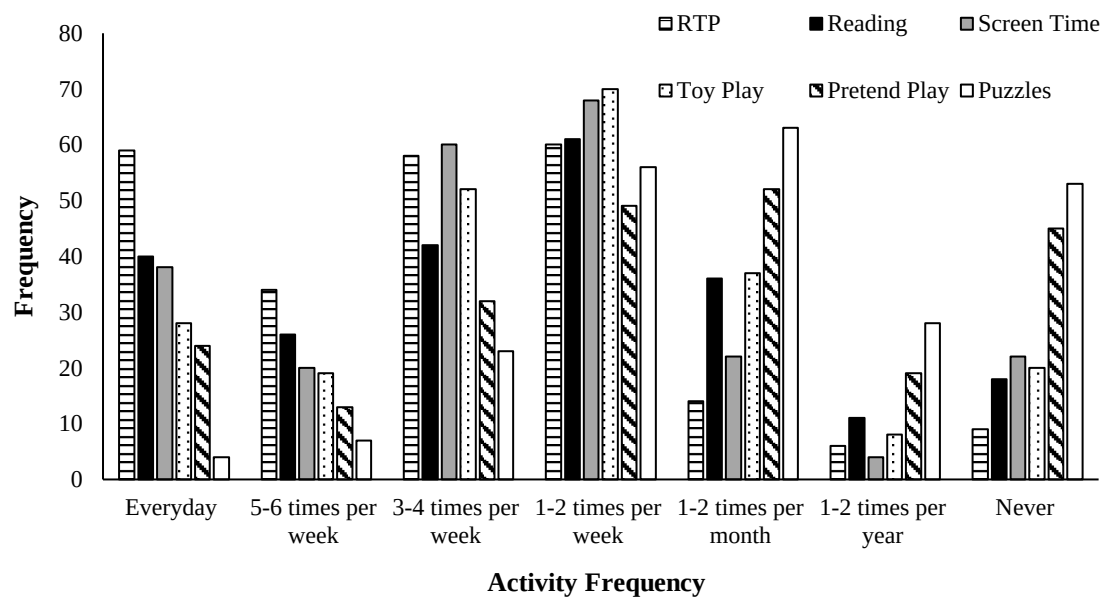
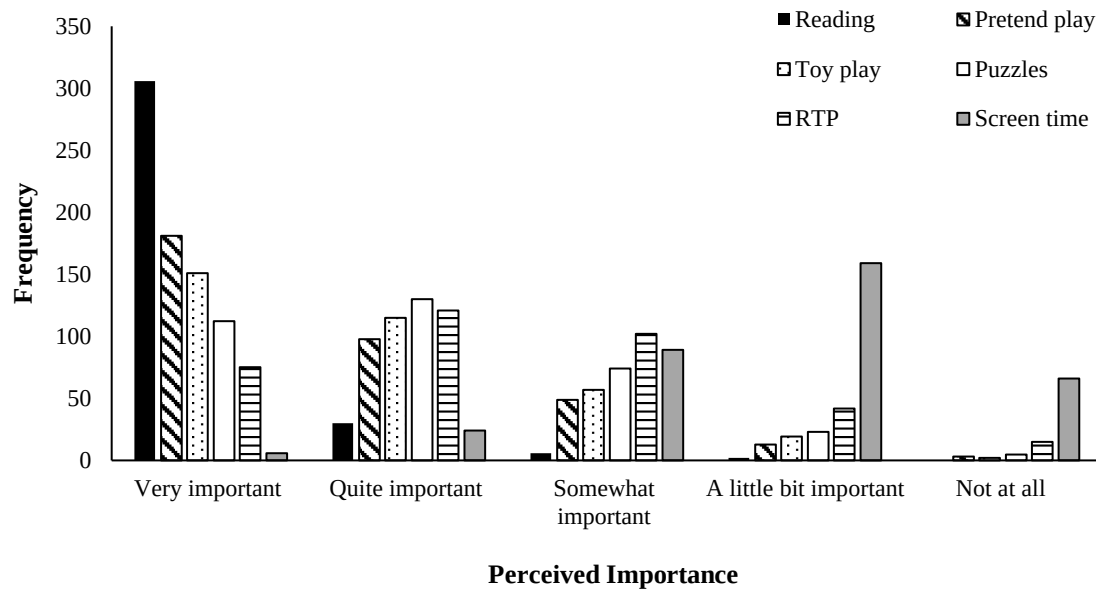
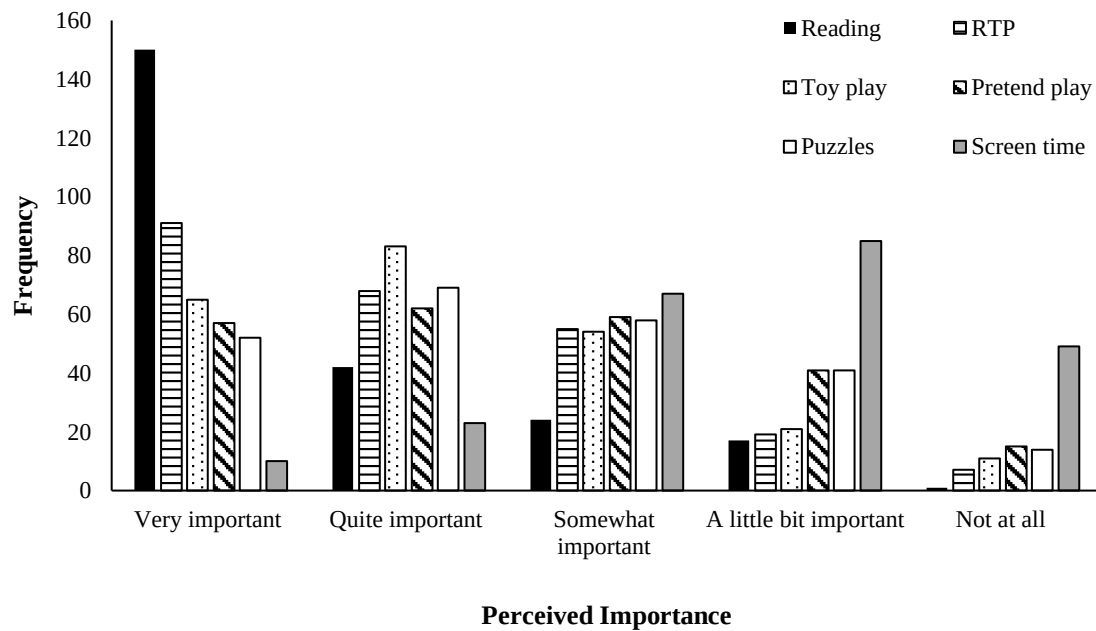


Figure 3.8*Activity Frequency by Activity Type for Fathers*

Frequency distributions were produced to examine the perceived play importance for mothers (See Figure 3.9) and fathers (See Figure 3.10) across all activity types. Both mothers and fathers perceived reading to be either ‘very important’ or ‘quite important’, making this the highest rated activity overall. Fathers perceived RTP to be the second most important activity followed closely by toy play. Mothers perceived pretend play to be the second most important activity and like fathers rated toy play to be the third most important activity. Mothers perceived puzzles to be more important than RTP and fathers perceived puzzles to be more important than pretend play. Screen time held the largest frequency of low ratings with 58% of mothers and 46% of fathers reporting it was either ‘not at all important’ or ‘a little bit important’.

Figure 3.9*Frequency Distribution of Perceived Importance by Activity Type for Mothers***Figure 3.10***Frequency Distribution of Perceived Importance by Activity Type for Fathers*

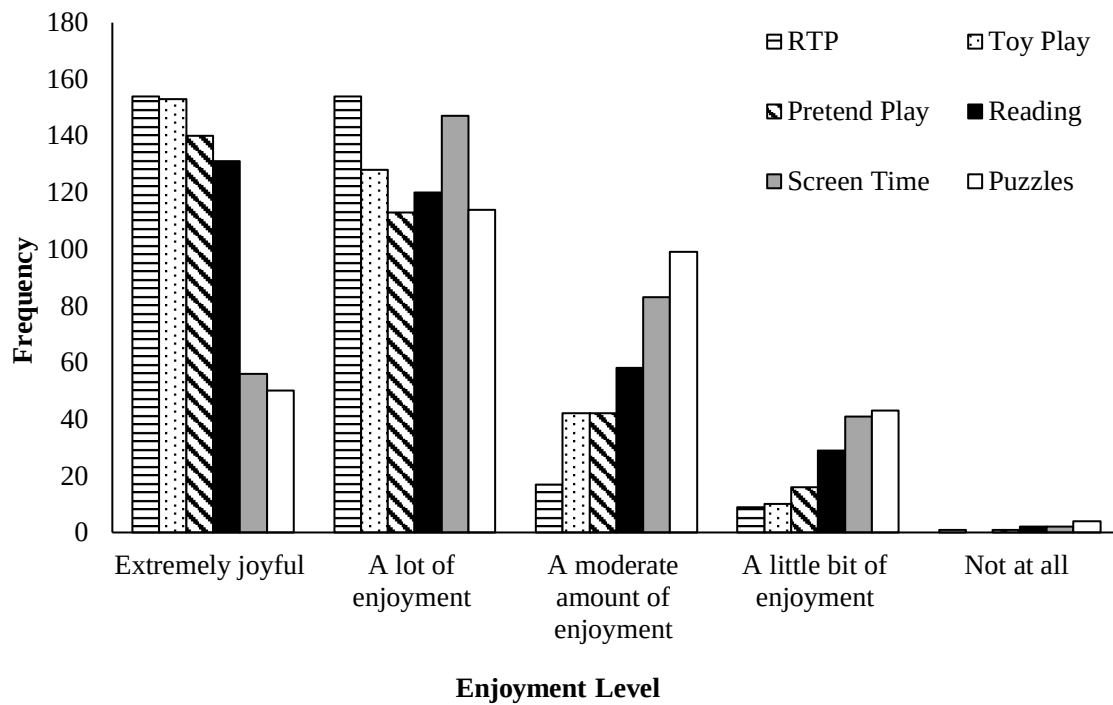
Frequency distributions were produced to examine child and parent enjoyment levels of different activities, as reported by mothers and fathers (See Figures 3.11-3.14). Both mothers and fathers reported that their children were most joyful when engaging in parent-child RTP compared to all other activities (See Figures 3.11-3.12). In turn fathers also

reported the highest enjoyment rating for RTP (See Figure 3.14), with two thirds of fathers reporting they were ‘extremely joyful’ or got ‘a lot of enjoyment’ from the activity. This combined enjoyment frequency was similar to mothers (See Figure 3.13). Children were similarly joyful when engaging in toy play, pretend play and reading with mothers (See Figure 3.11). While fathers reported lower frequency for high level enjoyment for their children in these same activities (See Figure 3.12). Among these 3 activities, mothers’ frequency of ‘extremely joyful’ was highest for reading, and lower for toy play and pretend play. Similarly, fathers had a higher frequency of ‘extremely joyful’ ratings for reading compared to both toy play and pretend play. Fathers showed higher frequency in the ‘moderate amount of enjoyment’ rating for reading, and in the ‘a lot of enjoyment’ rating for toy play and pretend play. Mothers also showed higher frequency in the ‘a lot of enjoyment’ ratings compared to ‘extremely joyful’ for all 3 activities.

There was consensus amongst mothers and fathers that their children got ‘a lot of enjoyment’ from sharing screen time with them, while parents reported a higher frequency of moderate enjoyment in this activity. Similarly, parents reported that their children got ‘a lot of enjoyment’ playing puzzles together, with mothers reporting the highest frequency at the same enjoyment level and fathers reporting a higher frequency of moderate enjoyment.

Figure 3.11

Frequency Distribution of Child Enjoyment Level by Activity Type for Children Playing with Mothers

**Figure 3.12**

Frequency Distribution of Child Enjoyment Level by Activity Type for Children Playing with Fathers

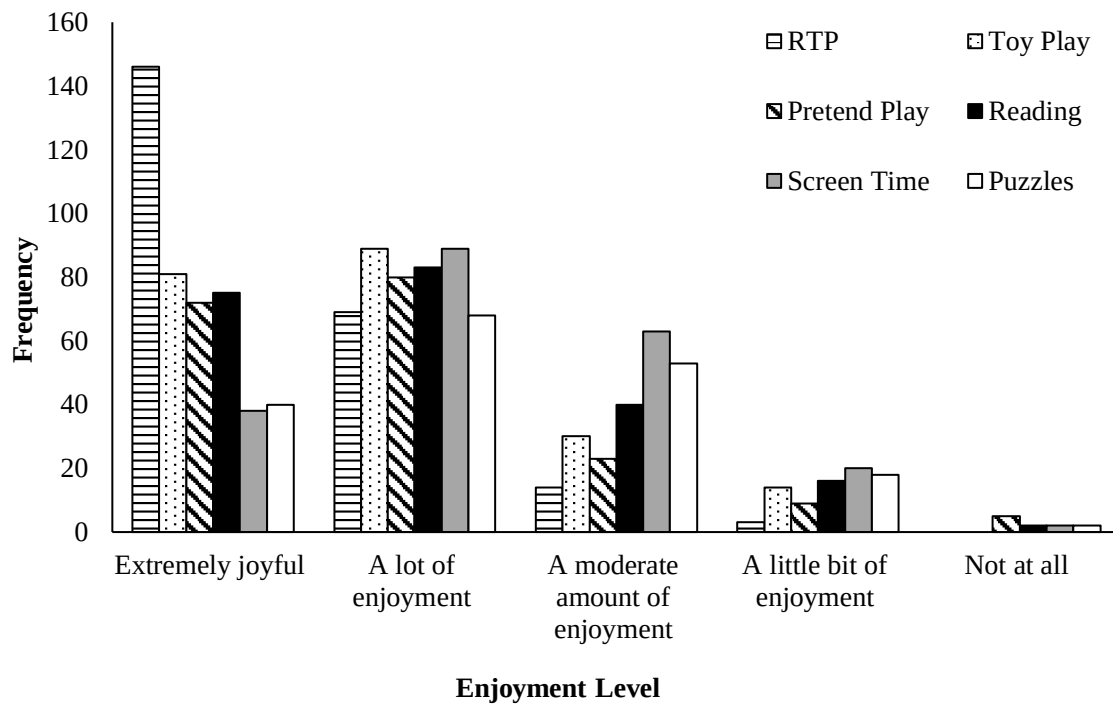
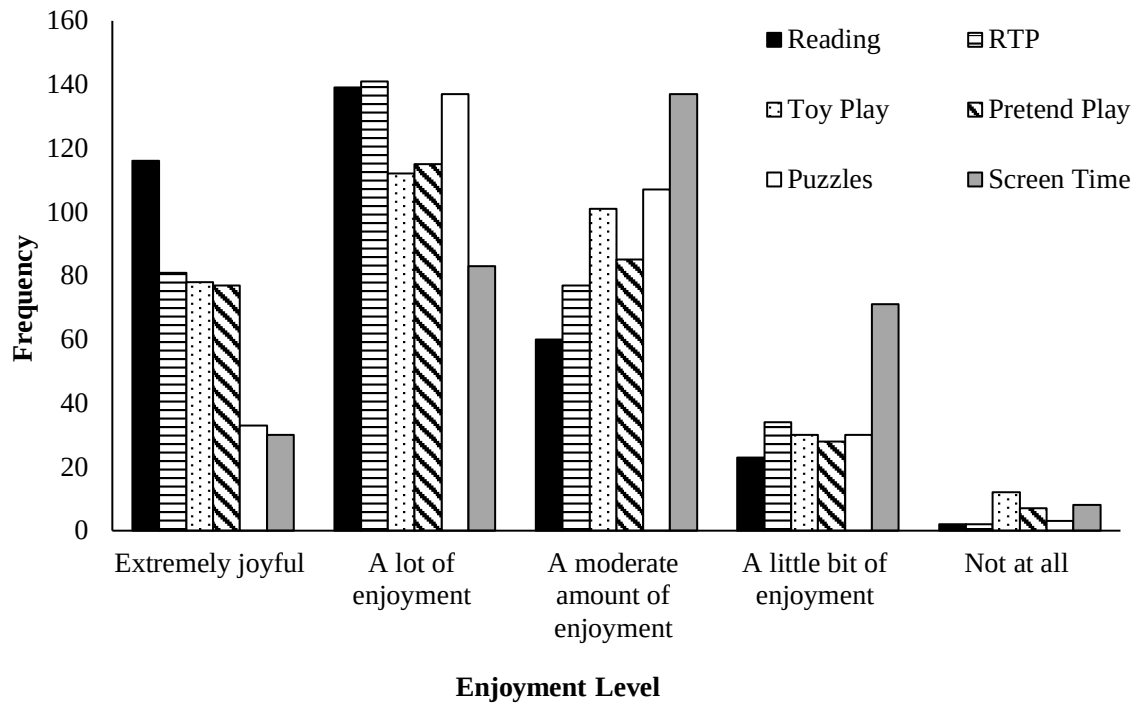
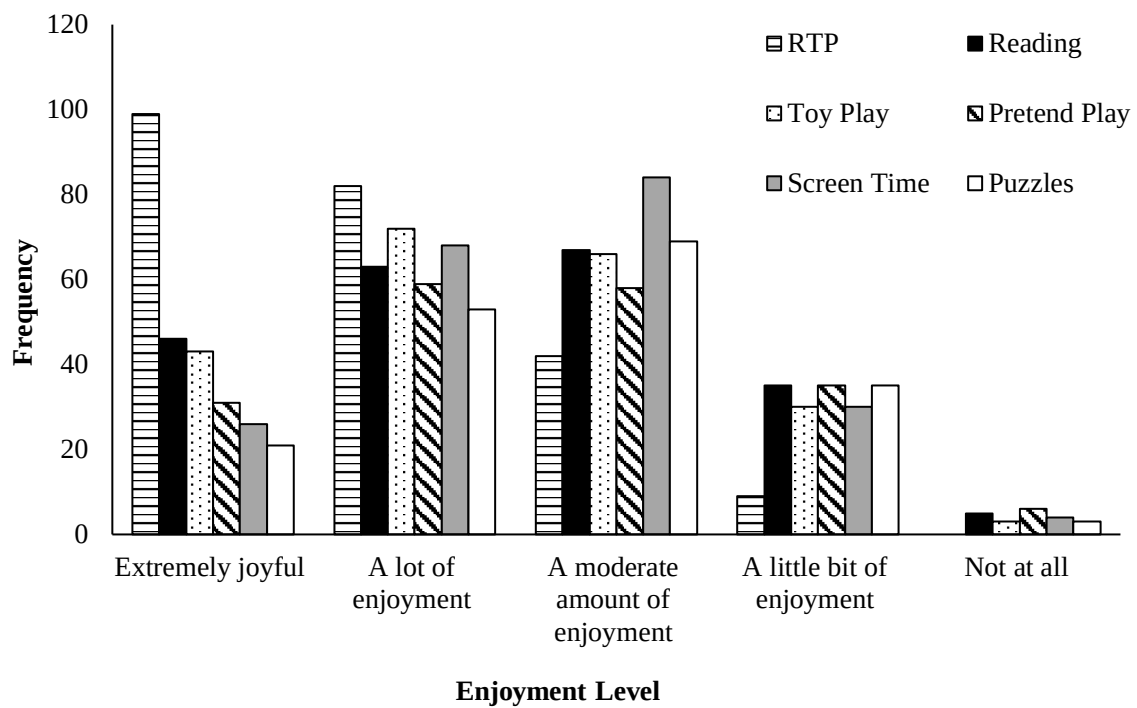


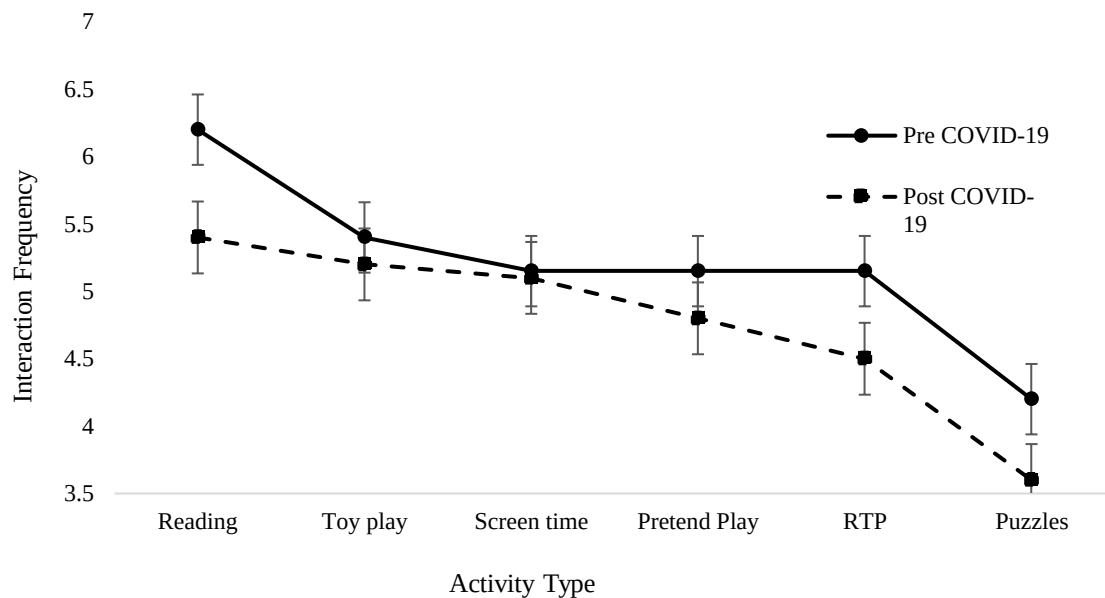
Figure 3.13*Frequency Distribution of Parent Enjoyment Level by Activity Type for Mothers***Figure 3.14***Frequency Distribution of Parent Enjoyment Level by Activity Type for Fathers*

Effects of COVID-19

A 2x6 between-subjects ANOVA was conducted to compare interaction frequency for mothers across activity type (reading/toy play/screen time/pretend play, RTP, puzzles) and COVID-19 (pre and post COVID-19 onset). There was a significant main effect of activity type, $F(5, 2063) = 56.87, p < .001$, with higher interaction frequency being shown for reading and lowest interaction frequency for puzzles (See Figure 3.15). There was also a significant main effect of COVID-19, $F(1, 2063) = 35.01, p < .001$ with all types of interactions showing higher interaction frequency pre-COVID-19 compared to post-COVID-19. The interaction, as shown in Figure 10, was significant $F(5, 2064) = 2.28, p = .045$. Tukey post-hoc tests showed that interaction frequency for reading was higher than all other types of interactions ($p < .001$). Toy play showed significantly higher interaction frequency than pretend play, RTP and puzzles ($p < .001$). While screen time, pretend play and RTP all showed significantly higher interaction frequency compared to puzzles ($p < .001$).

Figure 3.15

Interaction frequency for Mothers as a function of child age and gender. Error bars indicate the standard error.

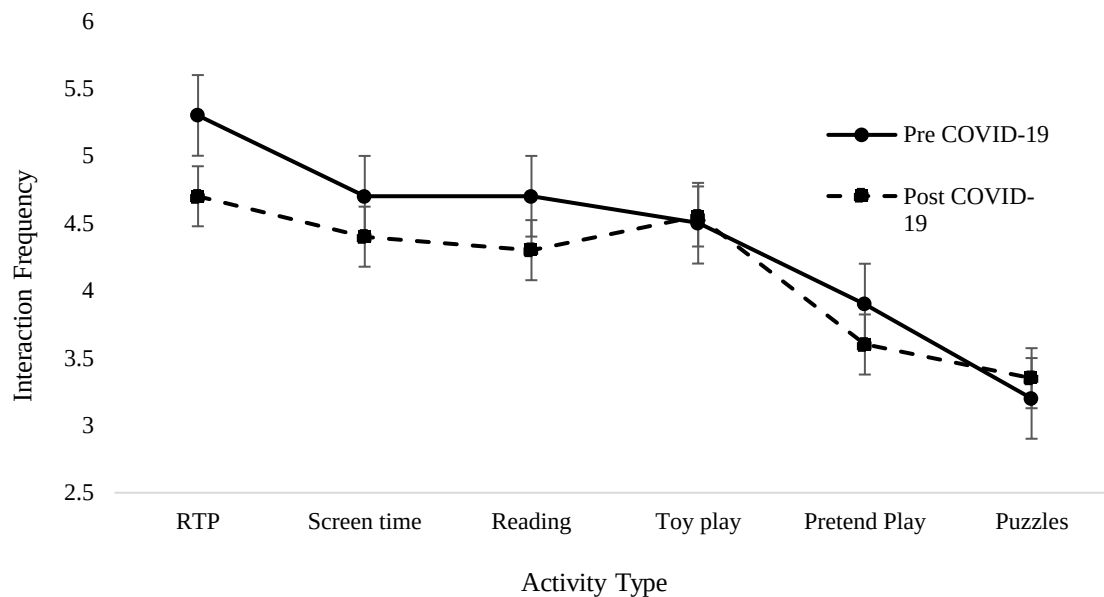


A 2x6 between-subjects ANOVA was conducted to compare interaction frequency for fathers across activity type (reading/toy play/screen time/pretend play, RTP, puzzles) and COVID-19 (pre and post COVID-19). There was a significant main effect of activity type, $F(5,1404) = 36.50, p < .001$, with higher interaction frequency being shown for RTP and lowest interaction frequency for puzzles (See Figure 3.16). There was also a significant main effect of COVID-19, $F(1, 1404) = 4.98, p = .026$, with the exception of toy and puzzle play, all other activity types showed higher interaction frequency pre-COVID-19 compared to post-COVID-19. There was no significant interaction found. Tukey post-hoc tests showed that interaction frequency for RTP was higher than all other types of interactions (screen time $p = .03$, reading $p = .01$, toy play, pretend play and puzzles $p < .001$). Pretend play interactions showed significantly lower interaction frequency than screen time, reading, toy play (p

<.001) and pretend play ($p = .016$). Similarly, interactions with puzzles showed significantly lower frequency than screen time, reading and toy play ($p < .001$).

Figure 3.16

Interaction frequency for Fathers as a function of child age and gender. Error bars indicate the standard error.



RTP: A Comparison of Enjoyment, Importance and Child Age and Gender

A one-way between-subjects ANOVA was conducted to compare RTP frequency across enjoyment levels. There was a significant main effect of enjoyment level, $F(4,562) = 28.07$, $p < .001$. As shown in Figure 3.17 RTP frequency increased as enjoyment level increased.

Figure 3.17

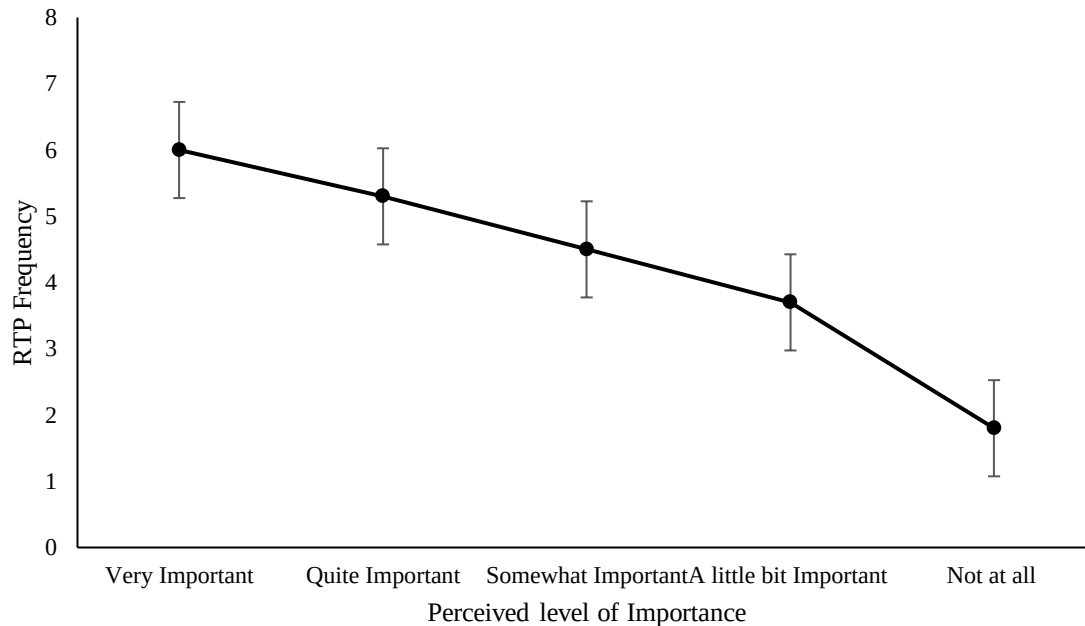
RTP frequency as a function of enjoyment level. Error bars indicate the standard error.



A one-way between-subjects ANOVA was conducted to compare RTP frequency across perception of importance. There was a significant main effect of perceived level of importance, $F(4,590) = 79.39, p < .001$. As shown in Figure 3.18 RTP frequency increased as perception of importance increased.

Figure 3.18

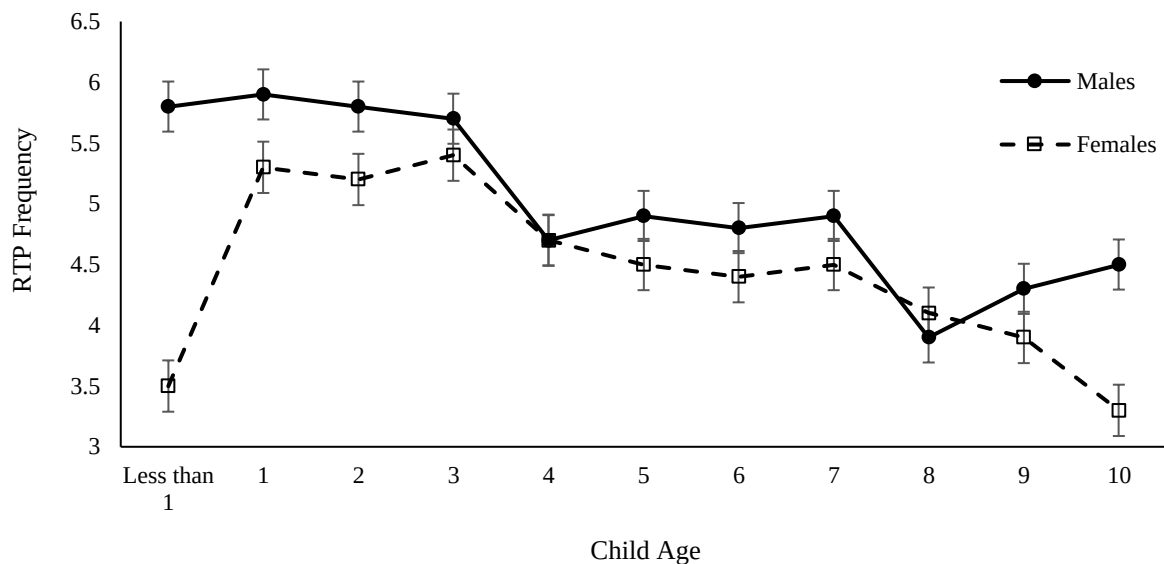
RTP frequency as a function of perceived level of importance. Error bars indicate the standard error.



A 2x11 between-subjects ANOVA was conducted to compare RTP frequency across child age and gender. There was a significant main effect of age, $F(10,573) = 8.29, p < .001$, with higher frequency of RTP being found in 1-3-year-olds than any other age (See Figure 3.19). There was also a significant main effect of gender $F(1,573) = 20.72, p < .001$ with male children engaging in RTP more frequently than their female counterparts. The interaction, as shown in Figure 8, was marginally significant, $F(10,573) = 2.40, p = .052$. Tukey post-hoc tests showed that there was a significant difference in RTP frequency between 1-year-olds and 8, 9 and 10-year-olds ($p < .001$). These differences were also found for 2 and 3-year-old children compared to 8, 9 and 10-year-olds ($p < .001$). Thus 1, 2- and 3-year-olds are receiving significantly more RTP interactions with their parents than their older 8, 9 and 10-year-old counterparts.

Figure 3.19

RTP frequency as a function of child age and gender. Error bars indicate the standard error.



Differences for Mothers and Fathers

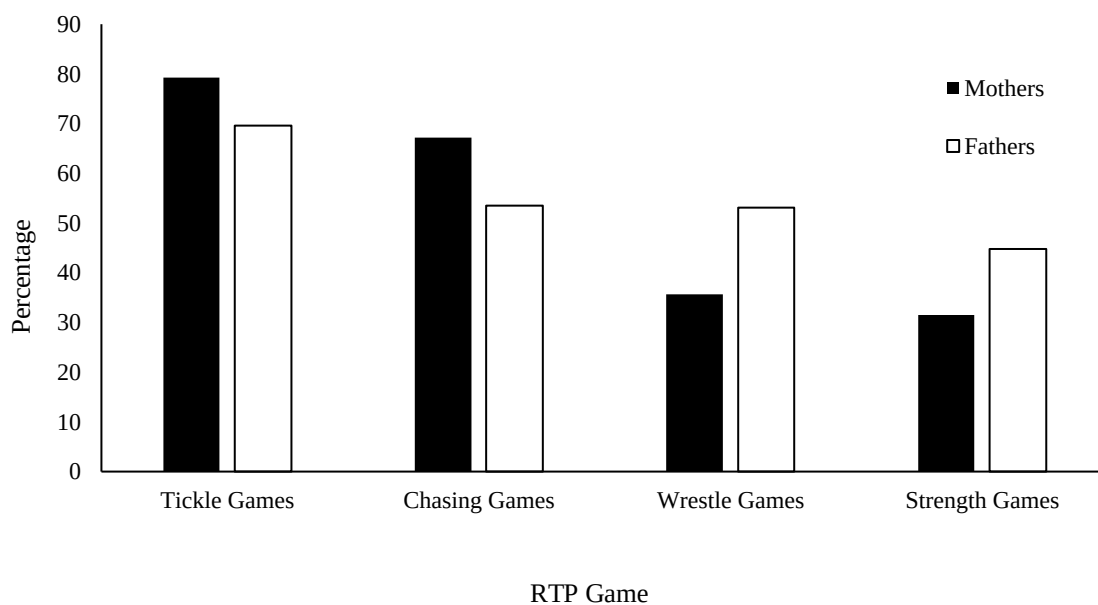
An independent samples Welch's t-test was conducted to examine differences in RTP factors between mothers and fathers. Welch's t-test was employed as the assumptions of equal variance was not met for these data. Fathers ($M=4.17$, $SD=.86$) reported significantly higher enjoyment of RTP than mothers ($M=3.79$, $SD=.94$), $t(524.88) = 4.94$, $p < .001$.

Respondents reported that children had significantly higher enjoyment of RTP with fathers ($M=4.54$, $SD=.67$) than mothers ($M=4.35$, $SD=.73$), $t(521.11) = 3.33$, $p < .001$. In line with this, children initiated RTP interactions significantly more often, $t(556.27) = 2.89$, $p = .004$, with fathers ($M=4.90$, $SD=1.71$) than mothers ($M=4.46$, $SD=1.96$). Fathers perceived RTP to be of greater importance ($M=3.90$, $SD=1.01$) than mothers did ($M=3.56$, $SD=1.08$) and this difference was statistically significant $t(509.99) = 3.79$, $p < .001$. A significant difference, $t(545.50) = 2.93$, $p = .004$, in RTP frequency was found with fathers ($M=5.04$, $SD=1.56$) participating more often than mothers ($M=4.64$, $SD=1.73$). Respondents reported that

children cried during RTP significantly more when playing with their father ($M=1.52$, $SD=.58$) than with their mothers ($M=1.39$, $SD=.56$), $t(482.87) = 2.71$, $p = .007$. It was also reported that children are more motivated to win when playing RTP with their fathers ($M=2.79$, $SD=1.10$) than with their mothers ($M=2.60$, $SD=1.08$), $t(490.79) = 2.05$, $p = .041$. Mothers were more likely to engage in tickle and chasing games, while fathers utilised physical contact games such as wrestling and strength games (See Figure 3.20).

Figure 3.20

Reported percentages of RTP games engaged in by mothers and fathers



Relationships with/and Predictors of RTP

Pearson Product-Moment correlations were conducted to assess the relationship between respondent demographic factors (gender, age, education level, employment status, days working outside of home, income), child (age, gender, birth order) and RTP factors (child initiating RTP, enjoyment of RTP, perception of RTP importance) for primary and secondary respondents (See Table 3.1). For primary respondents (seen below the diagonal line) RTP frequency showed small and significant positive relationships with child age,

gender and respondent education level. Perceived importance of RTP showed small and significant positive relationships with respondent education level, child age and child gender, and a moderate significant positive relationship with RTP frequency. Small significant positive correlations were found between child initiating RTP, child gender and respondent education level. A moderate and significant positive correlation was found between child initiating RTP and perceived importance of RTP, and a strong and significant positive correlation was found between child initiating RTP and RTP Frequency.

Child enjoyment of RTP showed small and significant positive relationships with respondent education level and child gender, and moderate and significant positive relationships with Child initiate RTP, perceived importance of RTP and RTP Frequency. Parent enjoyment of RTP demonstrated small and significant positive relationships with respondent gender, respondent age, child gender, RTP Frequency, perceived importance of RTP and child initiate RTP, and a moderate and significant positive relationship with child enjoyment of RTP.

For secondary respondents (seen above the diagonal line) RTP frequency showed small and significant positive relationships with respondent gender, respondent age, child age and birth order (See Table 3.1). Perceived importance of RTP showed small and significant positive relationships with respondent gender, respondent age, employment status, child gender and birth order, and a small and significant negative relationship with days working outside of home. Furthermore, a strong and significant positive relationship was found between perceived importance of RTP and with RTP frequency. Small significant positive correlations were found between child initiating RTP, and respondent gender, respondent age, child gender and birth order. Strong and significant positive correlations were found between child initiating RTP; and RTP frequency and perceived importance of RTP.

Child enjoyment of RTP showed small and significant positive relationships with child gender, child initiating RTP, RTP Frequency and perceived importance of RTP. Parent

enjoyment of RTP showed small and significant positive relationships with respondent gender, respondent age, employment status, child age and child initiating RTP and a small and significant negative relationship with days working outside of home. Moderate and significant positive correlations were found between parent enjoyment of RTP; and RTP frequency, perceived importance of RTP and Child enjoyment of RTP.

Table 3.1

Pearson's Correlations for Respondent Demographic and RTP Factors for Primary and Secondary Respondents

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Respondent Gender	—	-0.07	0.12*	0.33**	-0.40**	-0.21**	0.07	0.09	-0.00	0.31**	0.22**	0.25**	0.09	0.18*
2. Respondent Age	-0.04	—	0.11	-0.11*	0.09	0.20**	-0.09	0.41**	0.34**	0.20*	0.13*	0.13*	0.06	0.14*
3. Education Level	0.03	-0.31**	—	-0.04	0.01	0.16*	-0.05	-0.02	-0.04	0.01	-0.06	0.04	-0.01	0.10
4. Employment Status	-0.17*	0.07	-0.21**	—	-0.72**	-0.43**	0.14*	0.11	-0.02	0.06	0.13*	0.05	0.07	0.14*
5. Days working Outside of Home	-0.18**	0.01	-0.15*	0.72**	—	0.46**	-0.08	-0.08	0.04	-0.03	-0.13*	-0.09	-0.01	-0.13*
6. Annual Gross Income	-0.25**	0.23**	-0.38**	0.54**	0.44**	—	-0.10	0.10	0.05	-0.06	-0.05	0.00	-0.11	-0.11
7. Child Gender	-0.00	-0.08	0.02	-0.00	0.02	-0.02	—	-0.06	-0.04	0.13	0.15*	0.17*	0.17*	0.03
8. Child Age	-0.11*	0.40**	-0.02	0.15*	0.07	0.10*	-0.06	—	0.25**	0.30**	0.11	0.11	0.09	0.16*
9. Birth Order	-0.01	0.34**	0.05	-0.10	-0.08	-0.03	-0.04	0.25**	—	0.24**	0.22**	0.14*	0.13	0.10
10. RTP Frequency	-0.06	0.03	0.19**	0.05	0.03	-0.03	0.18**	0.26**	0.09	—	0.66**	0.74**	0.33**	0.48**
11. Perceived RTP Importance	0.04	0.01	0.25**	-0.01	-0.03	-0.09	0.16*	0.11*	0.05	0.52**	—	0.51**	0.29**	0.54**
12. Child initiate RTP	-0.04	0.03	0.14*	0.10	0.07	0.00	0.23**	0.05	0.04	0.77**	0.49**	—	0.33**	0.39**
13. Child Enjoyment of RTP	0.01	-0.02	0.18*	-0.06	-0.04	-0.08	0.14*	0.09	-0.00	0.40**	0.38**	0.41**	—	0.50**
14. Parent Enjoyment of RTP	0.12*	0.11*	-0.10	-0.03	-0.05	-0.03	-0.03	0.20**	0.10	0.32**	0.31**	0.16*	0.43**	—

Note. Coefficients below the diagonal line represent the correlations for primary respondents. Coefficients above the diagonal line represent the correlations for secondary respondents. * $p < 0.05$ ** $p < 0.001$

A multiple linear regression was conducted using the stepwise method to determine whether parental (age, gender, relationship status, days working outside of home, education,

employment, income), child (age, gender, days at care/schooling) and RTP interaction (child initiating RTP, enjoyment of RTP, perception of RTP importance) factors predict RTP frequency for primary respondents. A significant model was found, $F(6,335) = 102.75$, $p < .001$, and it explained 64% of variance in Scores (Adjusted $R^2 = .642$). As shown in Table 3.2, Child initiating RTP was the strongest predictor in the model, followed by age of child, primary respondent enjoyment of RTP, perception of RTP importance and primary respondent age, which were all significant. The criterion of education level approached significance. All assumptions for regression were met.

Table 3.2

Results from the regression model using parental (age, gender, relationship status, days working outside of home, education, employment, income), child (age, gender, days at care/schooling, birth order) and interaction (child initiating RTP, enjoyment of RTP, perception of RTP importance) factors to predict RTP frequency for primary respondents, including unstandardized (B) and standardised (β) regression coefficients and the significance of each predictor.

	B	β	t	p
Child initiating RTP	.534	.637	17.546	< .001
Age of child	.140	.263	7.281	< .001
Primary respondent enjoyment of RTP	.254	.153	4.337	< .001
Education	.070	.068	1.882	.061
Perception of RTP importance	.151	.099	2.536	.012
Primary respondent age	-.017	-.091	-2.432	.016

A multiple linear regression was also conducted using the stepwise method to determine whether parental (age, gender, relationship status, days working outside of home, education, employment, income), child (age, gender, days at care/schooling) and interaction (child initiating RTP, enjoyment of RTP, perception of RTP importance) factors predict RTP frequency for secondary respondents. A significant model was found, $F(5,220) = 94.22$, $p < .001$, and it explained 67% of variance in Scores (Adjusted $R^2 = .674$). As shown in Table 3.3, Child initiating RTP was the strongest predictor in the model, followed by perception of RTP importance, age of child, child days at care/school and secondary respondent

relationship status. All criterion variables included in the model were significant. All assumptions for regression were met.

Table 3.3

Results from the regression model using parental (age, gender, relationship status, days working outside of home, education, employment, income), child (age, gender, days at care/schooling, birth order) and interaction (child initiating RTP, enjoyment of RTP, perception of RTP importance) factors to predict RTP frequency for secondary respondents, including unstandardized (B) and standardised (β) regression coefficients and the significance of each predictor.

	B	β	t	p
Child initiating RTP	.461	.518	12.051	< .001
Perception of RTP importance	.464	.332	7.051	< .001
Age of child	.103	.211	4.796	< .001
Child days at care/school	.092	.128	2.908	.004
Secondary respondent relationship status	.223	.099	2.591	.010

Discussion

Analyses revealed that of all the activities included within this study both mothers and fathers rated reading to be the most important activity, followed by RTP for fathers and pretend play for mothers, with parents rating toy play as the third most important activity. Consistent with this, reading was the most frequent mother-child interaction, followed by toy play, while the frequency of RTP was similar to screen time sharing and pretend play. This is in keeping with the prediction that reading would display the highest engagement for mothers. For fathers, despite rating reading as the most important activity, frequency of RTP was significantly higher than all other types of interactions. This is in line with previous research reporting that RTP is one of the most engaged in activities for fathers (Flanders et al., 2010). This supports the prediction that RTP would be the most frequently engaged in activity for fathers and supports the findings of past research (Fletcher et al., 2012; Lamb, 1977; Paquette et al., 2003). Therefore, while the frequency of RTP was higher than other

types of interactions for fathers and their children, the frequency of RTP is similar to non-physical kinds of interactions for mothers and their children. It is interesting to note that while RTP frequency is highest proportionally compared to other activity types for father-child exchanges, RTP frequency is comparable for mother and fathers. Thus, while the paternal focus in RTP research is founded, these findings give merit to additionally exploring the maternal influences.

Screen time was rated by parents as having the lowest importance across the activity types and had the second lowest daily engagement, surpassing puzzle play overall. Parents reported higher child enjoyment of RTP compared with other activity types, with fathers reporting a greater frequency of high enjoyment when playing with their children compared to mothers. Reciprocal to this, fathers reported having greater enjoyment of RTP interactions and rated these interactions as being more important compared to mothers. This may explain why children initiated RTP interactions more frequently, had a higher level of enjoyment with fathers and were more motivated to win during these interactions, compared to when playing with mothers. Mothers indicated they enjoyed the activity of reading best.

During RTP, parents reported that children cried more when interacting with their fathers. Given that children are more motivated to win when playing with their fathers, it is possible that this heightened emotional state when interacting with fathers could contribute to a wider range and intensity of emotional responses (Vingerhoets, 2013). Research has demonstrated that crying serves to moderate increased arousal and distress (Maestripieri et al., 1992) and also functions to reduce inter-personal aggression and encourage parental assistance (Walter, 2006; Trimble, 2012). Mothers engaged in tickle and chasing RTP games more than fathers, while fathers engaged in wrestle and strength RTP games more than mothers. This is illuminating, given that RTP research has focused heavily on fathers, as it displays that while mothers do engage in all forms of RTP interactions, they utilise non-

strength-based games more so than fathers. Thus, the finding of comparable RTP frequency levels for mother and fathers establishes the need to explore maternal influences in future research.

In line with predictions, there was a positive relationship between enjoyment level, parental perception of importance and RTP frequency. That is to say, the more the parent enjoyed RTP the more they engaged in it. Furthermore, the greater the parental perception of RTP importance the more they engaged in it. While parental perceptions have not been assessed before in RTP research, this phenomenon has been reported in past play research (Farver & Wimbarti, 1995; Holmes, 2011), with parents participating in play that they themselves enjoy and that they believe benefits their child's development (i.e., perceived importance). Child enjoyment and child initiation of RTP were found to be positively related to both RTP frequency and parental perception of RTP importance. Thus, there is synergy between children enjoying an activity and initiating it with parents, which plays a role in how frequently parents are engaging in RTP and how important parents believe that play to be.

RTP frequency was also related to child age and gender. As anticipated boys engaged in RTP more frequently than girls. This is consistent with past research findings that boys receive a greater amount of physical play compared to girls (MacDonald & Parke 1986; Parke & O'Leary 2009; Power & Parke 1982). We found that 1-3-year old children received RTP interactions more frequently than any other age. This is similar to previous research that found that RTP interactions peak around 4 years of age (Haight & Miller, 1993). Given that this past research was conducted over a decade ago and the benefits of RTP have been increasingly circulated in recent times (StGeorge & Freeman, 2017), it is possible that the perception of RTP as being dangerous and aggressive (Panksepp, 1993) may have changed, thus leading to an earlier peak for RTP interactions.

Experiencing the COVID-19 pandemic was associated with a reduction in the frequency of parent-child interactions. While we did not directly measure parental stress, there was a decrease in average income for both primary and secondary respondents pre to post COVID-19 onset. Research has demonstrated a relationship between income reduction and stress increase (Golberstein, 2015; Sareen et al., 2011). Taken with the understanding that stress can result in withdrawal from/reduction of usually enjoyable activities (American Psychiatric Association, 2013), these findings of interaction reduction from pre to post COVID-19 onset are explicable.

The present findings demonstrate that the factors associated with RTP frequency are multifaceted. By considering not only parental influences, but the play aspects themselves (e.g., enjoyment and importance), as well as child and COVID-19 pandemic effects, this study was able to provide the foundational understanding of RTP frequency in Australian families. This creates opportunities for future research to contrast/compare RTP interactions transnationally and cross-culturally and provides helpful information that could inform future interventions in Australian families.

Chapter Four: Associations Between Father-Child Rough-and-Tumble Play Interactions and Child Development

The results of the prevalence study presented in Chapter 3 revealed that Australian mothers and fathers engaged in similarly frequent bouts of RTP with their children. However, when considering the parent-child activities assessed wholistically, it was apparent that while RTP was the most engaged in activity for fathers, mothers engaged in reading, toy play and pretend play more frequently than RTP. Thus, while RTP is the preferred parent-child activity of most fathers, it is not the most preferred activity for mothers. Furthermore, both mothers and fathers reported that children had the highest levels of enjoyment when engaging in RTP, compared to all other activity types. Given this preference of fathers and their children to engage in RTP the aim of the present study was to explore how father-child RTP is related to child developmental outcomes. Furthermore, given past research has demonstrated that paternal mental health impacts how fathers engage with their children (Goldberg et al., 2002; Radoš, 2021), this study also aimed to determine whether mental health impacts father-child RTP interactions.

In this chapter the findings on the relationship between father-child rough-and-tumble play interactions and child developmental outcomes are presented. Firstly, an overview of the broad developmental impacts of rough-and-tumble play and other demographic factors that can impact father-child play interactions is provided. The implications of paternal mental health for play and the attachment relationship is discussed. Next, the demographic characteristics of our sample are discussed and the relationship between rough-and-tumble play and these demographic factors, paternal mental health, attachment (conflicts and positive aspects) and child development is explored. This chapter is concluded by exploring the outcomes of these findings and make suggestions for future RTP research.

Developmental Impacts of RTP

From infancy, parent-child play interactions offer the opportunity for parents to teach their children cultural skills and develop their emotional, behavioural, social, and cognitive competencies (Cabrera & Tamis-LeMonda, 2013; Tomasello, 2008). Research has indicated that fathers encourage their children to explore unfamiliar environments, take more risks and provide them more space to solve problems on their own, more so than mothers do (John et al., 2013; Tamis-LeMonda et al., 2004). These dyadic father-child interactions are often categorised as peer-like, or horizontal interactions, with the father displaying friend-like behaviour during play, while still maintaining their role as a parent (John et al., 2013). Thus, providing a friendly but challenge environment for children to test their abilities.

A challenging type of play fathers often engage in is rough-and-tumble play (RTP) (MacDonald & Parke, 1986; Roopnarine & Davidson, 2015). RTP involves activities such as wrestling, tumbling, chasing, holding, and fleeing that can either be simple tumble play (Pellegrini, 1989) or competitive where there is a winner and a loser of the play bout (Konner, 1972). RTP also involves dominance differentials, with one play partner being the more dominant partner at any one time, guiding the direction of the play (Pellegrini, 2009; Tremblay, 2008). In high quality RTP play this dominance is reciprocal (Fletcher et al., 2013) and the play partners display positive emotional expressions (Pellegrini, 1995).

The perception of RTP has changed over the years, with past research categorising RTP as an unchallenging form of play, unimportant to child development (Bishop & Curtis, 2001; Sylva et al., 1980). This may have stemmed from the view that RTP is aggressive in nature, incorrectly classifying affiliative behaviours with tangible fighting (Paquette, 1994; Pellis et al., 2005). Contemporary parent-child play research has emphasised RTP as important for human socialisation (Lindsey et al., 1997b; MacDonald & Parke, 1984), with fathers reported as the preferred play partner for these kinds of interactions (Ross & Taylor, 1989). The literature has expressed that, not only is RTP enjoyable for children (Pellegrini &

Smith, 1998), but has been linked to a wide range of developmental benefits (Hart & Tannock, 2013; Pellegrini, 1989; Roggman et al., 2002).

Physical, exciting, and positive RTP activities can stimulate children to the brink of their emotional-regulatory capacity (Peterson & Flanders, 2005). Parents and children must adjust their emotional arousal and behaviour to play cooperatively to negotiate between their and their play-partner's needs, which is paramount for the interaction to be maintained (Peterson & Flanders, 2005). These cooperative and emotional modulation strategies found in RTP have demonstrated emotional regulation benefits for children, as outlined in the systematic review found in Chapter 2. Moreover, RTP has been associated with emotion-encoding proficiency (emotional information stored for later retrieval), which has been known to aide peer interactions (Field & Walden, 2008; Zeman et al., 2006).

The direct collaborative play seen in father-child RTP serves as a platform through which social problem-solving skills can develop, which can extend from the familial to peer environments (Lindsey et al., 1997b; McArdle, 2001). Research has demonstrated that RTP is associated with social competence with peers and cooperative play abilities (Carson & Parke, 1996; MacDonald & Parke, 1984; Pellegrini, 1989) and teaches children about compromise and impulse inhibition (Hart & Tannock, 2013; Paquette et al., 2003). This can assist children to solve peer conflicts (Pellegrini, 1989), create friendships (McArdle, 2001) and better understand the physical body language and emotional responses of others (Hart & Tannock, 2013; Paquette et al., 2003). These skills are necessary and important for children to become socially capable adults (Sluckin, 1981).

In addition to social competence, children can learn essential behavioural skills through RTP. During quality RTP, fathers use limit setting and exert physical and emotional control, which in turn, models effective strategies children can employ in their own peer contexts (Paquette, 2004). Due to their physical superiority, fathers utilise self-handicapping to determine when and if their children can assume the role of the dominant play partner

(Flanders et al., 2009). Self-handicapping differs among father-child dyads, leading to distinct developmental outcomes for children's aggression. Where fathers control the play, determining the shared winning and losing of the play bouts, children learn self-regulatory strategies (Flanders et al., 2009). Where children control the play and dominate their father whenever they so choose, they fail to learn the boundaries of physically aggressive behaviour, and subsequently have a reduced ability to regulate such behaviours (Paquette, 2004). A longitudinal study revealed that RTP with less dominant fathers, predicted higher physical aggressive behaviours in children, relative to their peers (Flanders et al., 2010). Furthermore, the systematic review (Chapter 2) revealed that fathers challenging play was related to lower child anxiety. Thus, successful RTP, where fathers determine the direction of the play and challenge their children, provides an important environment where children can learn to modulate their own aggression, affect, and behaviour (Carson et al., 1993; Paquette et al., 2003).

Less is known about the impact of RTP for cognition, as past research has focussed heavily on the benefits for the reduction of child aggressive behaviour and benefits for self-regulation (Robinson et al., 2021). The results of the systematic review presented in Chapter 2 found only 1 study that focussed on the cognitive benefits of RTP. Despite this lack of research, researchers have indicated that RTP aides in the development of the frontal cortex, which is essential for executive function including working memory, attention, reasoning, cognitive flexibility, and problem solving (Scott & Panksepp, 2003). Thus, it is essential that the cognitive impacts of RTP interactions are explored further.

Thus, RTP has established benefits for child developmental outcomes, with some areas being more extensively investigated than others. However, there are various demographic factors which can impact the frequency of play between fathers and their children. Chapter 3 revealed that boys participate more frequently in RTP compared to girls and past research has shown higher intensity RTP between parents and their sons, compared

to with their daughters (Kyratzis, 2000, 2001; Marsh, 2000). This has impacted the direction of research, with father-son RTP being more prominently investigated (Coie et al., 1982; Pellegrini, 1993).

Like gender, it appears that birth order may also impact the frequency of father-child play. Price (2008) reported that first born children receive around half-an-hour more quality time with their parents each day, when compared to same-aged second born children, from a similar family structure. While this study examined parent-child quality time, not exclusive to play, it stands to reason that the more time a parent has with a child, the more opportunity for play interactions. Other research has reported that fathers who worked longer hours reported less involvement with their children which was associated with the quality of father involvement in play interactions (Crouter et al., 1987; Roggman et al., 1999). Despite this, involvement in play has not been found to be related to father age (Tamis-LeMonda et al., 2004) or socio-economic status (Flanders et al., 2009).

The Role of Paternal Mental Health in Child Development

In addition to demographic factors, paternal mental health has been shown to impact play frequency and moreover, the way in which fathers engage with their children during play. Past research has shown that paternal depression is related to less father involvement in their children's lives (Roggman et al., 1999), less play, and increased negative interactions (Lyons-Ruth et al., 2002). As depressed fathers have greater difficulty recognising happy emotions compared to negative emotions, this may negatively impact parent-child interactions (Koch et al., 2019) which may be compounded by depression decreasing affective responsiveness (Jacob & Johnson, 2001; Johnson & Jacob, 2000). In another study, reduced responsiveness and negative father-child interactions were also related to paternal stress (Darke & Goldberg, 1994), which has also been found to negatively influence play interactions (Goldberg et al., 2002; Magill-Evans & Harrison, 2001).

This poor father-child bonding and lowered responsiveness found for both depressed (Kerstis et al., 2016) and stressed (Goldberg et al., 2002; Magill-Evans & Harrison, 2001) fathers has also be found for anxious fathers (Nicol-harper et al., 2007; Radoš, 2021). A subsequent physical play study found that when anxious fathers were move involved in play, their children displayed higher levels of anxiety, further impacting the attachment relationship (Fliet et al., 2015). It is apparent that mental health is not only a risk factor for impaired father-child interactions, it also has bearing on the attachment relationship (Field, 2010).

There are certain paternal play factors such as sensitivity and challenging parenting behaviour, that influence attachment, and moreover, attachment can play a role in the way in which fathers and their children interact. Grossman and colleagues (Grossman et al., 2002) found that when fathers were sensitive and challenging during play, these elements better predicted long-term father-child attachment compared to the predictive ability of early infant attachment. Therefore, despite any early attachment representations, play can serve as an avenue to strengthen familial bonds. Similarly, when children are more securely attached to their fathers, their play interactions are more refined in that they feel able to explore their play environment completely (Kazura, 2000). Thus, it is apparent that there is a symbiotic relationship between the father-child relationship and play (Bridges et al., 1988). However, much of this research has focussed on play more broadly, not from an exclusive RTP perspective (Goldberg et al., 2002; Robinson et al., 2021; Roggman et al., 1999). Therefore, it is imperative that these relationships are explored more comprehensively through a RTP lens.

The Current Study

The aim of this study was to explore father-child RTP to determine how play impacts child development, and furthermore, to explore the impacts of paternal mental health and

attachment. We invited fathers and their 4-7-year-old child into our Play lab to participate in some RTP activities that were videorecorded for later coding. Fathers also completed a series of questionnaires exploring the family's demographic characteristics, paternal mental health, father-child attachment, and child developmental outcomes. Children also completed a cognitive assessment.

The main research questions for this study are: 1. What are the underlying factors of father-child rough-and-tumble play that are related to child developmental outcomes? 2. How do demographic factors relate to the way dyads engage in rough-and-tumble play? 3. Is there a relationship between paternal-mental health and rough-and-tumble play interactions? 4. What is the association between paternal mental health and child attachment? And lastly 5. Is there a relationship between rough-and-tumble play and child attachment?

We predict that, based on past play study findings (Fliek et al., 2015; Koch et al., 2019; Magill-Evans & Harrison, 2001), poor paternal mental health (depression, anxiety, and stress) will be negatively related to positive behaviours during RTP (e.g., sensitivity, spontaneity, connectedness, and warmth) and positively related to negative behaviours during RTP (e.g., ignoring, disengaging, low effort and loss of connection). Furthermore, we expect that poor paternal mental health will be negatively related to the closeness of the paternal-child attachment and positively related to the conflicts of the paternal-child attachment (Darke & Goldberg, 1994). As reduced responsiveness has been previously linked to poor father-child attachment outcomes (Johnson & Jacob, 2000), we anticipate that negative parenting behaviours (negative regard and detachment) during RTP will be positively related to the conflicts of the paternal-child attachment. Conversely, we predict that closeness of the father-child relationship will be related to father sensitivity (Grossman et al., 2002), positive regard and dyadic connectedness.

The findings presented in Chapter 3 showed that boys undertake RTP more often than girls, which is consistent with past research (Kyratzis, 2000; Marsh, 2000). Thus, we predict

that quality of RTP will be related to child gender with boys receiving higher quality play than girls. We also expect that birth order will be related to positive behaviours during RTP (Price, 2008). As longer working hours negatively impacts quality of father-child play (Crouter et al., 1987) we predict that working hours will be negatively related to positive parenting behaviours during RTP. We do not expect father age, education, or income to be related to RTP factors (Flanders et al., 2009; Tamis-LeMonda et al., 2004). We anticipate that positive parenting behaviours during RTP will be positively related to positive child developmental outcomes (emotional control and inhibition, executive functioning, and cognition) (Scott & Panksepp, 2003) and to prosocial skills, which has been found in general play research (Lindsey et al., 1997b). Consistent with this, we lastly predict that negative parenting behaviours during RTP will be positively related to negative child developmental outcomes (e.g., hyperactivity and child externalising and internalising behaviours) (Flanders et al., 2010; Paquette, 2004).

Method

Participants

Fifty-seven father-child dyads participated in the current study. The participants were recruited online, over a one-year period, via Facebook and through flyer distribution in local preschools consisting of the general population. All participants identified themselves as part of two-parent families. Fathers mean age was 39 years, (ranging from 27 years to 71 years), while the mean age for child participants was 5 years, 11 months (ranging from 4 years, 0 months, to 7 years, 11 months). For their involvement in the study, participants were entered into a draw to win an iPad (worth \$500). Ethics approval to conduct this research was obtained from the University of Newcastle Human Research Ethics Committee (Approval Number: H-2019-0043). Written consent for both father and child, and child verbal assent was obtained prior to participation.

Measures

Demographic Questionnaire. Fathers completed a demographic questionnaire with questions relating to both themselves and their child (see Appendix A). Information gathered included parent age, marital status, education, household income, and hours of paid work each week, as well as the age and gender of the child participating in the study, birth order of child, number of siblings, and days in care/school.

Child Measures

Child Behaviour Checklist (CBCL; Achenbach & Rescorla, 2000). The CBCL was developed by Achenbach as a dimensional rating scale of childhood psychopathology (Achenbach, 2009). The CBCL consists of 99 items (for 1.5-5 years) and 140 items (for 6-18 years) respectively and is used to detect emotional and behavioural problems (see Appendix B). The CBCL has been validated in 31 countries (Ang et al., 2012; Kariuki et al., 2016; Rescorla et al., 2007, 2014) and contains Australian norms (Hensely, 1988).

The CBCL produces three primary scales (internalising problems, externalising problems, and total problems) and eight syndrome subscales (anxious/depressed, withdrawn/depressed, somatic complaints, social problems, thought problems, attention problems, rule-breaking behaviour, and aggressive behaviour). The CBCL internalising, externalising and total problems scales will be utilised within this study. The internalising problems scale considers child emotional problems, the externalising problems scale is an aggregate measure of behavioural problems, and the total problems scale considers both emotional and behavioural problems. The Internal Consistency (Cronbach's alpha) of the CBCL ranges from good to excellent (depending on the scale), with excellent norms and adequate test-retest reliability ($r = .85 — .90$) (Achenbach & Rescorla, 2001).

Behavior Rating Inventory of Executive Function (BRIEF; Gioia et al., 2000). The BRIEF is designed to assess executive functioning (see Appendix C). The BRIEF is useful in

evaluating children with a wide spectrum of developmental and acquired neurological conditions, such as: Learning disabilities, Low birth weight, Attention-deficit/hyperactivity disorder, Tourette's disorder, Traumatic brain injury, Pervasive developmental disorders/autism, as well as typically developing children.

Each BRIEF questionnaire contains 86 items in eight non-overlapping clinical scales and two validity scales for children aged 6-18 years. These scales form two broader indexes: Behavioural Regulation (three scales: Inhibit, Shift, Emotional Control) and Metacognition (five scales: Initiate, Working Memory, Plan/Organise, Organisation of Materials, Monitor), as well as a Global Executive Composite score, which takes into account all of the clinical scales and represents the child's overall executive function.

There are also two validity scales to measure Negativity and Inconsistency of responses. Negativity scale scores reflect the extent to which responder answered selected items in an unusually negative manner, while Inconsistency scale scores reflect the extent to which the responder answered homogenous items in an inconsistent manner. The BRIEF has demonstrated good reliability, with high test-retest reliability ($r_s \approx .82$ for parents) internal consistency (Cronbach's alphas $\approx .80 - .98$) (Mahone et al., 2002).

The Behavior Rating Inventory of Executive Function–Preschool version (BRIEF-P; Gioia et al., 2003) contains 63 items in five non-overlapping clinical scales (Inhibit, Shift, Emotional Control, Working Memory, and Plan/Organize) and two validity scales (Inconsistency and Negativity) for children aged 2-5:11 years. The scales form three broader indexes: Inhibitory Self-Control (ISCI), Flexibility (FI), and Emergent Metacognition (EMI) and an overall composite score, the Global Executive Composite (GEC). The BRIEF-P has demonstrated good reliability, with high test-retest reliability ($r_s \approx .82$ for parents) internal consistency (Cronbach's alphas $\approx .76$ to $.95$) (Skogan et al., 2016).

The BRIEF and BRIEF-P inhibit, shift, emotional control, working memory, plan/organise and global executive composite scores will be utilised within this study. Inhibit

scores capture the ability to control impulses, emotional control scores capture emotional regulation, working memory scores capture the ability to hold and manipulate information while completing a task, plan/organise scores capture the ability to anticipate future events, set goals and grasp the main idea of a concept and the global executive composite score is the summary score of all clinical scales.

Strengths and Difficulties Questionnaire (SDQ P4-10; Goodman, 1997). The SDQ is a short, 5-minute, behavioural screening questionnaire for children aged 4-16 (Goodman, 1997). The questionnaire consists of 25 items, mapping onto either positive or negative attributes, using a 3-point Likert scale (see Appendix D). These 25 items are divided evenly between 5 scales: Emotional symptoms, Conduct problems, Hyperactivity/Inattention, Peer relationship problems and Prosocial behaviour. The first 4 scales are added together to generate a total difficulties score. The Externalising scale is the aggregate score of the Hyperactivity/Inattention and Conduct problems scales and the Internalising scales is the by aggregate score of the Peer relationship problems and Emotional symptoms scales. The SDQ contains 11 supplemental items, assessing the distress and impairment caused by the child's difficulties and utilises a 4-point Likert scale. These supplemental items generate an impact score. The SDQ has shown strong correlations with the CBCL's externalising and internalising scales ($r = .63 - .72$) (Goodman & Scott, 1999).

The Internal Reliability (McDonald's omega) ranges from .67 to .90 (depending on scale), indicating good estimates for all subscales (Stone et al., 2015). Test-retest reliability correlations ranges from acceptable (Total problems scale, Hyperactivity-inattention, Emotional problems, and Prosocial behaviour) to poor reliability (Peer problems and Conduct problems) (Stone et al., 2015).

The SDQ emotional problems, conduct problems, hyperactivity, peer problems, prosocial, total difficulties, externalising and internalising scales will be utilised within this study. The emotional problems scale includes child worries, fears, nervousness, and

emotional complaints, while the conduct problems scale includes child temper, lying/cheating, stealing, and fighting. The hyperactivity scale includes restlessness/overactivity, fidgeting, distractibility, and attention span and the peer problems scale includes the child's current friendships, play preferences, and peer interactions. Finally, the prosocial scale includes kindness to younger children, consideration of others' feelings and sharing/helping others. The externalising scale is an aggregate measure of the hyperactivity and conduct problems scores, while the internalising scale is an aggregate measure of the peer problems and emotional problems scores and the total difficulties scale is the sum of the emotional, conduct, hyperactivity, and peer problems scales.

Wechsler Preschool & Primary Scale of Intelligence - Fourth Edition Australian and New Zealand Standardised Edition (WPPSI-IV A&NZ). The WPPSI-IV measures cognitive development in preschoolers and young children and has been standardised on Australian and New Zealand children aged 2:6–7:7. The scale consists of 13 subtests designated as one of three types: core, supplemental, or optional. The core subtests are required for the computation of the Verbal, Performance, and Full-Scale IQ. The supplemental subtests provide additional information about cognitive abilities or can be used as replacement for inappropriate subtests. The optional subtests provide additional information about cognitive functioning but cannot be used as replacements for core subtests.

For ages 4:0 - 7:7 the WPPSI-IV provides index scores for Verbal Comprehension, Visual Spatial, Fluid Reasoning, Working Memory and Processing speed. Internal consistency reliability for the composite scores is good. Across the age groups, reliability coefficients range between .94 and .96 for the Verbal IQ Composite, between .89 and .95 for the Performance IQ Composite, and between .95 and .97 for the Full-Scale IQ (Sattler, 2008).

Verbal Comprehension is a measure of the child's ability to draw upon and apply acquired word knowledge (crystalised intelligence). Visual Spatial is a measure of the child's ability to consider visual details and understand spatial relationships. Fluid Reasoning is a

measure of the child's ability to detect conceptual relationships amongst objects and utilise reasoning. Working Memory is a measure of the child's ability to consciously recognise, maintain and manipulated information. Processing speed is a measure of the child's speed and accuracy during decision-making and visual identification.

Father Measures

Depression, Anxiety and Stress Scale (DASS-SF; Lovibond & Lovibond, 1995). The DASS is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety, and stress. Each of the three DASS scales contains 14 items, for a total of 42 items, each reflecting a negative emotional symptom (see Appendix E). Each item is rated on a four-point Likert scale of severity of participants experiences over the last week. These scores ranged from 0, meaning that the client believed the item "did not apply to them at all", to 3 meaning that the client considered the item to "apply to them very much, or most of the time". Scores for Depression, Anxiety and Stress are calculated by summing the scores for the relevant items.

The main purpose of the DASS is to isolate and identify aspects of emotional disturbance; for example, to assess the degree of severity of the core symptoms of depression, anxiety, or stress. The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The Stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient.

Parenting Stress Index - Fourth Edition (PSI-4; Abidin, 2012). The PSI-4 is a 120-item measure of parenting stress. Items are scored on a five-point Likert Scale ranging from 'Strongly Agree' to 'Strongly Disagree' (see Appendix F). A higher total raw score equates

to lower stress levels. The PSI-4 focuses on three major stress domains: child characteristics, parent characteristics and situational/demographic life stress. The Child and Parent Domains combine to form the Total Stress scale, while the Life Stress scale measures the amount of parent stress caused by factors external to the parent-child relationship. The Child Domain contains six subscales (Distractibility/Hyperactivity, Adaptability, Reinforces Parent, Demandingness, Mood and Acceptability) that evaluate parent stress associated with child characteristics. The Parent Domain contains seven subscales (Competence, Isolation, Attachment, Health, Role Restriction, Depression and Spouse/Parenting Partner Relationship) that evaluate stress related to parent characteristics. The PSI-4 has strong psychometric properties, with a high internal consistency ($\alpha = .85$) and good content and construct validity (National Child Traumatic Stress Network, 2012).

Child-Parent Relationship Scale (CPRS; Pianta, 1992). The CPRS is a self-report measurement tool that assesses parents' perceptions of their relationship with their child. The scale consists of 30 items rated on a 5-point Likert scale ranging from "Definitely does not apply" to "Definitely applies" (see Appendix G). The CPRS was created for use with children aged 3-12 years. Ratings are summed into three groups of items: Conflicts, Closeness and Dependence. Internal consistency (Cronbach's alpha) is good for Conflicts (alpha = .83), acceptable for Closeness (alpha = .72) and poor for Dependence (alpha = .50) (Pianta, 1992). The Dependence score is not utilised in the present research. The CPRS will be used as the measure of father-child attachment within this study.

Play Coding Measures

Rough and Tumble Play-Quality (RTP-Q; Fletcher et al., 2013). The RTP-Q is an observational rating assessing father-child interaction quality, through RTP. The RTP-Q has 16 items (see Appendix H). The items capture individual and dyadic affective states and behaviours of father and child, including verbal and non-verbal behaviours on the following

dimensions: Warmth, Control, Sensitivity, Winning and Losing, Physical engagement and Playfulness. Each behaviour is rated with a 5-point Likert Scale, specifically tailored to the item.

RTP Parent and Child Behaviour Scale (RTP-PCB; Robinson & Freeman 2019). The following scales were adapted under the supervision of Dr Emily Freeman at the University of Newcastle. They are based on the Early Head Start Research and Evaluation Project: Child-Parent Interaction Rating Scales for the Three-Bag Assessment 24-Month Wave (Brady-Smith et al., 1992). The rating scale of parent behaviour assess such characteristics as: Parental Sensitivity, Parental Positive Regard, Parental Negative Regard and Parental Detachment. While the rating scale of child behaviour assess such characteristics as: Child Engagement of Parent and Child Negativity toward Parent. The father-child dyad is also rated for Dyadic Mutuality/Connectedness. Each characteristic is scored on a 7-point scale range from “Very Low” to “Very High” (see Appendix I).

Inter-Rater Reliability (IRR). Two coders rated each play session. To become a play session coder; assistants had to undertake training sessions over a one-month period and follow strict manuals for the coding of 10 practice videos. Once the practice codes were examined and deemed satisfactory, assistants were endorsed as play session coders. The RTP-Q IRR was .56 and the RTP-PCB IRR was .65. Both IRR scores were indicative of moderate IRR between coders. For each coded item the two coders were within 1 point of each other, so while IRR is moderate, the disagreement between coders did not exceed 1 point of difference on the 5- and 7-point Likert scales.

Procedure

General testing procedure

All testing measurements and observations of participants were conducted in the Play Lab, within the School of Psychology, at The University of Newcastle. Father-child dyads

first undertook the play portion of the testing session which consisted of 10 minutes of RTP games. The play was conducted on a 2x2m rubber play mat for safety. Fathers then completed the demographics questionnaire, three child measures (CBCL, SDQ and BRIEF), three parent measures (DASS-SF, PIS and the PSI) and one relationship measure (CPRS). All measures took approximately 60 minutes to complete. To prevent order effects, the order of these questionnaires was counterbalanced across participants. While fathers completed their paperwork, children completed the WPPSI-IV, which was conducted by one of the trained examiners, according to the administration protocol. WPPSI-IV administration took between 1-1.5 hours (depending on child age, ability, and attention). All testing occurred within a quiet room and lasted for a maximum of 2 hours.

The Play Session Procedure

Participants were asked to play two games during the 10-minute session. *Sock Wrestle* required each participant to wear one sock. The aim of the game was to get their opponents sock, without losing their own. *Get Up* required one participant to lay on the play mat on their back and try to get up to a standing position, while their opponent tried to keep them down. The play took place in a large room clear of toys and other distractions. The play was filmed from multiple angles via wall mounted cameras and the experimenter left the room for the duration of the RTP play.

Data manipulation and Analysis

The data were analysed using JASP (JASP Team, 2019). Descriptive statistics were generated. Pearson's correlations explored the relationship between various demographic factors (e.g., father age, working hours, age and gender of child, birth order of child), parental wellbeing measures (stress, depression, anxiety etc.), play interactions (sensitivity, negative regard, connectedness), and child behavioural (CBCL & SDQ) and cognitive development

(BRIEF & WPPSI-IV) measures. Linear regression analyses were conducted to examine the association between parental wellbeing measures, play interaction factors and child cognitive and behavioural developmental outcomes.

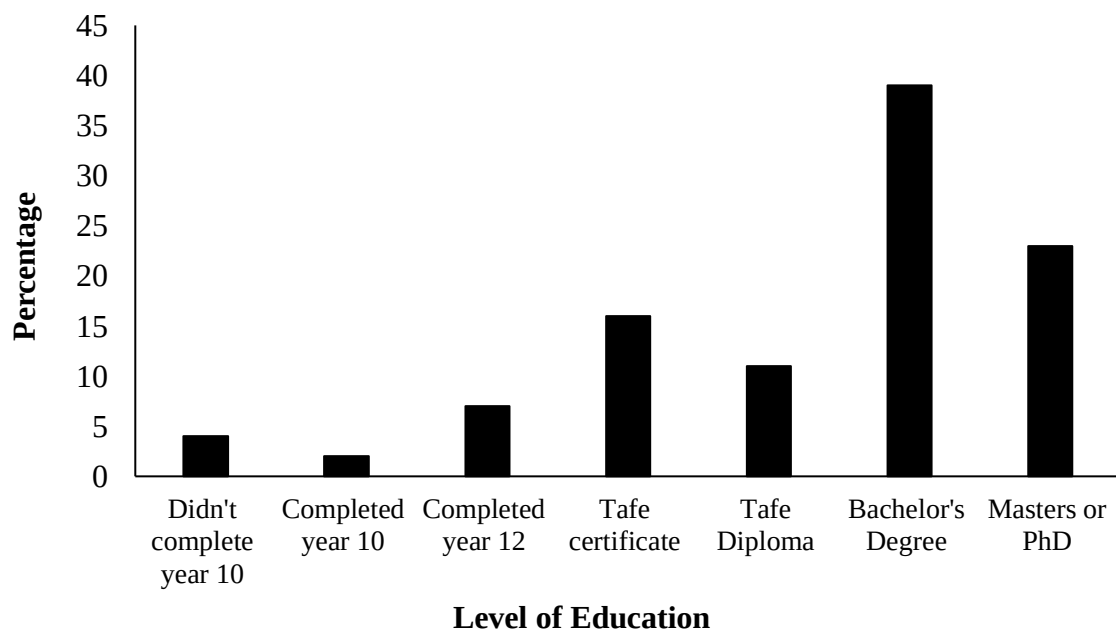
Results

Descriptive Statistics

The sample consisted of 57 father-child dyads. Fathers worked on average 38.71 hours per week ($SD = 10.6$). Over half of fathers had completed tertiary education (38.5% bachelor's degree and 23% Masters or PhD), a quarter held Tafe qualifications (16% Tafe certificate and 10.5% Tafe Diploma), while a smaller portion had completed some or all secondary schooling (7% completed year 12, 2% completed year 10 and 3% didn't complete year 10) (see Figure 4.1).

Figure 4.1

Education Level for Father Participants



The majority of fathers reported depression, anxiety and stress levels as measured by the DASS within the 'normal' range (see Table 4.1), with a smaller number of fathers

reporting some mild, moderate, or severe symptoms. One father reported extremely severe depression symptoms. Average PSI life stress ($M = 51.00$, $SD = 20.00$), child-related stress ($M = 46.81$, $SD = 14.30$), parenting-related stress ($M = 47.33$, $SD = 18.10$), and total stress scores ($M = 47.05$, $SD = 15.36$) fell within normal range. Internal consistency for the DASS was acceptable (Cronbach's $\alpha = .79$).

Table 4.1

Father Symptom Severity as Measured by the DASS

	Depression	Anxiety	Stress
Normal	47	51	39
Mild	7	3	10
Moderate	0	2	4
Severe	2	1	4
Extremely Severe	1	0	0

Our sample of child participants reflected a near-even divide of gender (51% male). Sixty percent were 1st born children, thirty-one percent were 2nd born children and nine percent were 3rd (+) born children. Of the 57 fathers, 39 reported having a low conflict relationship with their child, 15 reported having moderate conflicts and 3 reported having a high conflict father-child relationship (see Table 4.2). Twenty-nine fathers reported being highly close with their child and nineteen fathers reported being moderately close to their child. No fathers reported low levels of closeness. Internal consistency for the CPRS was acceptable (Cronbach's $\alpha = .76$).

Table 4.2

Conflicts and Positive Aspects of the Father-Child Relationship as Measured by the CRPS

	Conflicts	Positive Aspects (Closeness)
Low	39	0
Moderate	15	19
High	3	28

Scores on the CBCL indicated that children's behaviour and emotions fell within 'normal' range more frequently than any other category (see Table 4.3). Across internalising, externalising, and total problem scales, some children showed borderline and clinical levels of behaviour and emotion problems. Internal consistency for the CBCL was good (Cronbach's alpha = .80).

Table 4.3

Behavioural and Emotional Problem Scale Frequencies as Measured by the CBCL

	Normal	Borderline	Clinical
Internalising Problems	50	5	2
Externalising Problems	52	2	3
Total Problems	54	3	1

Scores on the SDQ indicated that children's behaviours were 'close to average', however there was a spread of responses that categorised some children's behaviours as 'slightly raised', 'high' and 'very high' (see Table 4.4). Internal consistency for the SDQ was good (Cronbach's alpha = .84).

Table 4.4

Behavioural Problem and Strength Scales Frequencies as Measured by the SDQ

	Close to average	slightly raised/(slightly lowered*)	High/(low*)	very high/ (very low*)
Emotional Problems				
Scale	47	3	4	3
Conduct Problems				
Scale	47	6	4	0
Hyperactivity Scale	38	12	3	4
Peer Problems Scale	46	3	6	2
Prosocial Scale	31	14*	7*	5*
Total Difficulties Score	45	7	4	1
Externalising Score	32	20	5	0
Internalising Score	45	8	0	4

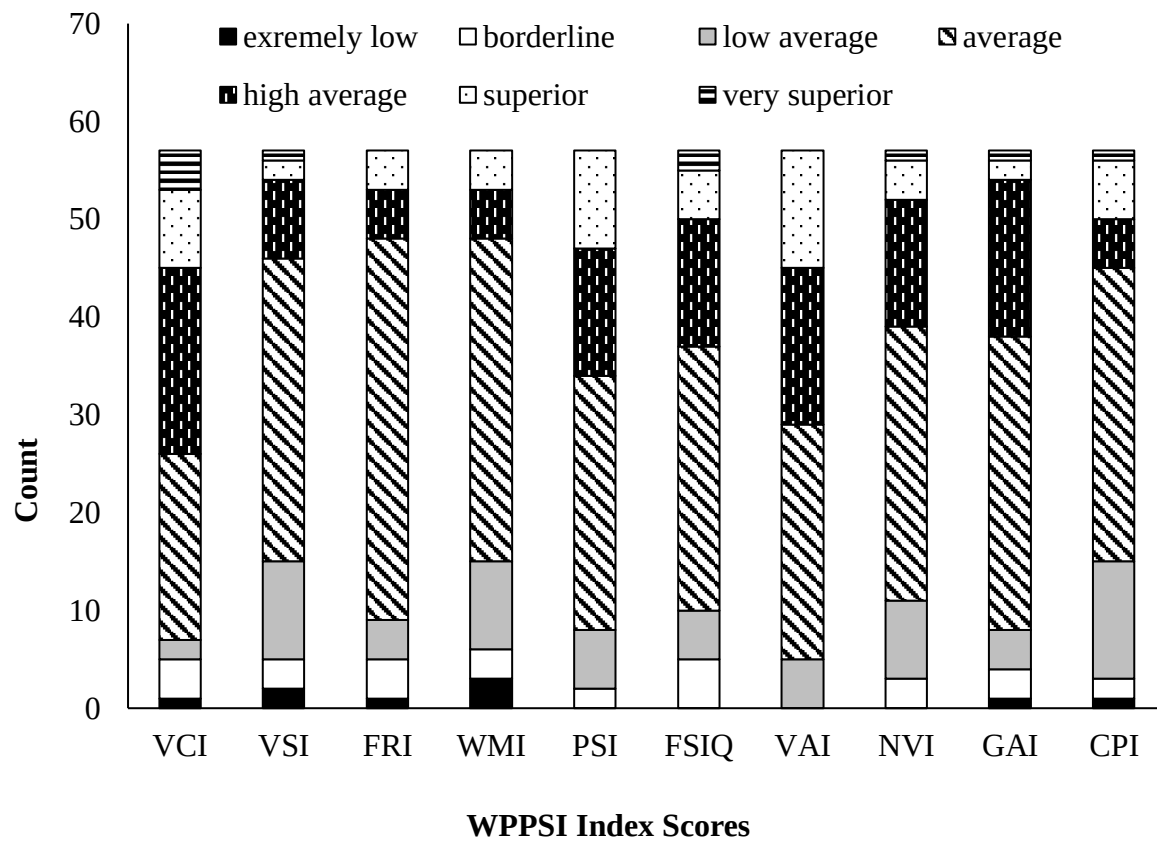
Scores on the BRIEF indicated that most children's executive function behaviours were within 'normal range, however there was a spread of responses that categorised some children's behaviours as 'mildly elevated, 'potentially clinically elevated and 'clinically elevated (see Table 4.5). Internal consistency for the BRIEF was good (Cronbach's alpha = .80).

Table 4.5

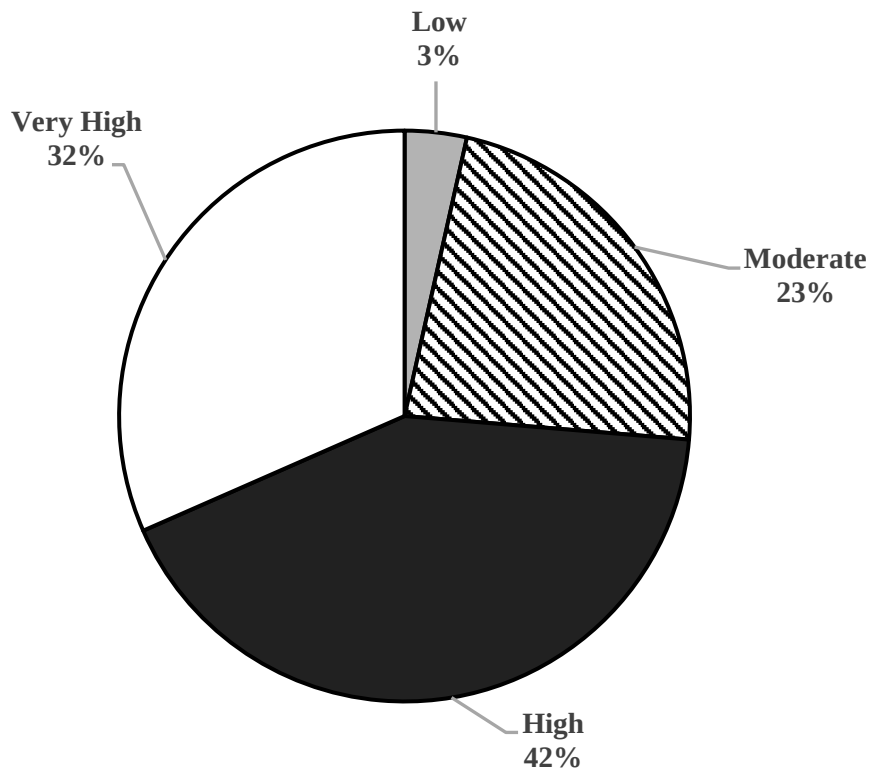
Behavioural Problem and Strength Scales Frequencies as Measured by the SDQ

	Inhibit	Shift	Emotional Control	Working Memory	Global Executive Composite
Normal Range	41	44	40	41	40
Mildly Elevated	9	1	10	8	8
Potentially Clinically Elevated	1	2	3	4	5
Clinically Elevated	4	5	2	2	2

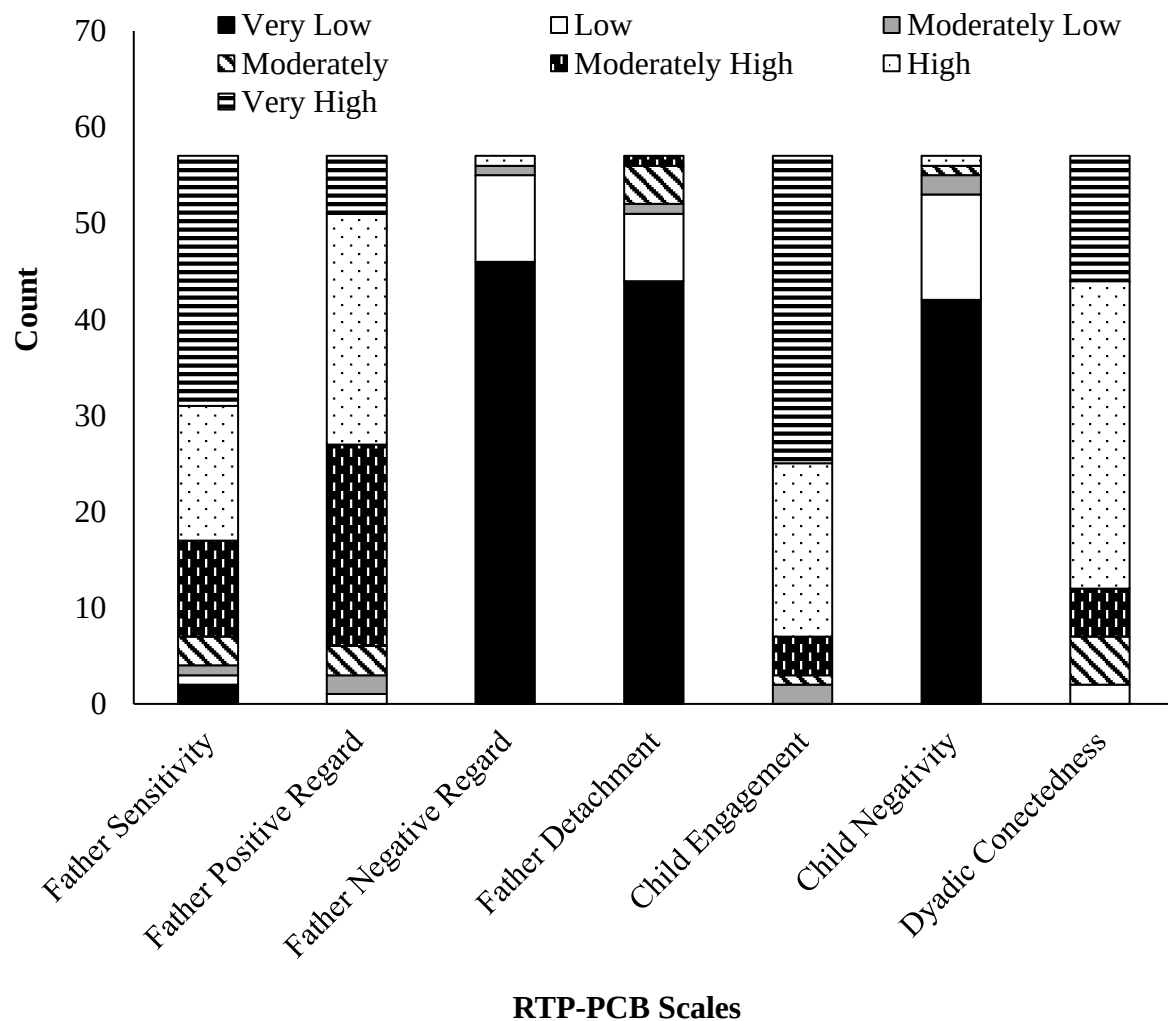
Scores on the WPPSI indicated that for each WPPSI Index Scale, most child scores fell within the average range (see Figure 4.2). Very few children fell within the 'extremely low' or 'very superior' categories. Internal consistency for the BRIEF ranged from good to excellent (Cronbach's alpha $\approx$.87 to .90).

Figure 4.2*WPPSI Score Range Overview for Each Index Scale*

The dyadic average for play quality as measured by the RTP-Q fell within the high-quality range ($M = 63.93$, $SD = 12.13$). Figure 4.3 shows the score ranges for the participants, with a high percentage of dyads displaying ‘very high’, ‘high’ or ‘moderate’ quality RTP. A small portion of the dyads displayed ‘low’ quality RTP, and no dyads displayed ‘very low’ quality RTP.

Figure 4.3*RTP-Q Score Ranges for Father-Child Dyads*

Scores on the RTP-PCB indicated that 88% of fathers were rated as having ‘very high’, ‘high’ or ‘moderately high’ sensitivity, and these score ratings were also seen in 89% of fathers for father positive regard (see Figure 4.4). The majority of fathers were rated as having very low negative regard (80%) and very low father detachment (77%). A large portion of children showed ‘very high’ or ‘high’ engagement levels during play (87%) and many children had ‘very low’ or ‘low’ negativity during play (93%). The connectedness in our father-child dyads were spread across the ratings of ‘very high’ (23%), ‘high’ (56%), ‘moderately high’ (9%), ‘moderate’ (9%) and ‘low’ (3%). No dyads received connectedness ratings of ‘moderately low’ or ‘very low.’

Figure 4.4*RTP-PCB Scale Ratings for Each Underlying Play Characteristic***Demographic Variables and RTP Measures****Correlational Analyses**

Kendall rank correlations were used to assess the relationship between the RTP-Q and our adapted RTP-PCB scale. The RTP-Q showed relationships in the direction that we would expect. The RTP-Q showed strong significant positive relationships with father sensitivity ($r_{\tau} = .47, p < .001$), positive regard ($r_{\tau} = .47, p < .001$), child engagement ($r_{\tau} = .40, p < .001$) and dyadic connectedness ($r_{\tau} = .43, p < .001$), and strong significant negative relationships with

negative regard ($r_{\tau} = -.37, p < .001$) and father detachment ($r_{\tau} = .37, p < .001$). This indicates that the fathers who were sensitive to their children's needs, displayed warm regard toward them and were more connected to them during play, had greater quality RTP, while fathers who were negative and detached, showed lower quality play. These findings help to validate our adapted scale.

Kendall rank correlation coefficients were utilised to assess the relationship between participant demographic factors (father age, child age, level of education, paid working hours, child birth order,) and RTP factors (father sensitivity, father positive regard, father negative regard, father detachment, child engagement, child negativity, dyadic connectedness, RTP-Q) (see Table 4.6). For nominal demographics variables (primary carer status, gender of child) a one-way ANOVA and independent samples t-tests were used to examine the relationship with RTP factors.

A moderate significant negative relationship was found between child age and father positive regard ($r_{\tau} = -.21, p = .03$), and a moderate significant positive relationship was found between child birth order and child negativity ($r_{\tau} = -.26, p = .03$). Thus, fathers showed greater positive regard when their children were younger and children who were born second or subsequent, displayed greater negativity than first born children. No other significant correlations were found.

Table 4.6*Kendall's Tau B Correlations for Participant Demographic and RTP Factors*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Father Sensitivity	—												
2. Father Positive Regard	0.63 ***	—											
	< .001	—											
3. Father Negative Regard	-0.48 ***	-0.45 ***	—										
	< .001	< .001	—										
4. Father Detachment	-0.58 ***	-0.45 ***	0.51 ***	—									
	< .001	< .001	< .001	—									
5. Child Engagement	0.28 *	0.34 **	-0.21	-0.36 **	—								
	0.01	0.002	0.08	0.002	—								
6. Child Negativity	-0.20	-0.16	0.33 **	0.23 *	-0.34 **	—							
	0.07	0.16	0.005	0.04	0.004	—							
7. Dyadic Connectedness	0.65 ***	0.61 ***	-0.49 ***	-0.60 ***	0.50 ***	-0.40 ***	—						
	< .001	< .001	< .001	< .001	< .001	< .001	—						

Table 4.6*Kendall's Tau B Correlations for Participant Demographic and RTP Factors*

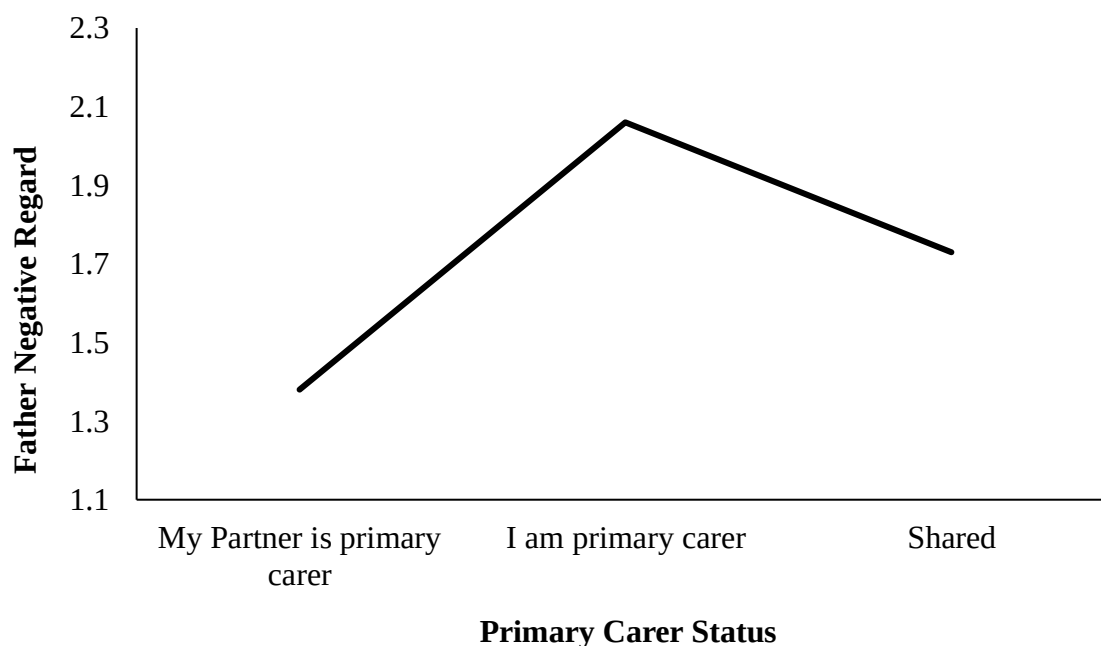
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
8. RTP-Q	0.47 ***	0.47 ***	-0.37 ***	-0.37 ***	0.40 ***	-0.05	0.43 ***	—					
	< .001	< .001	< .001	< .001	< .001	0.60	< .001	—					
9. Father Age	-7.852e -4	-0.10	-0.02	0.03	-0.01	0.04	-0.06	-0.05	—				
	0.99	0.35	0.85	0.82	0.92	0.74	0.59	0.63	—				
10. Level of Education	0.09	0.18	-0.10	0.01	0.08	-0.19	0.19	-0.04	0.13	—			
	0.39	0.09	0.37	0.95	0.48	0.09	0.08	0.69	0.20	—			
11. Paid working hours	-0.02	0.06	0.13	-0.02	-0.05	-0.08	0.010	-0.02	-0.34 ***	-0.14	—		
	0.83	0.60	0.24	0.85	0.63	0.47	0.92	0.80	< .001	0.18	—		
12. Birth Order	-0.14	-0.15	0.07	0.06	-0.19	0.26 *	-0.12	-0.04	0.25 *	-0.11	-0.08	—	
	0.23	0.19	0.56	0.65	0.19	0.03	0.29	0.70	0.02	0.33	0.46	—	
13. Child Age	-0.16	-0.21 *	0.15	0.13	-0.02	-0.11	-0.02	-0.08	0.12	0.03	-0.03	-0.07	—
	0.10	0.03	0.16	0.20	0.88	0.39	0.82	0.37	0.20	0.75	0.78	0.53	—

Note. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

A one-way ANOVA showed that while fathers who report being primary carers displayed higher levels of negative regard during RTP than both fathers who shared cared and those who's partner was the primary carer (see Figure 4.5). However, this difference was not significant $F(2,54) = 1.78, p = 0.18$.

Figure 4.5

Father Negative Regard Shown During RTP as a Function of Carer Type



Welch's t-tests examining differences in child gender revealed that fathers displayed higher sensitivity and positive regard when playing with their sons and higher negative regard and detachment when playing with their daughters (see Table 4.7), however detachment yielded the only significant difference. T-tests comparing sons and daughters also revealed that sons were more engaged during RTP interactions and daughters displayed greater negativity during RTP, however these differences were not significant. When considering the dyadic and quality measures of RTP (RTP-Q), the t-tests revealed that father-son dyads displayed greater connectedness during RTP and furthermore that quality of play was higher between father-son dyads than father-daughter dyads. However, this difference was not significant.

Table 4.7*Welch's t-tests Comparing Male and Female Children on RTP Factors*

		Females		Males		t-test	p-value
		M	SD	M	SD		
Father Measures							
	Sensitivity	5.71	1.62	6.21	1.13	1.33	.19
	Positive Regard	5.59	1.10	5.81	0.86	0.84	.40
	Negative Regard	1.59	1.71	1.40	0.51	-0.81	0.43
	Detachment	1.91	1.33	1.36	0.58	-2.00	0.05
Child Measures							
	Engagement	6.29	1.17	6.67	0.52	1.61	0.12
	Negativity	1.74	1.10	1.41	0.64	-1.28	0.21
Dyadic Measure							
	Dyadic Connectedness	6.00	1.23	6.20	0.76	0.83	0.41
Quality Measure							
	RTP-Q	61.71	12.11	66.07	11.97	1.37	0.18

Father Variables and RTP Measures**Correlational Analyses**

Kendall rank correlation coefficients were utilised to assess the relationship between paternal mental health (DASS, PSI), attachment (positive aspects and conflicts) and RTP factors (father sensitivity, father positive regard, father negative regard, father detachment, child engagement, child negativity, dyadic connectedness, RTP-Q). A strong significant positive relationship was found between child negativity and father depression ($r_{\tau} = .35, p < .001$). Child negativity also showed moderate significant positive relationships with father anxiety ($r_{\tau} = .25, p = .02$), and father stress ($r_{\tau} = .29, p = .005$) as measured by the DASS and child-related stress ($r_{\tau} = .25, p = .01$) and total stress ($r_{\tau} = .25, p = .02$) as measured by the PSI. Therefore, depressed, anxious and stressed fathers had children who were more negative toward them during play.

Child engagement during RTP was moderately significantly negatively related to father anxiety ($r_{\tau} = -.24, p = .03$) while father detachment was moderately significantly positively related to parent-related stress as measured by the PSI ($r_{\tau} = .24, p = .04$). Thus, children engaged less with their fathers when they were anxious, and fathers who were more detached during play also had more parent-related stress. No significant relationships were found between any of the attachment and RTP factors.

Strong significant positive relationships were found between conflicts within the father-child relationship and depression ($r_{\tau} = .35, p < .001$) (as measured by the DASS), child-related stress ($r_{\tau} = .43, p < .001$), parenting-related stress ($r_{\tau} = .39, p < .001$) and total stress ($r_{\tau} = .70, p < .001$) (as measured by the PSI). A moderate significant positive relationship was found for conflicts and stress ($r_{\tau} = .26, p = .007$) (as measured by the DASS). Thus, both depression and stress negatively impacted father-child attachment and was related to conflicts in their relationship.

Positive aspects of the father-child relationship showed a weak significant negative relationship with parenting-related stress ($r_{\tau} = -.19, p = .05$) and a moderate significant relationship negative with total stress ($r_{\tau} = -.21, p = .03$) as measured by the PSI. Thus, when fathers had more positive relationships with their children when they were less stressed.

Multiple Regression Analyses

Multiple linear regressions were conducted using the stepwise method to determine whether paternal mental health factors (depression, anxiety, and stress as measured by the DASS and PSI) predicted conflicts and positive aspects of the father-child attachment. Significant models were found for both attachment outcomes.

Paternal mental health factors explained 31.6% of variance in conflicts within the father-child relationship (Adjusted $R^2 = .316$) and the model was significant, $F(1,55) = 26.89, p = < .001$. As shown in Table 4.8, child-related stress (measured by the PSI) was the only significant predictor in the model. All assumptions for regression were met.

Table 4.8

Results from the regression model using paternal mental health factors (depression, anxiety, and stress)) to predict conflicts within the father-child relationship, including unstandardized (B) and standardised (β) regression coefficients and the significance of each predictor.

	B	β	t	p
Child-related stress	.57	.30	5.19	< .001

Paternal mental health factors explained 12.7% of variance in positive aspects of the father-child relationship (Adjusted $R^2 = .127$) and the model was significant, $F(2,54) = 5.06$, $p = .01$. As shown in Table 4.9 total stress (measured by the PSI) was the strongest predictor in the model, followed by depression (measured by the DASS), which were both significant. All assumptions for regression were met.

Table 4.9

Results from the regression model using paternal mental health factors (depression, anxiety, and stress)) to predict positive aspects of the father-child relationship, including unstandardized (B) and standardised (β) regression coefficients and the significance of each predictor.

	B	β	t	p
Total stress	-.37	-.10	-2.82	.01
Depression	.31	.17	2.32	.02

Child Development and RTP Measures

Correlational Analyses

Kendall rank correlation coefficients were utilised to assess the relationship between child development (CBCL, SDQ, BRIEF, WPPSI) and RTP factors (father sensitivity, father positive regard, father negative regard, father detachment, child engagement, child negativity, dyadic connectedness, RTP-Q). When examining the relationship between CBCL and RTP factors moderate significant positive relationships were found between father sensitivity and both child internalising ($r_{\tau} = .21$, $p = .04$) and anxiety problems ($r_{\tau} = .24$, $p = .02$), as well as between father negative regard and total problems ($r_{\tau} = .23$, $p = .03$). This indicates that when children display internalising or anxiety problems, fathers are more sensitive during play and when the total problems of children were greater fathers displayed greater negative regard during play. Child negativity showed a moderate significant positive relationship with externalising problems ($r_{\tau} = .29$, $p = .005$).

When examining the relationship between SDQ and RTP factors a moderate significant negative relationship was found between RTP-Q and child conduct problems, indicating that as play quality increases conduct problems decrease ($r_{\tau} = -.20, p = .04$). Father negative regard during play showed a strong significant positive relationship with child conduct problems ($r_{\tau} = .30, p = .008$) and a moderate significant positive relationship with child externalising problems ($r_{\tau} = .24, p = .03$). Hence, children of fathers who were more negative during play were more likely to have conduct or externalising problems. Child negative regard during play showed moderate significant positive relationships with child hyperactivity ($r_{\tau} = .24, p = .02$), externalising ($r_{\tau} = .21, p = .04$), and total difficulties ($r_{\tau} = .27, p = .01$). Thus, children who displayed negative regard toward their father during play, also had hyperactivity and externalising problems. RTP-Q showed a moderate significant positive relationship with child prosocial behaviours ($r_{\tau} = .21, p = .03$), whereby as quality of play increased so too did prosocial skills. Comparable to associations found within the CBCL, father sensitivity showed moderate significant positive relationships between child internalising ($r_{\tau} = .21, p = .05$) and emotional problems ($r_{\tau} = .21, p = .05$). Thus, there appears to be an interplay between fathers exhibiting sensitive responses to children who display increased anxiety, fear, sadness, and social withdrawal (internalising and emotional behaviours). Providing further support for this is the moderate significant positive relationship between father positive regard (praise, warm affection and enjoyment of the child) and child internalising behaviours ($r_{\tau} = .22, p = .04$).

All significant relationships found between BRIEF and RTP factors were moderate in size. Elevated scores on the BRIEF scales are indicative of problems in that particular area. Father detachment ($r_{\tau} = .28, p = .008$) and child negativity ($r_{\tau} = .22, p = .04$) were both positively related to child emotional control scores. Emotional control measures the ability to regulate emotional responses appropriately. Thus, children who were more negative during play and who had more detached fathers, were worse at regulating their emotional responses. Conversely, dyadic connectedness was negatively related to emotional control scores ($r_{\tau} = -.23, p = .03$), indicating that

these children had better emotional control. Child negativity was positively related to inhibit scores ($r_t = .27, p = .01$). Inhibit scores measure the ability to control impulses and stop engaging in a particular behaviour. Thus, children who were more negative during play were worse at inhibiting their behaviour. Father negative regard was positively related to the global executive functioning of children ($r_t = .22, p = .04$), indicating that children had more problems with executive functioning when their fathers displayed negative regard during RTP.

When examining the relationship between WPPSI and RTP factors a moderate significant negative relationship was found between father detachment and child fluid reasoning (inclusive of conceptual thinking, visual intelligence, simultaneous processing) ($r_t = -.21, p = .04$) and a moderate significant positive relationship was found between dyadic connectedness and the WPPSI nonverbal index (estimating child's cognitive ability through nonverbal responses) ($r_t = .20, p = .04$). Thus, children of fathers who detach during play show lower fluid reasoning, while children sharing a dyadic connection during play had better cognitive ability.

Multiple Regression Analyses

Multiple linear regressions were conducted using the stepwise method to determine whether RTP factors (father sensitivity, father positive regard, father negative regard, father detachment, child engagement, child negativity, dyadic connectedness, RTP-Q) predicted child developmental outcomes (CBCL, SDQ, BRIEF, WPPSI). Significant models were found for child internalising problems (CBCL and SDQ), child prosocial behaviours (SDQ) and emotional control problems (BRIEF).

RTP factors explained 15.5% of variance in child internalising problems as measured by the CBCL (Adjusted $R^2 = .155$) and the model was significant, $F(2,54) = 6.13, p = .004$. As shown in Table 4.10, father sensitivity was the strongest predictor in the model, followed by father detachment, which were both significant. All assumptions for regression were met.

Table 4.10

Results from the regression model using RTP factors (father sensitivity, father positive regard, father negative regard, father detachment, child engagement, child negativity, dyadic connectedness, RTP-Q) to predict child internalising as measured by the CBCL, including unstandardized (B) and standardised (β) regression coefficients and the significance of each predictor.

	B	β	t	p
Father sensitivity	5.52	.745	3.50	< .001
Father detachment	5.78	.583	2.73	.008

RTP factors explained 5.9% of variance in child internalising problems as measured by the SDQ (Adjusted $R^2 = .059$) and the model was significant, $F(1,55) = 6.17$, $p = .04$. As shown in Table 4.11, father positive regard was the only significant predictor in the model. All assumptions for regression were met.

Table 4.11

Results from the regression model using RTP factors (father sensitivity, father positive regard, father negative regard, father detachment, child engagement, child negativity, dyadic connectedness, RTP-Q) to predict child internalising as measured by the SDQ, including unstandardized (B) and standardised (β) regression coefficients and the significance of each predictor.

	B	β	t	p
Father positive regard	.72	.275	2.12	.04

RTP factors explained 17% of variance in emotional control scores as measured by the BRIEF (Adjusted $R^2 = .173$) and the model was significant, $F(2,52) = 6.66$, $p = .003$. As shown in Table 4.12, father detachment was the strongest predictor in the model, followed by father sensitivity, which were both significant. All assumptions for regression were met.

Table 4.12

Results from the regression model using RTP factors (father sensitivity, father positive regard, father negative regard, father detachment, child engagement, child negativity, dyadic connectedness, RTP-Q) to predict child emotional control scores as measured by the BRIEF, including unstandardized (B) and standardised (β) regression coefficients and the significance of each predictor.

	B	β	t	p
Father detachment	8.59	.797	3.60	< .001
Father sensitivity	4.72	.585	2.64	.011

RTP factors explained 11.6% of variance in child prosocial scores as measured by the SDQ (Adjusted $R^2 = .116$) and the model was significant, $F(1,55) = 8.34$, $p = .006$. As shown in Table

4.13, RTP-Q was the only significant predictor in the model. All assumptions for regression were met.

Table 4.13

Results from the regression model using RTP factors (father sensitivity, father positive regard, father negative regard, father detachment, child engagement, child negativity, dyadic connectedness, RTP-Q) to predict child prosocial scores as measured by the SDQ, including unstandardized (B) and standardised (β) regression coefficients and the significance of each predictor.

	B	β	t	p
Father detachment	.05	.363	2.89	.006

Discussion

This study provided the first comprehensive investigation into the interplay between paternal mental health, rough-and-tumble play interactions and child developmental outcomes. It was predicted that positive behaviours during RTP would be positively related to desirable child developmental outcomes. We found that higher levels of play quality were related to reduced conduct problems and as predicted, an increase in prosocial skills. Furthermore, we found that RTP quality was concurrently predictive of prosocial scores. This is in line with past findings that RTP teaches children important prosocial skills (Pellegrini, 1989; Sluckin, 1981). The dyadic connectedness between father and child was related to non-verbal cognitive ability. As nonverbal intelligence is useful in thinking, planning, and implementing ideas, it is conceivable that the competitive nature of RTP utilises strategies to try to outwit the play partner and ‘win’ the bout, thus aiding in the development of the nonverbal intelligence skills.

It was also predicted that negative behaviours during RTP would be positively related to negative child developmental outcomes. In line with this, child negative regard during RTP was related to externalising behaviours. This relationship was also found for father negative regard. Exhibiting externalising behaviours such as aggression and defiance have been related to negative emotionality in children (Lipscomb et al., 2012), and furthermore positive regard has been found to be negatively related to child externalising behaviours (Boeldt et al., 2012). Thus, it is rational that

negative regard would be related to externalising behaviours, however this has not been addressed in past research.

Child negativity during play was related to father detachment during play, and children's emotional control and inhibit problem scores. Furthermore, father detachment and sensitivity predicted emotional control scores and father detachment also predicted internalising behaviours (fear, sadness etc). These findings support past research indicating that paternal rejection is related to problems with emotional instability (Mendo-Lázaro et al., 2019; Muris et al., 2004) and that detachment increases fear and sadness in children (Kerns & Brumariu, 2014).

The direction of the relationships between RTP and child internalising behaviour were unexpected. Father sensitivity during play was related to child internalising and anxiety problems and father positive regard was also related to internalising problems. Further analysis revealed that both father sensitivity and positive regard predicted child internalising problems. Thus, fathers being sensitive to their children's needs predicts increased anxiety, social withdrawal, and fear. Interestingly, past research has found that parental sensitivity to child anxiety is a risk factor for the developmental of child anxiety (Wisseman et al., 2018), however ours is the first study to show this in the context of sensitivity during play.

Father negative regard was related to poorer global executive functioning in children. Executive function includes flexible thinking and self-control, which are both important elements of successful RTP (Hart & Tannock, 2013; Paquette et al., 2003). Conversely, negative regard involves belittling the child's efforts, calling them names, being abrupt with the child and having strained expression. As high levels of negative regard (as measured by the RTP-PCB) are not representative of high quality RTP (as measured by the RTP-Q), the relationship between negative regard and poorer executive functioning is comprehensible.

The RTP-PCB showed relationships in the direction we would expect with the RTP-Q. Fathers who were sensitive to their children's needs, displayed warm regard toward them and were more connected during play had higher RTP-Q scores and negative and detached fathers showed

lower play quality. Future research can utilise this more involved scale and get information regarding sensitivity, detachment, positive and negative regard, and connectedness, beyond just the quality of play. Thus, underlying factors of father-child RTP have cognitive, behavioural, emotional, and social impacts on child development.

We also considered how demographic factors relate to the way dyads engage in rough-and-tumble play. While past research has demonstrated that boys undertake RTP more often than girls (Kyratzis, 2000; Marsh, 2000), we found the gender spread of child participants was similar (51% male). While we found that fathers displayed more sensitivity, higher positive regard, engagement, and connectedness when playing with their sons, and that fathers displayed more negative regard and negativity when playing with their daughters, these differences were not significant. However, we did find that fathers were significantly more detached when engaging in RTP with their daughters. Furthermore, it was predicted that gender would impact RTP quality. While fathers did display higher quality RTP when playing with their sons, compared to their daughters, this difference was not significant. This suggests that within our sample there was no significant difference in the quality of father-child RTP for boys and girls. It was also predicted that father age, education or income would show no relationship with RTP factors (Flanders, 2009; Tamis-LeMonda et al., 2004) and that working hours would be negatively related to RTP (Crouter et al., 1987). Consistent with predictions, results showed no relationship between RTP factors and father age, level of education or paid working hours. Thus, the amount of time fathers spent working had no significant bearing on the way in which they interacted with their children through RTP.

As past research has shown that birth order impacts the way in which parents engage with their children, we anticipated that birth order would be related to positive behaviours during RTP with greater benefits for first born children (Price, 2008). The findings of the present research showed that while second and subsequent children showed more negativity toward their fathers than first borns, there was no significant relationship found between birth order and positive behaviours during RTP. Fathers showed greater positive regard when their children were younger, which

included using a warm tone of voice, enthusiasm, concern for their distress, hugging and physical affection. This is consistent with past findings that parents' aide young children to manage behaviour and emotion through using encouragement, conveying love, and being a refuge for them (Osofsky & Fitzgerald, 2000; Parks & Smeriglio, 1986). Conversely, we found that fathers were more negative during RTP when they were primary carers and lowest when their partner was the primary carer. As the role of primary carer is related to stress (Pinquart & Sörensen, 2006, 2007) and an increased risk of burnout (Bevans & Sternberg, 2012), and negative affect is related to higher levels of stress (Jones et al., 2021), it is possible that fathers who are primary carers display increased negative affect due to the impact of their parent role.

While we predicted that paternal mental health (depression, anxiety, and stress) would be negatively related to positive behaviours during RTP (e.g., sensitivity, RTP-Q, dyadic connectedness), we did not anticipate we would find an interaction between carer status and stress. Thus, future research should further explore the implications of the primary carer role and the way in which it impacts other kinds of play interactions and the father-child attachment. In the present research, we found that paternal child-related stress predicted conflicts within the attachment relationship. Past research has shown that paternal related stress has been found to be related to family conflict and lead to externalising symptoms (Jones et al., 2021; Ponnet et al., 2013). In line with this, and our prediction that paternal mental health problems would be related to attachment conflicts (Darke & Goldberg, 1994), we found that father total stress was negatively predictive, and depression was positively predictive, of positive aspects (closeness) of the attachment relationship. While the findings of less stress predicting more closeness in the relationship is expected (Adams et al., 2018), the finding of depression predicting closeness was not. While one former study reported no significant differences in attachment styles between depressed and non-depressed parents (Johansson et al., 2020), more commonly the literature has reported insecure attachments, or the insecure-subtype (anxious attachments), for depressed (Lee & Hankin, 2009) and anxious fathers

(Hankin et al., 2005). Thus, the finding that depression predicted positive aspects of the relationship warrants more exploration.

We had also predicted that paternal mental health would be positively related to negative behaviours during RTP (e.g., negative regard and detachment). This was confirmed in our findings that paternal depression, anxiety, and stress was related to child negativity. Furthermore, when children were anxious, they engaged less with their fathers and fathers with parent-related stress were detached during play, providing further support to past research (Koch et al., 2001). Thus, as in other play studies, we found relationships between rough-and-tumble play and paternal-mental health. Furthermore, we found that paternal mental health has developmental impacts in terms of child anxiety and attachment and that further research is needed to investigate the role that depression has on positive aspects of father-child attachment.

Beyond a mental health perspective, when considering a relationship between rough-and-tumble play and attachment alone, no significant relationships emerged. As we used a reduced model to consider attachment, specific to parent-child attachment, it is possible that we failed to detect other attachment patterns within these interactions. Further RTP research should consider the individual attachment patterns from both the child and parent perspectives and compare this to parent-child specific attachment outcomes.

Despite the need for future exploration to investigate the present research's shortcomings, as suggested throughout, a comprehensive analysis of father-child RTP was conducted and produced a plethora of rich findings. Positive behaviours during RTP showed benefits for prosocial skills and non-verbal cognitive ability, while detachment and father mental health problems negatively impacted children's own mental health, attachment and resulted in lower quality play. This complemented the findings of Chapter 2 which indicated that positive parenting behaviours during play were largely associated with positive child developmental outcomes and similarly that negative parenting behaviours were largely associated with negative child developmental outcomes. The present findings revealed that fathers showed more sensitivity during RTP when their children

displayed internalising or anxiety problems. Furthermore, in the present study child and father negative regard during play was related to increased externalising behaviours in children. Thus, there appears to be a relationship between RTP and child internalising and externalising behaviours and while past research has linked externalising behaviours to negative emotionality (Lipscomb et al., 2012), this was the first study to utilise the RTP-PCB to explore negative regard in a RTP setting. We produced concurrent validity of the RTP-PCB scale, with the RTP-Q, which provides the opportunity to investigate, more broadly, the way in which fathers engage in RTP with their children. Given that the use of this scale is in its infancy, and that a clear relationship has emerged for negative regard (as seen in lower quality RTP interactions) and externalising behaviours, it is crucial that future research continues to explore the usefulness of the RTP-PCB scale and furthermore consider RTP as an avenue for the reduction of externalising behaviour problems.

Chapter Five: The Feasibility of a Father Focused Rough-and-Tumble Play Intervention for the Reduction of Childhood Externalising Behaviours

The prevalence study presented in Chapter 3 revealed that, beyond all other interactions, RTP tends to be the preferred play type of many Australian fathers. Given this preference for father-child RTP Chapter 4 explored these play interactions in Australian father-child dyads to determine how this play type was related to child development. The RTP study revealed that fathers displayed greater sensitivity during play when their children showed internalising problems and furthermore that both child and father negative behaviour during play was related to child externalising behaviours. Thus, RTP was related to both child internalising and externalising problems. It was also found that high quality RTP was related to a reduction in conduct problems and an increase in children's prosocial ability. Given that high quality RTP has benefits for emotional regulation (Peterson & Flanders, 2005) and prosocial skills (Lindsey et al., 1997b; Scott & Panksepp, 2003), this study exposed the potential to utilise RTP research to reduce child externalising behaviour problems. Chapter 4 also found relationships between rough-and-tumble play and paternal-mental health, which supported past research findings (Lyons-Ruth et al., 2002; Johnson & Jacob, 2000). Furthermore, stress predicted conflicts within the attachment relationship. Given that past research has shown that paternal stress is related to family conflict, which leads to an increase in externalising symptoms (Jones et al., 2021; Ponnet et al., 2013), it is important that research take into consideration paternal stress when examining child externalising behaviour problems. The impacts of paternal mental health on father-child play interactions, taken with behaviours found within low-quality RTP (e.g., negative regard) being related to child externalising behaviour problems, indicate that these areas require more investigation. Thus, the aim of the present research was to conduct a feasibility study for a father-focussed, play-based intervention to reduce childhood externalising behaviour problems. Through conducting this study, we aimed to determine whether it

is possible to successfully conduct a pilot intervention study with Australian families. This chapter provides information related to the feasibility study's implementation and the validity of conducting future research, while taking into consideration the impact of paternal mental health on intervention adherence.

In this chapter I present my findings on the feasibility of a father-focused play-based intervention for Australian families. I begin by presenting an overview of the developmental impacts of childhood externalising problems, followed by an overview of parenting intervention effectiveness. I then discuss the reasons for lower father participation in interventions and the benefits of choosing a play-based intervention. Next, I present the findings of my study examining the demographic and mental health characteristics of our sample and explore the adherence to each phase of the intervention. I conclude this chapter by exploring the outcomes of these findings and make suggestions for future father-focused interventions.

The Developmental Impacts of Childhood Externalising Behaviour Problems

Childhood behaviour problems are consistently linked to persistent, life-long psychosocial problems (Dadds, 1997; Hawkins et al., 1992; Tremblay et al., 1992). These can be separated into externalising and internalising problems, as outlined in Chapter 1, (Achenbach, 1978), with both having unique contributions to a child's developmental trajectory (Campbell et al., 2000; Farrington, 1991).

Sawyer et al. (2001) reported that 14% of Australians aged 4–17 years displayed problematic internalising and externalising behaviours, while a more recent Australian sample reported that these rates were around 12% for Australians ages 4–12 years (Bayer, 2009). Given these rates of problematic behaviours, it is encouraging that the Australian Government Department of Health has identified internalising and externalising behaviours, as a high priority child mental health concern (DoH, 2003). Furthermore, they suggest that the early childhood years, specifically age 5 and under, should be targeted as an ideal point for preventing further maladaptive behaviours. Given that externalising problems are more clearly displayed in pre-school aged children, compared

to school age children (Lavigne et al., 1996), an emphasis on early childhood provides robust potential for durable intervention impacts.

While both internalising and externalising behaviours are associated with adverse effects, longitudinal research has shown that children with externalising behaviour problems are more vulnerable to the subsequent development of internalising behaviour problems (Van Lier & Koot, 2010). Child developmental researchers have suggested that peer rejection and academic difficulties may be driving this relationship (Gooren et al., 2011; Ladd & Troop-Gordon, 2003). In comparison, the emergence of later externalising comorbidity does not seem to be present for children initially presenting with internalising problems (Beauchaine & McNulty, 2013; Gilliom & Shaw, 2004). Consequently, this chapter will focus on child externalising behaviour problems and the associated aggressive, hyperactive, and disruptive symptoms.

Aggression consists of outward physical and verbal behaviours that intend to threaten or cause harm to another person. This may be hostile or instrumental aggression. Hostile or reactive aggression occurs in response to aggression initiated by others and causes pain to the victim with little advantage to the aggressor (Feshbach & Feshbach, 1998). This is otherwise known as hot-blooded aggression. Instrumental aggression is where the aggressor uses deliberate, emotion lacking, predatory attacks to control or dominate others (Atkins & Stoff, 1993). This is otherwise known as cold-blooded aggression. Aggression is seen more often in boys than girls and typically has different manifestations for each sex (Owens & MacMullin, 1995). Physical aggression (e.g., pushing, hitting) is more common for boys (Card et al., 2008), while relational (e.g., social exclusion, rumour starting and vilification) or indirect aggression has been historically found to be more common for girls (Hines & Fry, 1994), however more recent research has found similar levels of indirect aggression for boys and girls (Card et al., 2008). Regardless of sex, childhood aggression is a reliable predictor of later delinquent activity (Loeber & Hay, 1997) and conviction (Monahan & Piquero, 2009). Beyond this, aggression has been linked to poor school achievement and

nonattendance (Ensminger & Slusarcick, 1992), problem drinking (Pulkkinen & Pitkanen, 1994), and long-term unemployment in adulthood (Kokko & Pulkkinen, 2000).

Comparable to aggression, hyperactivity has also been linked to persistent academic difficulties and can involve restlessness, interrupting, heightened motor activity, fidgeting and inability to wait your turn. Hyperactivity is one feature of ADHD, which is the most prevalent neurodevelopmental disorder impacting an estimated 4.2% of Australian children aged 14 years and under (Deliotte Access Economics, 2019). Given that the current legal school leaving age is 17 in Australia, this disorder impacts a significant number of school-aged children across Australia. ADHD is associated with persistent academic difficulties, which results in increased use of educational remedial aids, repeating school years (Barkley, 2002; Biederman et al., 1996) and longer-term lower rates of high school graduation and tertiary education (Fergusson & Horwood, 1995; Hinshaw, 1992). Those with ADHD have higher rates of suspension and expulsion, than those without ADHD, which further contributes to poor academic achievement (LeFever et al., 2002). Longitudinal impacts include increased risk of criminality in adulthood (Mannuzza et al., 1991) and later antisocial behaviours (Lilienfeld & Waldman, 1990).

Other classroom problems are seen to be associated with childhood disruptive behaviours. These can include sensation-seeking, noncompliance, truancy, chronic lying and violation of others property and are common symptoms of Oppositional Defiant Disorder (ODD) (Ghosh, 2017). This disorder emerges in early childhood (Lavigne et al., 2001) and is thought to affect one in ten children (Burke et al., 2002; Nock et al., 2007). ODD is predictive of family conflict (Tseng, 2011), negative peer interactions inclusive of peer rejection, poorer academic attainment (Paap et al., 2013) and repetition of school years (Harpold et al., 2007). Some children with ODD will go on to develop Conduct Disorder (CD) which consists of increasing aggressive (Crider et al., 2018) and delinquent behaviours (Lahey et al., 1988). Given the predisposition for disruptive childhood behaviours to progress into later juvenile delinquency, adult criminal activity, and violence (Betz et al., 1995; Campbell et al., 1995) it is paramount that interventions target the early childhood years.

Parenting Behavioural Intervention Effectiveness

It is well documented that critical learning and development occurs in the first five years of a child's life (Campbell et al., 2015; Cooper et al., 2010). This learning establishes the baseline for school readiness and functioning in a classroom setting (Hart & Risely, 1995). Early intervention during this time allows for symptoms of child behaviour problems to be targeted early in the aim of preventing long time negative impacts (Webster-Stratton et al., 2004). Currently, parenting interventions are recommended as the best approach for addressing behaviour problems in children (Bernstein et al., 1996; Furlong et al., 2012; Paquette, 2004). These interventions operate on the supposition that parenting practices are connected to child behaviour problems (Webster-Stratton & Hammond, 1998). Through changing practices or providing education to parents, there is the expectation that child behaviour may be improved or, in the least, that the intervention may prevent worsening of child symptomology (Sanders & Dadds, 1992; Wierson & Forehand, 1994). Current interventions are benefitted by the diversity of delivery: group or individual sessions, face-to-face or remote, and utilising written or electronic resources (Enebrink et al., 2012; Kling et al., 2010). This allows for both local, national, and potentially global delivery.

Parenting intervention programs targeting child conduct problems have displayed encouraging results (Furlong et al., 2012; Sanders et al., 2014). Furthermore, Coates et al. (2014) found that for preschool children with ADHD, parenting interventions led to a reduction of problem behaviours. Programs targeting ADHD include the Incredible Years parenting program and the Triple P – Positive Parenting Program. Both programs promote attachment strengthening, provide behaviour management strategies, offer practical strategies for child social competence and emotional regulation in the aim of prevention, reduction and treatment of child behaviour problems (Jones et al., 2007; Sanders, 1999). A recent review of these programs documented moderate reductions in ADHD symptoms and conduct problems for children aged 3-12 years (Sartore et al., 2016). Other research has documented positive effects on externalising behaviours lasting 2 decades beyond the intervention (Comer et al., 2013; Sandler et al., 2011).

While these interventions aim to be inclusive of both parents, research has shown that fathers are largely absent in parenting interventions (Fletcher et al., 2011; Tully et al., 2017). Reviews on externalising and oppositional behaviour, and aggression (Flippin & Crais, 2011; Tiano & McNeil, 2005) have emphasised the underrepresentation of fathers in parenting programs (Phares et al. 2005). This parental discrepancy has been further reflected in behavioural parent training, commonly used to treat externalising behaviours in children, which has primarily been conducted with mothers (Budd & O'Brien, 1982; Tiano & McNeil, 2005). As both parents play a role in child development, neglecting to investigate the paternal impacts within parenting interventions, potentially limits the intervention effectiveness for child externalising behaviours. As such, future approaches should consider how parenting programs can better cater to fathers (Lundahl et al., 2008), to not only increase involvement, but to recognise the growing involvement of fathers in parenting (Palkovitz, 1996; Singh, 2004).

Causes of Lower Father Participation

Research has identified factors that may be contributing to fathers comparatively smaller representation in parenting interventions. Tully et al. (2017) surveyed 1001 fathers of children with externalising disorders aged between 2-16 years to gauge their perceptions and experience regarding interventions. They examined fathers' preferences for context, and delivery, and determined what barriers there were to participation and additionally what factors govern their decisions about participation. They identified 4 barrier themes: Practical, Knowledge, Attitudes and Beliefs, and Other. The main Practical barriers included work commitments, cost of the intervention service and not having time to participate. The Knowledge theme identified lack of information about program effectiveness, program locations, and programs in general as being barriers to participation. Interestingly fathers whose children were classified as having low levels of externalising disorders were more likely to report lack of knowledge as a barrier, compared to fathers of children with high levels of externalising disorders. This suggests that fathers with high externalising children may have had access to greater resources and knowledge about intervention

effectiveness prior to this survey. Within the Attitudes and Beliefs theme, there was an overt divide between the two father groups, with low externalising fathers reporting they did not see their child's behaviour as an issue and that they did not need help with their parenting, more often than high externalising fathers. Furthermore, barriers for participation documented a belief that programs are not suitable for fathers and that it was their children's problems that required treatment, not their parenting. This attitude was reported more often for fathers of high externalising children than low externalising children, suggesting that fathers of children with more extreme externalising behaviour, were more likely to see parenting interventions as less essential. Other barriers reported fear of judgement, discomfort in asking for help with child issues and 'maternal gatekeeping' whereby mothers attended interventions but did not encourage father participation, as obstacles for paternal participation.

In terms of program delivery: Internet-based parenting programs were rated as the most desired delivery format, followed by app based or phone sessions. Fathers reported primarily wanting one-off sessions including either one or both parents, followed by weekly group or individual sessions. Fathers rated location and time convenience as important factors as well as knowing about the benefits, what is involved and knowing that the facilitator is trained, as high importance. Interestingly lower ratings were given to having a male facilitator, as opposed to a female facilitator, having the program recommended by another father and receiving a personal invitation from the facilitator. This suggests that fathers prefer a parenting program to be run by a female and that they have control over their participation whereby their participation is not suggested by another party.

Other research has identified a lack of time and interest (Mitchell et al. 2007) as being responsible for lack of father participations. While similar to Tully et al. (2017), other surveys have indicated that fathers have either not been asked to participate or that mothers do not encourage their participation (Davison et al., 2017). No differences were observed for fathers in intact vs separated families. As such, it is apparent that barriers to paternal participation are multifaceted and

should be carefully considered when designing parenting interventions. As fathers spend more time playing with their children, compared to all other caregiving activities (Clarke-Stewart, 1978; Kazura, 2000; Yeung et al., 2001), this is a potential avenue for paternally informed parenting inventions.

The Current Study

In Chapter 4 we showed a relationship between RTP quality and externalising behaviours, whereby higher quality play was related to a reduction in conduct problems and an increase in prosocial abilities, furthermore we showed that negative paternal behaviour during play was associated with an increase in externalising behaviours. Research has documented the benefits of RTP in terms of children's self-regulation (Flanders et al., 2010; Séguin & Zelazo, 2005; StGeorge & Freeman, 2017), social development (Paquette, 2004; StGeorge et al., 2018) as well as decreased levels of aggression (Anderson et al., 2019; StGeorge & Freeman, 2017). These past research findings, taken with the findings of Chapter 4, and the knowledge that aggression (Card et al., 2008), self-regulation (Shiels & Hawk, 2010) and social difficulties (Lilienfeld & Waldman, 1990) are all noted issues related to externalising behaviour problems, there exists an opportunity to explore RTP as a father-focused intervention that could potentially benefit externalising behaviour problems.

The present feasibility study involved three groups: a RTP group, a developmental group, and a control group. The RTP group (the intervention group) was used to determine what, if any, impact information about high quality RTP interactions has on play quality. The developmental group was used as an active control group, whereby participants were given age-relevant information about their child's development during the intervention stage. The control group engaged in the pre and post intervention measures but did not receive any educational material during the intervention phase.

The main research questions are: 1. Will we be able to recruit the required number of participants and how long will it take to recruit them? 2. What do the refusal rates look like for the

recruited participants and what reasons will be supplied for not wanting to participate? 3. What do the retention and attrition rates look like for the recruited participants. 4. How engaged are participants in the intervention?

Method

Participants

Forty-five families participated in the study. The participants were recruited through flyers distributed in local preschools, online via Facebook advertising, and through the University of Newcastle's SONA online experimental management system. Thus, the participants consisted of the general population and University students. Participants were comprised of fathers (biological, stepfathers, grandfathers etc.), their respective partners, and their 4-5-year-old children. It is important to note that while the target age range was 4-5, some children turned 6 during the feasibility study and one child was 7 at the beginning of the study. Parents of these children were provided with updated child measures standardized for their age range. All participants were proficient in English. Fathers' mean age was 38.94 years ($SD=9.41$), (ranging from 27 years to 71 years), while the mean age for child participants was 4.86 years ($SD=.89$) (ranging from 3.90 years to 7.52 years) All families who participated in the study were entered into a draw to win an iPad (worth \$500). Families who completed Phase 1 (play and online questionnaires) were afforded a \$20 Giftpay voucher and another \$20 Giftpay voucher for completing Phase 3 (repeating the play and online questionnaires). Ethics approval to conduct this research was obtained from the University of Newcastle Human Research Ethics Committee (Approval No. H-2019-0212). Written consent for both father, partner and child, and child verbal assent was obtained prior to participation.

Measures

The measures used in this study were described in detail in Chapter 4. For this study fathers completed the Depression, Anxiety and Stress Scale (DASS) and the Parenting Stress Index

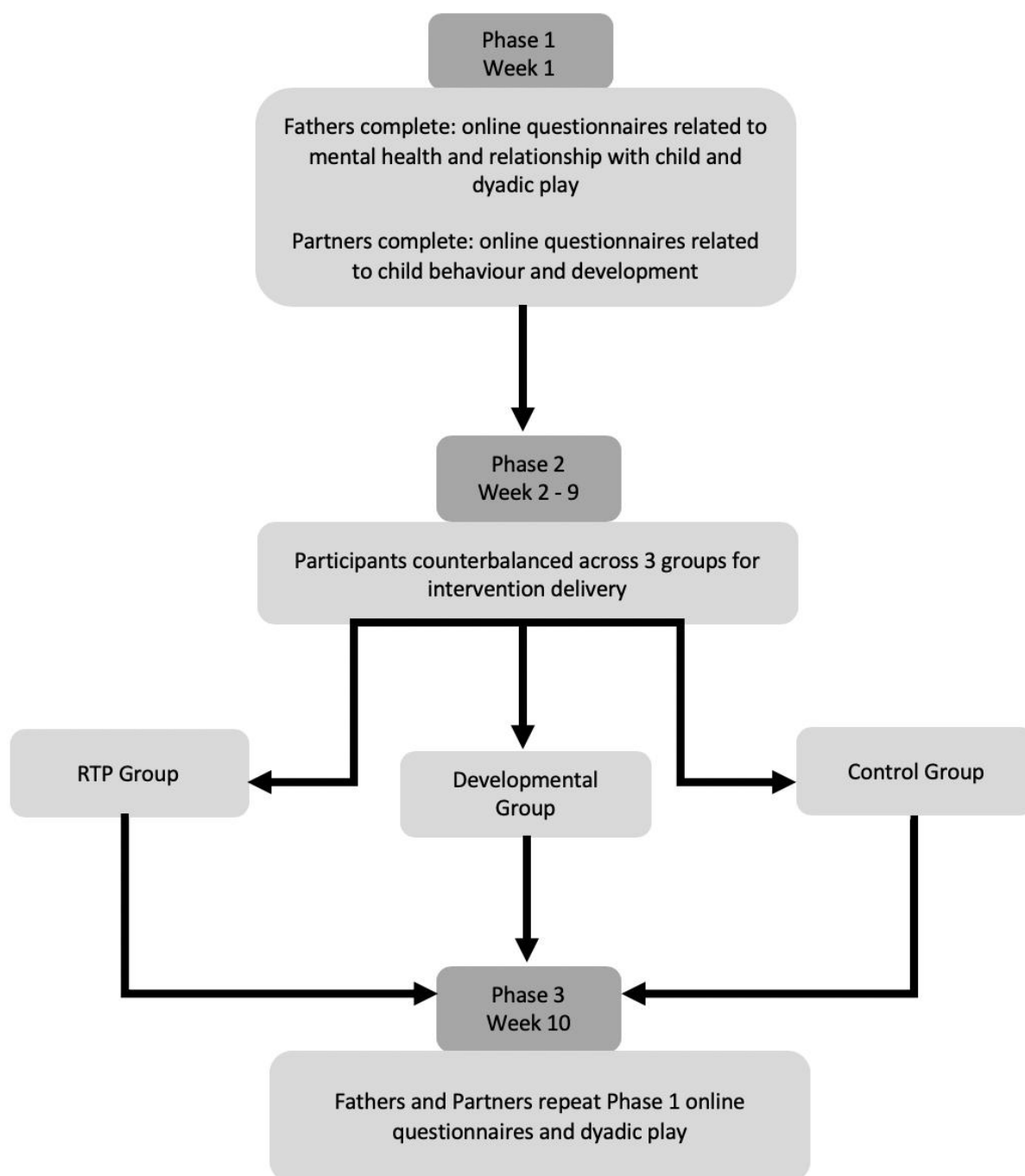
(PSI) to measure paternal mental health (see Appendix E-F) and the Child-Parent Relationship Scale (CPRS) to measure attachment (see Appendix G). Fathers also completed a demographic questionnaire relating to themselves and their child (see Appendix A). The demographic questionnaire asked about parent and child ages and gender, marital status, education, and income including hours of paid work each week. Mothers completed the Child Behavioural Checklist (CBCL) and the Strengths and Difficulties Questionnaire (SDQ) to measure child development (see Appendix B & D). The play was coded using the Rough and Tumble Play-Quality (RTP-Q) (see Appendix H) and the RTP Parent and Child Behaviour Scale (RTP-PCB) (see Appendix I).

Procedure

All testing measurements and observations of participants were conducted online. The testing was broken up into three phases across 10 weeks, as shown in Figure 5.1. Phase 1 consisted of a Father-child play session and an online survey for both father and partner. Father-child dyads were provided with the play instructions to undertake the play portion of the testing session which consisted of 10 minutes of RTP games: *Sock Wrestle* and *Get Up* described in Chapter 4 (see Appendix J). Participants were asked to conduct the play on a 2m x 1m area, indoors and away from household distractions such as tv, other family member and pets. Fathers completed the demographics questionnaire, three parent measures (DASS-SF, PIS and the PSI) and one relationship measure (CPRS). Partners completed child measures (SDQ and CBCL). All online measures took approximately 30 minutes to complete.

Figure 5.1

Feasibility tasks and structure across the 3 phases



On completion of Phase 1, participants entered into Phase 2, which was carried out across 8 weeks. Participants were counterbalanced across three groups for intervention delivery. At the beginning of each of the 8 weeks participants were sent an email with a link to the online questionnaire. The question format for each group can be seen in Table 1. All groups were provided

with 1 general question per week, which asked participants things like “How many hours sleep did your child get last night?”, “What has your child’s eating habits been like this week?” or “Does your child help tidy up their toys?” These questions were used as an engagement indicator to measure participant commitment to the research and determine attrition rates.

While the control group had only 1 question per week, both the developmental and RTP groups received a subsequent question within the same brief questionnaire. The developmental group was also asked a question about their child’s social, motor, language, or cognitive development each week. Questions asked participants things like “How does your child greet you? In what way is this similar/different to how they would greet someone new?” (social), “What kind of things does your child currently like to talk about?” (language), “What number can you child count to?” (cognitive) or “What physical activities has your child engaged in this week? Did you take part?” (motor). Upon providing a response to the developmental question, participants were given some information regarding what they should expect from typically developing child. This information related to the developmental question answered. For example, upon answering “Has your child drawn a picture this week? If so, what were its features?” (motor), participants received the following information: “At 4 to 5 years of age, children typically will be drawing pictures of people consisting of large heads that appear to have arms and legs.”

The RTP group’s subsequent question asked about their play interactions with their child. Questions asked participants things like “Who takes the lead when you play with your child?”, “Describe your level of energy when you play with your child” or “When you play games with your child who wins most?” Upon providing a response to the RTP question, participants were given some information about what high quality RTP looks like. This information was related to the RTP question they had answered and was intended to provide corrective feedback in the instances where the response they gave was not consistent with high quality play. For example, upon answering “Who takes the lead when you play with your child?”, participants received the following

information: “Allowing your child to take the lead and determine the direction/nature of the play is important.”

The final phase, Phase 3, consisted of repeating the Phase 1 play session and online questionnaires.

Data manipulation and Analysis

As this is a feasibility study, the analysis focused on the key parameters necessary for conducting a father-focused play intervention in the future. Most of the analysis was descriptive in nature. Feasibility outcomes were assessed through the number of participants recruited, recruitment duration, retention/attrition rates across the three phases (including a summary of reasons why interested parties did not consent to participating in the study), completion of questionnaires in phases one and three, and engagement in phase two surveys.

Results

The reasons for not wanting to participate, after an initial expression of interest in the study, are listed in Table 5.1. Over half of the individuals who expressed their interest, and who were not converted into participants, did not respond after receiving the study information. The most common reasons for participation refusal were family or father commitments, father not interested in the study and father did not want play recorded. When fathers contacted researchers to express their interest in the study, they were more likely to participate (53.57% conversion rate) than when mothers contacted researchers (42.86%).

Table 5.1
Recruitment Information Outline by Primary Correspondents

	Primary Correspondent	
	Mothers	Fathers
Reasons for participation refusal		
Father did not want play recorded	3	0
Father not interested in participation	5	0
No response after receiving study information	21	9
Father unable to commit to study given other commitments	2	3
Family unable to commit to the study given other commitments	6	0
Father reported study to be too time consuming	2	0
Father injured	1	0
Child out of study age range	0	1
Subtotal	40	13
Participants who consented to the study	30	15
Total	70	28

Note. Both parents consented to participation in the study Primary Correspondent represents the parent who initiated the contact with the researchers.

Most fathers in our sample were born in Australia and reported varied education levels (see Table 5.2). Tafe certificate, Tafe diploma and Bachelor degrees were the most frequently reported levels of education. While most fathers reported that their partner was the primary carer of the study child, 4 fathers reported themselves to be the primary carer. The most frequently reported annual household income was \$100,001-\$150,000, closely followed by \$50,001-\$100,000. This is on par with the Australian Bureau of Statistics (2019) report that noted \$116,584 as the average Australian household income.

There were more male child participants in our sample (58.33%) than female participants. Half of children were first born, a quarter were second born, and a quarter were their third born or 'other' (either fourth born child ($n=5$) or grandchild ($n=3$)).

Table 5.2*Descriptive Statistics - Demographics*

	N	Percent
Country of birth	36	
Australia	31	86.11
Malaysia	1	2.78
New Zealand	3	8.33
United Kingdom	1	2.78
Highest Level of Education	36	
Did not complete yr. 10	3	8.33
Completed yr. 10	2	5.55
Completed yr. 12	4	11.11
Tafe Certificate	7	19.44
Tafe Diploma	8	22.22
Bachelor's degree	9	25
Masters or PhD	3	8.33
Household Annual Income	36	
\$0-\$50,000	4	11.11
\$50,001-\$100,000	10	27.78
\$100,001-\$150,000	15	41.67
\$150,001+	7	19.44
Child Gender	36	
Female	15	41.67
Male	21	58.33
Carer Status	36	
Primary Carer	4	11.11
Partner is Primary Carer	32	88.89
Birth Order of Child	36	
First Born	18	50.00
Second Born	9	25.00
Third	1	2.78
Other	8	22.22

Most fathers reported normal depression, anxiety and stress levels as measured by the DASS (see Table 5.3), with a smaller number of fathers reporting some mild, moderate, severe symptoms. One father reported extremely severe depression, anxiety, and stress symptoms. Average PSI life stress ($M = 41.92$, $SD = 23.77$), child-related stress ($M = 51.31$, $SD = 25.61$), parenting-related stress ($M = 43.67$, $SD = 27.22$), and total stress scores ($M = 46.66$, $SD = 24.81$) fell within normal range.

Table 5.3*Father Symptom Severity as Measured by the DASS*

	Depression	Anxiety	Stress
Normal	30	33	26
Mild	3	2	6
Moderate	1	0	3
Severe	1	0	0
Extremely Severe	1	1	1

Of the 36 fathers who completed the Phase 1 questionnaires, 20 reported having a low conflict relationship with their child, 12 reported having moderate conflicts and 4 reported having a high conflict father-child relationship. Twenty-Five fathers reported being highly close with their child and ten fathers reported being moderately close to their child. One father reported low closeness. Most mothers reported that their children's behaviours were 'close to average' on the SDQ, however there was a spread of responses that categorised some children's behaviours as 'slightly raised', 'high' and 'very high' (see Table 5.4).

Table 5.4*Behavioural Problem and Strength Scale Frequencies as Measured by the SDQ*

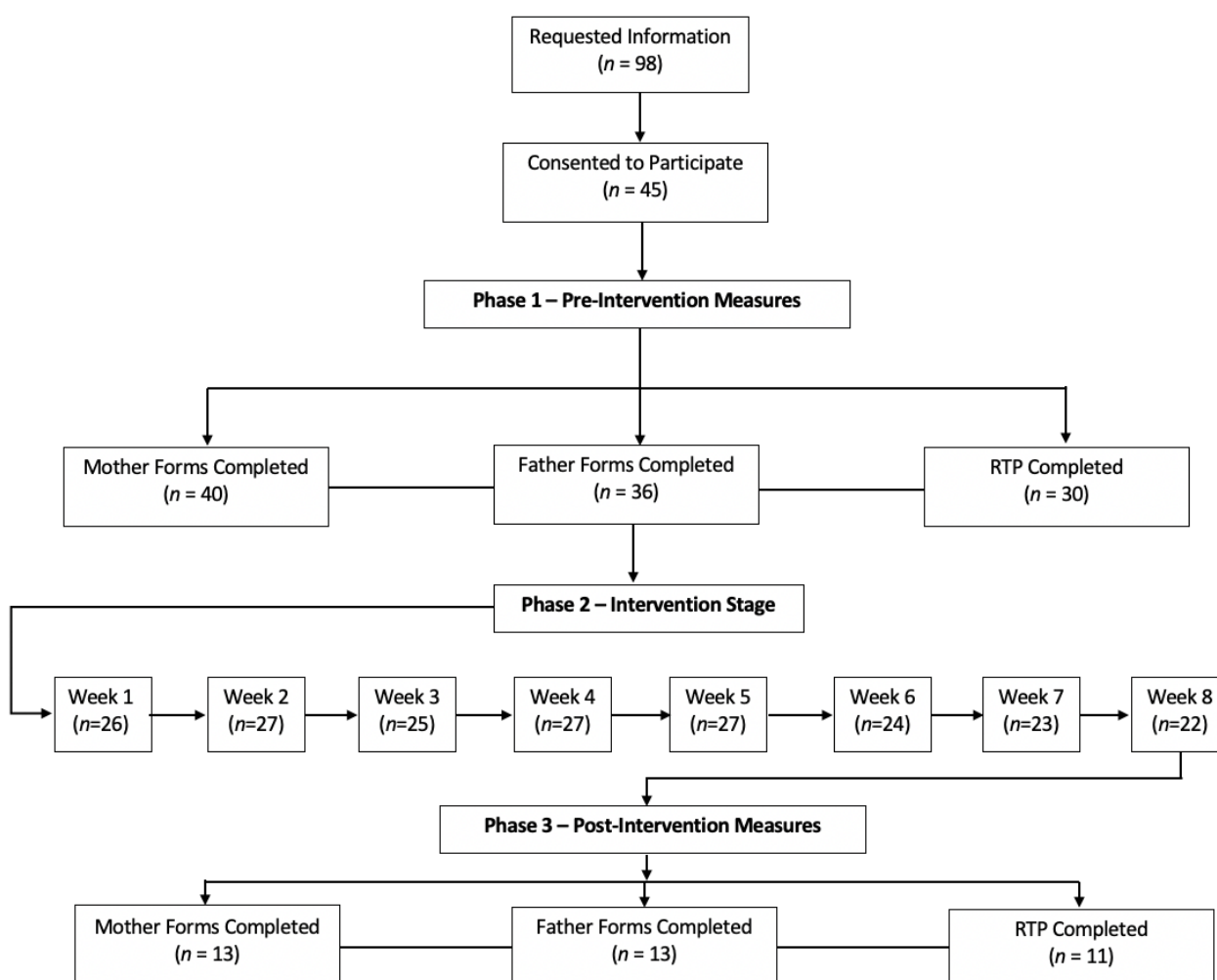
	Close to average	Slightly raised/(Slightly lowered*)	High/(low*)	very high/ (very low*)
Emotional Problems Scale	36	2	2	0
Conduct Problems Scale	25	6	7	2
Hyperactivity Scale	25	6	7	2
Peer Problems Scale	18	2	9	11
Prosocial Scale	22	7*	3*	8*
Total Difficulties Score	27	5	4	4
Externalising Score	20	12	5	3
Internalising Score	27	10	3	0

Scores on the CBCL indicated that children's behaviour and emotions, as reported by mothers on the CBCL, fell within 'normal' range more frequently than any other category (see Table 5.5). Across internalising, externalising, and DSM-5 related scales, some children showed borderline and clinical levels of behaviour and emotion problems.

Table 5.5*Behavioural and Emotional Problem Scale Frequencies as Measured by the CBCL*

	Normal	Borderline	Clinical
Internalising Problems	33	4	2
Externalising Problems	33	2	4
Total Problems	25	6	7
DSM-5 Depression	29	4	6
DSM-5 Anxiety	27	3	9
DSM-5 ADHD	30	5	4
DSM-5 ODD	25	3	11

The progression of participants throughout the study phases can be seen in Figure 5.2.

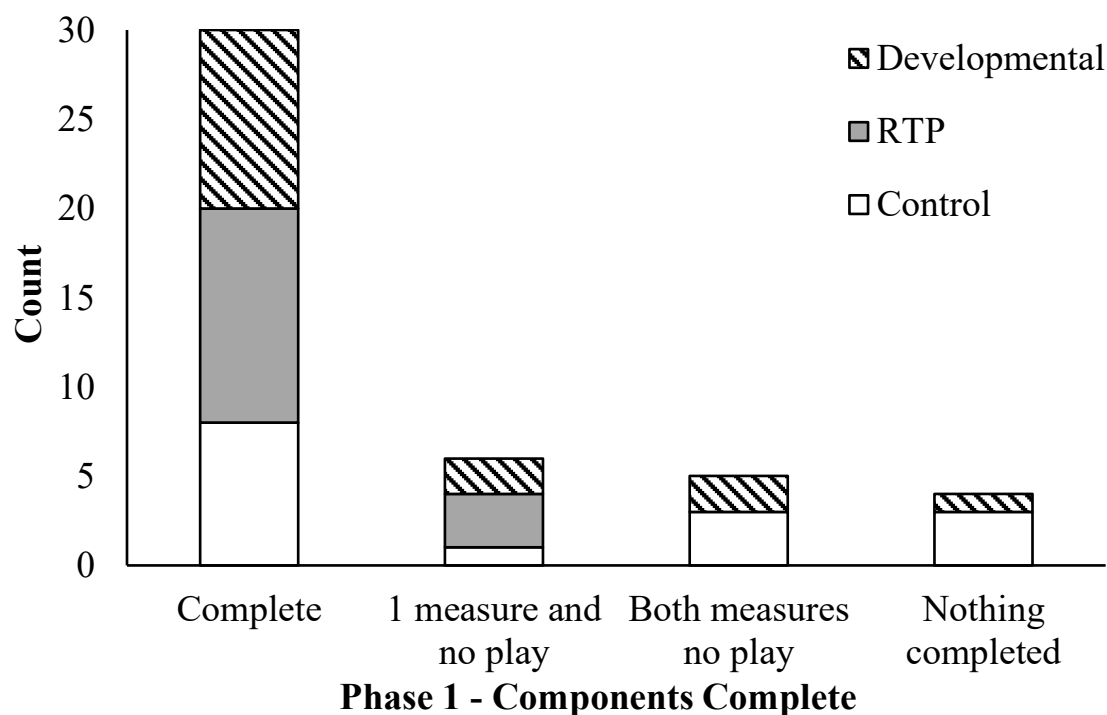
Figure 5.2*Study Progression Flowchart Across Study Phases*

Thirty families completed all Phase 1 components and proceeded to Phase 2 (Developmental group = 10, RTP = 12, Control = 8) (see Figure 5.3). Six families completed one of the parent

measures and no play and five families complete both parent measures and no play. Four families completed none of the Phase 1 required components.

Figure 5.3

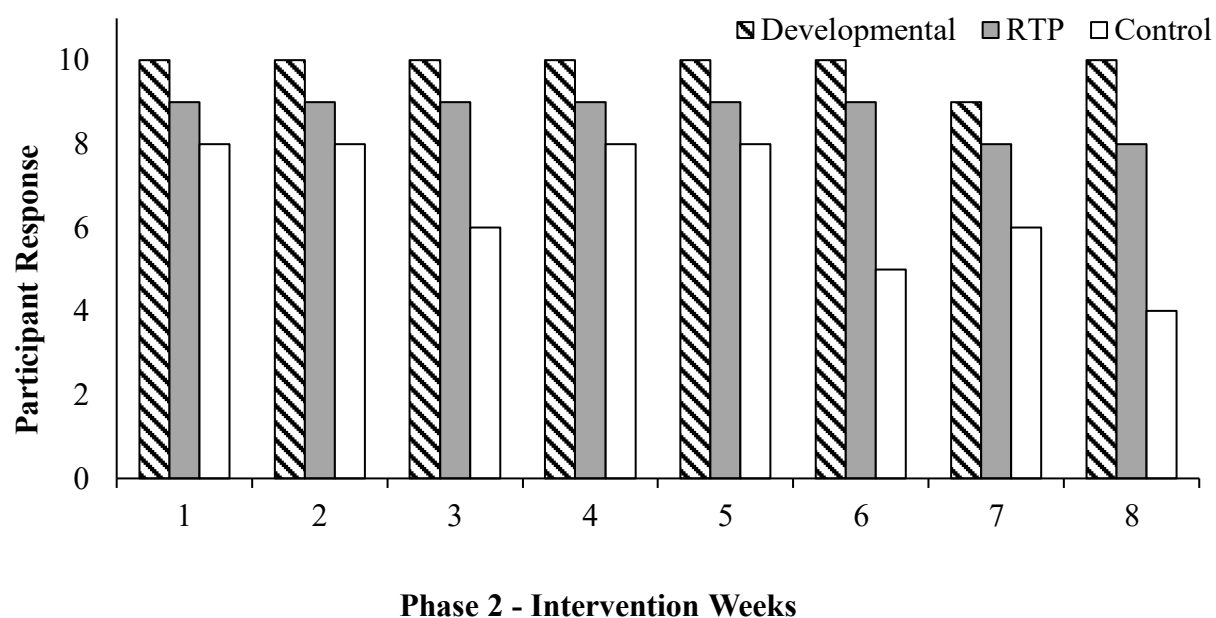
Phase 1 Breakdown of Completed Components for Each Participant Group



Participant engagement across Phase 2 was relatively consistent for both the Development and RTP groups, with a single participant response decrease noted in week 7 (see Figure 5.4). This decrease remained in week 8 for the RTP group but not for the developmental group who regained the previous response engagement. The control group showed greater variance in participant engagement across the 8-week intervention. While the response rate from the control group was varied, all families responded at least once during Phase 2. The developmental group also had all families respond during Phase 2. Three of the 12 families allocated to the RTP groups did not respond at all during Phase 2.

Figure 5.4

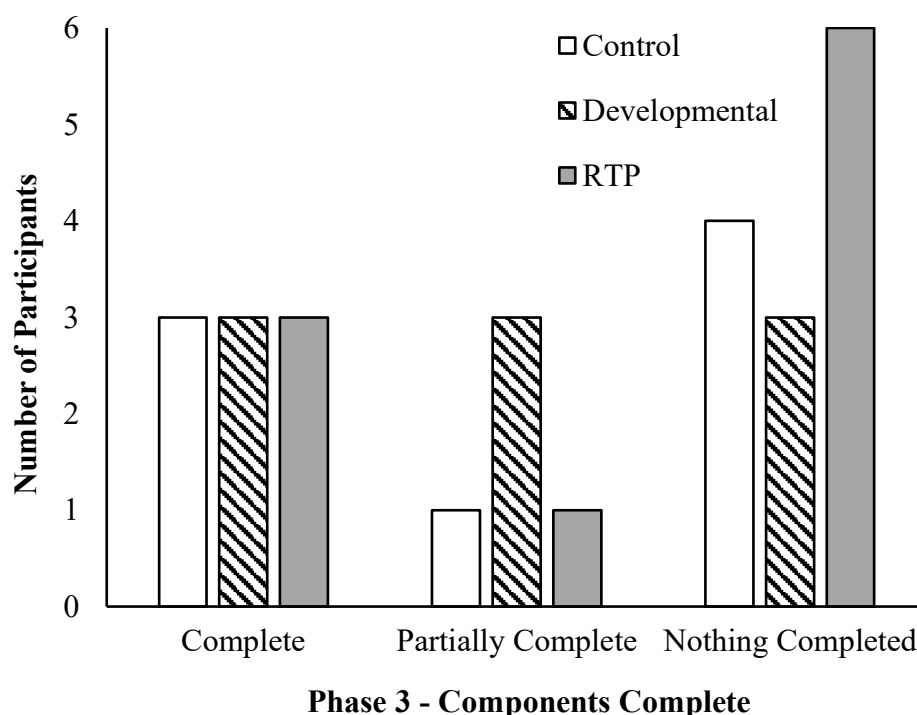
Participant Engagement Across Phase 2 (Intervention) for Each Participant Group



Nine families completed all Phase 3 components (Developmental group = 3, RTP = 3, Control = 3) (see Figure 5.5). Five families partially completed the required components with two fathers completing only their measures, two mothers completing only their measures and one family completing only the play. Thirteen families completed none of the Phase 3 required components (Developmental group = 3, RTP = 6, Control = 3).

Figure 5.5

Phase 3 Breakdown of Completed Components for Each Participant Group



To examine whether there were particular characteristics of the subset of families (N=14) who undertook all three phases of the intervention (and at a minimum completed some components of Phase 3) comparisons were made with the starting study population. Children from the Phase 3 subset families showed lower mean scores on all problem scales of the CBCL, compared to the study population. Further, the study population displayed higher mean scores on SDQ emotional problems, conduct problems, the hyperactivity scale, total difficulties, and externalising scores for children compared to the subset. Conversely, the subset children exhibited higher mean scores for peer problems and internalising scores but were rated higher on the prosocial scale than the study population. Subset fathers reported higher average depression, anxiety, and stress scores on the DASS, and higher child-related, parenting-related, and total-stress scores on the PSI compared to the study population. However, the study population showed slightly higher life stress mean scores compared to the subset. RTP-Q, CPRS conflicts and positive aspects mean scores were similar for both the study population and the subset (see Table 5.6). Welch's t-tests examining differences

between the study population and the Phase 3 subset families for CBCL, DASS, PSI, CPRS and SDQ scores revealed no significant differences.

Table 5.6

Means and Standard Deviations for the Study Population in the intervention and the Subset of Families who undertook components of Phase 3

		Study Population		Phase 3 Subset Families	
CBCL		Mean	Std	Mean	Std
	Internalising	51.74	10.81	47.64	9.66
	Externalising	52.23	13.88	49.07	10.83
	Total problems	40.538	7.29	38.36	4.58
	Depression	3.33	2.94	2.43	1.87
	Anxiety	4.10	3.19	4	3.08
	ADHD	4.77	3.45	4.5	3.08
	ODD	4.36	3.65	3.64	2.98
DASS					
	Depression	4.22	6.87	5.21	8.98
	Anxiety	2.67	3.70	3.71	5.21
	Stress	10.47	7.81	11.93	8.66
PSI					
	Life Stress	40.91	23.77	39.69	24.58
	Child Stress	51.31	25.61	52.31	18.25
	Parent Domain	46.83	29.45	51.85	28.18
	Total Stress	46.66	24.81	52.62	19.30
CPRS					
	Conflicts	27.92	8.10	28.71	9.04
	Positive Aspects	42.28	4.66	41.86	3.72
SDQ					
	Emotional Problems	1.58	1.43	1.21	1.31
	Conduct Problems	2.38	1.94	2	1.84
	Hyperactivity Scale	4.68	2.62	3.64	2.06
	Peer Problems	3	2.54	3.5	2.07
	Prosocial Scale	7.63	2.32	8.43	1.91
	Total Difficulties	11.63	5.94	10.36	3.37
	Externalising Score	7.05	3.84	5.64	2.41
	Internalising Score	4.58	3.09	4.71	2.20
RTP-Q					
		66.51	12.55	66.96	11.30

Discussion

By reflecting upon the outcomes of Tully et al's survey (2017) and considering the working hours of fathers, providing flexibility in the intervention delivery, and utilizing a popular father-child play activity (RTP), we recruited the 45 families into the intervention. Julious (2005) suggested a 'rule of thumb' number of 12 per group for feasibility studies, while Littlewood and Badenhorst et al. (2019) proposed a total sample of 20-30 participants and Sim and Lewis (2012) advocated for 40-50 participants in full. Based upon these findings, 45 families is an acceptable amount for evaluating the feasibility of a 3 group intervention (15 in each group).

It took 11 months to recruit these families into this study. This was a great feat given that this study took place during the COVID-19 global pandemic and continued during fluctuating lockdowns across Australia. This sample contained fathers who, on the whole, presented with normal range depression, anxiety, and stress scores and who reported having low conflicts and high closeness with their children. Children in this sample had normal range emotional, social, and behavioural development as reported by mothers.

Despite achieving the desired recruitment number, it is important to note that while we had 128 individuals express their interest in the study, we converted only 35.15% of these individuals into participants. Despite being a father-focused intervention, some of the main reasons for not converting expressions of interests (EOIs) into participants was the fathers were not interested or had personal or familial commitments that prevented participation. This complements the findings of Tully et al. (2017) who noted lack of time and/or interest as key reasons for participation refusal. Additionally, fathers reported not wanting the play to be recorded was a common reason for participation refusal.

While we cannot avoid the play being recorded, given that the purpose of this feasibility study is to determine whether this intervention could improve father-child RTP quality which is coded via recordings, we could reduce the impact of the study interfering with family commitments by delivering Phase 1 and Phase 3 in person. This would reduce burden on families having to set up

play recordings, remove the impact of other family members being in the room for the play and ensure that both parental measures are completed simultaneously. However, by delivering these phases in-person, we remove the flexible delivery that fathers requested in past research and reduce the reach of participants, thus reducing our possible participants. Future research should consider these factors and decide upon the most beneficial delivery format of the intervention to capture the most participants and provide them with the most convenient intervention experience. This may take the form of a dual delivery format, whereby families specify if they would prefer online or in-person delivery of Phase 1 and Phase 3.

In instances when fathers contacted researchers to express their interest, they were more likely to participate than when mothers contacted researchers. This highlights the importance of ensuring the study appeals to the intended demographic and future interventions should look to adapt recruitment techniques to target fathers. Recruitment may better target fathers through sporting venues, events, and specific workplaces (Berlyn et al., 2008).

Thirty families completed all required components of Phase 1, amounting to a 33.33% attrition rate prior to intervention. Twenty-two families completed all 8 weeks of the intervention, indicating a further 26.67% attrition rate during intervention. Thus, we found that the overall attrition rate prior to and during the intervention was 60%. This is higher than the 50% attrition rate that has been found in some past research (Chacko et al., 2016; Hall & Bierman, 2015). However, Macdonell and Prinz (2017) reported that attrition rates for parenting interventions may be underestimated due to many studies reporting only the percentage of the program completed, rather than reporting the number of parents who completed programs in their entirety. Further explanations for this difference may be accounted for by the global pandemic in which the current study took place. Nine families completed all components of the intervention program (pre-intervention, intervention, and post-intervention), making up 20% of our sample. This is higher than the completion rate of 15% that has been found in past research (Owen & Hutchings, 2017; Sanders et al., 2012).

The developmental and RTP groups showed more consistent engagement across the 8-week intervention compared to the control group. The educational information provided each week during the intervention may have served to provide consistent rewards to participants during this stage, which has had proven benefits on engagement, albeit in an employment setting, in the past (Harter, Schmidt & Hayes, 2002; Macey & Schneider, 2008). The effectiveness of educational rewards on participant engagement throughout the 8-week intervention, provides a promising scaffold for future interventions.

When examining the characteristics of the subset of families who undertook all three phases of the intervention (and at a minimum completed some components of Phase 3), it became clear that fathers of this subset had higher depression, anxiety and stress scores compared to the study population, although the differences were not statistically significant. Thus, it appears that when fathers present with greater paternal mental health problems, they are more likely to complete the full intervention program. No differences in quality of RTP, the conflicts or positive aspects of the dyadic relationship between the two groups were found. Thus, it does not appear that quality of play or the father-child relationship, impacts the likelihood of undertaking of the full intervention program. The study population showed higher emotional, conduct, hyperactivity, externalising and total difficulties and lower prosocial scores than the subset. However, the subset displayed higher peer problems and internalising scores than the study population. Furthermore, when children have fewer behaviour and emotional problems, and higher prosocial abilities families were more likely to undertake all the phases of the intervention. It is important to note that while there was difference in the aforementioned scores, these were not found to be significant. It appears that a combination of higher paternal mental health problems and lower childhood emotional and behavioural problems, increases the retention rates for fathers. This is interesting as this study aimed to examine the feasibility of a father-focussed behavioural intervention for the reduction of childhood externalising behaviour problems, however it is apparent that families of children with higher externalising behaviours within our study population did not tend to undertake in all phases of the intervention. It

is possible that once the 8-week intervention stage is complete that fathers deem that they are obtained enough educational information to cease the program, thus not completing the post-intervention measures. This is problematic as we cannot determine the efficacy of the intervention without pre-post comparisons. Future amendments to this intervention could emphasise the rationale for Phase 3 to participants and may serve to obtain a higher retention rate for the full program.

Despite being conducted during a global pandemic, the present feasibility study presented promising results for a broader pilot study to further explore the efficacy of this proposed intervention. The present study achieved similar attrition rates during intervention to, and higher retention rates for the full program than, past intervention averages. Furthermore, we identified specific characteristics of the participants who completed the full intervention, which will need to be considered in the future to ensure we retain families with children with externalising difficulties for the full extent of the program. Additionally, we demonstrated the value of using educational information to reward participants and encourage engagement across the 8-week intervention. We encourage the use of this technique for future intervention studies. Finally, to overcome the time-burden on families a dual delivery format was proposed. This dual delivery format should be utilised in the future to provide families with further flexibility, as delivery format, location, and time convenience has, in the past, been stressed by fathers as an important consideration for intervention participation (Tully et al., 2017).

Chapter Six: General Discussion

The aim of the present research was to increase our understanding of the impact that father-child play has on child development. A particular focus of the research was rough-and-tumble play and the underlying aspects of the play interactions that contribute to child development. To gain a holistic understanding of the topic, paternal mental health and child externalising and internalising behaviour problems were examined. This general discussion chapter first presents a short synopsis of the empirical research undertaken and key findings before discussing potential explanations for these results. Suggested avenues for future research and implications of the present research findings are presented throughout the general discussion.

Key Findings on the Relationship Between Father-Child Play and Child Development

Chapter 1 explored the broad impacts of play on child development and explained the need to adopt a father focus throughout the present research. Then, an overview of play types to be explored within this thesis were presented, outlining the unique contributions that different play types make to child development. Furthermore, the implications of paternal and child mental health factors were considered. This highlighted the need to adopt a comprehensive approach to examining how father-child play impacts child development.

The systematic review, presented in Chapter 2, was the first stage of this research and served to provide a comprehensive overview of the father-child play literature to date. The results of the systematic review indicated that research in this field has explored 9 different play types and child emotional/behavioural outcomes were the most explored child outcome category, followed by cognitive and achievement outcomes. Thus, research has heavily focused on how paternal play impacts children's emotional and behavioural functioning. Given the long-term implications of internalising and externalising behaviours described throughout, this direction of research is understandable. It was also uncovered that research has primarily used objective measures to quantify developmental outcomes, which is indicative of measurement consistency, allowing us to

have confidence in the relationships that have been reported. The studies in the systematic review focused on positive child developmental outcomes, or outcomes which are beneficial for child development such as prosocial ability, emotional regulation, or cognitive ability. While it is comprehensible that researchers want to educate the scientific and general community about how to engage in play to produce the most advantageous outcomes for children, it is important that negative outcomes are also explored. This thesis has not shied away from child developmental problems, but instead, has explored the way in which play is related to these problems and how play can be used to improve these problems. Overall, the systemic review revealed that relationships between father-child play and child developmental outcomes were in the directions we would expect, with positive play behaviours primarily associated with positive child outcomes and negative play behaviours primarily associated with negative child outcomes.

After gaining a broad understanding of the father-child play literature thus far, the main aim of Chapter 3, was to investigate the prevalence of parent-child play interactions in Australian families. While this study was the first of its kind to explore play prevalence in Australia, it also contributed to the limited international prevalence knowledge of the included interactions. The results of this study indicated that both mothers and fathers believed reading to be the most important activity for their child's development. In line with this, mothers engaged in reading more than any other activity, while fathers engaged in RTP the most. This supported past findings that RTP is the preferred play type of fathers (Fletcher et al., 2012). Furthermore, parents engaged more frequently in RTP with their sons than their daughters, which has been consistently reported in the literature (Pelligrini, 2009). As this study was conducted during the global pandemic, we explored the impact of the COVID-19 pandemic on play interactions. There was an overall decrease in interactions from pre to post COVID-19 onset. Thus, despite lockdowns and parents spending more time at home with their children, they were interacting with them less. Given the mental health impacts of the pandemic and taken with the decrease in familial income, these findings are explainable. In addition, this study demonstrated that parental play perceptions of importance, and

enjoyment of play impacted play prevalence. That is to say, the more the parent enjoyed the play and the more important they viewed the play to be, the more they engaged in it.

Given the preference for fathers to engage in RTP more so than mothers, the relationship between father-child rough-and-tumble play and child development was assessed in Chapter 4. This chapter also considered the implications of paternal mental health and various demographic factors. Findings of this study demonstrated that higher play quality was associated with reduced conduct problems and increased prosocial skills. Indicative of the benefits of decreased aggression (Anderson et al., 2017) and improved prosocial awareness that has been boasted in past research (Pellegrini and Smith, 1998). Moreover, father sensitivity was related to child internalising problems (e.g., anxiety), such that fathers were exhibiting more sensitivity in their play when their children were increasingly anxious or socially withdrawn. Conversely, when fathers or their children were negative during play (consistent with lower quality play), this was related to externalising behaviour problems. This is unsurprising as externalising behaviour problems are related to negative emotionality (Lipscomb et al., 2012).

Demographic factors were also considered and given that Chapter 3 demonstrated that boys receive more RTP interactions than girls, this was explored. There was a near even spread of boys and girls within our sample and we found that although fathers were more detached when playing with their daughters, no other significant play differences were found. This is enthralling, as despite boys receiving more RTP than girls, when fathers are engaging in RTP with their daughters, the quality of play is just as good as with their sons. We also found that fathers were more positive when engaging with younger children, displaying more warmth, concern for distress and physical affection, than when they played with their older children. Interestingly, primary carer status impacted father negativity, with fathers displaying more negativity during play if they were the primary carer and lower negativity when their partner was the primary carer. As primary carer status is linked to increased stress (Pinquart & Sörensen, 2006, 2007), this may be impacting the father-child play relationship. Beyond this, when examining paternal mental health, we found that

paternal stress predicted conflicts within the father-child attachment relationship and additionally, paternal depression, anxiety and stress were all related to child negativity. Thus, it was apparent that paternal mental health, and child internalising and externalising behaviour problems are important factors to consider when conducting RTP research.

While both internalising and externalising behaviour problems were related to RTP in Chapter 4, children with externalising behaviour problems are more vulnerable to the subsequent development of internalising behaviour problems (Van Lier & Koot, 2010). This, taken with the fact that high quality RTP has benefits for emotional regulation (Peterson & Flanders, 2005) and prosocial skills (Lindsey et al., 1997b; Scott & Panksepp, 2003), Chapter 5 explored the feasibility of utilising RTP to reduce child externalising behaviour problems.

This feasibility study recruited an acceptable number of participants, despite fluctuating lockdowns during a global pandemic. Common reasons for participation refusal echoed those found in past research (Tully et al., 2017), with fathers noting lack of time and/or interest as the main reasons for refusal. Thus, despite creating a father-focused intervention and delivering it in a flexible format to work around fathers' schedules, the same themes arose. Attrition rates for the feasibility study were higher than in previous research (Chacko et al., 2016; Hall & Bierman, 2015), but the completion rates were higher than past research (Owen & Hutchings, 2017; Sanders et al., 2012). Thus, while we had more participants drop out during the intervention, compared to past studies, we also had more participants complete the intervention program in its entirety. This increase in completion rates may be attributable to the format of the intervention itself. Within the intervention phase participants in the developmental and RTP groups received educational material each week. The educational material presented during this intervention served as consistent rewards during this stage and lead to improved engagement for the developmental and RTP groups, which is promising for future interventions using this type of design. Furthermore, this study identified characteristics of the subset of participants who completed the full intervention (e.g., higher paternal mental health problems, lower child behavioural and emotional problems). While analyses revealed

the characteristics of this subset were not statistically different than the study population, it still provides important consideration points. For example, as this intervention aims to improve externalising behaviour problems in children, the fact that the subset of children who completed the intervention program in its entirety had lower internalising and externalising behaviours problems is problematic, as we fail to determine the effectivity of the intervention for the children who need it most. Thus, it is important that future research emphasise the rationale behind completing the intervention; to obtain the post intervention measures and evaluate the program.

To summarise, there are many factors that impact the way in which fathers engage in play with their children, and thus the developmental outcomes children receive from that play. The quality of parent-child play contributes towards the child developmental trajectory, with higher quality play resulting in benefits for children, while lower quality play results in disadvantages. Mental health is shown to influence the way in which parents interact with their children, with poorer mental health demonstrating negative impacts for play quality. Furthermore, parental enjoyment and perceptions of importance additionally impact how often parents engage in play with their children, engaging more often when they enjoy the play and when they think it is of benefit to their child's development. Mothers particularly enjoy less-physical interactions with their children (e.g., book reading or toy play) while fathers enjoy more physical interactions (e.g., RTP). High quality RTP teaches children important social, emotional, and behavioural skills and provides the opportunity to reduce externalising behaviour problems in children through an RTP intervention. Utilising flexible delivery and educational information throughout the RTP intervention contributes to benefits for participant engagement and completion of the intervention program. Considerations for future research are discussed below.

Where to from here?

Despite many noteworthy findings presented within these chapters, there is still much to learn, and the research conducted within has brought to light some potential opportunities for future research. Firstly, the majority of RTP research has been conducted in Western-individualist

populations and neglected to investigate these interactions in collectivist cultures where father-child interactions may differ (Flanders et al., 2009; Ho, 1987; St George, et al., 2016). Research by Chao (1996, 2000) reported that Asian parents placed greater importance on education, rather than play to benefit child development, while parents from the United States believed that play was more important in building strong social and cognitive skills. This lower preference of play has also been reported in Taiwanese (Lin & Yawkey, 2013) and Chinese research (Jiang & Han 2016). Luo et al. (2013) reported that Confucian cultures, the dominant Chinese culture, views play as frivolous and harmful to children's learning (Luo et al., 2013). Thus, while the research demonstrates variability in play beliefs and practices cross-culturally, there remains a need to explore father-child play interactions to better understand how play practices might impact on children's development.

While past research examined perceived importance in play more broadly (Farver & Wimbari, 1995; Holmes, 2011), the present research presented the first prevalence study into the parental perceptions of importance for RTP. Whilst we received a large response for this survey, it is important that this study continue to gather ongoing evidence for RTP prevalence rates in Australian families longitudinally. This will allow researchers to gain a more accurate representation of RTP interactions long-term and additionally enable researchers to determine the ongoing impacts of COVID-19 pandemic on familial interactions. This longitudinal research should also consider further exploring the impact of child age on RTP prevalence, as the present research found that 1-3-year old's were engaging in parent-child RTP interactions more frequently, compared to their older cohort. Despite being similar to previous research that found that RTP interactions peak around 4 years of age (Haight & Miller, 1993), this study found a slightly younger peak age for RTP. Thus, further consideration of child age can serve to determine if the peak age for RTP interactions is categorically lower in Australia compared to other nations. Additionally, this proposed longitudinal study can further examine the finding of comparable RTP frequency levels for mother and fathers in Australia. The findings from this study also established the need to

explore maternal influences in future research, as mothers have been overlooked in RTP research to date.

Further opportunities for improvements in future research stem from the low conversion rates from enquiries to participation. Despite following recommendations made by Tully et al. (2017) and thus creating a father-focused online intervention with flexible participation based upon participants schedules, we saw similar reasons for participation refusal. In addition to the common reasons of lack of interest or time commitments as barriers to participation, participants were opposed to being filmed. It is imperative to record play to code the quality of RTP interactions, thus while we cannot avoid the need to record, we could reduce the impact of the study interfering with family commitments by offering a dual-delivery mode. This would take the form of families having the option to have Phase 1 and Phase 3 in person or online. Face-to-face delivery of the pre and post intervention measures, and play, would remove the impact of juggling filming while having other children at home, however it may be a proximity issue for rural or remote participants, causing further barriers to participants. Thus, having both formats available may aid in capturing more participants and moreover, enable them to choose the most convenient delivery method to suit their family. Additionally, it would be informative to not only run this feasibility study in dual format, but to additionally explore the attrition and full completion rates during a time where there is more global stability. We hypothesised that attrition rates may have been attributable to the COVID-19 pandemic and fluctuating lockdowns. Future research could serve as a comparison point to evaluate the credibility of our claim.

When we explored the relationship between RTP and attachment, no significant relationships emerged. We specifically chose to explore a reduced model that considered only parent-child attachment. Thus, prospective research should consider individual attachment patterns for both children and adults. This approach may allow the detection of other attachment patterns

within RTP interactions and furthermore, operate to compare these individual attachment presentations to parent-child specific attachment outcomes.

Finally, the RTP-PCB, a scale adapted for use within the present research, showed consistent relationships with the RTP-Q scale. This is promising as it allows researchers to explore a broad range of parenting-child behaviours during RTP, beyond play quality alone. Therefore, forthcoming RTP research should look to utilise this scale to obtain a broader perspective on the ways in which RTP factors (e.g., sensitivity, negative regard, dyadic connectedness) impacts child development.

Final Conclusion

The aim of the present research was to increase our understanding of the impact that father-child play has on child development. It is clear from our work that positive parenting behaviours (e.g., sensitivity and positive affect) and high quality play interactions are related to positive child developmental trajectories. These positive aspects included not only specific facets of child development, such as emotion regulation, social competence, and fluid intelligence, but also broader aspects such as internalising and externalising behaviour problems. This is important given these are things that can set the child on a solid pathway to adulthood. We also learned important things about parental perceptions of play, their enjoyment of different play activities, and the impact this has on engagement in play. The cumulation of these findings was our promising pilot intervention study. The present research has provided valuable insights for further study into the intricacies of the relationship between father-child RTP, mental health and child development.

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Appendices

Appendix A: Demographic Questionnaire Used in Chapter 4 and 5

Demographic Questionnaire

1. What was your age last birthday? _____ years

2. In what country were you born? _____

3. What was the first language you learnt to speak? _____

5. What is your current marital status?

- ☐ Married
- ☐ Divorced
- ☐ DeFacto

4. Which cultural background(s) do you identify with?

- | | | |
|--------------------------------------|-------------------------------------|---|
| ☐ Argentinian | ☐ Japanese | ☐ Russian |
| ☐ Bangladeshi | ☐ Korean | ☐ Serbian |
| ☐ Brazilian | ☐ Lebanese | ☐ Singaporean |
| ☐ Chinese | ☐ Malaysian | ☐ Sri Lankan |
| ☐ Caucasian | ☐ Mexican | ☐ Taiwanese |
| ☐ Egyptian | ☐ Moroccan | ☐ Turkish |
| ☐ Filipino | ☐ Nepalese | ☐ Vietnamese |
| ☐ Greek | ☐ Pakistani | ☐ Other (Please Specify) |
| ☐ Indian | ☐ Polynesian | _____ |
| ☐ Indonesian | ☐ Portuguese | |

6. What is your highest level of education completed?

- ☐ Did not complete Year 10
- ☐ Completed Year 10
- ☐ Completed Year 12
- ☐ Tafe Certificate
- ☐ Tafe Diploma
- ☐ Bachelor Degree
- ☐ Masters or PhD

7. What is your current employment status?

- ☐ Employed, including self-employed
- ☐ Unemployed – actively looking for a job
- ☐ Not in labour force (e.g., stay-at-home parent; volunteer; student; retired; not looking for a job) Please state: _____

8. What is your current family income before deductions

- ☐ \$0 - \$50,000
- ☐ \$50,001 - \$100,000
- ☐ \$100,001 - \$150,000
- ☐ \$150,001 +

9. How many paid working hours do you undertake each week? ____ hours

10. What is the gender of the child who is participating in this research?

- ☐ Male
- ☐ Female

11. What is the birth order of this child?

- ☐ First born
- ☐ Second
- ☐ Other, please state _____

12. What is the birthdate of this child? ____/____/____

13. Who is the Primary carer for this child?

- ☐ I am the child's Primary Carer
- ☐ My partner is the child's Primary Carer

14. Are you willing to be contacted about further research with parents and children?

- ☐ Yes
- ☐ No

Appendix B: Child Behaviour Checklist for Ages 1.5-5 and 6-18 Used in Chapter 4 and 5

Please circle each word that the child says SPONTANEOUSLY (not just imitates or understands). If your child says non-English versions of words on the list, circle the English word and write the first letter of the language (e.g., S for Spanish). Please include words even if they are not pronounced clearly or are in "baby talk" (for example, "baba" for bottle).

FOODS	ANIMALS	ACTIONS	HOUSEHOLD	MODIFIERS	OTHER
1. apple	55. bear	107. bath	163. bathtub	216. any letter	264. any letter
2. banana	56. bee	108. breakfast	164. bed	217. all right	265. away
3. bread	57. bird	109. bring	165. blanket	218. bad	266. boot
4. butter	58. bug	110. catch	166. bowl	219. big	267. bubble
5. cake	59. bunny	111. clap	167. bottle	220. black	268. excuse me
6. candy	60. cat	112. close	168. chair	221. blue	269. here
7. cereal	61. chicken	113. come	169. clock	222. broken	270. hi/Hello
8. cheese	62. cow	114. cough	170. clock	223. clean	271. in
9. coffee	63. dog	115. cut	171. cup	224. cold	272. me
10. cookie	64. duck	116. dance	172. door	225. coat	273. meow
11. crackers	65. elephant	117. dancer	173. floor	226. dark	274. my
12. drink	66. fish	118. do	174. fork	227. dirty	275. myself
13. egg	67. frog	119. do/dodo	175. glass	228. good	276. night/night
14. food	68. horse	120. eat	176. knife	229. happy	277. no
15. grapes	69. monkey	121. feel	177. light	230. heavy	278. off
16. gum	70. pig	122. finish	178. mirror	231. hot	279. on
17. hamburger	71. puppy	123. fix	179. pillow	232. hungry	280. out
18. hotdog	72. snake	124. get	180. plate	233. little	281. please
19. ice cream	73. tiger	125. give	181. pony	234. mine	282. Sesame St.
20. juice	74. turkey	126. go	182. radio	235. more	283. shut up
21. meat	75. turtle	127. have	183. room	236. nice	284. thank you
22. milk		128. help	184. sink	237. pretty	285. there
23. orange		129. hit	185. spoon	238. red	286. under
24. pizza		130. hug	186. spoon	239. stinky	287. welcome
25. pretzel		131. jump	187. stairs	240. that	288. what
26. raisins		132. kick	188. table	241. this	289. where
27. soda		133. kiss	189. telephone	242. tired	290. why
28. soup		134. knock	190. towel	243. wet	291. wood/wood
29. spaghetti		135. look	191. TV	244. white	292. yes
30. tea		136. love	192. TV	245. yellow	293. you
31. toast		137. lunch	193. window	246. yucky	294. yummy
32. water		138. natch			295. any number
		139. nap			
		140. open			
		141. outside			
		142. pat/cake			
		143. peck/bow			
		144. peep/peep			
		145. push			
		146. read			
		147. ride			
		148. run			
		149. see			
		150. show			
		151. shut			
		152. sing			
		153. sit			
		154. sleep			
		155. stop			
		156. take			
		157. throw			
		158. tickle			
		159. up			
		160. walk			
		161. want			
		162. wash			
		163. wash			
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Please print your answers. Be sure to answer all items.
 0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2	55. Plays with own sex parts too much	0 1 2	79. Rapid shifts between sadness and excitement
0 1 2	56. Poorly coordinated or clumsy	0 1 2	80. Strange behavior (describe): _____
0 1 2	57. Problems with eyes (without medical cause) (describe): _____	0 1 2	81. Stubborn, sulky, or irritable
0 1 2	58. Punishment doesn't change his/her behavior	0 1 2	82. Sudden changes in mood or feelings
0 1 2	59. Quickly shifts from one activity to another	0 1 2	83. Sulks a lot
0 1 2	60. Rashes or other skin problems (without medical cause)	0 1 2	84. Talks or cries out in sleep
0 1 2	61. Refuses to eat	0 1 2	85. Temper tantrums or hot temper
0 1 2	62. Refuses to play active games	0 1 2	86. Too concerned with neatness or cleanliness
0 1 2	63. Repeatedly rocks head or body	0 1 2	87. Too fearful or anxious
0 1 2	64. Resists going to bed at night	0 1 2	88. Uncooperative
0 1 2	65. Resists toilet training (describe): _____	0 1 2	89. Underactive, slow moving, or lacks energy
0 1 2	66. Screams a lot	0 1 2	90. Unhappy, sad, or depressed
0 1 2	67. Seems unresponsive to affection	0 1 2	91. Unusually loud
0 1 2	68. Self-conscious or easily embarrassed	0 1 2	92. Upset by new people or situations (describe): _____
0 1 2	69. Selfish or won't share	0 1 2	93. Vomiting, throwing up (without medical cause)
0 1 2	70. Shows little affection toward people	0 1 2	94. Wakes up often at night
0 1 2	71. Shows little interest in things around him/her	0 1 2	95. Wanders away
0 1 2	72. Shows too little fear of getting hurt	0 1 2	96. Wants a lot of attention
0 1 2	73. Too shy or timid	0 1 2	97. Whining
0 1 2	74. Sleeps less than most kids during day and/or night (describe): _____	0 1 2	98. Withdrawn, doesn't get involved with others
0 1 2	75. Smears or plays with bowel movements	0 1 2	99. Worries
0 1 2	76. Speech problem (describe): _____	0 1 2	100. Please write in any problems the child has that were not listed above.
0 1 2	77. Stares into space or seems preoccupied	0 1 2	
0 1 2	78. Stomachaches or cramps (without medical cause)	0 1 2	

Does the child have any illness or disability (either physical or mental)? ☐ No ☐ Yes—Please describe: _____

Please be sure you have answered all items. Underline any you are concerned about.

What concerns you most about the child?

Please describe the best things about the child:

LANGUAGE DEVELOPMENT SURVEY FOR AGES 18-35 MONTHS

For office use only
ID # _____

The Language Development Survey assesses children's word combinations and vocabulary. By carefully completing the Language Development Survey, you can help us obtain an accurate picture of the child's developing language. Please print your answers. Be sure to answer all items.

I. Was the child born earlier than the usual 9 months after conception?

☐ No ☐ Yes—how many weeks early? _____ weeks early.

II. How much did the child weigh at birth? _____ pounds _____ ounces; or _____ grams.

III. How many ear infections did the child have before age 24 months?

☐ 0-2 ☐ 3-5 ☐ 6-8 ☐ 9 or more

IV. Is any language beside English spoken in the child's home?

☐ No ☐ Yes—please list the languages: _____

V. Has anyone in the child's family been slow in learning to talk?

☐ No ☐ Yes—please list their relationships to the child; for example, brother, father: _____

VI. Are you worried about the child's language development?

☐ No ☐ Yes—why? _____

VII. Does the child spontaneously say words in any language? (not just imitates or understands words)?

☐ No ☐ Yes—if yes, please complete item VIII and page 4.

VIII. Does the child combine 2 or more words into phrases? For example: "more cookie," "car bye-bye,"

☐ No ☐ Yes—please print 5 of the child's longest and best phrases or sentences.

For each phrase that is not in English, print the name of the language.

1. _____
2. _____
3. _____
4. _____
5. _____

Be sure you answered all items. Then see other side.

Please print. Be sure to answer all items.

1 = Somewhat or Sometimes True

2 = Very True or Often True

0 = Not True (as far as you know)		1 = Somewhat or Sometimes True		2 = Very True or Often True	
0 1 2	57. Physically attacks people	0 1 2	84. Strange behavior (describe): _____	0 1 2	86. Stubborn, sullen, or irritable
0 1 2	58. Picks nose, skin, or other parts of body (describe): _____	0 1 2	85. Strange ideas (describe): _____	0 1 2	87. Sudden changes in mood or feelings
0 1 2	59. Plays with own sex parts in public	0 1 2	86. Stubborn, sullen, or irritable	0 1 2	88. Suits a lot
0 1 2	60. Plays with own sex parts too much	0 1 2	87. Sudden changes in mood or feelings	0 1 2	89. Suspicious
0 1 2	61. Poor school work	0 1 2	88. Suits a lot	0 1 2	90. Swearing or obscene language
0 1 2	62. Poorly coordinated or clumsy	0 1 2	89. Suspicious	0 1 2	91. Talks about killing self
0 1 2	63. Prefers being with older kids	0 1 2	90. Swearing or obscene language	0 1 2	92. Talks or walks in sleep (describe): _____
0 1 2	64. Prefers being with younger kids	0 1 2	91. Talks about killing self	0 1 2	93. Talks too much
0 1 2	65. Refuses to talk	0 1 2	92. Talks or walks in sleep (describe): _____	0 1 2	94. Teases a lot
0 1 2	66. Repeats certain acts over and over; compulsions (describe): _____	0 1 2	93. Talks too much	0 1 2	95. Temper tantrums or hot temper
0 1 2	67. Runs away from home	0 1 2	94. Teases a lot	0 1 2	96. Thinks about sex too much
0 1 2	68. Screams a lot	0 1 2	95. Temper tantrums or hot temper	0 1 2	97. Threatens people
0 1 2	69. Secretive, keeps things to self	0 1 2	96. Thinks about sex too much	0 1 2	98. Thumb-sucking
0 1 2	70. Sees things that aren't there (describe): _____	0 1 2	97. Threatens people	0 1 2	99. Smokes, chews, or sniffs tobacco
0 1 2	71. Self-conscious or easily embarrassed	0 1 2	98. Thumb-sucking	0 1 2	100. Trouble sleeping (describe): _____
0 1 2	72. Sets fires	0 1 2	99. Smokes, chews, or sniffs tobacco	0 1 2	101. Truancy, skips school
0 1 2	73. Sexual problems (describe): _____	0 1 2	100. Trouble sleeping (describe): _____	0 1 2	102. Underactive, slow moving, or lacks energy
0 1 2	74. Showing off or clowning	0 1 2	101. Truancy, skips school	0 1 2	103. Unhappy, sad, or depressed
0 1 2	75. Too shy or timid	0 1 2	102. Underactive, slow moving, or lacks energy	0 1 2	104. Unusually loud
0 1 2	76. Sleeps less than most kids	0 1 2	103. Unhappy, sad, or depressed	0 1 2	105. Uses drugs for nonmedical purposes (don't include alcohol or tobacco) (describe): _____
0 1 2	77. Sleeps more than most kids during day and/or night (describe): _____	0 1 2	104. Unusually loud	0 1 2	106. Vandalism
0 1 2	78. Inattentive or easily distracted	0 1 2	105. Uses drugs for nonmedical purposes (don't include alcohol or tobacco) (describe): _____	0 1 2	107. Wets self during the day
0 1 2	79. Speech problem (describe): _____	0 1 2	106. Vandalism	0 1 2	108. Wets the bed
0 1 2	80. Stares blankly	0 1 2	107. Wets self during the day	0 1 2	109. Whining
0 1 2	81. Steals at home	0 1 2	108. Wets the bed	0 1 2	110. Wishes to be of opposite sex
0 1 2	82. Steals outside the home	0 1 2	109. Whining	0 1 2	111. Withdrawn, doesn't get involved with others
0 1 2	83. Stores up too many things he/she doesn't need (describe): _____	0 1 2	110. Wishes to be of opposite sex	0 1 2	112. Worries
		0 1 2	111. Withdrawn, doesn't get involved with others	0 1 2	113. Please write in any problems your child has that were not listed above: _____
		0 1 2	112. Worries	0 1 2	
		0 1 2	113. Please write in any problems your child has that were not listed above: _____	0 1 2	

PAGE 4

Please be sure you answered all items.



Please print CHILD BEHAVIOR CHECKLIST FOR AGES 6-18

For office use only (to #)

CHILD'S INFORMATION				PARENTS' USUAL TYPE OF WORK, even if not working now. (Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, mine operator, shoe salesman, army sergeant)			
NAME	First	Middle	Last	FATHER'S TYPE OF WORK	MOTHER'S TYPE OF WORK	THIS FORM FILLED OUT BY: (print your full name)	
NAME							
CHILD'S GENDER	Boy ☐ Girl ☐	CHILD'S AGE	Mo. ____ Yr. ____	CHILD'S ETHNIC GROUP OR RACE	Mo. ____ Yr. ____		
TODAY'S DATE	Mo. ____ Yr. ____	CHILD'S BIRTHDATE	Mo. ____ Yr. ____				
GRADE IN SCHOOL	Please fill out this form to reflect your view of the child's behavior even if other people might not agree. Feel free to print additional comments beside each item and in the space provided on page 2. Be sure to answer all items.			Your gender: ☐ Male ☐ Female			
NOT ATTENDING SCHOOL ☐				Your relation to the child: ☐ Biological Parent ☐ Step Parent ☐ Grandparent ☐ Adoptive Parent ☐ Foster Parent ☐ Other (specify) _____			
I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc.				Compared to others of the same age, about how much time does he/she spend in each?			
☐ None				Less Than Average ☐ More Than Average ☐ Don't Know ☐			
a. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
b. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
c. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, cars, computers, singing, etc. (Do not include listening to radio or TV.)				Compared to others of the same age, about how much time does he/she spend in each?			
☐ None				Less Than Average ☐ More Than Average ☐ Don't Know ☐			
a. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
b. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
c. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
III. Please list any organizations, clubs, teams, or groups your child belongs to.				Compared to others of the same age, how active is he/she in each?			
☐ None				Less Active ☐ More Active ☐ Don't Know ☐			
a. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
b. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
c. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, working in store, etc. (Include both paid and unpaid jobs and chores.)				Compared to others of the same age, how well does he/she carry them out?			
☐ None				Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
a. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
b. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			
c. _____				☐ Below Average ☐ Average ☐ Above Average ☐ Don't Know ☐			

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6-1-01 Edition - 2

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PAGE 1

Please print. Be sure to answer all items.

1. About how many close friends does your child have? (Do not include brothers & sisters)

☐ None ☐ 1 ☐ 2 or 3 ☐ 4 or more

2. About how many times a week does your child do things with any friends outside of regular school hours?
(Do not include brothers & sisters)

☐ Less than 1 ☐ 1 or 2 ☐ 3 or more

III. Compared to others of his/her age, how well does your child:

☐ Worse ☐ Average ☐ Better

a. Get along with his/her brothers & sisters? ☐ ☐ ☐ ☐ ☐ Has no brothers or sisters

b. Get along with other kids?

c. Behave with his/her parents?

d. Play and work alone?

III. 1. Performance in academic subjects.

☐ Does not attend school because _____

Check a box for each subject that child takes

a. Reading, English, or Language Arts

b. History or Social Studies

c. Arithmetic or Math

d. Science

e. _____

f. _____

g. _____

Other academic subjects—for example, computer courses, foreign language, ballet, art, drama, etc.—include gym, shop, driver's ed., or other nonacademic subjects.

2. Does your child receive special education or remedial services or attend a special class or special school?

☐ No ☐ Yes—kind of services, class, or school:

3. Has your child repeated any grades? ☐ No ☐ Yes—grades and reasons:

4. Has your child had any academic or other problems in school? ☐ No ☐ Yes—please describe:

When did these problems start? _____

Have these problems ended? ☐ No ☐ Yes—when?

Does your child have any illness or disability (either physical or mental)? ☐ No ☐ Yes—please describe:

What concerns you most about your child?

Please describe the best things about your child.

PAGE 2

Be sure you answered all items.

Please print. Be sure to answer all items.

Below is a list of items that describe children and youths. For each item that describes your child now or within the past 6 months, please circle the 1 if the item is *very true or often true* of your child. Circle the 2 if the item is *somewhat or sometimes true* of your child. If the item is *not true* of your child, circle the 0. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know)

1 = Somewhat or Sometimes True

2 = Very True or Often True

0 1 2 1. Acts too young for his/her age

0 1 2 32. Feels he/she has to be perfect

0 1 2 2. Drinks alcohol without parents' approval

0 1 2 33. Feels or complains that no one loves him/her

0 1 2 3. Argues a lot

0 1 2 34. Feels others are out to get him/her

0 1 2 4. Falls to finish things he/she starts

0 1 2 35. Feels worthless or inferior

0 1 2 5. There is very little he/she enjoys

0 1 2 36. Gets hurt a lot, accident-prone

0 1 2 6. Bowel movements outside toilet

0 1 2 37. Gets in many fights

0 1 2 7. Bragging, boasting

0 1 2 38. Gets teased a lot

0 1 2 8. Can't concentrate, can't pay attention for long

0 1 2 39. Hangs around with others who get in trouble

0 1 2 9. Can't get his/her mind off certain thoughts, obsessions (describe): _____

0 1 2 40. Hears sounds or voices that aren't there (describe): _____

0 1 2 10. Can't sit still, restless, or hyperactive

0 1 2 41. Impulsive or acts without thinking

0 1 2 11. Clings to adults or too dependent

0 1 2 42. Would rather be alone than with others

0 1 2 12. Complains of loneliness

0 1 2 43. Lying or cheating

0 1 2 13. Confused or seems to be in a fog

0 1 2 44. Bites fingernails

0 1 2 14. Cries a lot

0 1 2 45. Nervous, fidgeting, or tense

0 1 2 15. Cruel to animals

0 1 2 46. Nervous movements or twitching (describe): _____

0 1 2 16. Cruelty, bullying, or meanness to others

0 1 2 47. Nightmares

0 1 2 17. Daydreams or gets lost in his/her thoughts

0 1 2 48. Not liked by other kids

0 1 2 18. Deliberately harms self or attempts suicide

0 1 2 49. Constipated, doesn't move bowels

0 1 2 19. Demands a lot of attention

0 1 2 50. Too fearful or anxious

0 1 2 20. Destroys his/her own things

0 1 2 51. Feels dizzy or lightheaded

0 1 2 21. Destroys things belonging to his/her family or others

0 1 2 52. Feels too guilty

0 1 2 22. Disobedient at home

0 1 2 53. Overeating

0 1 2 23. Disobedient at school

0 1 2 54. Overfired without good reason

0 1 2 24. Doesn't eat well

0 1 2 55. Overweight

0 1 2 25. Doesn't get along with other kids

0 1 2 56. Physical problems without known medical cause:

0 1 2 26. Doesn't seem to feel guilty after misbehaving

0 1 2 a. Aches or pains (not stomach or headaches)

0 1 2 27. Easily jealous

0 1 2 b. Headaches

0 1 2 28. Breaks rules at home, school, or elsewhere

0 1 2 c. Nausea, feels sick

0 1 2 29. Feels certain animals, situations, or places, other than school (describe): _____

0 1 2 d. Problems with eyes (not if corrected by glasses (describe): _____

0 1 2 30. Feels going to school

0 1 2 e. Rashies or other skin problems

0 1 2 31. Feels he/she might think or do something bad

0 1 2 f. Stomachaches

0 1 2 32. Feels he/she might think or do something bad

0 1 2 g. Vomiting, throwing up

0 1 2 33. Feels he/she might think or do something bad

0 1 2 h. Other (describe): _____

PAGE 3

Be sure you answered all items. Then see other side

Appendix C: Behavior Rating Inventory of Executive Function Preschool Version and Second Edition Used in Chapter 4 and 5



Additional copies available from:
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Gerard A. Gioia, PhD, Kimberly Andrews Espy, PhD, and Peter K. Isquith, PhD

BRIEF-P Behavior Rating Inventory of Executive Function- Preschool Version

RATING FORM

Instructions to Parents and Teachers

On the following pages is a list of statements that describe young children. We would like to know if the child has had *problems* with these behaviors *during the past 6 months*. Please answer *all the items* the best that you can. Please do not skip any items. Think about the child as you read these statements and circle:

- | | | |
|----------|--------------------|----------------------------|
| N | if the behavior is | Never a problem |
| S | if the behavior is | Sometimes a problem |
| O | if the behavior is | Often a problem |

For example, if having tantrums when told "No" is never a problem, you would circle **N** for this item.

Has tantrums when told "No" ☒ **N** ☐ **S** ☐ **O**

If you make a mistake or want to change your answer, **DO NOT ERASE**. Instead draw an X through the answer you want to change and then circle the correct answer:

Has tantrums when told "No" ☒ **N** ☒ **S** ☐ **O**

Before you begin answering the items, please fill in the child's name, gender, age, and birth date, as well as your name, relationship to the child, and today's date in the spaces provided at the top of the next page. If you are the child's teacher or child care provider, please check the box next to the response that best describes how well you know the child and indicate how long you have known the child in the space provided.

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Child's Name _____ Gender _____ Age _____ Birth Date ____/____/____
 Your Name _____ Today's Date ____/____/____

Relationship to Child: ☐ Mother ☐ Father ☐ Teacher* ☐ Other* _____

How well do you know the child? ☐ Not Well ☐ Moderately Well ☐ Very Well *Have known the child for ____ months ____ years.

During the past 6 months, how often has each of the following behaviors been a problem?

	Meyer			Sometimes Often		
1. Overreacts to small problems	N	S	O			
2. When given two things to do, remembers only the first or last	N	S	O			
3. Is unaware of how his/her behavior affects or bothers others	N	S	O			
4. When instructed to clean up, puts things away in a disorganized, random way	N	S	O			
5. Becomes upset with new situations	N	S	O			
6. Has explosive, angry outbursts	N	S	O			
7. Has trouble carrying out the actions needed to complete tasks (such as trying one puzzle piece at a time, cleaning up to earn a reward)	N	S	O			
8. Does not stop laughing at funny things or events when others stop	N	S	O			
9. Needs to be told to begin a task even when willing to do it	N	S	O			
10. Has trouble adjusting to new people (such as babysitter, teacher, friend, or day care worker)	N	S	O			

11. Becomes upset too easily	N	S	O			
12. Has trouble concentrating on games, puzzles, or play activities	N	S	O			
13. Has to be more closely supervised than similar playmates	N	S	O			
14. When sent to get something, forgets what he/she is supposed to get	N	S	O			
15. Is upset by a change in plans or routine (for example, order of daily activities, adding last minute errands to schedule, change in driving route to store)	N	S	O			
16. Has outbursts for little reason	N	S	O			
17. Repeats the same mistakes over and over even after help is given	N	S	O			
18. Acts wilder or sillier than others in groups (such as birthday parties, play group)	N	S	O			
19. Cannot find clothes, shoes, toys, or books even when he/she has been given specific instructions	N	S	O			
20. Takes a long time to feel comfortable in new places or situations (such as visiting distant relatives or new friends)	N	S	O			

21. Mood changes frequently	N	S	O			
22. Makes silly mistakes on things he/she can do	N	S	O			
23. Is fidgety, restless, or squirmy	N	S	O			
24. Has trouble following established routines for sleeping, eating, or play activities	N	S	O			
25. Is bothered by loud noises, bright lights, or certain smells	N	S	O			
26. Small events trigger big reactions	N	S	O			
27. Has trouble with activities or tasks that have more than one step	N	S	O			
28. Is impulsive	N	S	O			
29. Has trouble thinking of a different way to solve a problem or complete an activity when stuck	N	S	O			
30. Is disturbed by changes in the environment (such as new furniture, things in room moved around, or new clothes)	N	S	O			

During the past 6 months, how often has each of the following behaviors been a problem?

	Meyer			Sometimes Often		
31. Angry or fearful outbursts are intense but end suddenly	N	S	O			
32. Needs help from adult to stay on task	N	S	O			
33. Does not notice when his/her behavior causes negative reactions	N	S	O			
34. Leaves messes that others have to clean up even after instruction	N	S	O			
35. Has trouble changing activities	N	S	O			
36. Reacts more strongly to situations than other children	N	S	O			
37. Forgets what he/she is doing in the middle of an activity	N	S	O			
38. Does not realize that certain actions bother others	N	S	O			
39. Gets caught up in the small details of a task or situation and misses the main idea	N	S	O			
40. Has trouble "joining in" at unfamiliar social events (such as birthday parties, picnics, holiday gatherings)	N	S	O			
41. Is easily overwhelmed or overstimulated by typical daily activities	N	S	O			

42. Has trouble finishing tasks (such as games, puzzles, pretend play activities)	N	S	O			
43. Gets out of control more than playmates	N	S	O			
44. Cannot find things in room or play area even when given specific instructions	N	S	O			
45. Resists change of routine, foods, places, etc.	N	S	O			
46. After having a problem, will stay disappointed for a long time	N	S	O			
47. Cannot stay on the same topic when talking	N	S	O			
48. Talks or plays too loudly	N	S	O			
49. Does not complete tasks even after given directions	N	S	O			
50. Acts overwhelmed or overstimulated in crowded, busy situations (such as lots of noise, activity, or people)	N	S	O			
51. Has trouble getting started on activities or tasks even after instructed	N	S	O			
52. Acts too wild or out of control	N	S	O			

53. Does not try as hard as his/her ability on activities	N	S	O			
54. Has trouble putting the brakes on his/her actions even after being asked	N	S	O			
55. Unable to finish describing an event, person, or story	N	S	O			
56. Completes tasks or activities too quickly	N	S	O			
57. Is unaware when he/she does well and not well	N	S	O			
58. Gets easily sidetracked during activities	N	S	O			
59. Has trouble remembering something, even after a brief period of time	N	S	O			
60. Becomes too silly	N	S	O			
61. Has a short attention span	N	S	O			
62. Plays carelessly or recklessly in situations where he/she could be hurt (such as playground, swimming pool)	N	S	O			
63. Is unaware when he/she performs a task right or wrong	N	S	O			

BRIEF^{®2}

Behavior Rating Inventory of
Executive Function[®], Second Edition

PARENT FORM

Gerard A. Gioia, PhD, Peter K. Isquith, PhD,
Steven C. Guy, PhD, and Lauren Kenworthy, PhD

Instructions

On the following pages is a list of statements that describe children. We would like to know if your child has had problems with these behaviors over the past 6 months. Please answer all the items the best that you can. Please DO NOT SKIP ANY ITEMS. Think about your child as you read each statement and circle:

- N if the behavior is **Never** a problem
- S if the behavior is **Sometimes** a problem
- O if the behavior is **Often** a problem

For example, if your child **never** has trouble completing homework on time, you would circle **N** for this item:

Has trouble completing homework on time ☒ N ☐ S ☐ O

If you make a mistake or want to change your answer, **DO NOT ERASE**. Draw an "X" through the answer you want to change and then circle the correct answer:

Has trouble completing homework on time ☒ N ☒ S ☐ O

Before you begin answering the items, please fill in your child's name, gender, age, grade, your relationship to the child, today's date, and child's date of birth in the spaces provided at the top of the next page.



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BRIEF-2 PARENT FORM

Date of birth _____

Child's name _____ Gender _____ Age _____ Grade _____

Rater's name _____ Relationship to child _____ Today's date _____

	N = Never	S = Sometimes	O = Often
1. Is fidgety	N	S	O
2. Resists or has trouble accepting a different way to solve a problem with schoolwork, friends, tasks, etc.	N	S	O
3. When given three things to do, remembers only the first or last	N	S	O
4. Is unaware of how his/her behavior affects or bothers others	N	S	O
5. Work is sloppy	N	S	O
6. Has explosive, angry outbursts	N	S	O
7. Does not plan ahead for school assignments	N	S	O
8. Cannot find things in room or school desk	N	S	O
9. Is not a self-starter	N	S	O
10. Does not think before doing (is impulsive)	N	S	O
11. Has trouble getting used to new situations (classes, groups, friends, etc.)	N	S	O
12. Has a short attention span	N	S	O
13. Has poor understanding of own strengths and weaknesses	N	S	O
14. Has outbursts for little reason	N	S	O
15. Gets caught up in details and misses the big picture	N	S	O
16. Gets out of control more than friends	N	S	O
17. Gets stuck on one topic or activity	N	S	O
18. Forgets his/her name	N	S	O
19. Has trouble with chores or tasks that have more than one step	N	S	O
20. Does not realize that certain actions bother others	N	S	O
21. Written work is poorly organized	N	S	O
22. Small events trigger big reactions	N	S	O
23. Has good ideas but does not get job done (jacks follow-through)	N	S	O
24. Talks at the wrong time	N	S	O
25. Has trouble finishing tasks (chores, homework, etc.)	N	S	O
26. Does not notice when his/her behavior causes negative reactions	N	S	O
27. Reacts more strongly to situations than other children	N	S	O
28. Has trouble remembering things, even for a few minutes	N	S	O
29. Makes careless errors	N	S	O
30. Gets out of seat at the wrong times	N	S	O
31. Becomes upset with new situations	N	S	O
32. Has trouble concentrating on tasks, schoolwork, etc.	N	S	O

	N = Never	S = Sometimes	O = Often
33. Has poor handwriting	N	S	O
34. Mood changes frequently	N	S	O
35. Has good ideas but cannot get them on paper	N	S	O
36. Has trouble counting to three	N	S	O
37. Leaves messes that others have to clean up	N	S	O
38. Needs to be told to begin a task even when willing	N	S	O
39. Acts too wild or "out of control"	N	S	O
40. Thinks too much about the same topic	N	S	O
41. Forgets what he/she was doing	N	S	O
42. Does not check work for mistakes	N	S	O
43. Angry or tearful outbursts are intense but end suddenly	N	S	O
44. Becomes overwhelmed by large assignments	N	S	O
45. Loses lunch box, lunch money, permission slips, homework, etc.	N	S	O
46. Needs help from an adult to stay on task	N	S	O
47. Forgets to hand in homework, even when completed	N	S	O
48. Has trouble putting the brakes on his/her actions	N	S	O
49. Resists change of routine, foods, places, etc.	N	S	O
50. Has trouble getting started on homework or tasks	N	S	O
51. Mood is easily influenced by the situation	N	S	O
52. Underestimates time needed to finish tasks	N	S	O
53. Does not bring home homework, assignment sheets, materials, etc.	N	S	O
54. Cannot find the front door of home	N	S	O
55. Does not take initiative	N	S	O
56. Becomes upset too easily	N	S	O
57. Starts assignments or tasks at the last minute	N	S	O
58. Has trouble moving from one activity to another	N	S	O
59. Has trouble carrying out the actions needed to reach goals (saving money for special item, studying to get a good grade, etc.)	N	S	O
60. Is disturbed by change of teacher or class	N	S	O
61. Has trouble organizing activities with friends	N	S	O
62. Becomes too silly	N	S	O
63. Leaves a trail of belongings wherever he/she goes	N	S	O

Appendix D: Strengths and Difficulties Questionnaire Used in Chapter 4 and 5

Area Logo PC1 Parent Report Measures for Children and Adolescents SDQ(P)04-10 Facility Name: _____ Code: _____	Please use gummed label if available <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Patient or Client Identifier:</td> <td style="width: 40%; text-align: center;"> </td> </tr> <tr> <td colspan="2">Surname: _____</td> </tr> <tr> <td colspan="2">Other names: _____</td> </tr> <tr> <td>Date of Birth: _____ / _____ / _____</td> <td>Sex: Male ☐_1 Female ☐_2</td> </tr> <tr> <td colspan="2">Address: _____</td> </tr> </table>	Patient or Client Identifier:		Surname: _____		Other names: _____		Date of Birth: _____ / _____ / _____	Sex: Male ☐ _1 Female ☐ _2	Address: _____	
Patient or Client Identifier:											
Surname: _____											
Other names: _____											
Date of Birth: _____ / _____ / _____	Sex: Male ☐ _1 Female ☐ _2										
Address: _____											

Instructions: For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of your child's behaviour **over the last six months**.

Strengths and Difficulties Questionnaire	Not True	Somewhat True	Certainly True
1. Considerate of other people's feelings	☐	☐	☐
2. Restless, overactive, cannot stay still for long	☐	☐	☐
3. Often complains of headaches, stomach-aches or sickness	☐	☐	☐
4. Shares readily with other children, for example toys, treats, pencils	☐	☐	☐
5. Often loses temper	☐	☐	☐
6. Rather solitary, prefers to play alone	☐	☐	☐
7. Generally well behaved, usually does what adults request	☐	☐	☐
8. Many worries or often seems worried	☐	☐	☐
9. Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
10. Constantly fidgeting or squirming	☐	☐	☐
11. Has at least one good friend	☐	☐	☐
12. Often fights with other children or bullies them	☐	☐	☐
13. Often unhappy, depressed or tearful	☐	☐	☐
14. Generally liked by other children	☐	☐	☐
15. Easily distracted, concentration wanders	☐	☐	☐
16. Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
17. Kind to younger children	☐	☐	☐
18. Often lies or cheats	☐	☐	☐
19. Picked on or bullied by other children	☐	☐	☐
20. Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
21. Thinks things out before acting	☐	☐	☐
22. Steals from home, school or elsewhere	☐	☐	☐
23. Gets along better with adults than with other children	☐	☐	☐
24. Many fears, easily scared	☐	☐	☐
25. Good attention span, sees chores or homework through to the end	☐	☐	☐

SDQ (P) 04-10 SELF-REPORT MEASURE (1 of 2)

SOURCE: Mental Health National Outcomes and Casemix Collection: Overview of Clinician-Rated and Consumer Self-Report Measures V1.50, Mental Health & Suicide Prevention Branch, Department of Health and Ageing

Please turn over – there are a few more questions on the other side

Do you have any other comments or concerns?

Over the last six months, have your child's teachers complained of:		No	A Little	A Lot
36.	Fidgetiness, restlessness or overactivity	☐	☐	☐
37.	Poor concentration or being easily distracted	☐	☐	☐
38.	Acting without thinking, frequently butting in, or not waiting for his or her turn	☐	☐	☐

	No	Yes – minor difficulties	Yes – definite difficulties	Yes – severe difficulties
26 Overall, do you think that your child has difficulties in any of the following areas: emotions, concentration, behaviour or being able to get along with other people?	☐	☐	☐	☐

If you have answered "Yes", please answer the following questions about these difficulties:

	Less than a month	1-5 months	6-12 months	Over a year
27 How long have these difficulties been present?	☐	☐	☐	☐

	Not at all	A little	A medium amount	A great deal
28 Do the difficulties upset or distress your child?	☐	☐	☐	☐
Do the difficulties interfere with your child's everyday life in the following areas?				
29. HOME LIFE	☐	☐	☐	☐
30. FRIENDSHIPS	☐	☐	☐	☐
31. CLASSROOM LEARNING	☐	☐	☐	☐
32. LEISURE ACTIVITIES	☐	☐	☐	☐
33 Do the difficulties put a burden on you or the family as a whole?	☐	☐	☐	☐

Signature _____ Date _____

Mother/Father/Other (please specify): _____

Thank you very much for your help.

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Appendix E: Depression, Anxiety and Stress Scale Used in Chapter 4 and 5

DASS		Name:	Date:		
Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you <i>over the past week</i>. There are no right or wrong answers. Do not spend too much time on any statement. <i>The rating scale is as follows:</i> 0 Did not apply to me at all 1 Applied to me to some degree, or some of the time 2 Applied to me to a considerable degree, or a good part of time 3 Applied to me very much, or most of the time					
1	I found myself getting upset by quite trivial things	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I just couldn't seem to get going	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I had a feeling of shakiness (eg, legs going to give way)	0	1	2	3
8	I found it difficult to relax	0	1	2	3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting upset rather easily	0	1	2	3
12	I felt that I was using a lot of nervous energy	0	1	2	3
13	I felt sad and depressed	0	1	2	3
14	I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting)	0	1	2	3
15	I had a feeling of faintness	0	1	2	3
16	I felt that I had lost interest in just about everything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life wasn't worthwhile	0	1	2	3

Please turn the page

Reminder of rating scale:

- 0 Did not apply to me at all
 1 Applied to me to some degree, or some of the time
 2 Applied to me to a considerable degree, or a good part of time
 3 Applied to me very much, or most of the time

22	I found it hard to wind down	0	1	2	3
23	I had difficulty in swallowing	0	1	2	3
24	I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
25	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
26	I felt down-hearted and blue	0	1	2	3
27	I found that I was very irritable	0	1	2	3
28	I felt I was close to panic	0	1	2	3
29	I found it hard to calm down after something upset me	0	1	2	3
30	I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
31	I was unable to become enthusiastic about anything	0	1	2	3
32	I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
33	I was in a state of nervous tension	0	1	2	3
34	I felt I was pretty worthless	0	1	2	3
35	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
36	I felt terrified	0	1	2	3
37	I could see nothing in the future to be hopeful about	0	1	2	3
38	I felt that life was meaningless	0	1	2	3
39	I found myself getting agitated	0	1	2	3
40	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
41	I experienced trembling (eg, in the hands)	0	1	2	3
42	I found it difficult to work up the initiative to do things	0	1	2	3

Appendix F: Parent Stress Index 4th Edition Used in Chapter 4 and 5

PSI-4 Item Booklet

Richard R. Abidin, EdD

Instructions:

On the top of the PSI-4 Answer Sheet, write your name, gender, date of birth, ethnic group, and marital status; today's date; and your child's name, gender, and date of birth. Please mark all your responses on the answer sheet. Do not write on this booklet.

This questionnaire contains 120 statements. Read each statement carefully. For each statement, please focus on the child you are most concerned about and circle the response that best represents your opinion. Answer all questions about the same child.

Circle SA if you strongly agree with the statement.

Circle A if you agree with the statement.

Circle NS if you are not sure.

Circle D if you disagree with the statement.

Circle SD if you strongly disagree with the statement.

For example, if you sometimes enjoy going to the movies, you would circle A in response to the following statement:

I enjoy going to the movies. SA ☒ A NS D SD

While you may not find a response that exactly states your feelings, please circle the response that comes closest to describing how you feel. Your first reaction to each question should be your answer.

Circle only one response for each statement, and respond to all statements. Do not erase! If you need to change an answer, mark an "X" through the incorrect answer and circle the correct response. For example:

I enjoy going to the movies. SA A NS ☒ SD

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1. When my child wants something, my child usually keeps trying to get it.
2. My child is so active that it exhausts me.
3. My child appears disorganized and is easily distracted.
4. Compared to most, my child has more difficulty concentrating and paying attention.
5. My child will often stay occupied with a toy for more than 10 minutes.
6. My child wanders away much more than I expected.
7. My child is much more active than I expected.
8. My child squirms and kicks a great deal when being dressed or bathed.
9. My child is easily distracted, and it is a problem for me.
10. My child rarely does things for me that make me feel good.
11. Most times I feel that my child likes me and wants to be close to me.
12. When I do things for my child, I get the feeling that my efforts are not appreciated very much.
13. My child smiles at me much less than I expected.
14. Sometimes I feel my child doesn't like me and doesn't want to be close to me.
15. Which statement best describes your child? (Choose a response from the choices below.)
 1. almost always likes to play with me.
 2. sometimes likes to play with me.
 3. usually doesn't like to play with me.
 4. almost never likes to play with me.
16. My child cries and fusses: (Choose a response from the choices below.)
 1. much less than I had expected.
 2. less than I expected.
 3. about as much as I expected.
 4. much more than I expected.
 5. it seems almost constant.
17. My child seems to cry or fuss more often than most children.
18. My child is very emotional and gets upset easily.
19. My child generally wakes up in a bad mood.
20. I feel that my child is very moody and easily upset.
21. My child looks a little different than I expected, and it bothers me at times.
22. In some areas, my child seems to have forgotten past learnings and has gone back to doing things characteristic of younger children.
23. My child doesn't seem to learn as quickly as most children.

During the last 12 months, have any of the following events occurred in your immediate family?
Choose "Y" for "Yes" and "N" for "No."

102. Divorce
103. Marital reconciliation
104. Marriage
105. Separation
106. Pregnancy
107. Other relative moved into household
108. Income increased substantially (20% or more)
109. Went deeply into debt
110. Moved to new location
111. Promotion at work
112. Income decreased substantially
113. Alcohol or drug problem
114. Death of close family friend
115. Began new job
116. Entered new school
117. Trouble with superiors at work
118. Lost job
119. Legal problems
120. Death of immediate family member

80. There are quite a few things that bother me about my life.
81. I felt sadder and more depressed than I expected after leaving the hospital with my baby.
82. I wind up feeling guilty when I get angry at my child, and this bothers me.
83. After my child had been home from the hospital for about a month, I noticed that I was feeling more sad and depressed than I had expected.
84. Since having my child, my spouse/parenting partner has not given me as much help and support as I expected.
85. Having a child has caused more problems than I expected in my relationship with my spouse/parenting partner.
86. Since having a child, my spouse/parenting partner and I don't do as many things together.
87. Since having a child, my spouse/parenting partner and I don't spend as much time together as a family as I had expected.
88. Since having my last child, I have less interest in sex with my spouse/parenting partner.
89. My spouse/parenting partner and I have a lot of conflict over how to raise our child.
90. The financial cost of having our child has created problems between me and my spouse/parenting partner.
91. I feel alone and without friends.
92. When I go to a party, I usually expect not to enjoy myself.
93. I am not as interested in people as I used to be.
94. I often have the feeling that other people my own age don't particularly like my company.
95. When I run into a problem taking care of my children, I have a lot of people to whom I can talk to get help or advice.
96. Since having children, I have a lot fewer chances to see my friends and to make new friends.
97. During the past six months, I have been sicker than usual or have had more aches and pains than I normally do.
98. Physically, I feel good most of the time.
99. I have problems sleeping, and I often feel tired during the day.
100. I don't enjoy things as I used to.
101. Since I had my child, I have often been sick.

24. My child doesn't seem to smile as much as most children.
25. Compared to the average child, my child has a great deal of difficulty in getting used to changes in schedules or changes around the house.
26. My child is not able to do as much as I expected.
27. It bothers me that my child does not like to be cuddled or touched very much.
28. I often have doubts about my ability to handle being a parent.
29. Being a parent is harder than I thought it would be.
30. I feel capable and on top of things when I am caring for my child.
31. My child is always hanging on me.
32. My child reacts very strongly when something happens that my child doesn't like.
33. Leaving my child with a babysitter is usually a problem.
34. When playing, my child doesn't often giggle or laugh.
35. My child easily notices and overreacts to loud sounds and bright lights.
36. My child's sleeping or eating schedule was much harder to establish than I expected.
37. My child usually avoids a new toy for a while before beginning to play with it.
38. It takes a long time and it is very hard for my child to get used to new things.
39. My child doesn't seem comfortable when meeting strangers.
40. When upset, my child is: (Choose a response from the choices below.)
 1. easy to calm down.
 2. harder to calm down than I expected.
 3. very difficult to calm down.
 4. nothing I do helps to calm my child.
41. I have found that getting my child to do something or stop doing something is: (Choose a response from the choices below.)
 1. much harder than I expected.
 2. somewhat harder than I expected.
 3. about as hard as I expected.
 4. somewhat easier than I expected.
 5. much easier than I expected.
42. Think carefully and count the number of things which your child does that bothers you. For example, dawdles, refuses to listen, overactive, cries, interrupts, fights, whines, etc. (Choose a response from the choices below.)
 1. 1-3
 2. 4-5
 3. 6-7
 4. 8-9
 5. 10+

43. My child cries often, and it bothers me.
44. There are some things my child does that really bother me a lot.
45. My child has had more health problems than I expected.
46. As my child has grown older and become more independent, I find myself more worried that my child will get hurt or into trouble.
47. My child's behavior is more of a problem than I expected.
48. My child seems to be much harder to care for than most.
49. My child does a few things which bother me a great deal.
50. My child makes more demands on me than most children.
51. I can't make decisions without help.
52. I have had many more problems raising children than I expected.
53. How easy is it for you to understand your child's wants or needs? (Choose a response from the choices below.)
1. very easy.
 2. easy.
 3. somewhat difficult.
 4. it is very hard.
 5. I usually can't figure out what the problem is.
54. I feel that I am successful most of the time when I try to get my child to do or not do something.
55. Since I brought my last child home from the hospital, I find that I am not able to take care of this child as well as I thought I could. I need help.
56. I often have the feeling that I cannot handle things very well.
57. When I think about myself as a parent, I believe: (Choose a response from the choices below.)
1. I can handle anything that happens.
 2. I can handle most things pretty well.
 3. sometimes I have doubts, but find that I handle most things without any problems.
 4. I have some doubts about being able to handle things.
 5. I don't think I handle things very well at all.
58. I feel that I am: (Choose a response from the choices below.)
1. a very good parent.
 2. a better-than-average parent.
 3. an average parent.
 4. a person who has some trouble being a parent.
 5. not very good at being a parent.

What are the highest levels in school or college you and the child's father/mother have completed?
(Choose a response from the choices below.)

59. Mother:
1. 1st to 8th grade
 2. 9th to 12th grade
 3. vocational or some college
 4. college graduate
 5. graduate or professional school
60. Father:
1. 1st to 8th grade
 2. 9th to 12th grade
 3. vocational or some college
 4. college graduate
 5. graduate or professional school
61. I enjoy being a parent.
62. It takes a long time for parents to develop close, warm feelings for their children.
63. I expected to have closer and warmer feelings for my child than I do, and this bothers me.
64. Sometimes my child does things that bother me just to be mean.
65. I often feel guilty about the way I feel toward my child.
66. My child and I are not as close as I would like.
67. The number of children that I have now is too many.
68. Most of my life is spent doing things for my child.
69. I find myself giving up more of my life to meet my children's needs than I ever expected.
70. I feel trapped by my responsibilities as a parent.
71. I often feel that my child's needs control my life.
72. Since having this child, I have been unable to do new and different things.
73. Since having a child, I feel that I am almost never able to do things that I like to do.
74. It is hard to find a place in our home where I can go to be by myself.
75. When I think about the kind of parent I am, I often feel guilty or bad about myself.
76. I am unhappy with the last purchase of clothing I made for myself.
77. When my child misbehaves or fusses too much, I feel responsible as if I didn't do something right.
78. I feel every time my child does something wrong, it is really my fault.
79. I often feel depressed and do not have the energy to handle my parenting responsibilities.



Answer Sheet

Richard R. Abidin, EdD

Name _____ Gender _____ Date of birth ____/____/____
 Ethnic group _____ Marital status _____ Today's date ____/____/____
 Child's name _____ Child's gender _____ Child's date of birth ____/____/____

SA = Strongly Agree A = Agree NS = Not Sure D = Disagree SD = Strongly Disagree

- | | | | |
|------------------|------------------|------------------|-------------------|
| 1. SA A NS D SD | 31. SA A NS D SD | 61. SA A NS D SD | 91. SA A NS D SD |
| 2. SA A NS D SD | 32. SA A NS D SD | 62. SA A NS D SD | 92. SA A NS D SD |
| 3. SA A NS D SD | 33. SA A NS D SD | 63. SA A NS D SD | 93. SA A NS D SD |
| 4. SA A NS D SD | 34. SA A NS D SD | 64. SA A NS D SD | 94. SA A NS D SD |
| 5. SA A NS D SD | 35. SA A NS D SD | 65. SA A NS D SD | 95. SA A NS D SD |
| 6. SA A NS D SD | 36. SA A NS D SD | 66. SA A NS D SD | 96. SA A NS D SD |
| 7. SA A NS D SD | 37. SA A NS D SD | 67. SA A NS D SD | 97. SA A NS D SD |
| 8. SA A NS D SD | 38. SA A NS D SD | 68. SA A NS D SD | 98. SA A NS D SD |
| 9. SA A NS D SD | 39. SA A NS D SD | 69. SA A NS D SD | 99. SA A NS D SD |
| 10. SA A NS D SD | 40. 1 2 3 4 | 70. SA A NS D SD | 100. SA A NS D SD |
| 11. SA A NS D SD | 41. 1 2 3 4 5 | 71. SA A NS D SD | 101. SA A NS D SD |
| 12. SA A NS D SD | 42. 1 2 3 4 5 | 72. SA A NS D SD | 102. Y N |
| 13. SA A NS D SD | 43. SA A NS D SD | 73. SA A NS D SD | 103. Y N |
| 14. SA A NS D SD | 44. SA A NS D SD | 74. SA A NS D SD | 104. Y N |
| 15. 1 2 3 4 | 45. SA A NS D SD | 75. SA A NS D SD | 105. Y N |
| 16. 1 2 3 4 5 | 46. SA A NS D SD | 76. SA A NS D SD | 106. Y N |
| 17. SA A NS D SD | 47. SA A NS D SD | 77. SA A NS D SD | 107. Y N |
| 18. SA A NS D SD | 48. SA A NS D SD | 78. SA A NS D SD | 108. Y N |
| 19. SA A NS D SD | 49. SA A NS D SD | 79. SA A NS D SD | 109. Y N |
| 20. SA A NS D SD | 50. SA A NS D SD | 80. SA A NS D SD | 110. Y N |
| 21. SA A NS D SD | 51. SA A NS D SD | 81. SA A NS D SD | 111. Y N |
| 22. SA A NS D SD | 52. SA A NS D SD | 82. SA A NS D SD | 112. Y N |
| 23. SA A NS D SD | 53. 1 2 3 4 5 | 83. SA A NS D SD | 113. Y N |
| 24. SA A NS D SD | 54. SA A NS D SD | 84. SA A NS D SD | 114. Y N |
| 25. SA A NS D SD | 55. SA A NS D SD | 85. SA A NS D SD | 115. Y N |
| 26. SA A NS D SD | 56. SA A NS D SD | 86. SA A NS D SD | 116. Y N |
| 27. SA A NS D SD | 57. 1 2 3 4 5 | 87. SA A NS D SD | 117. Y N |
| 28. SA A NS D SD | 58. 1 2 3 4 5 | 88. SA A NS D SD | 118. Y N |
| 29. SA A NS D SD | 59. 1 2 3 4 5 | 89. SA A NS D SD | 119. Y N |
| 30. SA A NS D SD | 60. 1 2 3 4 5 | 90. SA A NS D SD | 120. Y N |

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Appendix G: Child-Parent Relationship Scale Used in Chapter 4 and 5

CHILD-PARENT RELATIONSHIP SCALE

Robert C. Pianta

Child: _____ Age: _____

Parent: _____

Please reflect on the degree to which each of the following statements currently applies to your relationship with your child. Using the scale below, circle the appropriate number for each item.

Definitely does not apply 1	Not really 2	Neutral, not sure 3	Applies somewhat 4	Definitely applies 5
-----------------------------------	--------------------	---------------------------	-----------------------	----------------------------

1. I share an affectionate, warm relationship with my child.	1	2	3	4	5
2. My child and I always seem to be struggling with each other.	1	2	3	4	5
3. If upset, my child will seek comfort from me.	1	2	3	4	5
4. My child is uncomfortable with physical affection or touch from me.	1	2	3	4	5
5. My child values his/her relationship with me.	1	2	3	4	5
6. My child appears hurt or embarrassed when I correct him/her.	1	2	3	4	5
7. My child does not want to accept help when he/she needs it.	1	2	3	4	5
8. When I praise my child, he/she beams with pride.	1	2	3	4	5
9. My child reacts strongly to separation from me.	1	2	3	4	5
10. My child spontaneously shares information about himself/herself.	1	2	3	4	5
11. My child is overly dependent on me.	1	2	3	4	5
12. My child easily becomes angry at me.	1	2	3	4	5
13. My child tries to please me.	1	2	3	4	5
14. My child feels that I treat him/her unfairly.	1	2	3	4	5
15. My child asks for my help when he/she really does not need help.	1	2	3	4	5
16. It is easy to be in tune with what my child is feeling.	1	2	3	4	5
17. My child sees me as a source of punishment and criticism.	1	2	3	4	5
18. My child expresses hurt or jealousy when I spend time with other children.	1	2	3	4	5
19. My child remains angry or is resistant after being disciplined.	1	2	3	4	5
20. When my child is misbehaving, he/she responds to my look or tone of voice.	1	2	3	4	5
21. Dealing with my child drains my energy.	1	2	3	4	5
22. I've noticed my child copying my behavior or ways of doing things.	1	2	3	4	5
23. When my child is in a bad mood, I know we're in for a long and difficult day.	1	2	3	4	5
24. My child's feelings toward me can be unpredictable or can change suddenly.	1	2	3	4	5
25. Despite my best efforts, I'm uncomfortable with how my child and I get along.	1	2	3	4	5
26. I often think about my child when at work.	1	2	3	4	5
27. My child whines or cries when he/she wants something from me.	1	2	3	4	5
28. My child is sneaky or manipulative with me.	1	2	3	4	5
29. My child openly shares his/her feelings and experiences with me.	1	2	3	4	5
30. My interactions with my child make me feel effective and confident as a parent.	1	2	3	4	5

Appendix H: Rough and Tumble Play-Quality Scale Used in Chapter 4 and 5

	1 <i>None/Not at all</i>	2 <i>A little/ Hardly</i>	3 <i>Some</i>	4 <i>Moderate amount</i>	5 <i>A great deal</i>
1. Father enjoys the game (smiling, enthusiastic, facial expression showing this, possibly positive verbalization, warm/enthusiastic tone of voice.)	No indication of positive affect; some negative affect (looks serious, sour, disinterested, bored, or annoyed).	Neutral, or disinterested, very rare smiles or talking.	Some indications of positive affect, smiling; possibly low level laughter; some verbals; may not have all of these.	Consistent obvious enjoyment, smiling, moderate laughter, some verbalisation; may not all of these.	Totally immersed in game emotionally; sense of joy with child; smiling; laughing; talking;
2. Father is physically engaged in the game with the child.	No engagement or very low level of game-related activity; little effort; moves slowly.	No evidence of optimal physical movement; moving slowly/clumsily; physically loses energy and/or breaks game	Evidence of optimal physical movement; but can lose energy; breaks or stops games; variation in level of physicality; may be slowish.	Reasonable consistency in level of moderate level of physicality.	Is fully active for the game type, full attempts all parts of the game; highly physical.
3. Father is playful and animated.(exaggerated movements, animated pretending such a pretend gruffness or losing, spontaneity, creativity and silliness)	No spontaneity, expressiveness, fun, creativity and/or silliness.	Little spontaneity, expressiveness, fun, creativity and/or silliness.	Sporadic, inconsistent moderate spontaneity, expressiveness, fun, creativity and/or silliness; or not consistent; may be half-hearted, OR lowish level of playfulness etc...	Consistent spontaneity, expressiveness, fun, creativity and/or silliness, although this is still at not optimal intensity of expression.	Demonstrating high degree of spontaneity, expressiveness, fun, creativity and/or silliness.
4. Father good-natured acceptance at losing/or loss/or child gains/successful moves.	Annoyance, resignation, resentment, ignoring child's efforts to win or does not allow child to win.	Not angry but may show hurt ego; little joy felt for the child winning; appears disengaged because of the loss;	Passive acceptance with little joy felt for the child; or little acknowledgement	Clearly accepts child's wins, e.g., verbalisation, exclamation.	Highly affirming, acknowledges, pleased at child's efforts or wins; no negative reaction; no evidence of father ego
5. Father successfully regulates child's emotional energy levels and engagement to an optimal level to maintain interest and engagement in the play (arouses, calms, regulates).	Father is not aware of and does not respond to changes in child's emotional energy level and engagement, may allow out of control/disengaged behaviour.	Father is aware of child's emotional energy level and engagement, but seems not to care or know how to respond; attempts some techniques (e.g. gives inappropriate response) but may be unsuccessful in helping child regulate and successfully reengage in the play.	Father is aware of child's emotional energy and engagement and attempts to regulate or reengage the child. Is successful in regulating the emotional energy level or re-engaging the child at times, but also some evidence of child mismatch in the emotional energy to game & father (low or hi).	Father engages in play at the child's emotional energy level, and is generally successful is using appropriate techniques to regulate emotional energy level while maintaining child's engagement and interest.	Highly responsive to child's emotional energy levels; successfully excites child when they are disengaging, losing interest or motivation, or helps child to regain control, not go over the top. Quick child response.
6. Father is tuned in to where child is at so that he that he adjusts his effort and technique, being ready to follow their lead. .	Does not appear to recognise child's ability or motivation; does not notice or adjust effort & technique to child; does not follow child's leads; father plays alongside.	Rarely recognises or adjusts to child cues of ability or motivation; and/or not successful at this, e.g., continually using same failed challenge.	Recognises & adjusts to some child cues of ability or motivation, and/or there are a few successes in correctly recognising child's needs, leads.	Recognises and adjusts to most child cues, although there are a few instances where he misreads, misjudges child's needs, leads.	Recognises and adjusts to child's ability to win, participate at each turn; motivates child to participate; most initiatives are successful; rare misses of child's needs, leads etc.
7. Discord or negative interaction in game (evidence of either child upset, frustrated, refuses to play, or breaks game).	1 - Persistent negative interaction between both throughout	2 -Frequent periods of discord between both	3 –About two periods of discord but not often	4 -About one period of discord between both	5 - No evidence at all
8. Father is able to repair connection between them when needed (notices child distance or child loss of bout etc. and reacts positively/ sensitively).	Does not notice child's loss of connection.	Recognises break of connection but does not attempt to repair.	Makes repair moves but it takes long time to repair connection if at all.	Makes repair moves, but child response not immediate; may see some hangover of disconnection.	There is no loss of connection, or if there is, repair is successful and father and child are close, there is smooth transition back into game. Quick child response.

9.	Child enjoys the game (smiling, enthusiastic, facial expression showing this, possibly verbals.)	No indication of positive affect; possible neg affect (looks serious, sour, disinterested, bored, or annoyed).	Occasional smiling; no laughter; little enjoyment and/or only sporadic pleasure, not lasting.	Obvious smiles but inconsistent; low level laughter or some verbals; sense of low-key enjoyment.	Consistent obvious enjoyment, moderate laughter, some verbalisation &/or playfulness; may not have all of these.	Totally immersed in game emotionally; highly expressive; Smiling; laughing talking; active body; playfulness, animation.
10.	Child physically engaged in game.	No or very low level of game-related activity; little effort; moves slowly.	No evidence of optimal physical movement; moving slowly/clumsily; physically loses energy and/or breaks game.	Evidence of optimal physical movement; but can lose energy; breaks or stops games; variation in level of physicality; may be slowish.	Reasonable consistency in moderate level of engagement.	Is fully active for the game type, full attempts all parts of the game; highly physical.
11.	The bouts are completed with enjoyment and enthusiasm for both.	There is no evidence of both enjoying the same things.	Little evidence for both enjoying the same things; obvious uneven enjoyment across father/child, one much more or less than the other; little enjoyment for both.	Seem to both enjoy some things; fairly consistent smiling at each other; little or no laughing together; one may be enjoying it more than another.	Generally both enjoying the game, but not highly expressive of shared enjoyment; could be some distance in physical proximity, or little eye contact.	Totally immersed in each other emotionally; Laughing at the same things; immediate physical responses to each other; may include talking to each other; both appear to be enjoying it as much as the other.
12.	Dominance: There is a give and take balance between father and child in gaining the upper hand, winning and losing, being superior or in charge of the play. Give and take, or sharing the upper hand, or being superior, or being in charge of play is balanced for this bout FOR THIS DYAD.	Father or child appears to be gaining upper hand all the time. No sharing of superiority, being in charge of the play, gaining the upper hand, or winning the game/bout.	One or more instance of balance of superiority, but either the father or child is clearly in charge and winning almost all the time.	Several examples of balanced superiority: being in charge of the play, gaining the upper hand, winning and losing, but there is hesitancy and the balance is uneven or clumsy with one giving or winning significantly more than the other.	Multiple examples of both partners having opportunities to gain the upper hand, win and lose, and be in charge of the play.	Winning/losing balance is successful in this bout, not necessarily equal.
13.	Harmonious interaction where warmth is reciprocal and both have same focus of attention.	No reciprocity, no evidence of mutual warmth or shared happy feelings.	Low reciprocity, one not focused on game/other; mismatch of responses, inappropriate responses.	May share low warmth; some evidence of matching affect; however not consistent; evidence of mismatch along cues, attention, or affect. Lack of reciprocity.	Consistent level of (lowish to moderate) warm, reciprocal feelings. Not highest level of harmony and warmth; possibly see some lag/disruption/disconnection.	High level of reciprocity, each mirroring other's affect, immediate responsive to cues, same focus of attention. Child centred, harmonious, warm interaction.
14.	Father successfully motivates child to remain optimally engaged in the game; to keep going, or re-join the game if required.	Does not try to encourage the child in the game; no recognition of loss of interest.	Does try but encouragement is not/rarely successful; and/or other times does not notice or attempt.	Some successful attempts at encouraging the child to engage in the game; other times does not notice or attempt. Or not successful.	Attempts are mostly successful. May still be occasions where father does not notice child's need to be encouraged (rarely) or attempts are unsuccessful.	Motivates child throughout game even if child not losing (game type). Sensitive to child's level of interest.
		<i>Not at all satisfied</i>	<i>Slightly satisfied</i>	<i>Moderately satisfied</i>	<i>Very satisfied</i>	<i>Extremely satisfied</i>
15.	End game behaviour child (from Sad, lethargic, bored to pleased, satisfied, triumphant)	1	2	3	4	5
16.	End game behaviour father (from Indifferent, bored to delighted)	1	2	3	4	5
	Totals	0		18	24	20
	Grand total this video (sum of cells in row above)	62				

Appendix I: RTP Parent and Child Behaviour Scale Used in Chapter 4 and 5

RTP Two-Bag Scales © 2019

RTP Parent and Child Behaviour Scale; RTP-PCB

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BACKGROUND

Rough-and-Tumble play was one of two activities parents and children completed as part of a 20-minute set of parent-child interactions videotaped either in the home or at the University of Newcastle's Play Lab. During the task, the dyad was asked to play two different RTP games (Sock Wrestle and Get-Up). The parent was told that they had 10 minutes to play both games.

RTP Parent and Child Behaviour Scale (RTP-PCB, Robinson & Freeman 2019). The following scales were adapted under the supervision of Dr Emily Freeman at the University of Newcastle. They are based on the EARLY HEAD START RESEARCH AND EVALUATION PROJECT: Child-Parent Interaction Rating Scales for the Three-Bag Assessment 24-Month Wave (Brady-Smith, O'Brien, Berlin, Ware & Brooks-Gunn, 1992).

I. SCALES FOR PARENT'S BEHAVIOUR

- A. Parental Sensitivity
- B. Parental Positive Regard
- C. Parental Negative Regard
- D. Parental Detachment

II. SCALES FOR CHILD'S BEHAVIOUR

- A. Child Engagement of Parent
- C. Child's Negativity Toward Parent

III. DYADIC SCALE: Mutuality/Connectedness

IV. REFERENCES

V. ACKNOWLEDGMENTS

A. Parental Sensitivity

This scale focuses on how the parent observes and responds to the child's cues (gestures, expressions, and signals) during times of distress as well as non-distress. The defining characteristic of sensitivity is that it is **child-centred**. Sensitive parenting involves "tuning in" to the child and manifesting awareness of child's needs, moods, interests, and capabilities.

At 24 months, the toddler is likely to display needs for autonomy (i.e., when the child tries to do things in his/her own way and actively explores). Sensitive parenting involves balancing support with setting limits. Needs for dependency on the parent may be seen, yet struggles between needs for dependency and needs for autonomy may also be evident. Sensitive parenting involves being flexible in supporting and responding to the opposing desires that can be present simultaneously in the child.

Sensitive parenting in this assessment involves structuring the child's physical and social environment so that the child has interesting options for play, so that the child's preferences can be honoured within reason, and so that the child can remain effectively engaged in playful or goal-directed activity. Sensitive parenting is also characterized by frequent encouragement, withholding criticism, and balancing both the giving of support and encouraging of independent exploration so that the child can experience success, pride, and can begin to develop effective self-regulation skills.

Parental sensitivity permits the child as much choice, control, and autonomy as possible even while enforcing necessary rules, regulations, and constraints. A sensitive interaction is well-timed and paced to the child's responses, a function of its child-centred nature. Such interactions appear to be "in sync." If the child initiates interaction with the parent or makes demands, desires, or requests, sensitive behaviours include responding to the child's behaviour and speech and pacing activities to keep the child engaged and interested. A parent displaying sensitivity allows the child to shape the interaction, in general, and to disengage when he/she loses interest. It is important to recognize, however, that parental sensitivity to the child's interests typically **maximizes** engagement and interest.

If the child appears disengaged, sensitive parenting involves taking time to re-engage the child in a manner that demonstrates awareness of and sensitivity to the child's mood and preferences for play style and content. For example, if the child is uninterested, the parent may provide them with new activities, or other engaging opportunities.

Indicators of Sensitivity:

- Acknowledging the child's affect
- When the child is distressed, angry or frustrated: speaking sympathetically to the child, approaching the child, redirecting the child's activities, hugging, patting, picking up, or

- holding the child in lap and rocking
- Responsiveness to the child's vocalizations and/or activities
- Facilitating (but not over-controlling) the child's play
- Changing the pace when the child appears under-stimulated, overexcited, or tired
- Picking up on the child's interests and timing activities to reflect the child's interest
- Matching the child's affect (e.g., increasing or decreasing expression as the child does so)
- Providing an appropriate level of stimulation and appropriate range and variety of activities
- Gentle and patient handling of the child's off-task behaviour
- When the child is not making bids, allowing the child to keep him/herself busy
- Demonstrating developmentally appropriate expectations of child behaviour
- Indicators of Insensitivity:
 - Ignoring the child
 - Responding in a listless manner
 - Overstimulating and intrusive interactions (e.g., continuing in attempts to engage the child even when the child is providing cues that s/he is seeking to end the interaction)
 - Excessive prohibitions
 - Inappropriate and/or harsh discipline

Ratings on this scale should be based on both *quantity* and *quality* of parental behaviour.

Parental Sensitivity Scale:

1. Very Low Sensitivity. Interactions are characteristically adult-centred and/or the parent is unavailable and non-responsive to the child's signals, moods, interests and needs.
2. Low Sensitivity. There is little evidence of parental sensitivity. Most of the interaction is adult-centred and/or the parent is mostly not contingently responsive.
3. Moderately Low Sensitivity. Parent displays infrequent and/or weak indicators of sensitivity. While the parent is sometimes sensitive, the balance is in the direction of insensitivity.
4. Moderate Sensitivity. The frequency and quality of the parent's sensitivity and insensitivity are about equal. It is this inconsistency which prevents the parent from receiving a higher rating.
5. Moderately High Sensitivity. Parent displays more sensitivity than not. The parent demonstrates sensitivity in many interactions, but may show some insensitivity.
6. High Sensitivity. Parental behaviour is characterised by sensitivity but the parent may show minimal insensitivity by hesitating to respond to distress, "missing" a signal from the child.
7. Very High Sensitivity. Parent is very sensitive and responsive throughout the interaction. Insensitivity is never striking. Interactions are child-centred.

D. Parental Positive Regard

This scale taps the parent's expression of love, respect and/or admiration for the child. Positive regard is evident in the way(s) in which the parent listens, watches attentively and looks into the child's face when talking to him/her. Parents who give praise without a warm tone as well as those who fail to praise when the opportunity presents itself, would not receive the highest score.

"Thank you," is considered a low level indicator of praise unless it is also accompanied by other indicators of positive regard (e.g., saying "thanks" in a warm tone and smiling or hugging the child rather than just saying "thanks" with relatively flat affect).

Indicators of Positive Regard:

Speaking in a warm tone of voice

- Hugging or other expressions of physical affection
- Smiling or laughing with the child
- Enthusiasm about the child
- Praising and/or complimenting the child
- Clear enjoyment of the child
- Showing concern and/or empathy for the child's distress

Ratings on this scale are based on both *quantity* and *quality* of positive regard. It is important to note that positive regard is not necessarily the absence of negative regard, so a parent scoring high on positive regard may also exhibit many negative behaviours which would be coded under Parental Negative Regard.

Parental Positive Regard Scale:

- 1. Very Low Positive Regard.** Parent displays no positive regard.
- 2. Low Positive Regard.** Parent displays almost no positive regard. One or two fleeting instances of positive regard may be observed. These positive expressions (laughing, smiling), however, appear to be inappropriate to the situation or an inaccurate expression of parent's feeling. The parent may be expressionless, flat or negative.
- 3. Moderately Low Positive Regard.** Parent displays infrequent and/or weak signals of positive regard. The intensity and frequency of positive regard are low.
- 4. Moderate Positive Regard.** Parent displays some positive regard, but it is not predominant in the interaction. There may be signs of general enjoyment, warmth, and positive expressions but they are neither intense nor frequent (e.g., parent may be positive to the child, but the gives no direct praise (or weak praise) and/or rarely retains eye contact with the child).
- 5. Moderately High Positive Regard.** Parent frequently displays positive regard, which may include some praise of the child, or consistent, clear enjoyment of the child.
- 6. High Positive Regard.** Parent frequently displays positive regard and praise. Some of these expressions are clearly enhancing of self-esteem and directed to the child's behaviour or individual attributes/qualities.
- 7. Very High Positive Regard.** Parent is very positive throughout the session in terms of facial and vocal expressiveness and behavior. Affect is positive and spontaneous. The parent shows a range of expressions and behaviours which are all clearly positive. The parent's consistent expressions of positive regard are clearly enhancing of the child's self esteem.

E. Parental Negative Regard:

This scale reflects the parent's expression of discontent with, anger toward, disapproval of, and/or rejection of the child. When scoring negative regard, focus on the parent's negative behaviours toward the child. It is not necessary to weigh the parent's positive behaviours (these are captured in the Positive Regard scale).

A parent scoring high on this scale clearly and overtly rejects the child, is physically rough, and/or otherwise explicitly indicates that s/he does not support the child emotionally. A parent scoring low on this scale may be supportive *or* devoid of emotion, but does not blame or express disregard for or anger toward the child.

Given the low frequency and the clinical relevance of rejecting one's child during a videotaped session, any events which are clearly hostile should be weighted strongly in this score. More subtle behaviors (e.g., sigh of frustration, cold looks) can lead the coder to rate negative regard anywhere from a "2" to a "5" depending on the intensity and frequency of the behaviours.

Indicators of Negative Regard:

- Disapproving and/or negative voice
- Signs of frustration (e.g., sighs, rolling eyes)
- Cold looks toward child
- Snappish responses to the child's bids
- A sense of underlying exasperation and/or frustration
- Harsh vocalisations and/or verbalisations (e.g., "Shut up!" "Get back on the mat right now!")
- Physical roughness with the child (e.g., yanking the child's arm, slapping or hitting the child)

- Abruptness with the child (e.g., curt, business-like comments without eye contact)
- Tense body, facial muscles, or strained expression
- Threatening posture or punitive behaviour (e.g., looming over the child in a menacing way; "If you don't get over here right now, I'm going to get you.")
- Threatening the child (verbally or physically) for failing at a task (e.g., "If you don't start trying harder, I'm going to stop playing with you")
- Calling the child unflattering names or belittling the child's efforts

Ratings on this scale are composed of both *qualitative* and *quantitative* evaluations. The amount and intensity of negative regard exhibited is evaluated in relation to the duration of the observation period.

Parental Negative Regard Scale:

- 1. **Very Low Negative Regard.** Parent shows no signs of negative regard. S/he may or may not be supportive, but does not derogate or reject the child. Passive or emotionally uninvolved parents would be given this score if they do not display behaviours indicative of negative regard. No signs of subtle negative behaviours (cold looks, sighs of frustration) are noted.
- 2. **Low Negative Regard.** Parent conveys some negative regard once or twice, or through muted forms of negativity (e.g., pulling away, pulling something away from the child with a jerk, brief displays of exasperation, looking at the child coldly for a brief time, teasing with a negative content but with accompanying humour or warmth, parroting or mimicking the child). Or, parent shows a diffuse level of discontent, discomfort, or boredom, not necessarily directed at the child.
- 3. **Moderately Low Negative Regard.** Parental signs of negative regard are fleeting but occur on several occasions during the session (either one behavior is identified as clear and overt or a sense of accumulating unexpressed negativity or anger toward the child is seen in the parent's behavior). The general interaction, however, is not characterised by negative regard.
- 4. **Moderate Negative Regard.** Parent displays several instances of frustrated or rejecting behaviours (with angry undertone directed at the child). Two or more of these events are overt, but negative expressions are brief and do not set the tone of the parent's behaviour.
- 5. **Moderately High Negative Regard.** Parent exhibits overtly exasperated, negative, or hostile behaviour several times. Overt and clearly communicated negative expressions of hostility or anger appear intermittently throughout substantial periods of the session. Parental behaviour is more negative than not, either by the frequency of hostile behaviour and/or by the intensity of these behaviours.
- 6. **High Negative Regard.** Parent frequently expresses rejection and hostility toward the child. There are little or no displays of warmth during substantial portions of the session, especially after parent becomes irritated with the child (e.g., parent may initially be warm and then reject the child strongly). Parent is frankly and directly rejecting and hostile (e.g., using negative performance feedback but little positive feedback; blaming the child for failure (e.g., "Look, now you broke the stove"); overtly refusing to recognise the child's

success (e.g., "You couldn't have done it without me showing you!"). Physical roughness, threatening and/or punitive comments and/or behaviours may be noted.

- 7. **Very High Negative Regard.** Parental behaviours are strongly characterised by negativity. Parent shows characteristics of the previous scale point, but expressions of anger toward the child also are accompanied by strong, barely controlled emotions, suggesting the possibility of physical abuse and neglect of the child in some situations. Physical roughness, threatening and/or punitive comments and/or behaviours may be noted.

F. Parental Detachment

This scale measures the parent's awareness of, attention to, and engagement with the child. This includes both the extent to which the parent interacts with the child (i.e., **quantity** of interaction) and the way in which the parent interacts with the child (i.e., **quality** of interaction).

Detachment can take the form of being consistently inattentive, being inconsistently attentive, and/or interacting with the child in a perfunctory/fleeing) or indifferent manner.

A parent behaving in a detached manner does not react contingently to the child's actions or vocalisations (or rarely speaks to the child) and does not facilitate the child's exploration.

There is little joining in the child's play. Parents displaying detachment may "miss" the child's looks to them, vocalisations to them, or other cues that call for parent attention. When a parent displaying detachment does interact with her/his child, the timing is out of sync with the child's affect and responses.

Simply allowing the child to play by him/herself is not necessarily a sign of detachment.

A parent behaving in a detached manner lacks emotional involvement with the child and appears uninterested in the child and his/her activities.

Indicators of Detachment:

- Flat affect
- Rarely making eye contact
- Not talking to the child
- Not responding to the child's vocalisations, smiles or other cues for attention
- Lack of emotional responsiveness to the child's bids or expressions (e.g., the parent does not smile in response to the child making eye contact and smiling at the parent)
- Ignoring or being unaware of the interesting things the child does
- If the parent does look at the child, the following are indicators of visual detachment:
 - Briefness of looking
 - Blank, indifferent staring
 - Delay(s) in looking

- If the parent does speak to the child, the following are indicators of verbal detachment:

Listless, monotonic, emotionless tone

Short, clipped responses; business-like, to-the-point speech; not using the child's name

Speaking without looking at the child; speaking while looking indifferently or "through" the child; only giving a perfunctory(fleeting) glance while speaking

This scale consists of both *qualitative* and *quantitative* components. When scoring detachment, it is particularly important to consider the rate, intensity, and valence of the infant's affective signals.

It is especially important to realise that unresponsiveness to infant distress is an indication of greater detachment than is unresponsiveness to positive bids.

Likewise, parental detachment when the infant is sending many or intense signals is scored higher than when the infant is relatively quiet and content. Even when a child makes no bids to the parent, however, a parent who is not detached must display at least some attention toward the child (e.g., looking at child, smiling in child's direction, talk to child).

Parental Detachment Scale:

1. Very Low Detachment. Parent shows no signs of detachment. When interacting with child, the parent is clearly emotionally involved. The parent may be behaving in a warm or intrusive manner.

2. Low Detachment. Parent displays almost no signs of detachment. The parent rarely displays indicators of mild detachment (e.g., may seem to "check out" for a very brief period or occasionally may "miss" some of the child's cues due to momentary lack of emotional involvement).

3. Moderately Low Detachment. Parent displays minimal detachment. Parent is somewhat disengaged, but is clearly more involved than not.

4. Moderate Detachment. Parent displays a mixture of involvement and detachment. Parent may have a prolonged period of detachment, but the rest of the session is characterised by involvement. Or, parent may have several short periods of detachment separated by periods of involvement.

5. Moderately High Detachment. Parent displays significant detachment. Although parent is sometimes involved, s/he is clearly more detached than not during the interaction.

6. **High Detachment.** Parent is detached throughout most of the interaction. The parent's "style" of interaction can best be characterised by detachment. Periods of parental involvement are infrequent and/or weak.

7. **Very High Detachment.** Parent is so detached that almost no attention is given to the child, even when parent is within a suitable distance for interacting. In the minimal instances of involvement, the parent's behaviours are simple, mechanical, stereotyped, repetitive and perfunctory. The parent is clearly not emotionally involved with the child and appears to be "just going through the motions."

II. SCALES FOR CHILD'S BEHAVIOR:

A. Child Engagement of Parent:

This scale reflects the extent to which the child (a) shows, initiates, and/or maintains interaction with the parent and (b) communicates positive regard and/or positive affect to the parent.

At the higher end of the scale, the child expresses sustained positive affect toward parent (i.e., a big smile, laughter, etc.) and frequently looks at and attempts to interact with the parent.

Indicators of Child Engagement:

- Approaching or orienting toward parent
- Looking at, establishing, and/or maintaining eye contact with the parent
- Positively responding to parent's play initiations or suggestions (e.g., initiating parent, following parent's direction)
- Directing or (at a higher level) sharing positive expressions with parent
- Engaging parent in play or sustaining play initiated by parent
- Indicators of Child Disengagement:
 - No sharing of affect with parent
 - Overt rejection of parent's play overtures
 - Positioning or orienting away from the parent
 - Engaging in self-occupied play which excludes the parent
 - Ignoring suggestions from parent

The focus of this scale is on the *quantity* (frequency) of occurrences in which the child shares positive affect with parent (i.e., looking at parent, making eye contact and smiling, and other "approach" behaviors). When scoring this scale, keep in mind that the *quality* (intensity) of expression is secondary to the *quantity* of occurrences.

Child Engagement Scale:

1. **Very Low Engagement.** The child clearly does not attempt to share experiences with parent. Failure to make eye contact with parent when expressing happiness, directing expressions of happiness to the experimenter rather than to the parent, and similar behaviors can be used as evidence that the child attempts little sharing of feelings with parent.
2. **Low Engagement.** The child has very minor incidents which seem expressive of positive regard toward parent and from which one might infer that some positive feelings are expressed toward her. However, the child largely shows no positive regard toward parent and rarely responds to parent or attempts to engage or sustain play with him/her.
3. **Moderately Low Engagement.** The child shows some positive regard, attempts to engage, and/or responses toward the parent, but they are few, brief and/or mixed in quality. The tone may be ambivalent and/or conflicted in such expressions.
4. **Moderate Engagement.** The child shares some happy expressions with parent and/or makes some attempt to engage or sustain play with parent, but these are only minor elements of interaction and are not sustained by the child for more than a moment at a time. Likewise, the child may include parent in play, but the play is not sustained for very long.
5. **Moderately High Engagement.** The child has one or more periods in which s/he engages the parent by expressing positive regard, sharing happy expressions, or sustaining play with the parent. The child expresses positive affect toward and engagement of the parent for at least one portion of the interaction.
6. **High Engagement.** The child is expressive, warm, and engaging of the parent for at least one substantial period of the session. The duration of such interaction is at least one minute, and there is no ambivalence in the child's expression of feelings toward the parent.
7. **Very High Engagement.** The child demonstrates a very positive, engaging and sharing relationship toward the parent for a substantial period of the session. Sustained play is accompanied by positive regard toward the parent. The child is consistently engaging of parent and the child's relationship with parent seems very warm and positive for a major portion of the session.

C. Child Negativity Toward Parent:

This scale measures the degree to which the child shows anger, hostility, or dislike toward parent. At the high end, the child is repeatedly and overtly angry with parent (e.g., forcefully rejecting parent's ideas or showing angry and resistant expressions).

It is important to note that at this age, the child may express negativity toward parent by hitting the floor, or him/herself or pushing the parent away. Likewise, a child at this age may use a negative expression to communicate that s/he wants or does not want to do something ("No!"). For these reasons, it is important to *note the context of the negative expression* in order to determine the extent to which it is directed toward the parent.

For the lowest rating, there are neither overt nor covert signs of such anger. Expressions are essentially positive toward parent whether or not the child is compliant or much involved with her/him. Low ratings may include brief instances of frustration or rejection of the parent's help.

The focus of this scale is primarily quantitative. Ratings are based mainly on the occurrence of negative behaviour. Assessments of quality come in when considering the intensity of the negative behaviour(s).

Child Negativity Scale: (note resistance needs to be negative in nature = angry resistance)

1. **Very Low Negativity.** Child shows no signs of negativity toward parent. The session is characterised by consistent, positive interactions with parent, indicating that the child is having a truly positive interaction with her/him.
2. **Low Negativity.** Child shows no overt indications of negativity toward parent, but the tone at times may indicate frustration with parent (i.e., fussing, mild protesting). The child may briefly or mildly protest an action, but it does not clearly indicate anger toward parent.
3. **Moderately Low Negativity.** Child displays negativity toward parent only briefly in an overt fashion, but these suggest some anger and resistance in the child's interactions with parent.
4. **Moderate Negativity.** Child shows overt negativity toward parent on several occasions or on one significant occasion, but these are rather isolated episodes, separated by periods in which the child behaves positively or contentedly toward parent.
5. **Moderately High Negativity.** Child frequently displays negativity or displays a few instances of strong or intense negativity which suggest clear anger and resistance in the child's interactions with the parent, but these are not predominant in the interactions.
6. **High Negativity.** Child's negativity toward parent is a predominant aspect of his/her interactions with parent, but it is shown in more sporadic and less intense ways than it is for a child rated "7."
7. **Very High Negativity.** Child is repeatedly and overtly negative, angry and resistant toward parent. The child's negativity seems so strong that it pervades the interaction.

III. DYADIC SCALE:

Mutuality/Connectedness

This scale measures the degree to which the parent and the child's interaction is characterised by synchrony, comfort, and mutual pleasure. In a dyad high on mutuality/connectedness, the parent and the child appear to share perspectives, energy levels, and affective states.

This scale differs from the other scales in that it measures the child and parent as a unit. At the higher end of this scale, the dyad functions in a consistently cohesive manner. Parent and child seem to enjoy each other thoroughly and there are few or no ambivalent or anxious behaviours in the interaction. The parent is comfortable in her/his role and is able to anticipate or gauge the child's cues.

Note that energy or activity level is not a determining factor in this scale. *For example, both a high-energy dyad and a relatively calm dyad could be given high scores as long as they seem "in sync" throughout the interaction.* If the energy level of the dyad seems "mismatched," however (i.e., a calm child with a hyper parent), the dyad would not be considered "in sync."

Low scores characterise a dyad that seems to operate as two separate entities. Goals are not shared and neither child nor parent acts to please the other. The child may behave in a confused manner, unsure of, unaware of, or anxious about what is going on, and unable to seek or find comfort in the parent. Or, the parent may seem oblivious to the cues of the child and/or react inappropriately to these cues.

At the middle range of this scale, the dyad may seem content with one another, yet experience periods of disconnection or appear uneven or "out of sync." In an uneven dyad, the parent may initiate play strategies that the child consistently rejects. Or, the child may attempt to engage a non-responding parent.

Indicators of Mutuality/Connectedness:

- Pleasure and comfort in being with each other
- Matching of energy and affect levels throughout the interaction
- Synchrony of flow in the interaction (i.e., shared perspectives and goals, easy give-and-take in behavioural and vocal interactions)

- Parental or child behaviours indicating a desire to please the other

- Parental acknowledgment of distress and attempts to relieve it

- Shared eye contact

Indicators of Lack of Mutuality or Disconnection:

- Parent ignoring or trivialising the child's distress
- Child turning away from parent to seek comfort from something or someone other than parent
- Child not responding to parental overtures
- Little or no behavioural and/or vocal turn-taking
- Conflicting goals for play
- Lack of eye contact
- Little or no physical contact
- Not facing or orienting toward one another

Ratings of this scale are made according to both quantitative and qualitative aspects of the interaction. Ratings are based on the duration (quantity) of time that the dyad appears connected and on the *quality* of their connectedness.

Dyadic Mutuality/Connectedness Scale:

1. **Very Low** Connectedness. The interaction between the child and parent is reminiscent of "ships passing in the night." There is a sense of little affective investment and little involvement with one another. There is remoteness between the parent and the child, and a distinct lack of connection.

2. **Low** Connectedness. Dyad displays almost no signs of connectedness. Only a few brief instances of connected behaviour are observed, and these are fleeting and/or ambivalent in nature.

3. **Moderately Low** Connectedness. Dyad is more disconnected than connected throughout the session. Although there may be periods of connection, these are generally followed by longer periods of disconnection.

4. **Moderate** Connectedness. Dyad displays a mix of connected and disconnected behaviour. One person may convey a sense of closeness, but the other does not. Or, dyad displays conflicted goals and/or disconnectedness as much as connectedness.

5. **Moderately High** Connectedness. Dyad is more connected than not throughout the session. Some markers of disconnection may be seen, but these are generally followed by periods of connection.

6. **High** Connectedness. Dyad displays connectedness throughout the session. Dyad seems comfortable with one another, although there may be one or two brief instances of disconnection.

7. **Very High** Connectedness. Dyad is closely connected. Affect levels and dyad goals are matched. There are no markers of disconnection. As a whole, the interaction between the child and parent is characterised by intimacy, smoothness, comfort, and connectedness. There is a sense of familiarity and genuine closeness between the child and parent.

Appendix J: RTP Play Instructions Used in Chapter 5

Play Instructions

Play area size recommendation: 2m x 1m area, indoors and away from other distractions (tv, music, other family members, pets etc).

You are asked to partake in 2 types of play: Rough-and-Tumble play and Toy play. Each play will be 10 minutes in length (20 minutes of play time all up).

- Please set a 10-minute timer so you know when the time is up.
- Place your smart phone in a location that will capture the whole area of play.
- Place your smart phone on airplane mode (calls will stop your recordings, so airplane mode prevents this from occurring). Alternatively, if you have a gopro or video camera you can record the play in that format.
- Start recording and play one kind of play at a time (10 minutes at a time).
- At the end of the session please upload these 2 separate video files to your preferred sharing platform (Dropbox, Google Docs etc). Share these files with erin.robinson@uon.edu.au.

Play 1: Rough-and-Tumble Play (10 minutes):

You have 2 games to play: **Sock Wrestle and Get Up**. You can alternate these games as much or as little as you like throughout the 10 minutes. Explain game to your child before you begin so they know how the games work. Once the child is clear on the game you can begin the 10 minutes of play.

Sock Wrestle: Father and Child each wear a pair of socks. The aim of the game is to steal your play partners sock. Fathers are trying to get the sock off their child's foot and the child is trying to get the sock off their fathers' foot. Once a player has gotten a sock off their opponent, they have won that round. See Figure 1 for a visual example of what this could look like.



Figure 1. Sock wrestle example where father has child's foot trying to get his sock off.

Get Up: In this game fathers and their child take turns trying to hold each other down on the floor. For example: Father lays down on his back and the child tries with all their might to hold him down on the floor, while the father tries to get up off the floor. Then the child gets to lay down and try to get up off the floor while the father tries to stop them. See Figure 2 for an example of Get up.



Figure 2. Child tries to keep his fathers pinned to the floor while the father tries to “Get Up.”

Play 2: Toy Play (10 minutes):

Place two bags in the middle of your play area. Be sure their contents are concealed from the child until the play begins. Tell your child you have two bags of toys and you have 10 minutes to play with the toys inside the bags. Figure 3 contains a visual example of how to set up the toy play bags.

One bag will contain:

- Blocks/Lego (whichever you have available)
- Pretend play items in the other bag (Play food/cooking set if you have one or a toy toolkit, medical kit etc). If you have none of these items on-hand we suggest using cooking items from your kitchen e.g., wooden spoon, pot pan etc.



Figure 3. Toys concealed inside duffle bags.