ADOLESCENTS' ATTITUDES TOWARDS PARENTING PRACTICES AND UNDERSTANDING OF ATTACHMENT

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Thesis Overview

This thesis comprises two volumes, the first is the research component and the second represents the clinical component of the thesis.

Volume I – Research Component

The literature review explores whether children of adolescent mothers are at greater risk of experiencing abuse or neglect. The empirical paper explores whether adolescents' knowledge of attachment can be improved by the use of a DVD teaching tool and whether their pre-existing knowledge or change in knowledge is related to their attitudes towards parenting practices. The third paper is a public dissemination document which summarises the research findings for dissemination to the general public.

Volume II – Clinical Component

The first report details the cognitive-behavioural and psychodynamic formulation of a young woman reporting difficulties managing obsessive compulsive disorder in a Community Mental Health Team. The second details a service evaluation which sought to explore the extent to which a mental health service was delivering trauma-informed care. The third is a single-case design evaluating a psychological intervention with a male service-user with a mild learning disability, who is experiencing obsessive compulsive difficulties. The fourth report is a case study of a 14 year-old girl referred to the Child and Adolescent Mental Health Service for panic difficulties. The final Clinical Practice Report was presented as an oral presentation, outlining a neuropsychological assessment, formulation and proposed intervention conducted with an older adult who had dementia.

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1.0 LITERATURE REVIEW

ARE CHILDREN OF ADOLESCENT MOTHERS MORE LIKELY TO EXPERIENCE PHYSICAL ABUSE OR NEGLECT THAN CHILDREN OF OLDER MOTHERS?

1.1 Abstract

Objective: Women who become mothers during adolescence have been shown to experience a range of challenges which can affect the quality of their parenting practices. This review seeks to explore whether there is an increased risk of child abuse or neglect among children of adolescent mothers. It sets out to answer the following sub-questions: 1. Are children of adolescent mothers at increased risk of abuse? 2. Are children of adolescent mothers at increased risk of neglect?

Method: A systematic review of the literature was conducted using various synonyms of ‘adolescent mother’, ‘abuse’, and ‘neglect’. Ten papers were identified as relevant and these were evaluated using a quality framework for quantitative studies (Kmet, Lee & Cook, 2004). Quality ratings for the identified papers ranged from 0.72 - 0.9.

Findings: The results suggest that children of adolescent mothers are more likely to experience both physical abuse and neglect than children of older mothers. It is, however, not clear whether maternal age is in itself a risk factor, or if risk is associated with additional challenges that are commonly experienced by adolescent mothers.

Conclusion: Despite the difficulty in measuring instances of abuse and neglect due to the biases of self-report methods and the records of medical/child protective services, the research findings to date indicate that child abuse and neglect is more likely to happen to children of adolescent mothers. These preliminary results are discussed with reference to the limitations of the review and recommendations for future research and clinical practice have been proposed.

Keywords: Adolescent mother, maternal age, child abuse, child neglect, child abuse potential

1.2 Introduction

1.2.1 Teenage pregnancy in the UK

Rates of teenage pregnancy have long been higher in the UK when compared with other European countries. There has, however, been a substantial reduction in rates of teenage pregnancies in recent decades.

In 1999, the UK Government developed a strategy known as the *Teenage Pregnancy Prevention Framework* (cited in Hadley et al., 2016). The programme was developed to help '…*young people to develop safe, healthy relationships and prevent unplanned pregnancy … [to enable] them to fulfil their aspirations and potential'* (cited in Public Health England, 2018). This involved a comprehensive programme of action across four themes: collaborative action between agencies at a national and local level; better prevention through improved sex and relationships education with access to effective contraception; a communications campaign to reach young people and parents; and coordinated support for young parents (Hadley et al., 2016). The introduction of this framework also led to the development of a policy and parenting programme called 'Sure Start' (see section 1.2.2).

It was anticipated that reducing rates of teenage pregnancy would also contribute to favourable Public Health and NHS outcomes. This is because pregnant women under 20y are have the following risks: 24% higher rate of still births; 75% higher rate of infant mortality; and 30% greater incidence of lower birth weight (Public Health England, 2018).

The Office for National Statistics (ONS) reported that in 2016 under-18 conception rate was 18.9 per 1,000 (ONS, 2018) compared to 33.2 per 1,000 in 1990. Despite

this recent downward trend, the UK teenage birth-rate still ranks the 6th highest among EU countries and is above the EU average (Eurostat, 2019).

1.2.2 Parenting support in the UK

Further to the Teenage Pregnancy Prevention Framework, in 1998 the UK government developed a programme called ‘Sure Start’ which aimed to provide support for young parents and pre-school children in the most deprived areas of England. Though Sure Start provides support tailored for teenage parents, they support parents of all ages (Glass, 1999). In 2010 there were 3,633 local Sure Start programmes in England, providing services to 2.9 million children under 5y (Bate & Foster, 2017). However, due to austerity measures in recent years, more than a thousand Sure Start centres have closed from 2009 to 2017, and funding has dropped from £3.28bn in 2010/11 to £1.17bn in 2017/18 (Smith et al., 2018).

A report which followed children up at 3y found that children in areas supported by Sure Start programmes were more likely to show positive social behaviour and self-regulation. Problematic parenting was lower, and the family home provided greater stimulation for learning than in the control areas (NESS, 2008). At 5y, children in areas supported by Sure Start programmes had better physical health; their parents provided a less ‘chaotic’ home environment; were engaged in less harsh discipline; and experienced greater life satisfaction (NESS, 2010).

A recent study identifed a range of services available to pregnant teenagers in England, nationwide and locally. These included: housing services, health visiting, social services, education, sexual health, mental health and third-sector organisations (Robling et al., 2018).

1.2.3 Challenges facing adolescent mothers and their children

The quality of parenting that a child receives is widely considered to be the most important risk factor for the child's future emotional and behavioural difficulties (Morawska & Sanders, 2005). The ecological model (Belsky, 1993) outlines factors that influence a mother's parenting across three different levels: 1) individual characteristics of the parent and their child; 2) family characteristics including child-parent interactions; and 3) the broader socio-cultural context (Belsky, 1993).

1.2.3.1 Individual characteristics of the parent and their child

Parenting knowledge

Adolescent mothers often lack parenting knowledge, or knowledge of developmental milestones when compared with older mothers (Bornstein et al., 2010; Flanagan et al., 1995; Jahromi et al., 2013; Karraker & Evans, 1996). Knowledge about appropriate parenting practices and milestones is also associated with the quality of care provided to children by the mother (Diniz et al., 2017). For example, mothers with greater knowledge of child development have been shown to interact with their children more positively (Bornstein and Bradley, 2012). They are also more likely to have age-appropriate expectations of their child, which in-turn promotes the use of appropriate discipline practices (Huang et al., 2005). A recent systematic review showed that parents who have a greater understanding of child development are less likely to be abusive towards their children (September, Rich & Roman, 2016).

Maternal history of abuse/neglect

Mothers who experienced sensitive and responsive care during infancy are more likely to be sensitive and empathic parents than mothers who did not receive such

care, and mothers with a history of abuse or neglect are more likely to be abusive or neglectful towards their own children (van Ijzendoorn, 1995). Bartlett (2014) found that 39% of neglectful mothers had experienced neglect in childhood. Not having a healthy 'blueprint' for suitable parenting seem to make it more difficult to become an effective caregiver (Lounds et al., 2006).

Maternal mental health

Given the high numbers of adolescents experiencing mental health difficulties (NHS Digital, 2018), it follows that a significant number of teenage mothers will experience emotional difficulties during pregnancy and post-partum. One study revealed that 53% of teenage mothers in England and Wales experienced post-partum depression (Moffitt, 2002). Studies have shown that maternal depression is related to harsh parenting practices irrespective of age (Black et al., 2001) and as adolescent mothers are at greater risk of experiencing depression (Sarri & Phillips, 2004), they are subsequently more likely to be abusive towards their child (Windham et al., 2004). However, it is not clear to what extent maternal depression is linked to child abuse, or whether it is mediated by other known risk factors such as maternal abuse history and socio-economic factors (Bartlett et al., 2014).

Infant health

There is also evidence indicating that health difficulties in a child's early years of development can increase the likelihood of neglect (Sidebotham & Heron, 2006; Strathearn et al., 2001). This has been observed in infants who have special needs, postnatal complications or a low birth weight (Fullar, 2008; Strathearn et al., 2001), all of which have been shown to be more common in children of teenage mothers (Public Health England, 2018). It is believed that their unique and increased needs

result in greater parenting stress, and they may be more difficult to soothe or regulate. This may then result in child neglect (Harrington et al., 1998).

Infant development and attainments

Children of adolescent mothers are at greater risk of experiencing developmental and behavioural delays (Lounds, 2006). This can impact on their subsequent cognitive and emotional development, resulting in poorer school attainments and behavioural difficulties which becomes more noticeable as the infant grows older. (Lounds, 2006). Differences are believed to persist into adolescence, where the adolescent child is more likely to have fewer school achievements than their peers (Brooks-Gunn & Fursternberg, 1986). However, when characteristics of the family environment are controlled for, the association between children's educational attainment and their mothers' maternal age is greatly reduced (López Turley, 2003). This indicates that the family environment is an important factor in predicting a child's educational attainment, rather than exclusively maternal age at conception. Nevertheless, one recent study that did control for socio-economic status and maternal IQ found that children of adolescent mothers still had a lower IQ, indicating a potential cognitive disadvantage for these children (Khatun et al., 2017).

Delays in cognitive development place children of adolescent mothers at greater risk of having behavioural problems, such as aggression, poor impulse control and conflict with other children (Spieker et al., 1999). They are also more likely to engage in antisocial behaviour, drop out of school, engage in substance misuse, be incarcerated and become teenage parents themselves (Fursternberg et al., 1990). A 20-year longitudinal study that followed over a thousand children of adolescent mothers found that they were 2-3 times more likely to experience adverse outcomes

in adulthood, including early school dropout, unemployment, violent offending and early parenthood (Jaffee et al., 2001).

1.2.3.2 Family characteristics

Neglect is believed to be more common among families where there are short intervals between births (Crowne et al., 2012). This make-up is more commonly experienced by adolescent mothers, with studies indicating that 20% of births in the US are repeat births within a mother's teenage years (Schelar et al., 2007). This might be because teenage mothers' initial transition to motherhood may have restricted their educational attainments and social opportunities to such an extent that they may perceive few additional costs associated with having another child soon after their first (Barr et al., 2013).

Adolescent mothers are also more likely to be single parents which has been shown to increase the risk of abusive and neglectful acts towards the child (Brown et al., 1998). One study estimated that children in single-parent households are at 77% greater risk of abuse, and 87% greater risk of neglect (Sedlak & Broadhurst, 1996). This is believed to be due to greater parenting burden for the mother caused by the absence of emotional and financial supports.

1.2.3.3 The socio-cultural context

There is an association between mothers' socio-economic status and risk of child maltreatment, such that poverty greatly increases the risk of child maltreatment. One study found that children living in poorer families were seven times more likely to experience neglect than children who lived in more affluent households (Sedlak et al., 2010). Adolescent mothers are more likely to have a poor educational attainment which in-turn limits employment prospects and further adds to the financial burden

(Laopaiboon et al., 2014), and unemployment is itself associated with an increased likelihood of child maltreatment (Gillham, 1998).

Cultures that hold accepting attitudes towards corporal punishment present a greater likelihood of child maltreatment (Belsky, 1993). In contrast, in countries where corporal punishment is banned, instances of child abuse are rare (Zigler & Hall, 1989). Sweden was the first country to ban spanking children in 1979 and in the decades since reported acts of violence against children have declined dramatically, acts of corporal punishment are infrequent and child abuse fatalities are extremely rare (Durrant & Janson, 2005).

There appears to be little research exploring factors that are associated with physical abuse separately from neglect, and vice-versa. A meta-analysis including parents of all ages found that the strongest risk factors for neglect included: parent self-esteem/stress, unemployment and family size. The strongest risk factors for abuse included parental anger, family conflict and low family cohesion (Stith et al., 2009). Despite these differences, the researchers note many similarities between the strength of risk factors for physical abuse and neglect. These include parental depression, single parenthood and socio-economic status.

1.2.4 Aims of the review

This review aims to consider the research findings relevant to whether a mother's age, specifically adolescence[1], is associated with increased likelihood of abuse or neglect of her child.

[1] Studies have defined adolescence in different ways and have therefore included participants of differing ages. For the purposes of this review, adolescence has been defined as 20 years or younger.

The World Health Organisation (WHO) defines child physical abuse as “acts of commission by a caregiver that cause actual physical harm, or have the potential for harm” (WHO, 1999). WHO describes child neglect as the failure of a caregiver to provide for the infant when they are in a position to do so, in any of the following areas; shelter, health, education, nutrition, emotional development and safe living conditions (WHO, 1999).

These definitions of child physical abuse and neglect were used to inform the inclusion/exclusion criteria to ensure that studies were only included if they identified instance of physical abuse and neglect.

The review seeks, where possible, to make comparisons between levels of child physical abuse and child neglect among children of adolescent mothers and children of older (non-adolescent mothers).

This review aims to answer the following questions:

1a) Are children of adolescent mothers at an increased risk of experiencing physical abuse?

1b) Are children of adolescent mothers at an increased risk of experiencing neglect?

1.3 Method

1.3.1 Search strategy

The search strategy is presented in Figure 1.1. Three databases were searched using synonyms for young mothers (including teenage mum/mother, adolescent mum/mother etc.), and child maltreatment (including abuse, neglect, violence). The generic search terms of ‘abuse’ and maltreatment were used to ensure that all studies of abuse were identified, to ensure that studies reporting physical abuse without using the word ‘physical’ are not overlooked. Studies which were identified in the search were subsequently checked to ensure that they defined physical abuse and neglect similarly to how WHO has defined them. Studies which did not define physical abuse or neglect in this manner or did not provide detail of how they were defined were excluded from the review. Searches were limited to studies published within the last 30 years in peer-reviewed journals. The literature search took place in April 2018 and subsequently studies published earlier than 1988 were excluded. Studies identified from all three databases were combined which yielded 533 studies. Duplicates were removed, resulting in 518 studies. Studies were then explored by examining titles and abstracts, using inclusion and exclusion criteria.

Inclusion Criteria:

- Age of mothers 20 years or younger at time of first birth
- English language
- Quantitative methodology
- Peer reviewed empirical study

Exclusion Criteria:

- Studies that measure abuse or neglect potential
- Studies which do not provide detail of how physical abuse and neglect are defined
- Studies whose definitions of physical abuse and neglect are not similar to those outlined by WHO
- Studies which do not make it explicit that they are measuring physical abuse specifically, and not other forms of abuse
- Qualitative data only
- Reviews
- Conference Abstracts
- Editorials
- Studies earlier than 1988

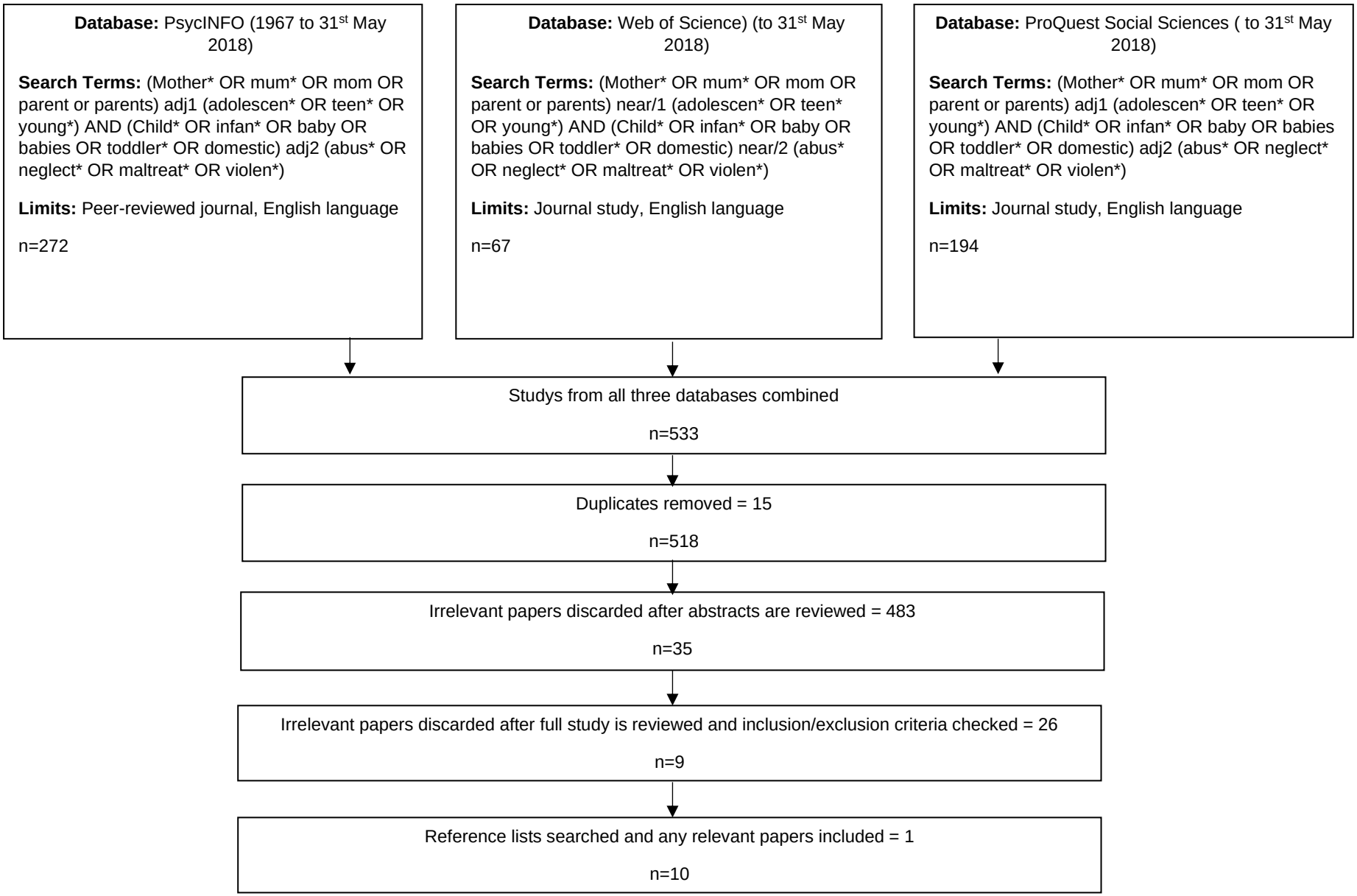

Figure 1.1 - Search strategy used to identify relevant studies

Table 1.1 - Data extraction table providing summaries for each paper included in this review, presented in order of publication date (most recent first)

Study no.	Study and country	Sample characteristics	Design, measures & analyses	Main findings
1	**Lo et al. (2017).** Risk factors for child physical abuse and neglect among Chinese young mothers. *Child Abuse & Neglect, 67*, 193-206. Hong Kong	392 Chinese mothers from Hong Kong. Average age of mothers at childbirth was 18.64 years.	A cross-sectional design identifying risk factors for child physical abuse and neglect among adolescent mothers. Abuse and neglect were measured by self-report, using The Parent-Child Conflict Tactics Scale (CTS-PC). T-tests to compare levels of abuse between mothers. Logistic regression models to determine extent of risk factors in contributing to abuse and neglect.	31.1% of participants physically assaulted their child in the past year. 40.1% neglected their child in the past year. 19.4% reported physical abuse and neglect in the past year.
2	**Bartlett et al. (2014).** An ecological analysis of infant neglect by adolescent mothers. *Child Abuse & Neglect, 38*, 723-734. USA	383 mothers who had their first child between 16-20 years of age. Average age of mothers at the time of their first birth was 18.6 years.	A longitudinal randomised controlled trial (RCT) identifying risk factors associated with child neglect by adolescent mothers. Neglect was measured using data collected by state child protective services. T-tests to compare the differences in ages of mothers who hah and had not maltreated their child.	16% of mothers had neglected their child. There were no significant differences in mothers' age between instances of neglect or no neglect.
3	**MacMillan, H. L., Tanaka, M., Duku, E., Vaillancourt, T., & Boyle, M. H. (2013).** Child physical and sexual abuse in a community sample of young adults: Results from the Ontario Child Health Study. *Child Abuse & Neglect, 37*, 14-21. Canada	1,893 children aged 4-16 years. Data collected at three time-points; wave 1 in 1983; wave 2 in 1987 and wave 3 in 2000-01.	A longitudinal cohort study identifying risk factors for child physical abuse. Physical abuse measured retrospectively at wave 3 using a modified version of the Childhood Experiences of Violence Questionnaire (CEVQ).	Physical abuse associated with adolescent motherhood.
4	**Bartlett & Easterbrooks. (2012).** Links between physical abuse in childhood and	92 adolescent mothers who were enrolled in a program for first-time young parents.	A cross-sectional study investigating the association between maternal age and child neglect	26% of adolescent mothers had neglected their children. One mother was also physically abusive.

	child neglect mong adolescent mothers. *Children and Youth Services Review, 34*, 2164-2169. USA	Mothers were under 17yo at the time of their first child's birth. Participants' average age at childbirth was 16yo.	Neglect was measured through examining the records of state child protective services. Logistic regression was used to analyse the effects of maternal physical abuse on neglecting their own child.	
5	**Lee & Guterman. (2010).** Young mother-father dyads and maternal harsh parenting behaviour. *Child Abuse & Neglect, 34*, 874-885. USA	1,597 mothers were split into three groups based on their age at the time of the birth of their first child. 255 mothers aged <19yo formed the adolescent group; 637 mothers aged 20-25yo formed the young-adult group; 705 mothers aged 26> formed the older-adult group.	A longitudinal cohort study that compared levels of child physical abuse among mothers of different ages. Abuse was measured using the parent-to-child version of the Conflict Tactics Scales (CTS-PC). Abuse was also measured by asking mother if they had spanked their child in the past month during the third-year follow-up. One-way ANOVAs using Bonferroni post hoc tests were used to compare levels of abuse among mothers of different ages.	Older mothers (aged 26+) spanked their child least. Older adult mothers abuse less than young-adult mothers. Young-adult mothers and adolescent mothers abused more than older-adult mothers.
6	**Sidebotham & Heron. (2006).** Child maltreatment in the 'children of the nineties': A cohort study of risk factors. *Child Abuse & Neglect, 30*, 497-522. UK	Participants were 14,256 children who were participating in the Avon Longitudinal Study of Parents and Children.	A longitudinal cohort study identifying factors associated with increased risk child abuse and neglect. Abuse and neglect were measured though examining the records of social care services. Logistic regression was used to analyse the effects of younger maternal age on child physical abuse and neglect.	34.8% of cases of child maltreatment were by young parents (<20y). Adolescent mothers accounted for 31.7% of physical abuse cases, and 29% cases of neglect.
7	**Kinard. (2003).** Adolescent childbearers in later life: Maltreatment of their school-age children. *Journal of Family Issues, 24*(5), 687-710. USA	192 mothers formed the maltreatment group who were recorded on child protective services for child abuse or neglect. 179 mothers formed the non-maltreatment group. Maternal age was divided into three age groups based on mothers' age at the birth of their first child. <17yo (n=61);	A cross-sectional study which compared mothers who had/had not maltreated their child on a range of characteristics. Child abuse and neglect were measured by examining the records of child protective services. ANOVAs were used to compare the instances of abuse and neglect between mothers of different ages.	No significant differences in child maltreatment between adolescent mothers, (<19y) and young-adult mothers (20-24y). Older-adolescent mothers (18-19y) were significantly more likely to have maltreated their children than young-adult mothers (20-24yo). Neglect was more common in young-adolescent mothers (<17yo), and abuse was more common in adult

		18-19yo (n=90), and 20-24yo (n=160).		mothers (20-24yo) but these were not statistically significant.
8	**Stier et al. (1993).** Are children born to young mothers at increased risk of maltreatment? *Pediatrics, 91*(3), 642-648. USA	Participants were 219 mothers who were aged <18yo and 219 mothers who were aged 19+yo.	A retrospective longitudinal cohort study which compared instances of child physical abuse and neglect between two groups of children: children of mothers aged <18yo and children of mothers aged 19+yo. Child physical abuse and neglect were measured by examining the medical records of the children of mothers in both age groups. Logistic regression was used to analyse the effects of maternal age on levels of physical abuse and neglect on their own children.	Maltreatment was significantly more likely in children of adolescent mothers (12.8%) compared to children of older mothers (6.4%). There was a statistically significant difference of neglect between adolescent mothers (7.8%) and older mothers (2.7%). No statistically significant differences of abuse between adolescent (4.1%) and older mothers (2.7%).
9	**Zuravin & DiBlasio (1992).** Child-neglecting adolescent mothers: How do they differ from their nonmaltreating counterparts? *Journal of Interpersonal Violence, 7*(4), 471-489. USA	Participants were 102 mothers. 22 mothers formed the neglect group and 80 mothers formed the non-maltreating group.	A cross-sectional design which investigated the association between maternal age child neglect. Child neglect was measured by examining the records of child protective services, and by using the Magura-Moses scales. Logistic regression was used to analyse the effects of maternal age on instances of child neglect.	Child neglect was significantly more likely among younger mothers.
10	**Zuravin. (1988).** Child maltreatment and teenage first births: A relationship mediated by chronic sociodemographic stress? *American Journal of Orthopsychiatry, 58*(1), 91-103. USA	281 mothers formed a control group. 118 mothers formed the abuse group. 119 mothers formed the neglect group.	A cross-sectional design identifying factors that predict the presence/absence of child physical abuse and neglect among adolescent mothers Physical abuse was measured using the Magura-Moses Physical Discipline Scale. Neglect was measured using remaining Magura-Moses scales.	Age at 1st birth significantly associated with both child abuse and neglect. Maltreating mothers were younger adolescents at first birth than control mothers. Average age at 1st birth for neglectful mothers 17.9, for abusive mothers 18.3, and control mothers 19.5.

1.3.2 Evaluation of Quality

A quality criteria framework was used to evaluate the quality of the studies included in this review. The 'Standard Quality Assessment' criteria (Kmet, Lee & Cook, 2004) was chosen because it can be used for cross-sectional studies where there is no intervention. This is desirable for the present review, as all of the studies included are observational studies, not experimental studies.

The quality criteria were applied to all quantitative study designs, although some criteria were scored differently depending on the design of the study being reviewed. Three criteria (5, 6 & 7) that relate wholly to interventional studies were omitted from the quality framework. The 'not applicable' option was applied to criterion 12 that examines whether confounds are controlled for during analysis because some studies in this review utilise a cross-sectional design, where a group of participants are followed up at different time points and therefore controlling for confounds is not relevant according to the framework's scoring guidelines. The remaining criteria could be applied to all quantitative study designs.

The differences in study designs were incorporated into the quality review by examining whether the researchers of each study were able to provide evidence for their stated hypotheses using their study design, i.e. cross-sectional or cohort. Some studies sought to identify levels of abuse/neglect among a group of adolescent mothers at one moment in time (cross-sectional design), and some sought to identify patterns over time (cohort design). The quality ratings for all studies, regardless of aims and study designs, were therefore assessed with the same quality framework checklist across a range of criteria, including sampling methods, use of outcome measures, sample size and appropriate use of statistical analyses.

The quality framework checklist includes 14 criteria where the presence/absence of each criterion in each study is scored using a points system, including ‘yes’ (2 points), ‘partial’ (1 point) or ‘no’ (0 points). Definitions about how these scores are derived are provided by Kmet, Lee & Cook (2004)[2]. The summary score is calculated by dividing the total score by the possible sum score. Where the option of 'not applicable' is chosen, the total possible sum score is adjusted accordingly. The lowest summary score achievable is 0, and the highest is 1. This framework has previously demonstrated good inter-rater reliability (91.73%; Kmet, Lee & Cook, 2004).

The scores that each study obtained are shown in Table 1.2. There are no official cut-off scores provided by the authors for study inclusion in literature reviews, however, a conservative cut-off point is commonly judged to be 75% (0.75), and a liberal cut-off point 55% (0.55) (Nowinski, 2016).

Overall, the body of literature included in this review is of good quality, with 9/10 studies receiving a quality rating above 0.75. The study which scored below this threshold scored 0.72 overall, and as this is arguably close to the threshold for ‘good quality’, this low rating will be taken into consideration when the study’s findings are examined.

[2] See Appendix B

Table 1.2 - Quality scoring

Study	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Criteria 6	Criteria 7	Criteria 8	Criteria 9	Criteria 10	Criteria 11	Criteria 12	Criteria 13	Criteria 14	Overall
1	2	2	2	2	NA	NA	NA	0	2	2	2	NA	2	2	0.9
2	2	2	2	1	NA	NA	NA	0	2	2	2	0	2	2	0.77
3	1	2	1	2	NA	NA	NA	0	2	2	2	NA	2	2	0.8
4	2	1	1	2	NA	NA	NA	0	2	2	2	NA	2	2	0.8
5	2	2	1	2	NA	NA	NA	0	2	2	2	NA	2	2	0.85
6	1	2	2	2	NA	NA	NA	0	2	2	2	NA	2	2	0.85
7	2	1	2	2	NA	NA	NA	0	2	2	0	2	2	2	0.77
8	1	2	2	2	NA	NA	NA	0	2	2	2	2	2	2	0.86
9	1	2	2	2	NA	NA	NA	1	2	2	0	0	2	2	0.72
10	2	1	2	1	NA	NA	NA	1	2	2	0	2	2	2	0.77
Mean	**1.6**	**1.7**	**1.7**	**1.8**	**NA**	**NA**	**NA**	**0.2**	**2**	**2**	**1.4**	**1.2**	**2**	**2**	**0.81**

Table 1.3 - Quality criteria

1	Question / objective sufficiently described?
2	Study design evident and appropriate?
3	Method of subject/comparison group selection or source of information/input variables described and appropriate?
4	Subject (and comparison group, if applicable) characteristics sufficiently described?
5	If interventional and random allocation was possible, was it described?
6	If interventional and blinding of investigators was possible, was it reported?
7	If interventional and blinding of subjects was possible, was it reported?
8	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?
9	Sample size appropriate?
10	Analytic methods described/justified and appropriate?
11	Some estimate of variance is reported in the main results?
12	Controlled for confounding?
13	Results reported in sufficient detail?
14	Conclusions supported by the results?
	2 = Yes 1 = Partial 0 = No NA = Not Applicable

Prevalence estimates of abuse and neglect are reported by some studies included in this review. Some prevalence rates are reported from samples representing the general population, and some are reported from samples representing adolescent mothers specifically.

An important characteristic among prevalence studies is whether the enlisted sample in a study represents the target population overall. The more the sample is reflective of the target population overall, the greater external validity and the extent to which findings can be extrapolated to the target population (Boyle, 1998).

Table 1.4 shows which studies identified prevalence rates, and whether they were based on samples representing the general population, or samples representing adolescent mothers.

Table 1.4 – Studies reporting prevalence estimates

Prevalence group	Study number									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
General population						x				
Adolescent mothers	x	x		x			x	x		

Caution should be taken when interpreting the prevalence estimates of abuse/neglect among the adolescent samples, as without comparison groups of older mothers, it is not possible to draw firm conclusions regarding prevalence. In other words, those findings can only be extrapolated to the specific group the prevalence rates were identified from, and cannot be generalised to the whole population.

Though studies included in this review utilised different study designs (cross-sectional or cohort) there were no notable differences in quality scores between studies using different designs.

1.4 Results

To explore whether children of adolescent mothers are at greater risk of abuse or neglect than older mothers, two sub-questions are posed:

1) Are children of adolescent mothers at greater risk of being physically abused by their mother?
2) Are children of adolescent mothers at greater risk of being neglected by their mother?

Table 1.5 - Studies which report on measures of abuse and/or neglect.

	Study number									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Abuse	x		x		x	x	x	x		x
Neglect	x	x		x		x	x	x	x	x

Table 1.5 shows which studies investigated abuse and neglect.

1.4.1 Are children of adolescent mothers at greater risk of being physically abused by their mother?

Of the ten studies included in this review, seven explored whether children of adolescent mothers were at greater risk of abuse (1, 3, 5, 6, 7, 8 & 10).

1.4.1.1 Main findings

Of these studies, two (1 & 7) identified the prevalence of abuse among their samples of adolescent mothers showing prevalence rates of 4.1% and 31.1% respectively. One study (6) identified what proportion of abuse cases in a sample of mothers of all ages were by adolescent mothers, showing that adolescent mothers accounted for 31.7% of cases, although the authors did not state what proportion of mothers in the sample were adolescent. However, the ONS (2014) indicate that adolescent mothers make up approximately 2.6% of mothers in the UK, yet they account for almost a third of cases of maternal abuse towards their child.

Five studies compared instances of abuse between adolescent and older mothers - one study (8) compared the prevalence of abuse among groups of mothers of differing ages and four (3, 5, 7 & 10) explored mother's age at first birth of their child as a risk factor for abuse. Three out of five studies (3, 5, & 10) found that adolescent mothers were statistically significantly more likely to have abused their child. One study (8) found no significant differences between instances of abuse between adolescent mothers and older mothers.

In study 7, of the two adolescent samples included (mothers aged <17y and 18-19y), only older-adolescent mothers (18-19y) were more likely to have maltreated their child than adult-mothers age 20-24y. When physical abuse was examined specifically, abuse was more common in adult mothers (20-24y) but this was not statistically significant. This finding, albeit not statistically significant, contrasts with previous findings that abuse is more common among adolescent mothers. This will be discussed in more depth in section 1.5.1.

Five of these studies also investigated risk of neglect, which will be described in section 1.4.2.

1.4.1.2 Design, measures and sample

Table 1.6 shows the study design utilised by each study included in this review.

Table 1.6 - Study designs utilised by each study included in this review.

	Study number									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Cross sectional	x			x			x		x	x
Cohort			x		x	x		x		
RCT		x								

In each study utilising a cross-sectional design, the researchers sought to explore what proportion of people in their sample had been abusive towards their child at the time of data collection. In each study utilising a cohort design, the authors followed participants up across different time points. Study 3 collected data in three waves, wave 1 in 1983, wave 2 in 1987 and wave 3 in 2000-01. Study 5 collected data at a baseline phase when children were born, 1-year follow-up and at 3-year follow-up. Study 6 collected data during the mother's pregnancy and at intervals over the first 3 years of the infant's life, including at 8 weeks, 8 months, 21 months and 33 months. Study 8 recorded data during every medical visit each child made from birth to their fifth birthday.

The methods used to measure instances of abuse vary across all studies, ranging from self-report methods completed by mothers, through to records collected by medical departments, social services or the CPS.

The Parent-Child Conflict Tactics Scale (CTS-PC) was used by two studies to record instances of abuse among adolescent mothers. The Conflict Tactics Scale (CTS) consists of 80 items which explore conflict and violence within a family. The instrument has four subscales, including the Parent-Child subscale. This subscale consists of 20 items that asks the parent a series of questions about how they react in a conflict with their child. These items are rated on a seven-point scale ranging from 0=never through to 6=almost every day. The Parent-Child subscale consists of five subscales, including: non-violent discipline, psychological aggression, physical assault, sexual abuse and neglect. Studies examining the internal reliability of the CTS-PC subscales have consistently shown mixed reliability coefficients. For example, Straus et al. (1998) observed the following internal reliability coefficients on

their sample of 1,000 US parents: physical assault scale =0.55; psychological aggression =0.6; non-violent discipline =0.70 and neglect =0.22.

The Childhood Experiences of Violence Questionnaire (CEVQ) was utilised by one study (3). The CEVQ consists of eighteen stem items that ask the child if they have ever experienced bullying, physical punishment, physical abuse, sexual abuse, emotional abuse, or exposure to domestic violence. It does not include neglect, as this form of maltreatment is widely considered to be too difficult to measure using a brief questionnaire (Tanaka et al., 2012). If the person responds 'yes' to a question, they are then asked contingency questions asking how many times it happened; when it happened; who did it; and have they ever told someone about it. Some items also ask if they told their doctor and if their abuse involved the use of a weapon. Test-retest reliability coefficients for each of the stem items range from 0.76 to 0.92 in one sample (Walsh et al., 2008).

The Child Wellbeing Scales (CWBS) was utilised by one study (10). They were originally developed to meet the needs of a programme evaluation in child welfare services rather than for measuring individual case outcomes (Magura & Moses, 1986). The measure is completed by an assessor who interviews a parent/family. The scale consists of 43 items each with four to six options that range from adequacy through to increasing degrees of inadequacy on each dimension. The maximum score for any item is 100 with scores less than this denoting some degree of threat to child well-being. Items 1–28 measure difficulties within the family and items 29–43 measure the child's difficulties (Lyons & Dueck, 2009).

Three studies (6, 7 & 10) identified cases of abuse through examining investigations completed by social services and screening a local child protection register for

children whose parents had been investigated for possible child abuse. Abuse was ascertained by reports of physical injury on the child protection register. The authors then identified what proportion of the overall sample had reports of abuse.

Study 7 utilised an unvalidated measure for investigators to rate child maltreatment of children receiving support from social services across four characteristics: 1) whether the mother was the perpetrator; 2) the pattern of maltreatment; 3) the type of maltreatment (physical abuse or neglect); and 4) the severity of maltreatment which was rated on a 5-point Likert scale.

Study 8 identified maltreatment by examining the medical records of children of participants to identify instances of abuse or neglect. The investigators describe collecting data from birth to the child's fifth birthday, recording details of all medical visits where there were injuries or suspected injuries to the child. Two investigators then independently classified each episode of injury using predefined criteria for physical abuse, sexual abuse, neglect and unintentional injuries.

Table 1.7 - Number of participants recruited in each study investigating child abuse

Study	Number of participants		Mothers or children
	Target group	Control group	
1	392	NA	Mothers
5	1,597	NA	Mothers
7	192	179	Mothers
8	219	219	Mothers
10	118	281	Mothers
Total	**2,518**	**679**	
3	1,893	NA	Children
6	14,256	NA	Children
Total	**16,149**	**0**	
Total (all studies)	**18,667**	**679**	

As Table 1.7 shows the number of participants recruited by these seven studies is 18,667 with sample sizes ranging from 383 to 14,256 participants. Two studies recruited child participants and neither recruited a control group, five studies recruited adolescent mothers of which three included a control group. Samples from these studies were recruited from a range of countries, including Chinese mothers in Hong Kong; one study recruited from Canada; four from USA; and one recruited from the UK. Thus, the samples are largely from western countries.

1.4.1.3 Summary of findings

Two studies identified 4.1% and 31.1% prevalence of abuse among their samples of adolescent mothers (1 and 7 respectively). However, because these prevalence estimates were gathered wholly from a sample of adolescent mothers, and not the general population, these estimates can only be generalised to the specific sample from which they were obtained. Study 6 observed that 31.7% of cases of abuse among their sample of mothers of all ages were carried out by adolescent mothers. As this finding is derived from a sample which is more representative of the general

population, this study will have greater influence when considering whether children of adolescent mothers are at greater risk of abuse.

Most studies (three out of five) which compared instances of child abuse between adolescent and older mothers found that instances of abuse were statistically more likely to happen among children of adolescent mothers. One of the studies (7) indicated converse findings that adult mothers were more likely to have abused their child than adolescent mothers, but this finding was not statistically significant. As described above, a range of measures were used to measure instances of abuse, including mothers' self-report and health and social services records.

The overall research quality was good, with large sample sizes and detailed descriptions of how samples were obtained and how data were analysed. Some studies did not provide variance estimates of their findings. There were no notable differences in the research quality among studies utilising different designs when examining child abuse among adolescent mothers.

The reliability of the measures and methods used to assess prevalence of abuse are questionable as they are prone to biases. Some studies utilised self-report measures, where mothers or children were asked to report past/present abusive parenting. One study used a questionnaire completed by an assessor who interviewed a parent/family about abusive parenting. Three studies measured instances of abuse by examining social care records, and one study identified instances of abuse by examining medical records. The implications of the potential bias associated with these measures and the implications of the quality of the studies included in this review will be examined in greater depth in section 1.5.1.

1.4.2 Are children of adolescent mothers at greater risk of being neglected by their mother?

Of the ten studies included in this review, eight (1, 2, 4, 6, 7, 8, 9 & 10) investigated links between adolescent motherhood and risk of neglect to their child (five of which also investigated abuse and are included in section 1.4.1).

1.4.2.1 Main findings

Five studies (1, 2, 4, 7 & 8) identified the prevalence rates of neglect in their sample of adolescent mothers that varied from 12.8% to 40.1%. Another study (6) reporting prevalence estimates of neglect among the general population found that of all cases of neglect 29% were by young parents, though the researchers did not report what proportion of the overall sample were made up of young parents. However, the ONS (2014) state that adolescent mothers make up approximately 2.6% of mothers in the UK, yet they account for almost a third of cases of maternal abuse towards their child.

Five studies (2, 7 8, 9 & 10) investigated whether adolescent mothers were more likely to have been neglectful towards their child than older mothers. Three studies (8, 9 & 10) confirmed this, though one study's (9) quality ratings fell below the 0.75 quality threshold, which means its finding may not be wholly reliable. Study 7 reported that instances of child neglect were more common in young adolescents (<17y) than older-adolescents (18-19y) or adult mothers (20-24y), although this finding was not statistically significant. Study 2 found no significant association between mother's age and instances of neglect.

1.4.2.2 Design, measures and sample

Of the eight studies investigating neglect, five (1, 4, 7, 9, 10) utilised cross-sectional designs to identify either, 1) what proportion of the sample of neglectful mothers were adolescents when their child was born, or 2) what proportion of the sample of adolescent mothers were neglectful towards their child. Two studies utilised a longitudinal cohort design (6 and 8) to either, 1) follow a sample at various time points to identify risk factors for subsequent maltreatment or 2) follow two groups at various time points – one group who were children to mothers who were younger than 18y when they were born and another group who were born to mothers who were 19+ when they were born. Study 2 utilised a randomised controlled design to evaluate the effectiveness of a home-visiting programme for first-time young parents. Study 1 measured neglect using the CTS-PC scale as described previously in section 4.1.2. Study 2 measured neglect by examining state child protective services records for instances of neglect that occurred prior to participants' enrolment onto the study. Neglect was recorded as present if there was at least one substantiated report of neglect by the mother.

Study 4 measured instances of neglect by accessing the records of a Crown Prosecution Service (CPS) for cases where a child was neglected. For the purpose of the study, the incident of neglect needed to have taken place during the study period and cases that did not involve neglect by children's mothers were excluded from the study.

Study 6 identified cases of neglect through examining investigations completed by social services by screening a local child protection register for children who had

been investigated for possible child neglect. The authors identified what proportion of children in the overall sample had reports of neglect.

Study 7 measured instances of neglect using an unvalidated measure, study 8 measured instances of neglect through examining medical records and study 9 measured neglect using the CWBS (section 4.1.2).

Table 1.8 - Number of participants recruited in each study investigating child neglect

Study	Number of participants		Mothers or children
	Target group	Control group	
1	392	NA	Mothers
2	383	NA	Mothers
4	92	NA	Mothers
7	192	179	Mothers
8	219	219	Mothers
9	102	NA	Mothers
10	118	281	Mothers
Total	**2,518**	**679**	
6	14,256	NA	Children
Total	**14,256**	**0**	
Total (all studies)	**16,774**	**679**	

As Table 1.8 shows, the overall number of participants recruited by these eight studies equals 16,774 with sample sizes ranging from 92 to 14,256 participants. One study recruited child participants which did not include a control group, whereas seven studies recruited adolescent mothers of which three included a control group. Samples from these studies were recruited from a range of countries: one study recruited Chinese mothers in Hong Kong, six studies recruited from the US and one recruited from the UK. Thus, the samples obtained are largely from western countries.

1.4.2.3 Summary of findings

In summary, five studies identified the prevalence rates of neglect among their samples of adolescent mothers, ranging from 12.8% to 40.1%. However, because the prevalence estimates are derived from samples that are unlikely to be representative of the overall target population, these findings are informative but are less powerful than the study which found that 29% of cases of neglect in a more representative sample of parents of all ages were by young parents. Therefore, the findings form this latter study will have greater influence when considering whether children of adolescent mothers are at greater risk of neglect.

Most studies (three out of five) comparing instances of neglect among adolescent mothers and older mothers showed that younger mothers were statistically more likely to have neglected their child than older mothers. A range of measures were used to measure instances of neglect, including self-report measures as well as health and social services records. Samples were predominantly from the US.

The overall research quality was good, with large sample sizes and detailed descriptions of how samples were obtained and how data were analysed. Some studies did not provide variance estimates of their findings and/or control for possible confound variables. It is also important to speculate on the reliability of the measures and methods used to assess prevalence of neglect as these are prone to bias.

There were no notable differences in the research quality among studies utilising different designs when examining child abuse among adolescent mothers. Some studies utilised self-report measures, where mothers or children were asked to report past/present child neglect. Some studies used a questionnaire completed by an assessor who interviewed a parent/family about neglectful parenting. Six studies

measured instances of neglect by examining social care records, and one study identified instances of abuse by examining medical records. One study's fell below the threshold for good quality which may impact on the validity of their findings. The implications of the potential bias associated with these measures and the quality of the studies included in this review will be examined in greater depth in section 1.5.2.

1.5 Discussion

The findings of the studies reviewed will be examined based on the two questions posed by the literature review: 1) Are children of adolescent mothers at greater risk of physical abuse? 2) Are children of adolescent mothers at great risk of neglect?

1.5.1 Are children of adolescent mothers at greater risk of physical abuse?

With regards to whether children of adolescent mothers are at greater risk of abuse, some studies in this review explored prevalence rates of abuse among adolescent mothers, and some explored correlations between the age of the mother and the presence or absence of abusive behaviour towards their child.

Perhaps the most notable finding in this review is the finding that four out of five studies showed that maternal adolescence is a significant risk factor of child abuse. This finding is consistent with past research which has shown an association between maternal age a greater risk of child abuse.

The study which did not find a significant difference in rates of abuse among adolescent and older mothers did, however, observe that older-adolescents (18-19y) were more likely to be abusive than young-adult mothers (20+). They found no significant differences between the young-adolescent group (<17y) and the older-adolescent group (18-19y), or between the young-adolescent group and the young-adult group. This could be because mothers <17y are more likely to live with family and therefore have greater access to familial support whereas 18-19y mothers may

be more likely to have moved from the family home and may subsequently have less familial support.

Another interesting finding observed is the large differences in prevalence rates of abuse by adolescent mothers reported by studies in this review. One study showed that 31.1% of adolescent mothers had abused their child compared to only 4.1% in another study. It is possible that these marked differences in rates of abuse are due to cultural differences regarding attitudes towards the use of 'corporal punishment' as a means of child discipline. Such attitudes have reportedly been in gradual decline since 1979 when Sweden became the first country to ban the use of corporal punishment as a means of child discipline (Straus & Stewart, 1999; Bunting et al., 2010). However, these attitudes remain commonplace in many societies with only 54 out of 195 countries worldwide having banned corporal punishment as a form of child discipline (Grogan-Kaylor, 2018). It is therefore possible that rates of child abuse are higher in cultures which are more accepting of physical punishment as a form of child discipline. There may also be cultural differences in terms of the acceptability of self-reporting physical punishment of children. It is, however, not possible to reach firm conclusions regarding the influence of culture due to the small numbers of studies included in this review, and the limited number of countries represented.

Although these prevalence estimates are informative, they are wholly descriptive of the specific sample of adolescent mothers from which they are derived from and cannot be generalised to the wider target population overall.

Study 3 explored prevalence rates of abuse in the general population in the UK and revealed that 31.7% involved adolescent parents. Adolescent mothers make up a small proportion (approx. 2.6%; ONS, 2014) of mothers in the UK yet they account

for almost a third of cases of maternal abuse towards their child. That mothers under 18y make up a small proportion of the overall population yet make up almost a third (31.7%) of reported cases of child abuse is cause for concern.

The validity of the findings by the studies included in this review are influenced by their quality. All studies recruited large sample sizes which enhances the external validity of their findings, and most provided good detail about *how* these samples were recruited and where participants came from. This makes it easier for the studies to be replicated. All studies provided substantial detail about how data were analysed, with results described in great depth. Some studies did not provide variance estimates of their findings, such as confidence intervals, which means there is less information about where participants' true scores may fall (Attia, 2005).

As outlined in section 1.4.1.3, many of the studies used self-report measures to gather data about instances of parental physical abuse towards their child, most of which were completed by mothers, and in one study by children. This poses a challenge with regards to interpreting data, as self-report measures are prone to bias due to social desirability effects (van de Mortel, 2008). Other studies identified instances of abuse by examining the records of child protection services or of hospitals, which is problematic as not all instances of abuse will be known to these services. Each of these limitations will be explored in greater depth in section 1.5.3 with recommendations for how future research can overcome these challenges in section 1.5.5.

As noted previously in Section 1.4, the impact and influence of each study's findings are different depending on the study design that was utilised, and it is important that

these differences are incorporated into the overall findings for this specific review question examining child abuse among adolescent mothers.

Cohort studies are considered to be more influential than cross-sectional studies (Mann, 2003) and this is reflected when considering child abuse among adolescent mothers.

When comparing the prevalence estimates, the studies whose samples are more representative of the overall target population also have greater influence when examining this review question.

Overall the quality of these studies is of a good standard and does not question the overall validity or reliability of the findings which although mixed, generally indicate that children of adolescent mothers are at greater risk of experiencing physical abuse.

1.5.2 Are children of adolescent mothers at greater risk of being neglected?

The most notable finding is that most studies indicate that neglect is more common among children of adolescent mothers than adult mothers. This is consistent with other studies exploring the association between maternal age and child neglect. However, only three of five studies in this review reported statistically significant findings, with one study (7) identifying a similar, yet not significant trend and another (2) reporting no significant differences.

Studies which examined prevalence rates of neglect among samples of adolescent mothers varied from 7.8% to 40.1%. The study reporting the lowest prevalence rate

consisted of a sample recruited from the US (8), whereas the sample with the greatest prevalence was from Hong Kong (1). It is possible that these differences could be due to cultural differences outlined previously in section 1.5.1. In some cultures, teenage pregnancy is forbidden, and is seen as bringing shame and dishonour to the family. This may result in the teenage mother receiving less support from family (Chan, 2009) and could place the infant at greater risk of neglect while the mother manages the transition to motherhood and parental stress in isolation (Lo et al., 2017).

The second highest prevalence rate of neglect among adolescent mothers is 26% (4). This was obtained from a US sample and is substantially greater than 7.8% reported in study 8 which was also from a US sample. Study 4 identified instances of neglect by examining the CPS records for reports of neglect among the children of adolescent mothers who were enrolled on an educational parenting programme. The authors do not detail how participants were identified. It is therefore not clear whether participants volunteered to take part in the parenting programme or whether participants were known to the CPS agency due to concerns regarding their parenting practices and were then referred to the programme. This lack of detail is problematic when interpreting prevalence rates as it is not possible to confirm whether they can be generalised, thus undermining the external validity.

The study reporting the smallest prevalence rate of 7.8% (8) identified instances of neglect by examining the medical records of children of participants. These investigators coded the medical records of childrens' visits to hospital in their first five years of life. Visits were coded as to whether injuries were due to abuse, neglect or unintentional injury. This is problematic for many reasons. Firstly, not all instances of neglect will warrant medical treatment. Neglect often refers to the absence or

minimal accesses to food, shelter, clothing, stimulation or supervision (Mulder et al., 2018). It could be argued that only the most severe instances of neglect may warrant hospital treatment, such as severe malnutrition. Secondly, if injuries or malnutrition were present, parents might be reluctant to seek medical help for fear of being investigated by child protection services. It is likely then that the prevalence rate of neglect obtained in this sample is likely to be lower than actual instances of neglect among children of adolescent mothers. It is also important to note that the above prevalence estimates cannot be generalised to the wider target population due to being obtained from a specific sample that is unrepresentative of the target population overall. The methods with which neglect was measured was the weakest quality domain. As with studies which examined instances of abuse (described in section 1.5.1), many studies which investigated neglect did so by examining the records of child protection services or self-report.

Another consistent weakness of studies included in this review is the reporting of variance estimates of their statistical results, such as confidence intervals, which means there is less information about where participants' true scores may fall. Two studies did not control for possible confound variables that may have contributed to the findings observed, which subsequently affects the studies' internal validity and the inferences that can be drawn (Pourhoseingholi et al., 2012). It is possible in these studies that findings are due to other factors, such as maternal history of child maltreatment or low socio-economic status which were all unaccounted for.

Overall, the findings support previous research indicating that overall adolescent mothers are more likely to neglect their child than adult mothers. However, given some of the methodological weaknesses outlined above in terms of the measures

used to identify instances of neglect, and the lack of controlling for confound variables in some studies, confidence in these findings can only be speculative.

The findings from cohort studies can be seen to be more influential (Mann, 2003), and this is reflected when considering child neglect among adolescent mothers. When comparing the prevalence estimates reported by studies in this review, the studies whose samples are more representative of the overall target population also have greater influence when examining neglect among adolescent mothers.

Although most studies' quality ratings exceeded the 0.75 threshold, and no notable differences in quality ratings were observed between studies utilising different designs, one study fell below which may question validity of its findings. It is likely that actual prevalence of neglect is higher than what was reported by self-report or recorded on medical/social care records and it is possible that the association between neglect and maternal age is mediated by factors that were not controlled for in some studies.

1.5.3 Limitations

The greatest limitation with regards to the studies included in this review is the reliability of the methods and measures used to identify cases of child abuse and neglect among adolescent mothers. Most studies utilised self-report measures, most of which were completed by mothers, though some were completed by children. Self-report measures are prone to bias due to social desirability, as mothers are unlikely to give accurate accounts of child abuse/neglect for a whole range of reasons, including shame, denial, or fear of legal consequences (Appel & Holden, 1998).

Other studies identified instances of abuse and neglect by examining the records of child protection services or hospitals. This is also problematic, as not all instances of abuse and neglect will be known to these services for a variety of reasons. A child could be experiencing abuse/neglect but not incur any injuries, and therefore will not appear on child protection/health records. Even if a child did sustain injury, parents may not seek medical treatment for fear of being investigated for child abuse/neglect, or because of the potential financial costs of treatment. The abuse/neglect experienced by a child may be difficult for other professionals (e.g. teachers, clinicians, social workers) to detect in order to raise concerns for the child's welfare. As a result, it is likely that cases of abuse/neglect identified in this manner are under-represented.

Another limitation of the present review is that almost all studies included in this review consisted of western samples, with only one study recruiting a sample from a population in Hong Kong. This does not allow for a comparison to be made across western and non-western samples and without the inclusion of studies incorporating samples from diverse cultural backgrounds, it is not possible to draw any conclusions regarding the influence of culture.

Another limitation relates to the inclusion of studies with samples from different decades. The use of corporal punishment as a form of child discipline was more socially acceptable in the past as evidenced by the ever-increasing number of countries who have banned its use in recent decades (Grogan-Kaylor, 2018). It is also possible that in recent years services have become better at identifying instances of child abuse and neglect in families, or at identifying families who may be at risk. However, there were no substantial differences to findings between older studies and more recent studies included in this review, indicating that children of

adolescent mothers have been at greater risk of experiencing abuse or neglect for the last 40 years at least.

The small number of papers that were included in this review is also an important limitation. Although the search terms utilised across three different journal databases yielded 533 results, only 10 (1.8%) of these met the inclusion criteria. This could be for a number of reasons. Firstly, most research examining risk factors associated with abuse and neglect among children of adolescent mothers do so through investigating a wide range of variables, some of which include maternal age. However, many studies do not specify maternal age in the publication title or abstract, thus rendering it difficult for search terms to be able to identify these studies in a literature search. Had alternative, more generic, search terms been used instead, it is likely that the results would have yielded a vast number of results which would have proved greatly impractical to screen against the review's inclusion/exclusion criteria. Another limitation of the present review relates to the inclusion of studies which provide prevalence estimates of physical abuse or neglect from a sample of adolescent mothers. As previously outlined, although these findings are informative, they cannot be generalised due to the specific nature of the sample, rather than a sample representing the general population.

When considering the limitations of the present review, the main weaknesses include the methodological weaknesses regarding how abuse and neglect were measured or identified; the limited cultural diversity of samples; the large timespan of when samples were collected; and the small number of papers that were identified during the literature search.

1.5.4 Implications

The findings of the present review indicate that children of adolescent mothers are at greater risk of experiencing abuse or neglect. This poses a range of clinical implications for both adolescent mothers and for their children.

The ecological model outlined earlier in section 1.2.3. identifies a range of factors shown to increase the likelihood of child abuse or neglect. Though there is vast evidence showing an association between maternal age and risk of child abuse or neglect, these do not infer causality. Instead, most research has identified that socio-economic difficulties are more influential in predicting abuse/neglect among parents of all ages and adolescent mothers are more likely to experience socio-economic hardship (Belsky, 1993). As such, abuse and neglect can be understood as unintended consequences of rearing a child in an environment where there is a lack of resources; financial, emotional and familial. Lack of knowledge of attachment and appropriate parenting practices has also been shown to increase the risk of child abuse/neglect, and adolescents are more likely to have poorer knowledge (Bornstein et al., 2010). It could therefore be beneficial for schools to educate pupils about child development, milestones and suitable parenting practices. This may ensure that all children leave school with a basic grounding and awareness of appropriate parenting to prepare them for parenthood and reduce the subsequent risk of potential abuse or neglect of their infants.

It is important that known risk factors of child abuse and neglect are monitored among this ‘at-risk’ group. For example, adolescent mothers who are known to have previously been abused or neglected themselves, who live alone, are single parents, and who have fewer educational attainments should be flagged as requiring

additional support. General practitioners, health visitors, paediatricians and teachers all have responsibilities to identify at-risk mothers/children and should signpost to relevant services to ensure that mothers are receiving the most appropriate support available. Additional training or checklists could be provided for these staff to help them identify at-risk individuals. In the UK, Sure Start programmes provide support to families and have been shown to be effective on a range of physical and mental health outcomes. It is therefore crucial that, given their proven effectiveness, such programmes continue to be freely accessible.

1.5.5 Future research

Perhaps the greatest challenge when conducting research into factors that might increase the risk of parents abusing or neglecting their child are the methods by which abuse/neglect are identified and measured. This is fraught with a range of challenges which suggests that prevalence rates of abuse/neglect reported are likely to be under-estimates of actual occurrences. Other studies have attempted to overcome this barrier by gathering data from parents and children separately and has often resulted in substantial differences in accounts of abuse between parents and children (Chan, 2012). It is generally believed that gathering data regarding abuse and neglect from the child is more accurate (McGee et al., 1997), though childrens' accounts are not without their own biases. Children may also minimise instances of maltreatment as they may feel they have a sense of loyalty to the family member (Jaffe et al., 1992) or their memory of such instances could be affected by Post-traumatic Stress symptoms (Graham-Bermann et al., 2006). Future research might attempt to synthesise the account of parents and children separately, while also gathering accounts from other agencies, including teachers, medical staff and

social care staff in order to gather more accurate data regarding the prevalence of abuse and neglect in children.

Future research may also seek to determine which factors have stronger/weaker relationships with abuse and neglect separately. This can then ensure that appropriate support is tailored to adolescent mothers, according to their risk potential specifically for either abuse or neglect.

It could have been beneficial to have considered reviewing studies that made within-group comparisons amongst adolescent mothers, by examining sub-groups of adolescent mothers, such as younger or older adolescents. This could be advantageous as it might be reasonable to assume that there are considerable differences in the socioeconomic context for mothers aged 13-16 when compared to mothers aged 17-20. One study included in this review made such within-group comparisons and showed differences in levels of abuse in their study.

Finally, future research should examine cross-cultural influences on corporal punishment as a means of child discipline. Only one non-western study met the inclusion criteria for the present review, there is therefore scope to examine the influences of cultural and social norms, and specifically those that supersede the socio-economic factors that are known to be influential in mitigating child abuse and neglect risk.

1.6 Summary

Overall, the body of research literature included in this review indicates that children of adolescent mothers are at an increased risk of experiencing abuse and neglect. This is consistent with the findings of previous research. However, significant weaknesses have been identified and examined with regards to *how* child abuse and neglect are measured in research, and the lack of a comparison group in many studies, which means that the findings of these studies are somewhat spurious and unlikely to be truly reflective. Other weaknesses include the lack of control used for confounding variables which could mediate the findings in some studies, and the use of prevalence estimates in samples of adolescent mothers only.

Recognising these limitations, a number of recommendations have been offered for future research, which may offer further insight into examining so-called 'protective factors' that may prevent or reduce the likelihood of abuse amongst children of adolescent mothers. Future research may also benefit from incorporating the reports of different accounts when investigating levels of abuse and neglect in children, rather than relying on just one source. It was also suggested that future studies should make within-group comparisons among adolescents of different ages to examine potential differences between older and younger adolescents.

Despite these limitations, the implications of these findings are of importance, recognising that adolescent mothers represent an 'at-risk' group of people for whom additional support is paramount in protecting their children from abuse and neglect. Adolescent mothers have been consistently shown to experience a range of challenges, which subsequently place them at greater risk of parenting stress and their children at risk of maltreatment. This information should be used by relevant

agencies to help identify young women who form this ‘at-risk’ group to ensure that the most appropriate support is available to them and their child through pregnancy and postpartum. The right support at the right time may make an important difference to the lives of adolescent mothers and their children.

1.7 References

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2.0 EMPIRICAL PAPER

ADOLESCENTS' ATTITUDES TOWARDS PARENTING PRACTICES AND UNDERSTANDING OF ATTACHMENT.

2.1 Abstract

Background: Past research has shown that abuse and neglect is more common among children of adolescent mothers. One factor believed to be associated with this increased risk is parents' knowledge of child development and appropriate parenting practices. The present study aims to identify whether a DVD teaching tool can increase attachment knowledge in adolescents and whether this can be maintained. The study also aims to explore whether attachment knowledge is associated with high-risk attitudes towards parenting practices.

Method: Using a repeated-measures within subject design, 128 participants were recruited from a secondary school. The intervention involved participants watching a DVD about attachment. Attitudes towards parenting practices were collected in the pre-intervention condition using the Adult-Adolescent Parenting Inventory-II (AAPI-II). A measure of attachment knowledge was completed in pre-intervention, post-intervention and follow-up conditions.

Results: The intervention significantly increased participants' attachment knowledge, and these gains were maintained at follow-up. Attitudes towards parenting practices overall were not associated with levels of attachment knowledge, though harsher attitudes on the power and independence subscale of the AAPI-II were associated with greater attachment knowledge.

Conclusions: These findings support the use of a DVD teaching tool as an effective method to increase adolescents' knowledge and understanding of attachment which can be maintained for at least 10 weeks. Aside from the power and independence subscale, attitudes towards parenting practices and demographic factors were not significantly related to knowledge scores.

Keywords: Attachment, child abuse potential, adolescents, attachment knowledge, parenting, adolescent mothers

2.2 Introduction

Rates of teenage pregnancy have long been higher in the UK when compared with other European countries. There has, however, been a substantial reduction in rates of teenage pregnancies in recent decades. A report published by the Office for National Statistics (ONS) in 2018 revealed that there was an 11% decrease in conceptions to women under 18 years of age in England and Wales from 2015 to 2016. This equates to a conception rate of 18.9 conceptions per 1000 women aged 15-17 years and is the lowest conception rate since 1969 when such statistics began to be collected (ONS, 2018). Despite this recent downward trend, in 2015 the UK teenage birth-rate was still the 6th highest among EU countries and above the EU average (Eurostat, 2019).

2.2.1 Adolescent parenting

There are a wide range of challenges that are often experienced by adolescent mothers that can have a detrimental impact on them and their child. Adolescent mothers are more likely to have poor educational attainments, which in turn may greatly limit employment prospects and contribute to financial burden (Laopaiboon et al., 2014). Adolescent mothers are more likely to be single parents which places all parenting responsibilities on them, rather than it being shared with the child's father (Brown et al., 1998). They are also more likely to experience mental health difficulties during pregnancy and post-partum (Sarri & Phillips, 2004), with one study revealing that 53% of teenage mothers in England and Wales experienced post-partum depression (Moffitt, 2002).

There are also a range of obstetric complications that are more common among adolescent mothers, including 24% higher rate of still births, 75% higher rate of infant mortality and 30% greater incidence of lower birth weight (Public Health England, 2018). Lower birth weight in itself has been long associated with greater risk of infant mortality and a range of other health complications (Paneth, 1995). There is further evidence that health difficulties in the child's early years of development can increase the likelihood of neglect (Sidebotham & Heron, 2006; Strathearn et al., 2001) due to greater maternal stress and potential difficulties with the child being able to be soothed or regulated due to their health difficulties (Harrington et al., 1998).

There is also a vast evidence base that indicates that children of adolescent mothers are at an increased risk of experiencing abuse or neglect (Bartlett & Easterbrooks, 2012; Stier et al., 1993). This is believed to be due to an interaction between many factors which increase the risk of abuse/neglect among all mothers, but which are believed to be more common among adolescent mothers (e.g. poor education, unemployment, mental illness).

There is evidence that children of adolescent mothers are less likely to do well at school when compared to children of older mothers, and subsequently have fewer school achievements than their peers (Brooks-Gunn & Fursternberg, 1986). A 20-year longitudinal study that followed the children of adolescent mothers found that this group of children were 2-3 times more likely to experience adverse outcomes in adulthood, including early school dropout, unemployment, violent offending and early parenthood (Jaffee et al., 2001). Becoming parents themselves in adolescence further perpetuates the intergenerational transmission of young parenthood and the

increased risk of the unfavourable outcomes outlined above for the mother and the child (Fursternberg et al., 1990).

2.2.2 Attachment knowledge

Attachment can be understood as a deep and enduring bond which connects one person to another. The attachment between an infant and a caregiver is characterised by the specific behaviours exhibited by the child, such as seeking proximity to the caregiver when upset or threatened (Bowlby, 1969). Attachment is understood as being adaptive, such that it enhances the infant's chances of survival (Bowlby, 1958). A secure attachment can be viewed as the infant feeling safe and secure in the presence of the caregiver, while feeling able to explore the world knowing they can return to their 'secure base' at any time (Bretherton, 1992).

One aspect observed to be crucial in the development of a secure attachment is parental sensitivity, as infants of sensitive mothers are more likely to be securely attached (Ainsworth, 1967). This has been confirmed by recent meta-analyses (e.g. von der Lippe et al., 2010; Schoenmaker et al., 2015). Parental sensitivity relates to the caregiver's ability to accurately interpret the infant's signals, while providing an environment of warmth and acceptance (Ainsworth et al., 1971). This includes an awareness of how infants may try to communicate with the caregiver (e.g. smiling, pointing, making eye contact, crying), and how caregivers then acknowledge these communications by trying to meet the infant's needs. Attachment knowledge can therefore be defined as the understanding of the early parent-infant relationship and its importance in shaping the infant's future relationships.

It has been shown that parents who have greater knowledge of these processes are subsequently more sensitive and responsive to the needs of the infant when compared with parents who have less knowledge (Bornstein & Bradley, 2012). This knowledge hasbeen shown to be directly associated with the quality of care provided to children by the mother (Diniz et al., 2017A recent systematic review indicates that parents who have a greater understanding of child development are also less likely to be abusive (September, Rich & Roman, 2016) and the quality of parenting that a child receives is widely considered to be the most important risk factor for the child's future emotional and behavioural difficulties (Morawska & Sanders, 2005). Parents with more knowledge of child development are also more likely to have age-appropriate expectations of their child, which subsequently promotes the use of appropriate discipline practices (Huang et al., 2005).

Many studies have shown that adolescent mothers often lack parenting knowledge or knowledge of developmental milestones when compared to older mothers (Bornstein et al., 2010; Flanagan et al., 1995; Jahromi et al., 2013; Karraker & Evans, 1996). Adolescent mothers are also believed to be less sensitive and responsive to their infant's needs and more likely to interact negatively with them (McAnarney et al., 1986). It has been speculated that adolescent mothers may not be able to consistently adopt the necessary characteristics that help the development of a secure attachment due to their own developmental needs (Sadler & Cowlin, 2003).

In summary, there seems to be an association between a mother's attachment knowledge and her subsequent parenting practices, and specifically parental

sensitivity. Greater attachment knowledge appears to increase the likelihood of suitable parenting practices and expectations and appears to reduce the risk of future child abuse or neglect. Attachment knowledge and parental sensitivity are reported to be poorer among adolescent mothers when compared to older mothers. This could be due the age of the mother, in terms of having less years to acquire such knowledge, or it could instead reflect the multitude of challenges often experienced by adolescents, as previously outlined in section 2.2.1.

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2.2.3 Attitudes towards parenting practices

Attitudes which are accepting of corporal punishment as a method of disciplining children have been in gradual decline since 1979, when Sweden became the first country to ban its use as a means of child discipline (Straus & Stewart, 1999; Bunting et al., 2010). However, accepting attitudes regarding this method of discipline remain commonplace in many societies with only 54 out of 195 countries worldwide having banned corporal punishment as a form of child discipline (Grogan-Kaylor, 2018).

There is evidence that ‘harsh’ attitudes towards parenting practices are associated with a greater likelihood of abuse and neglect. For example, parents who believe that it is acceptable to use corporal punishment as a means to discipline children are more likely to subsequently engage in abusive or neglectful behaviours towards the child (Brown et al., 1998). For the purposes of this paper, attitudes towards parenting practices which are believed to increase the risk of child abuse potential will be referred to as ‘harsh attitudes’.

It has been speculated that attitudes toward discipline strategies may develop throughout childhood and adolescence (Bower-Russa, 2005). Harsh attitudes are commonplace among people who themselves were disciplined in such ways by their own parents (Bower & Knutson, 1996) and there is a notion that such attitudes are intergenerationally transmitted through families. A recent study showed that mothers who themselves were disciplined using corporal punishment were more likely to endorse corporal punishment as a form of child discipline themselves (Walker et al., 2018). In a recent qualitative study carried out in Wales, which sought to understand parents' self-reported use of physical punishment as a form of discipline, participants noted that their own experience of physical punishment and witnessing what friends and family were doing influenced their own parenting practices (Prince et al., 2016).

There is some evidence to show that attitudes towards parenting practices differ between cultures. Some cultural values have been shown to increase the risk of physical child punishment, while others are believed to reduce the risk (Jambunathan & Counselman, 2002). *Familism, for example,* is described as placing the needs of the family or social group ahead of the needs of the individual (Schwartz et al., 2010) and has been shown to be protective against physical child punishment (Coohey, 2001), whereas low levels of familism increases that risk (Ferrari, 2002). Familism is reportedly greater among Latino women when compared with European and Asian women (Campos et al., 2014).

In Chinese culture *filial piety* emphasises the importance for children to obey their parents regardless of the demands, or how harshly they are treated, to ensure parents' wishes are always fulfilled (O'Brian & Lau, 1995). Filial piety has been used to justify the use of harsh parenting practices and subsequent child abuse in China should children deviate from these expectations (Liao et al., 2011). As such, levels of

physical child abuse are greater among Chinese families residing in the US when compared to other families in the US (Rhee et al., 2008), demonstrating the resilience of traditional values despite families living in a different culture.

Resilience of traditional parenting practices have also been observed among Asian Indian mothers who live in the US when compared with Asian Indian mothers who live in India. Mothers residing in the US had lower inappropriate expectations for their children were less likely to reverse roles with their children, whereas mothers living in India favoured the use of corporal punishment as a form of child discipline more so than mothers in the US (Jambunathan & Counselman, 2002).

Given that some traditional values are purported to be associated with increased risk of physical child punishment by parents, research has explored the effectiveness of education programmes in modifying such 'risky' attitudes. One Australian study which sought to change 'inappropriate' parenting, delivered a parenting programme to a group of African migrant families. Findings showed that the programme was effective at changing scores across all parenting attitudes exception the 'power and independence' attitude. This attitude refers to the parental belief that it is okay to restrict a child's power and independence, and that children should respect authority without question. The researchers speculated that this could be because the African migrant sample maintained 'traditional' views about children submitting to authority (Renzaho & Vignjevic, 2011), which may be more resistant to change among collectivist cultures than individualistic cultures.

Thus, there is evidence that certain attitudes towards parenting practices increase the risk of child maltreatment, and that such attitudes appear to form by adolescence. Some attitudes and values which are commonplace in many cultures

are associated with physical punishment and seem to persist despite migration to other countries where such harsh attitudes are less common.

It is not known whether attitudes towards parenting practices are linked to knowledge of attachment, i.e. do people who think that physical punishment as a form of child discipline is acceptable, have less knowledge of attachment than others who do not hold such attitudes? It is also not known whether such attitudes might interfere with the learning of appropriate parenting and attachment, due to the potential conflict that might arise between the different paradigms used to explain good outcomes for children.

2.2.4 Aims of the study

Recent studies have investigated attachment knowledge among a variety of samples and whether a DVD teaching tool is an effective method for increasing attachment knowledge. This has involved assessing participants' knowledge of attachment using a short questionnaire, prior to showing them a DVD, and then re-assessing participants' knowledge through re-administering the questionnaire again. An educational DVD was shown in these studies to be an effective teaching tool for improving knowledge of attachment in samples of young adults with a learning disability (Pearson, 2013), adults with Asperger's Syndrome (Brandaro, 2015), and neurotypical adolescents (Nowinski, 2016). These gains were maintained at follow-up for adolescents, and the adults with Asperger's Syndrome, but not for the adults with a learning disability. The study exploring attachment knowledge among school pupils (Nowinski, 2016) recruited participants from a school located in a rural, relatively affluent geographical location, who were predominantly white-British and

therefore unlikely to be representative of other populations such as adolescents living in urban areas with mixed socio-economic status and ethnicity.

The current study aimed to build on this research by using the same methodology and methods with a sample of neurotypical adolescents residing in a culturally-diverse urban geographical location.

In addition, the study sought to explore whether attitudes towards parenting practices that are shown to be a risk factor for child abuse are related to adolescents' pre-existing level of attachment knowledge, or the gains in attachment knowledge resulting from the intervention.

The specific hypotheses to be investigated are as follows:

1) There will be a significant increase in knowledge of attachment scores after watching the DVD, and this will be maintained at follow-up.
2) There will be a significant association between participants' existing knowledge of attachment and their attitudes towards parenting practices, whereby less attachment knowledge predicts harsh attitudes.
3) There will be a significant association between participants' change in scores of attachment knowledge through watching the educational DVD and their attitudes towards parenting practices, whereby harsh attitudes predict fewer gains in attachment knowledge.
4) A further aim is to identify demographic factors (i.e. gender, having a younger sibling, and who the primary caregiver(s) is) that are associated with pre-existing attachment knowledge, and the changes in attachment knowledge from receiving the intervention. These include:
    a. Are demographic variables related to pre-existing, post- intervention and follow-up attachment knowledge?

b. Are demographic variables related to changes in attachment knowledge?

2.3 Method

2.3.1 Design

The current study uses a quantitative repeated measures design and compares participants' scores on the attachment measure (dependent variable) across three conditions (pre, post and follow-up), which form the independent variable.

2.3.2 Participants

2.3.2.1 Ethical approval

The study was granted full ethical approval from the University of Birmingham (ethics reference number: ERN_17-1421)[3].

2.3.2.2. Recruitment

Participants were adolescent boys and girls aged 13-14 years old, recruited from a mainstream, state-funded secondary school located in an urban and culturally diverse city, using convenience sampling.

Participants were not given individual incentives to take part. However, in return for the support received from the school and teaching staff, the researcher offered to attend two health and social care classes to provide information about pursuing a career as a Clinical Psychologist.

[3] See Appendix A

The secondary school was contacted by the researcher and the Head Teacher was given an information sheet[4] for teachers, outlining what would be required in terms of the school's participation. The Head Teacher of the school identified a teacher with whom the researcher could contact in order to arrange recruitment.

The researcher met with the relevant member of staff and a discussion was held regarding how many participants would be available to participate. It was decided to exclude children whose comprehension of English language would not enable them to take part in the study, as well as those who had significant difficulties with literacy, and those who had a diagnosed Learning Disability or Autism Spectrum Disorder. It was also felt necessary to exclude children who were known to be experiencing mental health or familial difficulties, as the material discussed could be upsetting for children with such difficulties. These exclusion criteria were agreed in order to ensure that the level of understanding demonstrated by participants would be an accurate reflection of this age group, and to ensure that there were minimal risks of psychological harm to vulnerable participants.

For practical reasons, it was agreed that the entire year group of year 9 pupils would be invited to take part in the pre and post intervention phase of the study, which offered a potential sample of approximately 130 children. However, due to practicalities outside the researcher's control, it was not possible to conduct follow-up with this entire cohort and instead the 10-week follow-up cohort consisted of two individual year 9 classes, with approximately 20 children overall.

No participants met the exclusion criteria. Provisional dates were agreed with the head of department. Information sheets[5] were given to this member of staff to be

[4] See Appendix C
[5] See Appendix D

distributed to the parents/guardians of all children in year 9. Information sheets provided details of the nature of the research and offered parents/guardians the opportunity to opt-out if they were not happy for their child to participate. Information sheets were sent more than 7 days prior to data collection, allowing parents/guardians 7 days to opt-out their children out of the research study, should they so wish.

2.3.2.3 Participants

Five children were opted out of the study by their parents, the reasons for these withdrawals were not stated. No pupils opted out on the day of recruitment and 128 participants consented to participate.

Due to large amounts of incomplete questionnaires, the number of participants who completed each questionnaire at each time point varies greatly. The full breakdown is outlined below in Table 2.1. The reasons for incomplete data and its implications will be discussed in section 2.2.5.

Table 2.1 - Number of participants completing each measure across each stage of the intervention.

Intervention stage	Measure	Number of participants completed
Pre-intervention	Demographics	128
	Attachment questionnaire	107
	AAPI-II	111
Post-intervention	Attachment questionnaire	53
Follow-up	Attachment questionnaire	12
Number completing pre and post-intervention attachment questionnaire		52
Number completing pre-intervention and follow-up attachment questionnaire		12

Due to ethical considerations under new GDPR guidelines for recruiting participants using an ‘opt-out’ strategy, personal information such as participants’ ethnicity was not permitted to be collected. It was, however, possible to gather an overview of the ethnicities of pupils attending the school overall. This indicated that pupils attending the school come from a wide range multicultural backgrounds, with ‘White English’ pupils making up approximately 19% of all pupils at the school. Other ethnicities that made up a substantial proportion of pupils included ‘Other Pakistani’ (13%); ‘Black Caribbean’ (8%); ‘Mirpuri Pakistani’ (7%); ‘Bangladeshi (6%) and ‘White Eastern-European’ (5%). Though it is not possible to approximate the ethnicity of pupils within the present sample, it is reasonable to speculate that they represent a highly multi-cultural and ethnically diverse group.

2.3.3 Materials

2.3.3.1 Information sheets and consent forms

An information sheet was provided for the headteacher and teaching staff of schools to outline the nature of the project and what it would involve should they decide to participate. A separate information sheet was provided for parents/caregivers of prospective participants to detail the nature of the project and included an ‘opt out’ slip should they wish for their child to not participate in the project. Another information sheet[6] was provided for participants on the day of data collection and a consent form[7] was given to participants to provide them with the choice of participating in the study or not.

[6] See Appendix E
[7] See Appendix F

2.3.3.2 Demographics questionnaire

A demographics questionnaire[8] formed the first page in participants' questionnaire booklets. The demographics questionnaire asked participants to specify their age, gender, number of siblings, age of siblings, and their primary caregiver. Participants' ethnicity was not collected due to data protection concerns regarding the collection of personal data using an 'opt-out' consent strategy. Participants were asked to complete this questionnaire first.

2.3.3.3 Attachment questionnaire

A seven-item questionnaire measure[9] was developed by Pearson (2013) in order to assess knowledge of attachment. Questions are open-ended and invite participants to write short answers. There is no time limit given for this task. Answers are marked according to a marking grid[10] developed for use with this questionnaire measure and each answer can score a maximum of 2 points and a minimum of 0. The minimum possible total score is 0 and the maximum is 14, with higher scores indicating greater knowledge of attachment. Interrater reliability was calculated for the current study with 20% of questionnaires, which were rated by the researcher and a second marker (also a Trainee Psychologist with research experience) using the same marking criteria. Ratings between the researcher and second maker were broadly

[8] See Appendix G
[9] See Appendix H
[10] See Appendix I

similar, with only 1-point differences across some items. Cohen's Kappa was calculated and was found to be 0.76, indicating good inter-rater reliability.

2.3.3.4 The Adult Adolescent Parenting Inventory-II (AAPI-II)

The AAPI-II is a 40-item questionnaire[11] that measures adolescents' parenting and child-rearing attitudes consistent with abusive and neglectful parenting. The authors have shown that the measure is able to identify attitudes which are associated with greater risk of abusive and neglectful parenting and state that this is an effective tool for identifying child abuse potential among non-parent adolescents (Bavolek & Keene, 2010). Each item on the AAPI-II provides a statement for which participants are asked to indicate the extent to which they agree with the statement on a 5-point Likert scale, including strongly agree, agree, undecided, disagree and strongly disagree. The measure consists of five sub-scales outlined below in Table 2.2.

Table 2.2 - The five-subscales of the AAPI-II taken from Bavolek and Keene (2010)

1)	Inappropriate expectations	This refers to parent's lacking awareness or understanding of appropriate child development milestones, and the skills or knowledge a child should have at different ages.
2)	Lack of empathy	Parents who lack empathy perceive a child's needs as irritating or overwhelming and may place their own needs before those of the child.
3)	Physical punishment	The parents' belief that physical attacks against a child is an appropriate and effective form of discipline.
4)	Role reversal	The roles between a parent and child become reversed, whereby the parent sometimes acts as helpless and needy, and look to their own children for parental care and support.
5)	Oppressing childrens' power & independence	The parent believes that the child's power and independence should be restricted, and acts where the child speaks out or challenges this view are perceived as disrespectful. The child has no choices, but instead is told what to do without question.

The raw scores on each subscale are converted into a risk score on a scale of 1-10, demonstrating each participant's risk. Scores 1-3 correspond to 'high risk', 4-7 to

[11] See Appendix J

‘medium risk’, and 8-10 to ‘low risk’. The total overall raw score can also be used to determine attitudes towards parenting practices more generally. Lower scores indicate a greater risk across each subscale and the overall scale. Internal reliability reported by the authors of the AAPI-II demonstrate that Cronbach’s alpha coefficients for each subscale, and the overall measure, range from 0.80-0.92 (Bavolek & Keene, 2010). Internal reliability tests based on the present sample demonstrated a Cronbach’s alpha coefficient of 0.77 indicating that it has good internal consistency.

2.3.3.5 The attachment teaching DVD

A DVD teaching tool was adapted by Pearson (2013) from ‘Attachment in Practice’ (Siren Films, 2009). The film outlines the main concepts of attachment, its importance and how a healthy attachment develops between a mother and her baby. The DVD is approximately 9 minutes in length, and information is presented in three ‘chapters’ separated by summaries which highlight the key points covered in that section.

The three sections cover the following topics.

1) What is attachment; what happens when things go well, and what challenges might the infant experience in later life if they do not develop a secure attachment (e.g. education, social, psychological).
2) How does attachment develop in the infant’s first 0-6 weeks of life; including what the infant does to get the mother’s attention
3) How does attachment develop in the infant’s 6-8 weeks since birth; including reciprocity between mother and infant, and vocalisations.

2.3.4 Procedure

Information sheets and ‘opt-out’ forms were distributed to parents/caregivers of prospective participants one week prior to data collection. Data collection then took place at two different time-points (see Table 2.3).

Table 2.3 - The stages of data collection

Session number	Condition	Measures/tools
1	Pre-intervention	Consent form (pupils) Demographics questionnaire Attachment questionnaire AAPI-II
	Intervention	Attachment teaching DVD
	Post-intervention	Attachment questionnaire
2	10-week follow-up	Attachment questionnaire

2.3.4.1 Session 1 (pre-intervention and post intervention)

At the first session participants who were not ‘opted out’ were seen by the researcher in the main school hall during one of their timetabled lessons, accompanied by several teaching staff. Those who were opted out by their parents were provided with an alternative lesson during this time.

Upon arrival, participants were each provided with an information sheet outlining the nature of the project and what was going to be asked of them. They were given the opportunity to ask the researcher questions, before being asked to complete a consent form if they were happy to participate. Participants were then given a booklet containing each of the pre-intervention questionnaires, while the researcher provided standardised instructions using a PowerPoint presentation. All participants were asked to complete the demographics questionnaire first. The order of the following questionnaires (the attachment questionnaire and the AAPI-II) were

counter-balanced, such that half of participants completed them in one order, and the other half completed them in a different order. This was to mitigate possible order effects, to minimise the possibility that completing one questionnaire first may influence the participants' subsequent responses on the other questionnaire.

The DVD was then shown to participants, with short breaks at the end of each of the three 'chapters' where the researcher clarified the main points of the chapter, and answered any questions participants might have about what they had just watched. After the DVD was shown, participants were asked to complete the attachment questionnaire for a second time.

2.3.4.2 Session 2 (10-week follow-up)

At the second session, for practical reasons beyond the control of the researcher, data were collected from two year 9 classes and not from the entire year group as before. Participants were asked to complete the attachment questionnaire for a final time.

2.4 Results

2.4.1 Data inspection

Normal distribution of all variables included in the analyses were checked by examining histograms and verified by calculations of skewness and kurtosis[12]. Skewness and kurtosis calculations did not exceed the recommended cut-offs of +/- 2.58 for skewness, and +/- 2 for kurtosis for any variable (Ghasemi & Zahediasl, 2012) and therefore normal distribution is assumed.

2.4.2 Descriptive statistics

2.4.2.1 Participant demographics

The demographic data for the 128 participants who completed the demographics questionnaire is outlined below in Table 2.4.

Table 2.4 - Participants' demographic information

Demographic		N (%)
Gender	Male	59 (48)
	Female	64 (52)
	No answer provided	5
Age	13	106 (87.6)
	14	15 (12.4)
	No answer provided	7
Number of siblings	0	6 (4.7)
	1	24 (18.9)
	2	32 (25.2)
	3	30 (23.6)
	4	21 (16.5)
	5	6 (4.7)
	6	6 (4.7)
	7	2 (1.6)
	No answer provided	1
Participants with a younger sibling	Yes	87 (68)
	No	41 (32)

[12] See Appendix K

Main caregiver	Mother and father	91 (74.6)
	Just my mother	15 (12.3)
	Just my father	1 (0.8)
	Parent and step parent	12 (9.8)
	Another family member	3 (2.5)
	No answer provided	6

2.4.2.2 Attachment questionnaire

Participants' scores on the Attachment Questionnaire are outlined below in Table 2.5 and Figure 2.1.

Table 2.5 - Participants' means scores and standard deviations for attachment knowledge at pre-intervention, post-intervention and follow-up

	N	Mean	SD
Pre-intervention attachment knowledge	107	7.79	2.964
Post-intervention attachment knowledge	53	9.25	3.019
Follow-up attachment knowledge	12	10	1.706

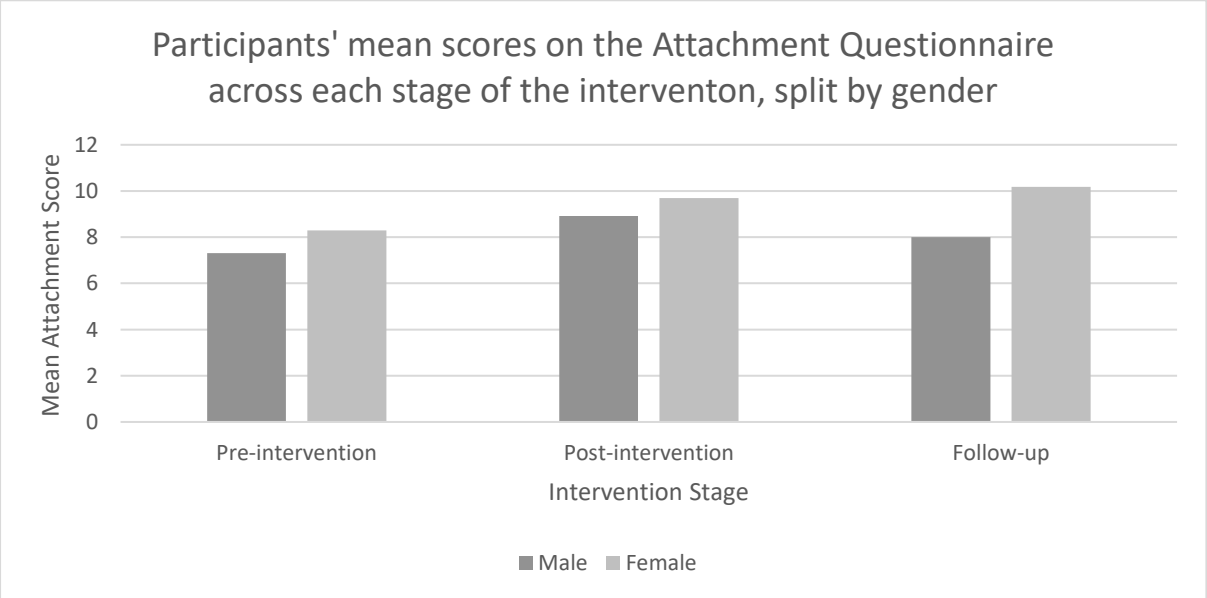

Figure 2.1 - Participants' mean scores on the Attachment Questionnaire across each stage of the intervention, split by gender.

Due to substantial participant attrition between the pre-intervention and post-intervention completion of the attachment questionnaire, comparisons were made between participants who completed both pre-and-post measures (completers), and participants who only completed pre-intervention measures (non-completers). These comparisons were made on existing attachment knowledge and attitudes towards parenting practices between completers and non-completers.

An independent samples t-test with bootstrapping showed that there was no statistically significant difference between 'completers' (M=7.42; SD=2.933) and 'non-completers' (M=8.15; SD=2.978) [t=1.263, *df*= 105; p>0.05] (bootstrap CI of -1.856 to 0.411) on existing attachment knowledge, equating to a Cohen's d effect size of 0.24.

Another independent samples t-test with bootstrapping showed that there was no statistically significant difference between 'completers' (M=111.89; SD=20.904) and 'non-completers' (M=115.73; SD=16.606) [t=0.973, *df*=90; p>0.05] (bootstrap CI of -4.002 to 11.681) on attitudes towards parenting practices, equating to a Cohen's d effect size of 0.20.

These findings indicate that there were no differences in pre-existing attachment knowledge or attitudes towards parenting practices among participants who did, and did not, complete the pre and post-intervention attachment questionnaire.

2.4.2.3 AAPI-II measure

Due to the risk scores of the AAPI-II being normed on non-parenting adolescents based in the U.S, it was deemed inappropriate to examine the risk profiles of participants in the present study. Instead, data showing participants' mean scores on

each of the AAPI-II subscales and the overall measure are illustrated below in Figure 2.2. As Figure 2.2 shows, there were no substantial differences in males or females scores on each of the AAPI-II subscales.

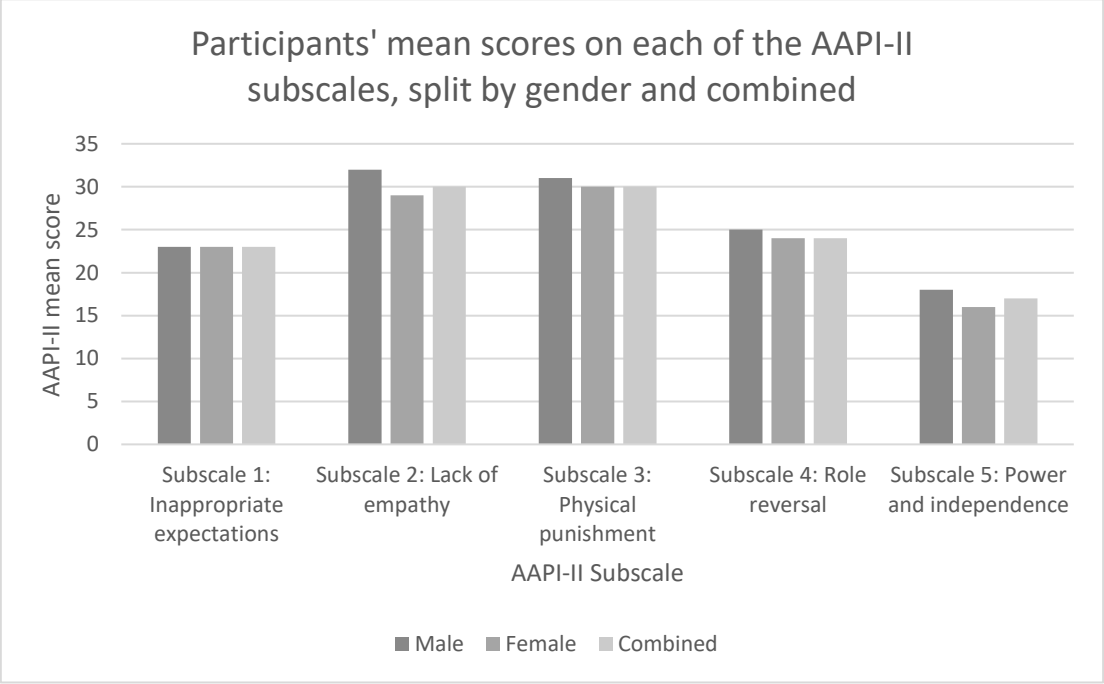

Figure 2.2 - Participants' mean scores on each of the AAPI-II subscales, split by gender and combined

2.4.3 Statistical Analysis

2.4.3.1 Hypothesis 1: There will be a significant increase in knowledge of attachment scores after watching the DVD.

Two paired samples t-tests were carried out to identify whether there was a significant difference between pre-intervention and post-intervention scores, and pre-intervention and follow-up scores. Though no issues of non-normality were identified, bootstrap confidence intervals were calculated to increase the robustness of findings (Hardle & Marron, 1991). Participants' mean attachment knowledge scores and standard deviations across each intervention stage are presented above in Table 2.5.

Of the 52 participants completing pre and post measures, a paired samples t-test[13] showed that there is a significant difference in attachment knowledge between pre and post-intervention conditions [t=-4.371, *df*= 51; p<0.001] (bootstrap CI of -2.637 to -0.979), equating to a Cohen's d effect size of 0.60. Of the 12 participants completing pre and follow-up measures, a paired samples t-test also showed a significant difference in attachment knowledge between pre-intervention and follow-up conditions [t=-4.861, *df*= 11; p=0.001] (bootstrap 95% CI of -3.995. to -1.505), which equates to a Cohen's d effect size of 1.40. However, due to small sample size in the follow-up sample (n=12), this finding should be interpreted with caution.

Nevertheless, these findings support the hypothesis that there is a significant increase in adolescents' attachment knowledge after watching the DVD.

2.4.3.2 Hypothesis 2: There will be a significant association between participants' existing participants' existing knowledge of attachment and their attitudes towards parenting practices, whereby less attachment knowledge predicts harsh attitudes.

A Pearson's correlation with bootstrapped confidence intervals was conducted in order to assess whether scores on the AAPI-II are related to baseline knowledge of attachment.

Of the 92 participants who completed the AAPI-II and the attachment questionnaire pre-intervention, a Pearson's correlation[14] showed that there was no significant association between AAPI-II total scores (M=114.75, SD= 15.451) and attachment

[13] See Appendix L
[14] See Appendix M

knowledge at pre-intervention (r = .149, N=92; p>0.05; 95% bootstrap CI -0.011 to 0.066).

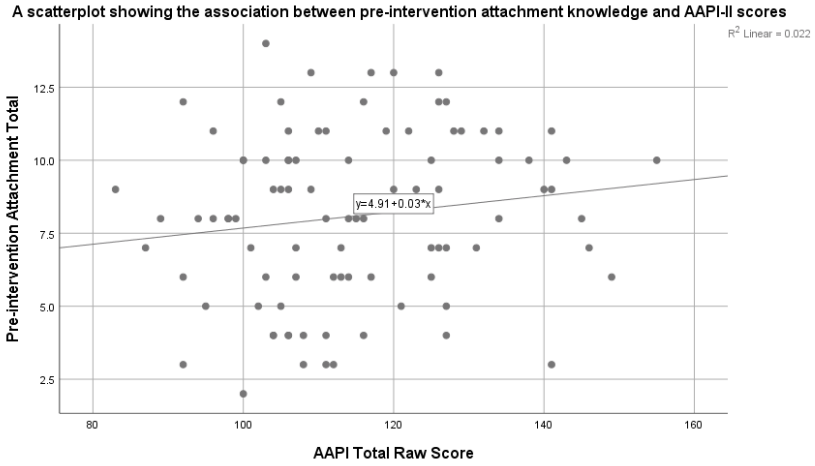

Figure 2.3 - A scatterplot showing the association between pre-intervention attachment knowledge and AAPI-II scores

When the sub-scales of the AAPI-II were each explored separately, the power and independence subscale evidenced a significant correlation with attachment knowledge at pre-intervention (r= -.341, N=92; p<0.001; 95% bootstrap CI -.776 to -.208), whereby greater attachment knowledge at pre-intervention was associated with lower scores on the power and independence subscale of the AAPI-II. In other words, greater attachment knowledge indicates harsher attitudes on the power and independence measure.

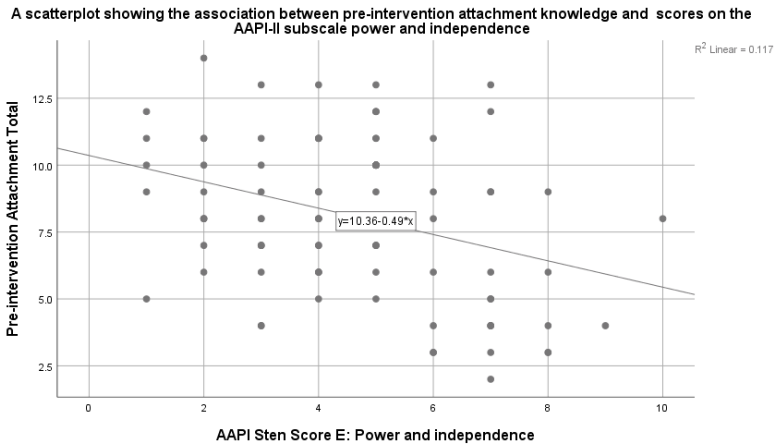

Figure 2.4 - A scatterplot showing the association between pre-intervention attachment knowledge and scores on the AAPI-II subscale power and independence

Overall, these findings do not support the initial hypothesis that there is a statistically significant association between participants' existing knowledge of attachment and overall attitudes towards parenting practices. However, when each subscale was examined separately, a statistically significant negative correlation was observed only between pre-intervention attachment knowledge and the power and independence subscale. This finding indicates that adolescents with greater knowledge of attachment had more harsh attitudes towards restricting a child's power and independence.

2.4.3.3 Hypothesis 3: There will be a significant association between participants' change in scores of attachment knowledge through watching the educational DVD and their attitudes towards parenting practices, whereby harsh attitudes predict fewer gains in attachment knowledge.

A Pearson's correlation was conducted in order to assess whether scores on the AAPI-II are related to participants' changes in knowledge of attachment.

Of the 47 participants who completed the AAPI-II measure and the attachment questionnaire at pre and post-intervention, a Pearson's correlation[15] showed that there was no significant correlation between AAPI-II total scores and change in attachment score between pre and post-intervention (M=1.81, SD= 2.977) (r = -.010, N=47; p>0.05; 95% bootstrap CI -.211 to .112). When the sub-scales of the AAPI-II were each explored separately, none of the subscale scores were significantly correlated with changes in attachment knowledge.

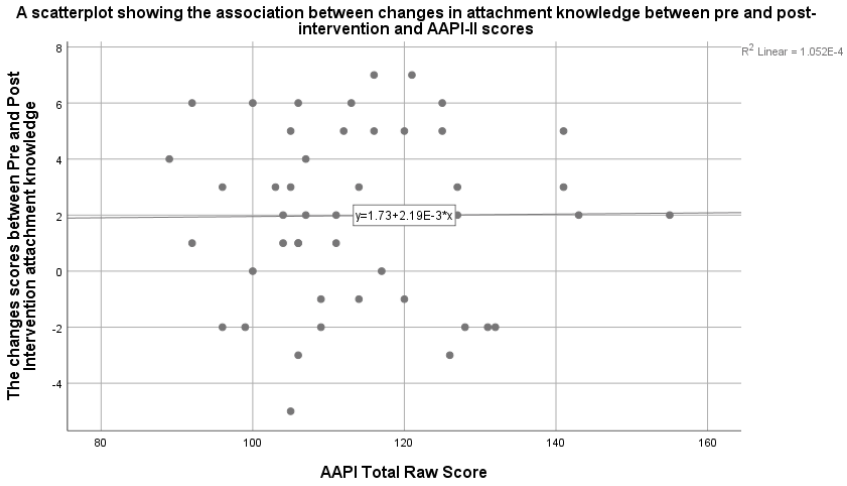

Figure 2.5 - The association between changes in attachment knowledge between pre and post-intervention and AAPI-II total scores

These findings do no support the hypothesis that there is a significant association between participants' change in scores of attachment knowledge and harsh attitudes towards parenting practices.

[15] See Appendix N

2.4.4 Additional analyses

A regression analysis was conducted in order to investigate whether any of the demographic variables were related to pre-existing knowledge of attachment[16] or change in attachment knowledge[17]. Demographic information relating to whether participants had a younger sibling was included in the analysis, as was participants' gender. The information relating to the person(s) who participants had lived with for most of their lives were collapsed into two groups – living with two parents (biological or step-parents) and living with one parent or other family member/carer.

A forced entry method of regression was used whereby all predictors are entered into the model simultaneously. This method was used because it identifies the variance accounted for by a group of predictors as well as each individual predictor (Field, 2009).

Diagnostics were conducted to assess the normality of the regression model for pre-intervention attachment knowledge and change in knowledge. Normality of the regression residuals, the linearity of the regression, and of influential observations were assessed using histograms, P-P plots and Cooks distance statistic. Homoscedasticity assumes that the residual terms at each level of the predictors should have the same variance. The scatter plot of regression standardised predicted value and regression standardised residuals with pre-intervention attachment knowledge as the dependent variable showed that all points are evenly spaced. The P-P plot compares the distribution of the residuals to the expected residuals of a normal distribution, and almost all values lie on the regression line demonstrating a normal distribution for pre-intervention attachment knowledge.

[16] See Appendix O
[17] See Appendix P

However, the scatter plot demonstrating changes in attachment knowledge as the dependent variable shows that several points are scattered slightly away from the regression line. This is likely to be due to the nature of this variable consisting of how much participants can gain in attachment knowledge after the intervention. Participants who scored highly at pre-intervention have less gains to make, compared to participants who scored lower. The gains are therefore likely to be more random and could account for the results shown on the scatterplot.

The Cook's distance plot provides a visual representation of the extent to which individual observations influence the regression coefficients. The Cook's distance statistic is a measure of impact of omitting an observation upon the regression models parameters (Cook, 1977). Values greater than one are considered to be problematic (Cook & Weisberg,1982). None of the Cook's values exceed this threshold value in either of the regression analyses.

2.4.4.1 Regression 1: Are demographic variables related to pre-existing, post-intervention and follow-up attachment knowledge?

Table 2.6 shows participants' attachment knowledge, split by their gender, across each stage of the intervention.

Table 2.6 - Participants' attachment knowledge, split by their gender, and the stage of the intervention

		N	Mean	SD
Pre intervention	Male	45	7.31	3.515
	Female	57	8.30	2.283
Post intervention	Male	25	8.92	3.439
	Female	27	9.70	2.509
Follow-up	Male	1	8	
	Female	11	10.18	1.662

When examining participants' pre-existing knowledge of attachment, of the 99 participants who completed the demographics questionnaire and attachment questionnaire at pre-intervention the R^2 for the regression model is .053. This indicates that the combined three predictor variables predict 5.3% of the variance overall. Neither the sibling variable (β = .166, SD = .256, p>0.05) nor the caregiver variable (β =-.398, SD = .836, p>0.05) were associated with pre-intervention attachment knowledge. However, participants' gender evidenced a trend towards statistical significance (β = -.958, SD = .500, p=.058).

Due to participants' gender being close to statistical significance with regards to predicting pre-intervention attachment knowledge, an independent samples t-test was carried out to examine whether there were differences in pre-intervention knowledge between males and females.

Of the 102 participants who completed the attachment questionnaire at pre-intervention, an independent samples t-test with bootstrapping[18] showed that there was no statistically significant difference in pre-intervention attachment knowledge between males (M= 7.31, SD= 3.515) and females (M= 8.30, SD= 2.283), [t=1.712, *df*= 100; p>0.05; 95% CI of -0.156 to 2.131). Of the 52 participants who completed the attachment questionnaire at post-intervention, a second independent samples t-test with bootstrapping[19] also showed that there was no statistically significant difference in post-intervention attachment knowledge between males (M=8.92, SD=3.515) and females (M=9.70, SD=2.509), [t=0.944, *df*= 50; p>0.05; 95% CI of -0.844 to 2.451). Due to follow-up data only consisting of one male, no comparisons

[18] See Appendix Q
[19] See Appendix R

were made between participants' gender and follow-up attachment knowledge scores.

2.4.4.2 Regression 2: Are demographic variables related to changes in attachment knowledge?

When examining participants' changes in knowledge of attachment, of the 50 participants who completed the demographics questionnaire and the attachment questionnaire at pre and post-intervention, the R^2 for the regression model is .023. This indicates that the combined three predictor variables predict 2.3% of the variance overall. Neither sibling variable (β = -.185, SD = .407, p>0.05), caregiver variable (β =.918, SD = 1.255, p>0.05) or participants' gender (β = -.739, SD = .929, p>0.05) were statistically significant.

2.5 Discussion

2.5.1 Summary of findings

This study investigated whether a DVD teaching tool can improve adolescents' understanding of attachment and parenting, and whether this can be maintained, as well as whether this knowledge (pre and post-intervention) is related to risky attitudes towards parenting practices or demographic factors.

The results demonstrate that knowledge of attachment increased after adolescents watched an educational DVD. These increases were maintained at 10-week follow-up, suggesting that adolescents who attended the teaching session were able to retain most of the knowledge gained. However, only a small number of participants were able to be followed-up and therefore findings should be interpreted with caution.

These findings are consistent with previous findings which investigated parenting interventions for young people, that suggest parenting knowledge can be improved in adolescents and maintained at follow-up (Barlow et al., 2011; Nowinski, 2016). It is important to note however that the follow-up periods used in other similar studies have been shorter than the present study. For example, Nowinski (2016) utilised a 3-week follow-up, whereas the present study utilised a 10-week follow up. The current findings provide evidence that the gains in attachment knowledge learned through a DVD can be maintained for relatively long periods of time.

It is also important to note that the level of attachment knowledge in the present sample prior to the intervention was, on average, almost two points below that of the sample of adolescents reported by Nowinski (2016), with mean scores of 7.79

compared to 9.71 respectively. Interestingly, the mean post-intervention attachment knowledge scores in the present sample (M= 9.25) didn't match or exceed the pre-intervention knowledge in Nowinski's sample. This could be due to fundamental differences between the samples of the present study and the Nowisnki (2016) study. As outlined previously, the present sample was culturally and ethnically diverse, with less than a fifth from the school's population 'White British'. In the Nowinski study, 95% of participants were reported to be 'White British'. Alongside the difference in participant ethnicity, the locations from which samples were drawn are quite different. The present study recruited participants from a school in an urban, multicultural area whereas participants in the Nowinski study were recruited from a school in a rural, relatively affluent area.

The present study indicates that harsh attitudes towards parenting practices, as measured using the AAPI-II, are not related to pre-existing knowledge of attachment, or the changes in attachment knowledge acquired through the intervention. This does not support the hypothesis that attitudes towards parenting practices are related to existing attachment knowledge or the ability to learn new information about this topic. However, when the AAPI-II subscales were explored separately, harsher attitudes towards restricting a child's power and independence were associated with pre-existing attachment knowledge. This finding indicates that participants with greater attachment knowledge were more likely to believe that it is acceptable to restrict a child's power and independence. These findings and their potential implications will be examined further.

As outlined earlier, attitudes which indicate that it is acceptable to restrict a child's power and independence is believed to be a risky attitude, that can place the child at risk of potential abuse or neglect by the parent. In accordance with this, is the belief

that a child should respect authority without question and if the child deviates from this rule, the child is perceived as displaying a 'problem behaviour' (Bavolek & Keene, 2010). It is reasonable to speculate that this attitude may appear more commonplace, or be more acceptable, within certain cultures. The fact that this attitude is more common among participants who had greater attachment knowledge may suggest that for those individuals, this attitude is more representative of a knowledge system, rather than a belief system. In other words, nuances associated with this attitude, in terms of respecting a parent's authority without question, and expressing limited autonomy in favour of being under a parent's total control, may be taught as 'factual' rather than 'attitudinal', in the same manner attachment is taught as 'fact'. In this light, the relationship between attachment knowledge and this oppressing a child's power and independence may be the result of a child knowing more about both than other children. This is however speculative, as there is not a large evidence base to draw upon in terms of cultures where this attitude is more prevalent than others.

One study however which recruited a sample of African migrant families from Australia developed a parenting programme which sought to change inappropriate parenting styles as measured using the AAPI-II. Findings showed that the parenting programme was effective at changing scores across all attitudes except for the power and independence attitude. The researchers speculated that this was because the African migrant sample maintained 'traditional' views about children submitting to authority (Renzaho & Vignjevic, 2011). They suggest that this could be due to traditional views being more resistant to change among collectivist cultures than individualistic cultures. There is some support for this view that collectivist cultures are more likely to use' in-group norms' to shape their behaviour rather than

their own personal attitudes (Tiriandis, 2000). In other words, to maintain the attitudes and belief systems of the group, rather than to deviate from such norms.

Despite these findings relevant to cultural factors, it is not known why in the present study participants who had harsher attitudes towards oppressing a child's power and independence had greater knowledge of attachment. This is because the precise cultural and ethnic make-up of the present study's sample is not known. It is therefore not possible to make strong claims that the findings which relate greater attachment knowledge to the belief that restricting a child's power and independence is acceptable, is related to the cultural or ethnic backgrounds of participants. At best, it can by hypothesised that culture and ethnicity are influential, but further research is required to understand this further.

2.5.2 Limitations

The size of the sample included in the analyses is the greatest limitation of the present study. The main reason for such a small sample size is the large amounts of missing data due to large numbers of participants not completing the measures at pre and post-intervention. This resulted in a sample of just 52 participants examined in terms of changes in attachment knowledge pre and post-intervention, and a sample of just 12 participants being examined at follow-up. These are small sample sizes and although significant results were observed in both analyses, these findings should be interpreted with caution, as the sample which completed all of the measures could be qualitatively different in some way from participants who did not complete all measures, and were subsequently not included in the analyses.

It is also not known why so many participants did not complete all of the measures. Participants who were able to complete all measures in the time allowed may be different from the population overall, and may therefore not be representative. Comparisons made between participants who completed pre-and-post measures and those who did not revealed no significant differences in pre-existing attachment knowledge or attitudes towards parenting practices. This indicates that participants' knowledge of attachment, and their attitudes towards parenting practices, did not appear to influence their engagement/completion with data collection.

It is not possible to generalise the findings at 10-week follow-up due to the substantial attrition rates, where it was only possible to follow-up 12 participants. This means that it is not possible to conclude that attachment knowledge gained through watching the educational DVD is maintained at this follow-up period.

Although every effort was made to ensure the environment where data were collected was quiet and with no distractions, the conditions were not typical of standard classroom teaching conditions due to the large size of the group (approximately 130 pupils). It is possible that distractions within the room may have interfered with data collection and the number of participants who were able to complete all measures pre and post-intervention. Though this was largely out of the control of the researcher, conducting the research in smaller groups may have increased the number of participants who completed all measures.

Another limitation is the lack of detail regarding the ethnicities of participants in the present study. Given the potential cultural differences previously outlined that might exist with regards to attitudes towards parenting practices, the present study is not

able to add to this evidence base in the absence of specific details of participants' ethnicities.

The present study also did not include a between-subjects control group with which comparisons against the intervention group could be made. It is therefore not possible to be certain that the statistically significant gains in attachment knowledge participants were able to make are due to the intervention, as it is not possible to rule out potential practice effects. In other words, merely completing the attachment questionnaire previously could improve participants' performance when completing the questionnaire a second time, even in the absence of an intervention. This is an important limitation of pre-and-post intervention study designs which do not include a between-subjects control group

Similarly, with the small number of participants who completed the follow-up stage, without a control group acting as a comparison, it is not possible to be certain that the maintenance of attachment knowledge at follow-up is due to the intervention. Given that the present sample are not parents, it is also not possible to know whether the DVD can improve parenting practices.

2.5.3 Research and clinical implications

The present study adds tentative evidence to the findings of previous studies (e.g. Brandaro, 2015; Nowinski, 2016; Pearson, 2013), that an educational DVD may be an effective teaching tool for teaching attachment to adolescents and that gains in attachment knowledge can be maintained at 10-week follow-up. However, due to high attrition rates in the current study, no firm conclusions can be drawn. Nevertheless, in the light of previous findings that a DVD can increase knowledge of

attachment, the body of evidence so far may have important clinical implications, given that poorer knowledge of attachment and parenting practices has long been associated with a range of negative outcomes for both the parent and the child.

Despite successful strategies in the UK in reducing levels of teenage pregnancy in recent decades, the UK continues to have higher levels of teenage pregnancy than most other European countries. Given the vast evidence base on the challenges experienced by adolescent parents and the potential for negative outcomes for the child, it is important that teaching on attachment and parenting form part of the national curriculum in UK schools. This would ensure that all pupils have adequate knowledge of appropriate practices. This can help ensure that teenage parents are better prepared for the role of parenting.

The findings of the present study suggest an educational DVD can improve knowledge of attachment among adolescents in a school environment. Future research may build on these findings through including a between-subjects control group, or another intervention with which the educational DVD can be compared. Future research may also explore alternative methods to carry out data collection in a school setting due to the high levels of attrition in the present study.

The present study has added further evidence that the Attachment Questionnaire can be used to assess knowledge of attachment in non-parent adolescents. The questionnaire could be used as a screening tool by GPs or other health and social service professionals to identify adolescent mothers-to-be who might require further support or education while preparing for parenthood.

2.5.4 Further research

The present study has provided further evidence for the potential usefulness of a DVD teaching tool in increasing adolescents' knowledge of attachment. The inclusion of a sample which is multicultural has benefits in terms of being more representative of all adolescents in the UK. However, research is needed using samples which are more balanced in terms of ethnicity, culture and socio-economic status in order to clarify whether these results can be generalised to other to the non-parenting adolescent population. Further research may also make comparisons between cultural and ethnic groups, to determine whether attitudes towards parenting practices are different between differing ethnic groups, and whether such differences exist in adolescence.

Future research may also benefit from the inclusion of a control group to allow for comparisons to be made between participants completing the intervention and participants that do not. This will allow greater certainty that changes to attachment knowledge post-intervention are due to the intervention, and not due to possible practice effects.

Previous research that has utilised this DVD teaching tool has delivered the intervention on a one-to-one basis (Brandaro, 2015; Pearson, 2013) and in a group of approximately 45 people (Nowinski, 2016). In the latter study, the author was able to demonstrate that the DVD was effective when delivered to a classroom of approximately 45 pupils, with no reports of missing or incomplete data. Future research may therefore seek to recruit participants in smaller groups, which are less distracting, and where more support and interactions can be provided to participants.

This might better emulate a typical classroom environment and prevent participants from not completing measures.

Previous research has sought to identify factors that might predict baseline attachment knowledge among non-parent adolescents and the gains this group can make in attachment knowledge through watching an educational DVD. A previous study investigating whether emotional intelligence was associated with attachment knowledge (Nowinski, 2016) found no such relationship. The present study investigated whether attitudes consistent with child abuse potential were associated with attachment knowledge and found no such relationship overall. However, the present study did identify an association between attachment knowledge and the belief that it is acceptable for a child's power and independence to be restricted. Future research might seek to explore this specific attitude further, given its possible association with more 'traditional' or 'collectivist' cultures, to examine if there is such a relationship among adolescents, as previous research with adults has suggested.

Little is known about factors that are associated with existing attachment knowledge among non-parent adolescents and future research might seek to investigate this further, given the links between poorer parenting knowledge and increased risk of child abuse or neglect among parents. Future research may also seek to examine how effective the educational DVD is among new parents or parents expecting a baby in terms of increasing attachment knowledge and exploring if this translates into parenting practices. This tool could be an effective, and low-cost method with which expecting parents can learn about attachment and appropriate parenting practices for new-born babies. This could then reduce the risk of abuse and neglect among infants.

Finally, although a longer follow-up period was adopted for the present study (10-weeks) compared to previous studies, only 12 participants formed the follow-up group. Though this was due to factors outside the control of the researcher, future research might take extra measures to ensure that sample sizes across each stage of the intervention are consistent, to improve the external validity of findings.

2.6 Conclusion

The present study sought to investigate whether a DVD teaching tool can be effective in increasing the knowledge of attachment in non-parent adolescents and whether gains in attachment knowledge can be maintained. It also aimed to examine whether harsh attitudes towards parenting practices are related to pre-existing knowledge or change in knowledge of attachment.

The findings showed that the DVD teaching tool may be successful in increasing adolescents' knowledge of attachment and that this knowledge can be maintained at 10-week follow-up. Although there was high participant attrition in the present study, and no control group with which findings could be compared to rule out possible practice effects, the study offers insight into the potential benefits of an educational DVD in improving attachment knowledge among adolescents. Suggestions for future research have been outlined which can build on these initial findings, to examine whether such teaching tools can be utilised to support child development teaching, or to support young people who are due to become parents by increasing their knowledge of relational aspects of parenting.

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3.0 PUBLIC DISSEMINATION DOCUMENT

ARE CHILDREN OF ADOLESCENT MOTHERS MORE LIKELY TO EXPERIENCE PHYSICAL ABUSE OR NEGLECT THAN CHILDREN OF OLDER MOTHERS?

AND

ADOLESCENTS' ATTITUDES TOWARDS PARENTING PRACTICES AND UNDERSTANDING OF ATTACHMENT.

3.1 Teenage pregnancy in the UK

Rates of teenage pregnancy have long been higher in the UK when compared with other European countries although there has been a reduction in recent decades. The UK government has developed programmes such as the Teenage Pregnancy Prevention Framework to reduce levels of teenage pregnancies. This has shown to be effective but despite a downward trend, the UK teenage birth-rate still ranks the 6th highest among EU countries, and is above the EU average (Eurostat, 2019).

3.2 Adolescent Parenting

Research has shown that there are many challenges commonly experienced by adolescent mothers which can greatly affect their parenting. These challenges include less education; unemployment; financial strain (Laopaiboon et al., 2014); mental health difficulties (Sarri & Phillips, 2004; Moffitt, 2002); and being a single-parent (Brown et al., 1998).

It is widely believed that children of adolescent mothers are at greater risk of experiencing abuse and neglect (Bartlett & Easterbrooks, 2012) due to these aforementioned challenges, and the increased stress these can place on the mother.

3.3 Literature Review - Are children of adolescent mothers more likely to experience physical abuse or neglect than children of older mothers?

The literature review attempted to collate and explore the research on levels of child maltreatment among children of adolescent mothers. It aimed to answer the following questions: 1. Are children of adolescent mothers more likely to experience abuse? 2. Are children of adolescent mothers more likely to experience neglect?

Ten papers where identified through a systematic search of the literature and were evaluated using a framework to assess quality (Kmet, Lee & Cook, 2004). The results suggest that children of adolescent mothers are more likely to experience abuse (MacMillan et al., 2013) and neglect (Stier et al., 1993) than children of older mothers. Prevalence rates of adolescent mothers who had abused and neglected their children ranged from 4.1% to 31.1% and 12.8% to 40.1% (Lo et al., 2017; Stier et al., 1993) respectively.

Despite these results, a number of weaknesses in the existing research were identified. The most notable weakness was the methods used to measure instances of abuse and neglect. Most studies use self-report methods which asked mothers if they had engaged in abusive or neglectful acts towards their child. Other studies instead measured instances of abuse and neglect by examining the records of medical/child protective services. Both of these methods are likely to be very unreliable and not offer an accurate reflection of true levels of abuse and neglect. This limits the usefulness of the findings, as it is not possible to provide an accurate picture of abuse and neglect among children of adolescent mothers.

3.4 Empirical Paper - Adolescents' attitudes towards parenting practices and understanding of attachment

3.4.1 Background.

Past research has shown that parents with poor knowledge of attachment and child development is associated with a greater risk of child abuse and neglect. A DVD teaching tool (Siren Films, 2009) about attachment was developed for use in previous studies and has been used with adults with learning disabilities (Pearson,

2013), adults with Asperger's Syndrome, (Brandaro, 2015) and with typically-developing adolescents.

The present study aimed to identify whether this DVD teaching tool could increase attachment knowledge in adolescents who were not parents and whether this could be maintained. The study also aimed to identify whether trait emotional intelligence or demographic factors were related to knowledge of attachment.

3.4.2 Method.

Ninety-five adolescents were recruited from a secondary school in an urban, culturally-diverse borough. Participants took part in three conditions, pre-intervention, post-intervention and follow-up. The intervention involved watching the DVD teaching tool. Attitudes towards parenting practices were measured using the AAPI-II (Bavolek & Keene, 2010) and attachment knowledge was measured using a questionnaire developed by Pearson (2013). Both were administered prior to the intervention with a brief demographics questionnaire. The Attachment Questionnaire was administered again after the intervention and again at ten-week follow-up.

3.4.3 Results.

There was a significant increase in knowledge of attachment after the intervention which was maintained at ten-week follow-up. Attitudes towards parenting practices overall was not found to be related to attachment knowledge or change in knowledge. However, the high-risk scores on the power and independence subscale was associated with greater attachment knowledge. In other words, adolescents who believe it is acceptable to restrict a child's power and independence were more likely to have greater attachment knowledge. No demographic factors were shown to be related to attachment knowledge.

3.4.4 Conclusions and clinical implications.

These findings demonstrate that the DVD teaching tool can increase knowledge of attachment in non-parent adolescents, which can be maintained several weeks later. Attitudes towards parenting practices, as measured using the AAPI-II was not related to attachment knowledge. More research is required to explore whether the DVD teaching tool is more effective at increasing attachment knowledge among adolescents than other teaching tools or the existing curriculum. This could provide greater insight as to the potential future uses of the DVD teaching tool, and whether there might be scope for it to be used to teach adolescents about attachment within their school curriculum. Additionally, the Attachment Questionnaire (Pearson, 2013) could help to identify young parents to-be who may require additional support. Further research is required to determine whether an increase of attachment knowledge translates to a change in parenting behaviour. Future research may also explore the influence of culture on attitudes towards parenting practices among adolescents.

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Appendix A: Email confirming ethical approval and permission to continue with research

Dear Dr Stenfert Kroese

Re: "Can adolescents' attitudes to towards parenting practices mediate pre-existing knowledge of attachment, and mediate any gains in attachment knowledge after watching an educational DVD"
Application for Ethical Review ERN_17-1421

Thank you for your application for ethical review for the above project, which was reviewed by the Science, Technology, Engineering and Mathematics Ethical Review Committee.

On behalf of the Committee, I confirm that this study now has full ethical approval.

I would like to remind you that any substantive changes to the nature of the study as described in the Application for Ethical Review, and/or any adverse events occurring during the study should be promptly bought to the Committee's attention by the Principal Investigator and may necessitate further ethical review.

Please also ensure that the relevant requirements within the University's Code of Practice for Research and the information and guidance provided on the University's ethics webpages (available athttps://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Links-and-Resources.aspx) are adhered to and referred to in any future applications for ethical review. It is now a requirement on the revised application form (https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Ethical-Review-Forms.aspx) to confirm that this guidance has been consulted and is understood, and that it has been taken into account when completing your application for ethical review.

Please be aware that whilst Health and Safety (H&S) issues may be considered during the ethical review process, you are still required to follow the University's guidance on H&S and to ensure that H&S risk assessments have been carried out as appropriate. For further information about this, please contact your School H&S representative or the University's H&S Unit athealthandsafety@contacts.bham.ac.uk.

Kind regards

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Appendix B: Manual for Quality Scoring of Quantitative Studies

Definitions and Instructions for Quality Assessment Scoring

How to calculate the summary score
Total sum = (number of "yes" * 2) + (number of "partials" * 1)
Total possible sum = 28 – (number of "N/A" * 2)
Summary score: total sum / total possible sum

Quality assessment
1. *Question or objective sufficiently described?*

Yes: Is easily identified in the introductory section (or first paragraph of methods section). Specifies (where applicable, depending on study design) *all* of the following: purpose, subjects/target population, and the *specific* intervention(s) /association(s)/descriptive parameter(s) under investigation. A study purpose that only becomes apparent after studying other parts of the paper is *not* considered sufficiently described.

Partial: Vaguely/incompletely reported (e.g. "describe the effect of" or "examine the role of" or "assess opinion on many issues" or "explore the general attitudes"...); *or* some information has to be gathered from parts of the paper other than the introduction/background/objective section.

No: Question or objective is not reported, or is incomprehensible.

N/A: Should not be checked for this question.

2. *Design evident and appropriate to answer study question?*
(If the study question is not given, infer from the conclusions).

Yes: Design is easily identified and is appropriate to address the study question / objective.

Partial: Design and /or study question not clearly identified, but gross inappropriateness is not evident; *or* design is easily identified but only partially addresses the study question.

No: Design used does not answer study question (e.g., a comparison group is required to answer the study question, but none was used); *or* design cannot be identified.

N/A: Should not be checked for this question.
3. *Method of subject selection (and comparison group selection, if applicable) or source of information/input variables (e.g., for decision analysis) is described and appropriate.*

Yes: Described and appropriate. Selection strategy *designed* (i.e., consider sampling frame and strategy) to obtain an unbiased sample of the relevant target population or the entire target population of interest (e.g., consecutive patients for clinical trials, population-based random sample for case-control studies or surveys). Where applicable, inclusion/exclusion criteria are described and defined (e.g., "cancer" -- ICD code or equivalent should be provided). *Studies of*

volunteers: methods and setting of recruitment reported. *Surveys:* sampling frame/ strategy clearly described and appropriate.

Partial: Selection methods (and inclusion/exclusion criteria, where applicable) are not completely described, but no obvious inappropriateness. Or selection strategy is not ideal (i.e., likely introduced bias) but did not likely seriously distort the results (e.g., telephone survey sampled from listed phone numbers only; hospital based case-control study identified all cases admitted during the study period, but recruited controls admitted during the day/evening only). Any study describing participants only as "volunteers" or "healthy volunteers". *Surveys:* target population mentioned but sampling strategy unclear.

No: No information provided. *Or* obviously inappropriate selection procedures (e.g., inappropriate comparison group if intervention in women is compared to intervention in men). *Or* presence of selection bias which likely seriously distorted the results (e.g., obvious selection on "exposure" in a case-control study).

N/A: Descriptive case series/reports.

4. *Subject (and comparison group, if applicable) characteristics or input variables/information (e.g., for decision analyses) sufficiently described?*

Yes: Sufficient relevant baseline/demographic information clearly characterizing the participants is provided (or reference to previously published baseline data is provided). Where applicable, reproducible criteria used to describe/categorize the participants are clearly defined (e.g., ever-smokers, depression scores, systolic blood pressure > 140). If "healthy volunteers" are used, age and sex must be reported (at minimum). *Decision analyses:* baseline estimates for input variables are clearly specified.

Partial: Poorly defined criteria (e.g. "hypertension", "healthy volunteers", "smoking"). *Or* incomplete relevant baseline / demographic information (e.g., information on likely confounders not reported). *Decision analyses:* incomplete reporting of baseline estimates for input variables.

No: No baseline / demographic information provided.
Decision analyses: baseline estimates of input variables not given.

N/A: Should not be checked for this question.
5. *If random allocation to treatment group was possible, is it described?*

Yes: True randomization done - requires a description of the method used (e.g., use of random numbers).

Partial: Randomization mentioned, but method is not (i.e. it may have been possible that randomization was not true).

No: Random allocation not mentioned although it would have been feasible and appropriate (and was possibly done).

N/A: Observational analytic studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports. Decision analyses.

6. *If interventional and blinding of investigators to intervention was possible, is it reported?*

Yes: Blinding reported.

Partial: Blinding reported but it is not clear who was blinded.

No: Blinding would have been possible (and was possibly done) but is not reported.

N/A: Observational analytic studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports. Decision analyses.

7. *If interventional and blinding of subjects to intervention was possible, is it reported?*

Yes: Blinding reported.

Partial: Blinding reported but it is not clear who was blinded.

No: Blinding would have been possible (and was possibly done) but is not reported.

N/A: Observational studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports.

8. *Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?*

Yes: Defined (or reference to complete definitions is provided) and measured according to reproducible, "objective" criteria (e.g., death, test completion – yes/no, clinical scores). Little or minimal potential for measurement / misclassification errors. *Surveys:* clear description (or reference to clear description) of questionnaire/interview content and response options. *Decision analyses:* sources of uncertainty are defined for all input variables.

Partial: Definition of measures leaves room for subjectivity, *or* not sure (i.e., not reported in detail, but probably acceptable). *Or* precise definition(s) are missing, but no evidence or problems in the paper that would lead one to assume major problems. *Or* instrument/mode of assessment(s) not reported. Or misclassification errors may have occurred, but they did not likely seriously distort the results (e.g., slight difficulty with recall of long-ago events; exposure is measured only at baseline in a long cohort study). *Surveys:* description of questionnaire/interview content incomplete; response options unclear. *Decision analyses:* sources of uncertainty are defined only for some input variables.

No: Measures not defined, or are inconsistent throughout the paper. *Or* measures employ only ill-defined, subjective assessments, e.g. "anxiety" or "pain." *Or* obvious misclassification errors/measurement bias likely seriously distorted the results (e.g., a prospective cohort relies on self-reported outcomes among the "unexposed" but requires clinical assessment of the "exposed"). *Surveys:* no description of questionnaire/interview content or response options. *Decision analyses:* sources of uncertainty are not defined for input variables.

N/A: Descriptive case series / reports.

9. *Sample size appropriate?*

Yes: Seems reasonable with respect to the outcome under study and the study design. When statistically significant results are achieved for major outcomes, appropriate sample size can usually be assumed, unless large standard errors (SE > ½ effect size) and/or problems with multiple testing are evident. *Decision analyses:* size of modelled cohort / number of iterations specified and justified.

Partial: Insufficient data to assess sample size (e.g., sample seems "small" and there is no mention of power/sample size/effect size of interest and/or variance estimates aren't provided). *Or* some statistically significant results with standard errors > ½ effect size (i.e., imprecise results). *Or* some statistically significant results in the absence of variance estimates. *Decision analyses:* incomplete description or justification of size of modelled cohort / number of iterations.

No: Obviously inadequate (e.g., statistically non-significant results and standard errors > ½ effect size; or standard deviations > _ of effect size; or statistically non-significant results with no variance estimates and obviously inadequate sample size). *Decision analyses:* size of modelled cohort / number of iterations not specified.

N/A: Most surveys (except surveys comparing responses between groups or change over time). Descriptive case series / reports.

10. *Analysis described and appropriate?*

Yes: Analytic methods are described (e.g. "chi square"/ "t-tests"/"Kaplan-Meier with log rank tests", etc.) and appropriate.

Partial: Analytic methods are not reported and have to be guessed at, but are probably appropriate. *Or* minor flaws or some tests appropriate, some not (e.g., parametric tests used, but unsure whether appropriate; control group exists but is not used for statistical analysis). *Or* multiple testing problems not addressed.

No: Analysis methods not described and cannot be determined. *Or* obviously inappropriate analysis methods (e.g., chi-square tests for continuous data, SE given where normality is highly unlikely, etc.). *Or* a study with a descriptive goal / objective is over-analyzed.

N/A: Descriptive case series / reports.

11. *Some estimate of variance (e.g., confidence intervals, standard errors) is reported for the main results/outcomes (i.e., those directly addressing the study question/ objective upon which the conclusions are based)?*

Yes: Appropriate variances estimate(s) is/are provided (e.g., range, distribution, confidence intervals, etc.). *Decision analyses:* sensitivity analysis includes all variables in the model.

Partial: Undefined "+/-" expressions. *Or* no specific data given, but insufficient power acknowledged as a problem. *Or* variance estimates not provided for all main results/outcomes. *Or* inappropriate variance estimates (e.g., a study

examining change over time provides a variance around the parameter of interest at “time 1” or “time 2”, but does not provide an estimate of the variance around the difference). *Decision analyses:* sensitivity analysis is limited, including only some variables in the model.

No: No information regarding uncertainty of the estimates. *Decision analyses:* No sensitivity analysis.

N/A: Descriptive case series / reports. Descriptive surveys collecting information using open-ended questions.

12. *Controlled for confounding?*

Yes: Randomized study, with comparability of baseline characteristics reported (or non-comparability controlled for in the analysis). *Or* appropriate control at the design or analysis stage (e.g., matching, subgroup analysis, multivariate models, etc). *Decision analyses:* dependencies between variables fully accounted for (e.g., joint variables are considered).

Partial: Incomplete control of confounding. *Or* control of confounding reportedly done but not completely described. *Or* randomized study without report of comparability of baseline characteristics. *Or* confounding not considered, but not likely to have seriously distorted the results. *Decision analyses:* incomplete consideration of dependencies between variables.
No: Confounding not considered, and may have seriously distorted the results. *Decision analyses:* dependencies between variables not considered.

N/A: Cross-sectional surveys of a single group (i.e., surveys examining change over time or surveys comparing different groups should address the potential for confounding). Descriptive studies. Studies explicitly stating the analysis is strictly descriptive/exploratory in nature.

13. *Results reported in sufficient detail?*

Yes: Results include major outcomes and all mentioned secondary outcomes.

Partial: Quantitative results reported only for some outcomes. *Or* difficult to assess as study question/objective not fully described (and is not made clear in the methods section), but results seem appropriate.

No: Quantitative results are reported for a subsample only, or “n” changes continually across the denominator (e.g., reported proportions do not account for the entire study sample, but are reported only for those with complete data -- i.e., the category of “unknown” is not used where needed). *Or* results for some major or mentioned secondary outcomes are only qualitatively reported when quantitative reporting would have been possible (e.g., results include vague comments such as “more likely” without quantitative report of actual numbers).

N/A: Should not be checked for this question.

14. *Do the results support the conclusions?*

Yes: All the conclusions are supported by the data (even if analysis was inappropriate). Conclusions are based on all results relevant to the study question, negative as well as positive ones (e.g., they aren't based on the sole significant finding while ignoring the negative results). Part of the conclusions may expand beyond the results, if made *in addition to* rather than instead of those strictly supported by data, and if including indicators of their interpretative nature (e.g., "suggesting," "possibly").

Partial: Some of the major conclusions are supported by the data, some are not. *Or* speculative interpretations are not indicated as such. *Or* low (or unreported) response rates call into question the validity of generalizing the results to the target population of interest (i.e., the population defined by the sampling frame/strategy).

No: None or a very small minority of the major conclusions are supported by the data. *Or* negative findings clearly due to low power are reported as definitive evidence against the alternate hypothesis. *Or* conclusions are missing. *Or* extremely low response rates invalidate generalizing the results to the target population of interest (i.e., the population defined by the sampling frame/ strategy).
N/A: Should not be checked for this question.

Appendix C – Information sheet for schools

UNIVERSITY OF BIRMINGHAM

Information sheet for schools

My name is Charlie Cowtan and I'm a Trainee Clinical Psychologist at the University of Birmingham. I am currently doing research for my doctoral research thesis to find out what adolescents understand about the attachment behaviours between parents and babies, and whether a DVD teaching tool will increase this understanding. I am also interested in whether attitudes towards parenting practices is related to this knowledge. The project is being supervised by Dr Biza Kroese at the University of Birmingham.

What will the study involve?

Adolescents will be asked to fill in two questionnaires, one about parent-infant relationships, and the other about their attitudes towards parenting practices. They will then be shown a DVD of parents interacting with their babies, to help us understand how we can teach adolescents about the needs of young babies. After this they will be asked to fill in the questions about parent-infant relationships again. Finally, approximately 4 weeks later, they will be asked to fill in this measure for a final time.

Visit 1: 1 hour – to complete two questionnaires – watch a 9-minute DVD, then complete one more questionnaire.

Visit 2 (approx. 4 weeks later): 20 minutes – to complete one final questionnaire.

If you choose to take part, what will happen?

I would be very grateful if you could identify potential classes which this topic may be relevant to (e.g. PSHE or citizenship) and ask the teacher if they are able to spare the time to take part. This would take 1 lesson initially and approximately 20 minutes of a lesson approximately 4 weeks following the initial session. I will then provide information sheets and consent forms for parents which would need to be given out at least a week prior to the first session.

Who would be suitable to take part in the research?

Male and female pupils, aged between 13 and 16 years will be suitable to take part.

Who would be unsuitable to take part?

Those who have a developmental disorder (e.g. Autism, ADHD etc) or learning disability, or with known mental health problems, or pupils who are known to have familial difficulties at present, may not be able to take part in the research. Those who would be unable to understand the English language in the video voice-over or answer questions in writing would also be unable to take part.

Will I need to access student files?

No, I will not have to access any files.

How will I obtain informed consent?

Parents of those who are eligible to take part will be given an information sheet and given the opportunity to opt their child out of the study if they do not wish for them to take part.

In the first session, participants will also be given an information sheet and a consent form, and the opportunity to opt out of the study if they so wish.

Are there any risks?

We will make sure where possible that this study does not interfere with the participants' education. In the unlikely event that participants become upset following the research, I will put them in contact with someone they can talk to [who this is to be agreed with the head teacher/ teacher]. In the event of a child making a disclosure of abuse, I would inform the head teacher and would follow normal safe guarding procedure by contacting the named child protection officer.

What if participants change their mind?

Participants will be able to withdraw from the study at any point before the data is analysed (2 months after last collection).

What are the benefits of participation in this research?

Pupils participating in this research will have first-hand experience of participating in psychology research which may serve as useful experience to them, and may inspire them towards a career in research or psychology.

Pupils will also be able to learn more about early parent-baby relationships, and how this relationship can develop over time. Pupils will also learn about parenting practices, and what the current UK guidance is regarding appropriate parenting behaviours which may serve to prepare them for parenting later in life.

What information will the school receive once the study has been completed?

All participants responses will be kept confidential. However once the research has been completed, a summary of key findings will be made available to the schools that took part.

Thank you

I am grateful for your support and I hope this project will be of benefit to young people.

Appendix D – Information letter for parents/guardians

UNIVERSITY OF BIRMINGHAM

Participant Information Sheet – Parents/caregivers

Dear Parent/Guardian,

My name is Charlie Cowtan and I am a Trainee Clinical Psychologist at the University of Birmingham. As part of my training, I am required to complete a thesis research project. I am interested in exploring how young people can be taught about parenting and the bond between babies and parents (known as attachment). The project is supervised by Dr Biza Stenfert Kroese, Senior Lecturer and will be approved by the ethics committee of The University of Birmingham.

The aim of the research is to find out what young people understand about parent-baby relationships, what can be learned and remembered, and whether this is related to attitudes toward parenting practices. The research will not involve asking participants questions about their relationship with their own parents but will ask them about what they have seen on a DVD (which is about positive interactions between parents and young babies).

The research will involve two meetings which will take place in the pupil's lessons at school.

The first session will last for approximately 1 hour, and the second meeting will take approximately 20 minutes of the lesson. Your son/daughter's teacher will be present at all times in the classroom. Every effort will be made to ensure this does not interfere with your child's education. In the very unlikely event that students become upset when watching the DVD, the contact details of professional organisations who specialise in listening to people's difficulties will be given. The content of the DVD is all about parents and young babies, showing only positive and caring scenes so we think there is little risk of it upsetting your son/daughter.

Thank you for taking the time to read this letter. I am grateful for your support. After discussing this with your son/daughter, if you would prefer them **not** to take part please return the slip below. If you do not return the slip stating that you do not want your son/daughter to take part by (DATE) then they WILL take part in the study unless they decline during the session.

If your son/daughter wishes to withdraw from the study at a later date, this can be done by contacting Dr Biza Stenfert Kroese at the University of Birmingham on 0121 414 4919 or by email (b.stenfert-kroese@bham.ac.uk) within 2 months of the commencement of the study.

Yours sincerely,

Charlie Cowtan

Chief Investigator

Supervised by Dr Biza Stenfert Kroese

Please complete and return the slip below if you **do not** want your son/daughter to take part in the research

- -

I Parent/Guardian of ____**do not** give consent for my son/daughter to take part in this research which aims to explore young people's understanding of parent-baby relationships.

Signature__________________________

Date______________________________

Appendix E – Information sheet for participants

UNIVERSITY OF BIRMINGHAM

Participant Information Sheet

Title of Project: Exploring parent-baby relationships

My name is Charlie Cowtan, and I am training to be a Psychologist at the University of Birmingham. During my training, I am required to complete a big research project.

What is my study about?

I want to know more about young people's knowledge of how relationships form between parents and babies.

If I chose to take part, what will happen?

I will introduce myself to you at your school in one of your lessons, explain things in more detail, and answer any questions that you might have.

What will I be asked to do?

If you choose to take part, I will ask you to answer some questions about attachment behaviours between parents and babies. I will then ask you to complete a questionnaire that asks a series of questions about what you think about various parenting practices.

I will then ask you to watch a short 10 minute video about how parents and babies interact with each other, and will pause a few times to talk about the video. After you've watched the video I will ask you to fill out the questionnaire on attachment again.

Then four weeks later I will come to your lesson and ask you to fill in the questionnaire for the last time.

Are there any risks?

We will make sure that my study does not interfere with your education. If, after you have taken part, you feel you would like to talk to someone, let me know and I will give you

details of organisation and numbers you can call. If, after this, you feel that you would like to talk to someone about the study, you can contact Dr Biza Stenfert Kroese, Senior Lecturer and Consultant Clinical Psychologist (her details at the bottom of this sheet).

Where will we meet?

We will always meet at your school during a lesson with your subject teacher.

What happens to my information

All of the information you provide will be kept anonymised, which means that your name will not be linked to the rest of your data, and therefore identity will be kept private.

All of your information will be stored following the rules laid out by the Data Protection Act (1998) which means that it will be stored in a safe and secure place.

What if I change my mind?

If you change your mind and decide you do not want to take part, just let us know. It is okay if you say you do not want to come to the second session and in this case we will not use any of your answers in the study.

If you decide you do not want to take part in the study, you can still watch the DVD.

Who shall I contact if I have any questions or would like to speak to someone after I have taken part in the study?

If you feel distressed after taking part in this study, and you want to talk to somebody about it, here are some numbers you can call:

Child line on 0800 1111 (FREE)

The Samaritans on 116 123 (FREE)

If you have any questions about the study or want to withdraw, you can contact Dr Biza Stenfert Kroese at the University of Birmingham on 0121 414 4919 or by email b.stenfert-kroese@bham.ac.uk

Appendix F – Consent form for participants

UNIVERSITY OF BIRMINGHAM

Consent Form – Participants

Title of Project: Parent-baby relationships

Researcher: Charlie Cowtan (Trainee Clinical Psychologist)

Please initial box

1. I have had the research explained to me, and I **want** to take part. ☐
2. The DVD has been described to me, and I am happy to watch it. ☐
3. I know that I can change my mind and withdraw from the study at any time. ☐
4. If I change my mind during the research, I know I can still watch the DVD. ☐
5. I know that my information will be kept confidential and stored in a secure place. ☐

.....	.....	.....
Name of participant	Date	Signature
.....	.....	.....
Name of researcher	Date	Signature

Appendix G – Participant demographics questionnaire

UNIVERSITY OF BIRMINGHAM

Participant Demographic Form

Age: _____

Gender: (Please circle)

Male Female Other Prefer not to say

Who have you lived with for <u>most</u> of your childhood? (Please circle)

My mother and father
Just my mother
Just my father
One parent and one step-parent
Another family member (e.g. grandparent, aunt, uncle)
Another carer
Prefer not to say

Number of siblings (brothers and sisters) (please circle)

0 1 2 3 4 5 6+

Ages of siblings (brothers and sisters) *if appropriate*

Sibling 1: ___ Sibling 2: ___ Sibling 3: ___ Sibling 4: ___

Sibling 5: ___ Sibling 6: ___

Appendix H – Attachment Questionnaire (Pearson, 2013)

Question	Response	Score
1. What do we mean when we say a parent and their baby have a good attachment?		
2. What are the good things about a parent and their baby having a good and strong attachment?		
3. What problems do you get if the parent and child don't have a good attachment?		
4. Why is it important that a parent goes to the baby as quickly as possible when the baby cries?		
5. Babies do lots of things to keep their parents close, can you tell me what some of these things are?		
6. What does a parent do to show the baby they are listening to them?		
7. What does a child learn to do if their parent responds quickly and sensitively when they are upset?		

Appendix I – Attachment Questionnaire Scoring Guidelines

Scoring guidelines

1. What do we mean when we say a parent and their baby have a good attachment (assesses participants conceptual understanding of attachment)

2 points

- Acknowledges **<u>both sides</u>** of the attachment relationship (e.g. when they both love each other. When the baby knows the mum cares and baby is looked after by parent
- Acknowledges the feeling of safety which a secure attachment can provide
- “they have a strong/ special/ good bond together”
- “they have a healthy relationship”
- Responses must acknowledge reciprocal nature of relationship

1 point

- Understands that attachment is based on the parent being responsive to the baby (e.g. when the baby cries or looks uncomfortable) as well as being able to work out what the baby needs (e.g. burping the baby)
- Acknowledges only one side of the attachment relationship e.g. the baby loves the mum more/ gets on with their parents
- Describes a feature of the attachment relationship e.g. the role of a primary care giver, baby and parent recognise/ know each other, look at faces/ eye contact, baby smiles at their parents, parent and baby get on/ play with each other/ sit or eat together.

0 point

- Response is unrelated to the question or show a limited understanding of attachment (e.g. cant think/ no response, parent and child have the same genetic make-up/ physical characteristics, mum gives birth to baby, mum knows how to treat it better than dad)
- Focuses on the benefit and consequences of attachment/ positive and negative behaviours that can result from the attachment relationship e.g. baby gets used to being picked up by adults

2. What are the good things about a parent and their baby having a good and strong attachment (assess participants understanding of the benefits of a secure attachment)

2 points:

- Describes one or more of the good things about attachment as mentioned in the dvd (e.g. when they are older babies with a good attachment can feel good about themselves, do well at school and be good at making friends)
- Describes one of the benefits of a secure attachment and gives an accurate explanation as to why the child has developed a secure attachment with its parent (e.g. the person/ child is good at making friends because they got on well with their parent as a baby or their relationship with the parent as a baby helps them to make friends as an adult)
- Baby knows there is someone to support them and their parents will make them happy
- Baby can talk to and trust the parent
- The baby can trust and know someone is there for them
- The child will tell the parent things when they are older and will trust them

1 point:

- Focuses on how the parent might try to meet the physical needs of the infant (e.g. feeds)
- Describes the parent as being responsive and/ or sensitive to the baby (e.g. parent goes tp the baby when something is wrong/ tries to understand what the baby is communicating/ picks the baby up/ comforts the baby/ feeds the baby if he/she is hungry), plays with the baby
- Describes one characteristic and/or benefit of a secure attachment relationship (e.g. interaction between parent and baby, parent and baby enjoy each other's company, parent looks after/ takes care of the baby, keeps the baby safe, baby and parent get on more, baby will be happy, baby will know where to go to get help, parent praises baby (delights in the baby)
- The baby and mum is happy
- They have a strong bond
- baby feels comfortable and trusts the parent
- baby learns it is safe and that it can cope on its own for a while
- they get on and understand each other
- baby will be happy
- it will have a better/ good upbringing

0 points:

- Show no understanding of the question (e.g. no response, I don't know, I can't think. Response focuses on the consequences of an insecure attachment (e.g. they cry too much)

- Shows a limited understanding of a secure attachment e.g. baby and parent do not fall out, describes the parents ability to manage separation from their infant, parent gets a pushchair for the baby, pays the bills)
- Describes baby's help seeking behaviour to signal that something is wrong (cries when nappy needs changing)
- Confusing bonding with attachment (e.g. bonding with the baby is good and has to keep bond when grown up otherwise they will be naughty)
- they will always love each other in later life (not a realistic representation of attachment)
- they will not fall out

3. What problems do you get if the parent and child don't have a good attachment (assesses participants' understanding of the problems that can emerge from an insecure attachment)

2 points

- They won't talk to each other/ wont get along
- Babies find it hard to trust their parent and other people
- Conflict (arguments between parent and baby)
- baby will feel alone and won't have confidence in later life
- it will be hard to make friends
- the child will have confidence issues and lack motivation

1 point

- Response considers some of the wider issues (e.g. the psychological impact of having a new born on the marital relationship, social services involvement due to disputes within the family, child might run away) rather than the relationship itself
- Bad/criminal behaviour (e.g. shout, swear at mum, threaten mum or others, racist)
- Baby will be frightened and nervous – stay away from parent
- Focuses on parents behaviour in response to child's undesired behaviour and the consequences this may have for the child e.g. parents may leave the child alone if he/she becomes rowdy and child may foe hungry, be fostered, or die of hunger
- Acknowledges some of the ways that a bad attachment can affect parents e.g. lack of sleep, mother would be annoyed/ upset or get stressed. Fighting, splitting up
- Response focuses on safety issues rather than the attachment relationship e.g. limited parental supervision, lack of parental capacity to keep child safe
- Parent won't look after it as well as they need to, parent may ignore the baby when they are crying, the baby could be in danger of having no food

- Misses out on love

0 point:

- Response is unrelated to the question or lacks understanding e.g. medication, “the baby will go to sleep, they cry and the dad takes over”, or the participant identifies the benefits of a secure attachment rather than the problems associated with a ‘bad’ attachment
- No response
- Baby won’t respect parent
- The child won’t have anyone to talk to
- Response describes the death of the baby

4. Why is it important that a parent goes to the baby as quickly as possible when the baby cries?

2 points

- Something could be wrong with the baby/ to assess the problem/. attend to a potential emergency e.g. may be frightened, poorly, hungry, nappy might need changing, burping, teething, hurt, to prevent suffocation, baby may need to see a doctor
- Baby is able to trust parent e.g. so they know the parent is there for them all the time
- To keep the baby safe (could access something dangerous e.g. bleach/ something bad could happen to the baby)
- So the baby knows they care/ love them
- They learn they are safe and secure

1 point

- To make it calm
- To make it batter
- Because the baby is crying/ to stop it from crying
- Baby wants mum
- Mum knows what to do/ how to respond
- To comfort the baby

0 points:

- Inadequate responses – “I don’t know” – not sure
- To strengthen the bond between them

5. Babies do a lot of things to keep their parents close, can you tell me what some of these things are? (Assesses understanding of some of the behaviours babies exhibit to get parents attention).

2 points

- Gives one answer from both categories
    - Recognises the infant's proximity seeking behaviour (towards their parent) e.g. crawling, walking, shuffle, cling to mother/ stay close to parent, eye contact, play with parent, smiling
    - To signal to caregiver that something is not right/ to get attention – e.g. cry, weep, scream etc

1 point

- Gives one of the following answers
    - Recognises the infant's proximity seeking behaviour (towards their parent) e.g. crawling, walking, shuffle, cling to mother/ stay close to parent, use eye contact, play with parent, smiling
    -
    - To signal to caregiver that something is not right/ to get attention – e.g. cry, weep, scream etc
    - Baby gets happy when they see their mother/ they cry if they don't see their mother

0 points

- Inadequate response e.g. no, don't know, they like sleeping
- Response if not related to the question or shows very limited understanding e.g. not adequately supervised the child may injure themselves or exhibit a range of behaviours e.g. throws things, kicks parent, child will ask for or demands things

6. What does a parent do to show the baby they are listening?

2 points

- They are looking at them, talk. Try to understand what the baby is saying to them with their faces, facial expression
- Parent may pick baby up
- Make eye contact
- Talks to baby
- Parent talks back to the baby/ sings to the baby/ makes funny sounds/ noises

1 point

- They baby is always with the parent at the time. Baby knows it is safe
- Mum will run to them and pick them up if they cry

- Calls them, shows them a toy
- Comforting them/ care for them/ respect them
- Focuses on parental behaviours which aim to satisfy the baby's physical/ emotional needs e.g. feeds them and treats them well, looks after them if they are ill, comforts the baby

0 points

- Inadequate responses – e.g. they give a dummy to the baby, tell the baby to e quiet, show the baby the teddy bear

7. What does a child learn to do if their parent takes care of them quickly when they are upset (assesses understanding of emotional regulation)

2 points

- The baby learns to trust the parent when he/she is responsive to their needs/ baby knows mother is there
- Baby knows his parents are there
- Baby learns his parents care for him
- "to trust the parent"
- Baby learns it is ok to cry and that their parents will come as quickly as they can/ baby learns to go longer/ be patient/ baby waits longer before crying/ they can go longer without needing help because parent will come straight away

1 point

- To stop crying
- Learns to be calm
- Learns to cry and say momma/ cry when upset/ babies learn to cry (some mums let the baby cry because they have had enough)

0 points

- Inadequate responses e.g. no answer, "hand signals", "baby wants attention/ hug/ conversation from a parent", "responds in a positive manner", "hug the parent/ gives parent love" or "there may be a favourite if two babies"
- Response focuses more on negative parenting practices e.g. swearing in front of the baby
- Response is unrelated to the question e.g. learns to hold on tightly, throwing things, makes noises, make a mess to get attention

Appendix J – Adult Adolescent Parenting Inventory-II (AAPI-II) Form A

INSTRUCTIONS:
There are 40 statements in this booklet. They are statements about parenting and raising children. You decide the degree to which you agree or disagree with each statement by circling one of the responses.

STRONGLY AGREE – Circle **SA** if you strongly support the statement, or feel the statement is true most of all the time.

AGREE – Circle **A** if you support the statement, or feel this statement is true some of the time.

STRONGLY DISAGREE – Circle **SD** if you feel strongly against the statement, or feel the statement is not true.

DISAGREE – Circle **D** if you feel you cannot support the statement or that the statement is not true some of the time.

UNCERTAIN – Circle **U** only when it is impossible to decide on one of the other choices.

When you are told to turn the page, begin with Number 1 and go on until you finish all the statements. In answering them, please keep these four points in mind:

1. Respond to the statements truthfully. There is no advantage in giving an untrue response because you think it is the right thing to say. There really is no right or wrong answer – only your opinion.

2. Respond to the statements as quickly as you can. Give the first natural response that comes to mind.

3. Circle only one response for each statement.

4. Although some statements may seem much like others, no two statements are exactly alike. Make sure you respond to every statement.
If there is anything you don't understand, please ask your questions now. If you come across a word you don't know while responding to a statement, ask the examiner for help.

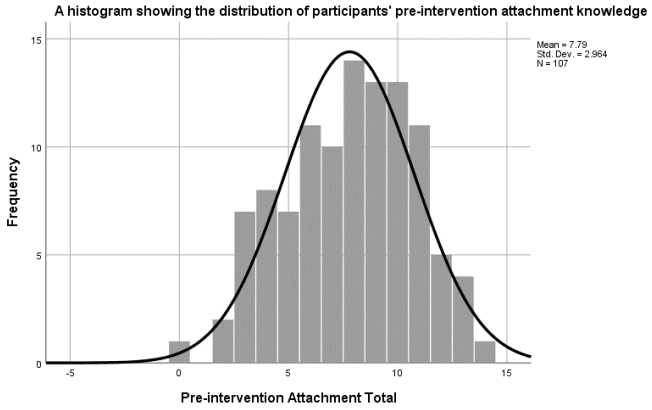
PLEASE TURN THE PAGE AND BEGIN…

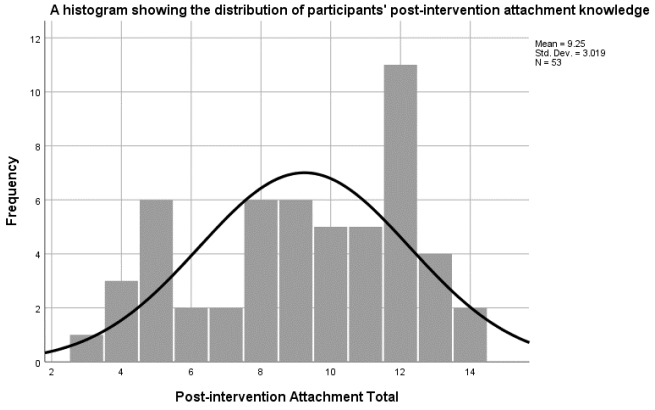
AAPI Online - Form A	Strongly Agree	Agree	Disagree	Strongly Disagree	Uncertain
1. Children need to be allowed freedom to explore their world in safety.	SA	A	D	SD	U
2. Time-out is an effective way to discipline children.	SA	A	D	SD	U
3. Children who are one-year-old should be able to stay away from things that could harm them.	SA	A	D	SD	U
4. Strong-willed children must be taught to mind their parents.	SA	A	D	SD	U
5. The sooner children learn to feed and dress themselves and use the toilet, the better off they will be as adults.	SA	A	D	SD	U
6. Spanking teaches children right from wrong.	SA	A	D	SD	U
7. Babies need to learn how to be considerate of the needs of their mother.	SA	A	D	SD	U
8. Strict discipline is the best way to raise children.	SA	A	D	SD	U
9. Parents who nurture themselves make better parents.	SA	A	D	SD	U
10. Children can learn good discipline without being spanked.	SA	A	D	SD	U
11. Children have a responsibility to please their parents.	SA	A	D	SD	U
12. Good children always obey their parents.	SA	A	D	SD	U
13. In father's absence, the son needs to become the man of the house.	SA	A	D	SD	U
14. A good spanking never hurt anyone.	SA	A	D	SD	U
15. Parents need to push their children to do better.	SA	A	D	SD	U
16. Children should keep their feelings to themselves.	SA	A	D	SD	U
17. Children should be aware of ways to comfort their parents after a hard day's work.	SA	A	D	SD	U
18. Children learn respect through strict discipline.	SA	A	D	SD	U
19. Hitting a child out of love is different than hitting a child out of anger.	SA	A	D	SD	U
20. A good child sleeps through the night.	SA	A	D	SD	U
21. Children should be potty trained when they are ready and not before.	SA	A	D	SD	U

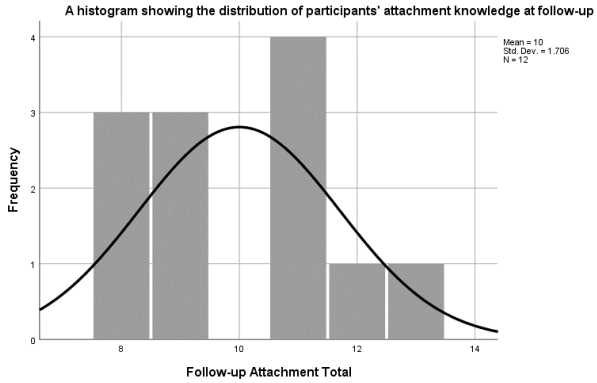
AAPI Online - Form A	Strongly Agree	Agree	Disagree	Strongly Disagree	Uncertain
22. A certain amount of fear is necessary for children to respect their parents.	SA	A	D	SD	U
23. Spanking teaches children it's alright to hit others.	SA	A	D	SD	U
24. Children who feel secure often grow up expecting too much.	SA	A	D	SD	U
25. There is nothing worse than a strong-willed two-year-old.	SA	A	D	SD	U
26. Sometimes spanking is the only thing that will work.	SA	A	D	SD	U
27. Children who receive praise will think too much of themselves.	SA	A	D	SD	U
28. Children should do what they're told to do, when they're told to do it. It's that simple.	SA	A	D	SD	U
29. Children should be taught to obey their parents at all times.	SA	A	D	SD	U
30. Children should know what their parents need without being told.	SA	A	D	SD	U
31. Children should be responsible for the well-being of their parents.	SA	A	D	SD	U
32. It's OK to spank as a last resort.	SA	A	D	SD	U
33. Parents should be able to confide in their children.	SA	A	D	SD	U
34. Parents who encourage their children to talk to them only end up listening to complaints.	SA	A	D	SD	U
35. Children need discipline, not spanking.	SA	A	D	SD	U
36. Letting a child sleep in the parents' bed every now and then is a bad idea.	SA	A	D	SD	U
37. A good spanking lets children know parents mean business.	SA	A	D	SD	U
38. A good child will comfort both parents after they have argued.	SA	A	D	SD	U
39. "Because I said so" is the only reason parents need to give.	SA	A	D	SD	U
40. Children should be their parents' best friend.	SA	A	D	SD	U

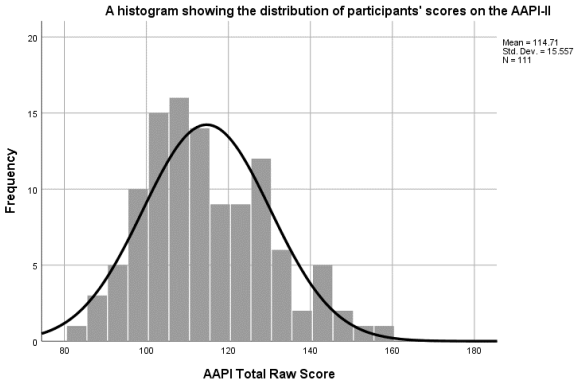
Appendix K – Skewness and kurtosis statistics for all variables investigated in the analyses and their respective histograms

	N	Skewness				Kurtosis			
		Statistic	Standard error	Value	Assumption satisfied Y/N	Statistic	Standard error	Value	Assumption satisfied Y/N
Pre-intervention attachment knowledge	107	-0.22	0.23	-0.96	Y	-0.59	0.46	-1.28	Y
Post-intervention attachment knowledge	53	-0.40	0.33	1.2	Y	-0.96	0.64	-1.5	Y
Follow-up attachment knowledge	12	0.26	0.64	0.40	Y	-1.20	1.23	-0.98	Y
AAPI Total Score	111	-0.53	0.23	-2.30	Y	-0.02	0.46	-0.04	Y









Appendix L – SPSS output of two paired samples t-tests

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-intervention Attachment Total	7.42	52	2.933	.407
	Post-intervention Attachment Total	9.23	52	3.046	.422
Pair 2	Pre-intervention Attachment Total	7.25	12	1.960	.566
	Follow-up Attachment Total	10.00	12	1.706	.492

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Pre-intervention Attachment Total - Post-intervention Attachment Total	-1.808	2.977	.413	-2.637	-.979	-4.378	51	.000
Pair 2	Pre-intervention Attachment Total - Follow-up Attachment Total	-2.750	1.960	.566	-3.995	-1.505	-4.861	11	.001

Appendix M – SPSS output of Pearson's correlations between AAPI-II scores and pre-intervention attachment knowledge

Descriptive Statistics

	Mean	Std. Deviation	N
AAPI Sten Score A: Inappropriate expectations	7.22	2.108	111
AAPI Sten Score B: Lack of empathy	3.76	2.212	111
AAPI Sten Score C: Physical punishment	4.59	1.604	111
AAPI Sten Score D: Role reversal	7.07	2.354	111
AAPI Sten Score E: Power and independence	4.67	2.103	111
Pre-intervention Attachment Total	7.79	2.964	107
AAPI Total Raw Score	114.71	15.557	111

Correlations

		AAPI Sten Score A: Inappropriate expectations	AAPI Sten Score B: Lack of empathy	AAPI Sten Score C: Physical punishment	AAPI Sten Score D: Role reversal	AAPI Sten Score E: Power and independence	Pre-intervention Attachment Total	AAPI Total Raw Score
AAPI Sten Score A: Inappropriate expectations	Pearson Correlation	1	.210*	.288**	.312**	-.025	-.009	-.589**
	Sig. (2-tailed)		.027	.002	.001	.798	.930	.000
	N	111	111	111	111	111	92	111
AAPI Sten Score B: Lack of empathy	Pearson Correlation	.210*	1	.222*	.473**	.488**	-.199	-.662**

	Sig. (2-tailed)	.027		.019	.000	.000	.057	.000
	N	111	111	111	111	111	92	111
AAPI Sten Score C: Physical punishment	Pearson Correlation	.288**	.222*	1	.205*	.153	-.176	-.550**
	Sig. (2-tailed)	.002	.019		.031	.110	.093	.000
	N	111	111	111	111	111	92	111
AAPI Sten Score D: Role reversal	Pearson Correlation	.312**	.473**	.205*	1	.372**	-.079	-.657**
	Sig. (2-tailed)	.001	.000	.031		.000	.454	.000
	N	111	111	111	111	111	92	111
AAPI Sten Score E: Power and independence	Pearson Correlation	-.025	.488**	.153	.372**	1	-.341**	-.419**
	Sig. (2-tailed)	.798	.000	.110	.000		.001	.000
	N	111	111	111	111	111	92	111
Pre-intervention Attachment Total	Pearson Correlation	-.009	-.199	-.176	-.079	-.341**	1	.149
	Sig. (2-tailed)	.930	.057	.093	.454	.001		.156
	N	92	92	92	92	92	107	92
AAPI Total Raw Score	Pearson Correlation	-.589**	-.662**	-.550**	-.657**	-.419**	.149	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.156	
	N	111	111	111	111	111	92	111

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	14.824	8.791		1.686	.095	-2.655	32.303
	AAPI Sten Score A: Inappropriate expectations	-.084	.210	-.060	-.400	.690	-.503	.334
	AAPI Sten Score B: Lack of empathy	-.092	.213	-.069	-.431	.667	-.516	.332
	AAPI Sten Score C: Physical punishment	-.228	.253	-.129	-.902	.369	-.730	.274
	AAPI Sten Score D: Role reversal	.028	.179	.023	.153	.878	-.329	.384
	AAPI Sten Score E: Power and independence	-.478	.184	-.331	-2.597	.011	-.843	-.112
	AAPI Total Raw Score	-.024	.050	-.128	-.473	.637	-.124	.076

a. Dependent Variable: Pre-intervention Attachment Total

Appendix N - SPSS output of Pearson's correlations between AAPI-II scores and changes in attachment knowledge

Descriptive Statistics

	Mean	Std. Deviation	N
AAPI Sten Score A: Inappropriate expectations	7.22	2.108	111
AAPI Sten Score B: Lack of empathy	3.76	2.212	111
AAPI Sten Score C: Physical punishment	4.59	1.604	111
AAPI Sten Score D: Role reversal	7.07	2.354	111
AAPI Sten Score E: Power and independence	4.67	2.103	111
The changes scores between Pre and Post Intervention attachment knowledge	1.81	2.977	52
AAPI Total Raw Score	114.71	15.557	111

Correlations

		AAPI Sten Score A: Inappropriate expectations	AAPI Sten Score B: Lack of empathy	AAPI Sten Score C: Physical punishment	AAPI Sten Score D: Role reversal	AAPI Sten Score E: Power and independence	The changes scores between Pre and Post Intervention attachment knowledge	AAPI Total Raw Score
AAPI Sten Score A: Inappropriate expectations	Pearson Correlation	1	.210*	.288**	.312**	-.025	-.067	-.589**
	Sig. (2-tailed)		.027	.002	.001	.798	.653	.000
	N	111	111	111	111	111	47	111
AAPI Sten Score B: Lack of empathy	Pearson Correlation	.210*	1	.222*	.473**	.488**	.052	-.662**
	Sig. (2-tailed)	.027		.019	.000	.000	.727	.000
	N	111	111	111	111	111	47	111
AAPI Sten Score C: Physical punishment	Pearson Correlation	.288**	.222*	1	.205*	.153	.072	-.550**
	Sig. (2-tailed)	.002	.019		.031	.110	.629	.000
	N	111	111	111	111	111	47	111
AAPI Sten Score D: Role reversal	Pearson Correlation	.312**	.473**	.205*	1	.372**	-.212	-.657**
	Sig. (2-tailed)	.001	.000	.031		.000	.152	.000

	N	111	111	111	111	111	47	111
AAPI Sten Score E: Power and independence	Pearson Correlation	-.025	.488**	.153	.372**	1	.140	-.419**
	Sig. (2-tailed)	.798	.000	.110	.000		.348	.000
	N	111	111	111	111	111	47	111
The changes scores between Pre and Post Intervention attachment knowledge	Pearson Correlation	-.067	.052	.072	-.212	.140	1	.010
	Sig. (2-tailed)	.653	.727	.629	.152	.348		.945
	N	47	47	47	47	47	52	47
AAPI Total Raw Score	Pearson Correlation	-.589**	-.662**	-.550**	-.657**	-.419**	.010	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.945	
	N	111	111	111	111	111	47	111

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	10.818	13.768		.786	.437	-17.008	38.645
	AAPI Sten Score A: Inappropriate expectations	-.109	.318	-.069	-.341	.735	-.751	.534
	AAPI Sten Score B: Lack of empathy	-.079	.373	-.054	-.212	.833	-.832	.674
	AAPI Sten Score C: Physical punishment	-.022	.411	-.011	-.054	.957	-.853	.808
	AAPI Sten Score D: Role reversal	-.490	.274	-.379	-1.789	.081	-1.042	.063
	AAPI Sten Score E: Power and independence	.288	.299	.189	.963	.341	-.317	.893
	AAPI Total Raw Score	-.050	.080	-.233	-.622	.537	-.211	.112

a. Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge

Appendix O – SPSS output of regression analysis between gender, number of siblings under 13 years old, who participants' main caregiver(s) was and pre-intervention attachment knowledge

Descriptive Statistics

	Mean	Std. Deviation	N
Pre-intervention Attachment Total	7.82	2.964	99
Gender	.46	.611	99
How many siblings are under 13?	1.19	1.175	99
Have you mostly lived with two parents?	.8485	.36037	99

Correlations

		Pre-intervention Attachment Total	Gender	How many siblings are under 13?	Have you mostly lived with two parents?
Pearson Correlation	Pre-intervention Attachment Total	1.000	-.218	.098	-.083
	Gender	-.218	1.000	-.168	.184
	How many siblings are under 13?	.098	-.168	1.000	.021
	Have you mostly lived with two parents?	-.083	.184	.021	1.000
Sig. (1-tailed)	Pre-intervention Attachment Total	.	.015	.167	.206
	Gender	.015	.	.048	.034
	How many siblings are under 13?	.167	.048	.	.418

	Have you mostly lived with two parents?	.206	.034	.418	.
N	Pre-intervention Attachment Total	99	99	99	99
	Gender	99	99	99	99
	How many siblings are under 13?	99	99	99	99
	Have you mostly lived with two parents?	99	99	99	99

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.231[a]	.053	.024	2.928	.053	1.790	3	95	.154	1.825

a. Predictors: (Constant), Have you mostly lived with two parents?, How many siblings are under 13?, Gender

b. Dependent Variable: Pre-intervention Attachment Total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.048	3	15.349	1.790	.154[b]
	Residual	814.679	95	8.576		
	Total	860.727	98			

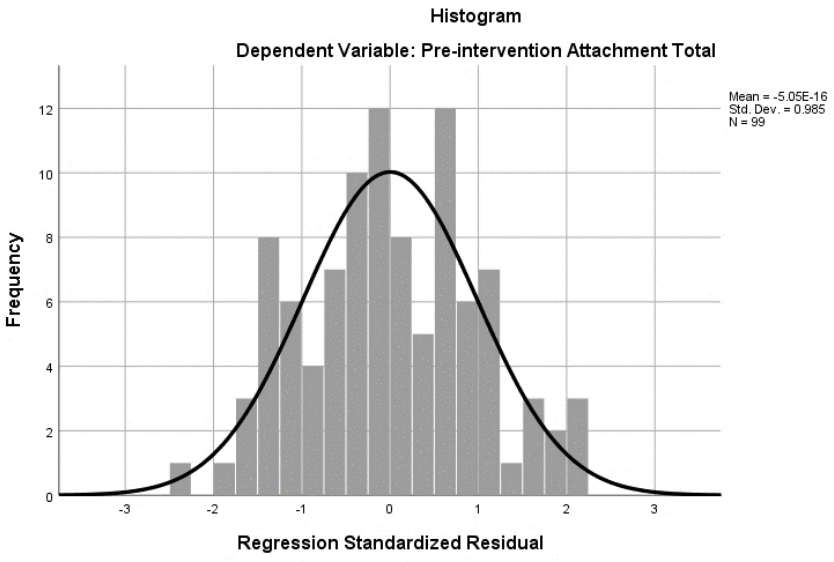
a. Dependent Variable: Pre-intervention Attachment Total

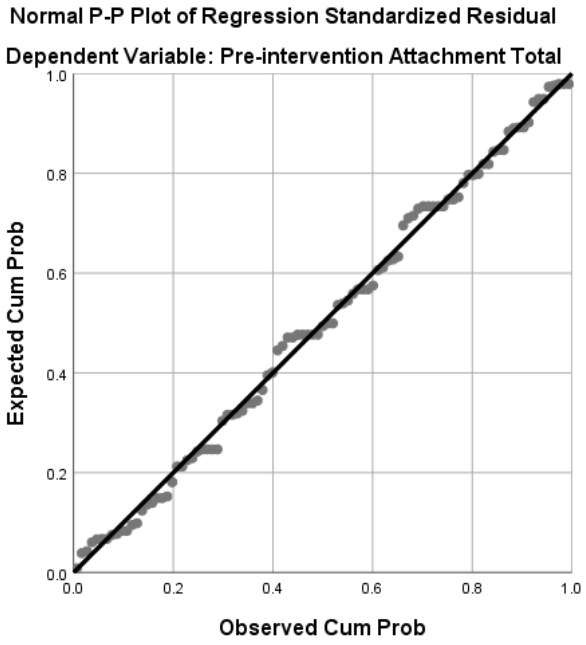
b. Predictors: (Constant), Have you mostly lived with two parents?, How many siblings are under 13?, Gender

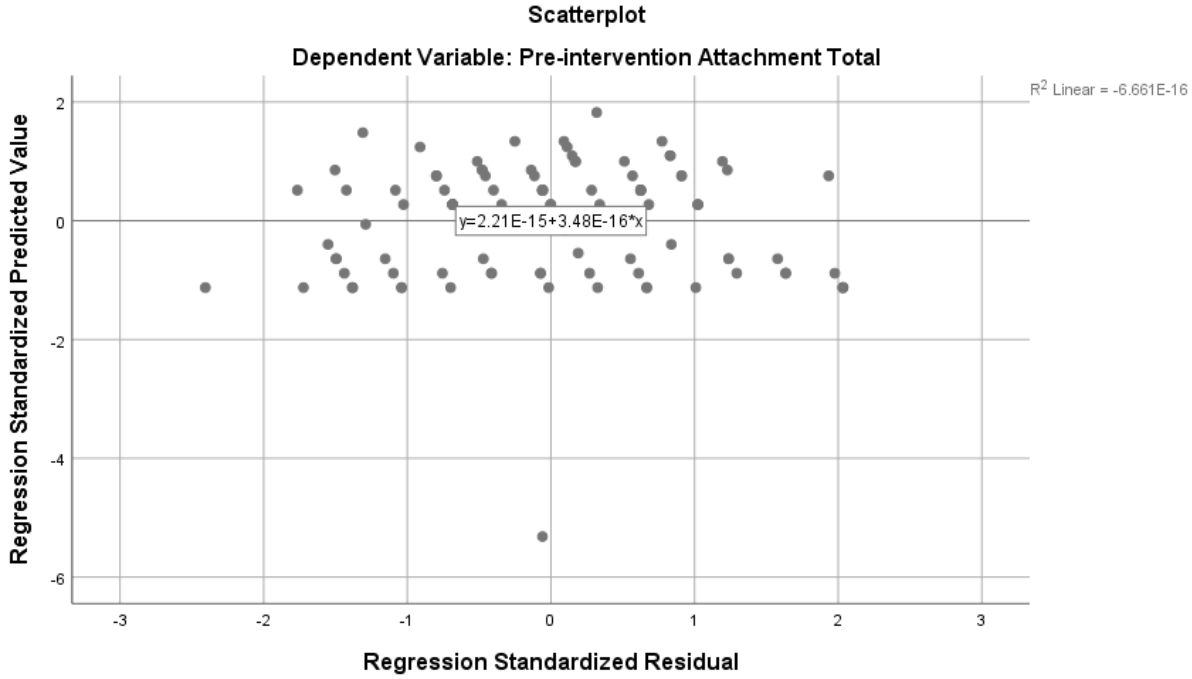
Coefficients[a]

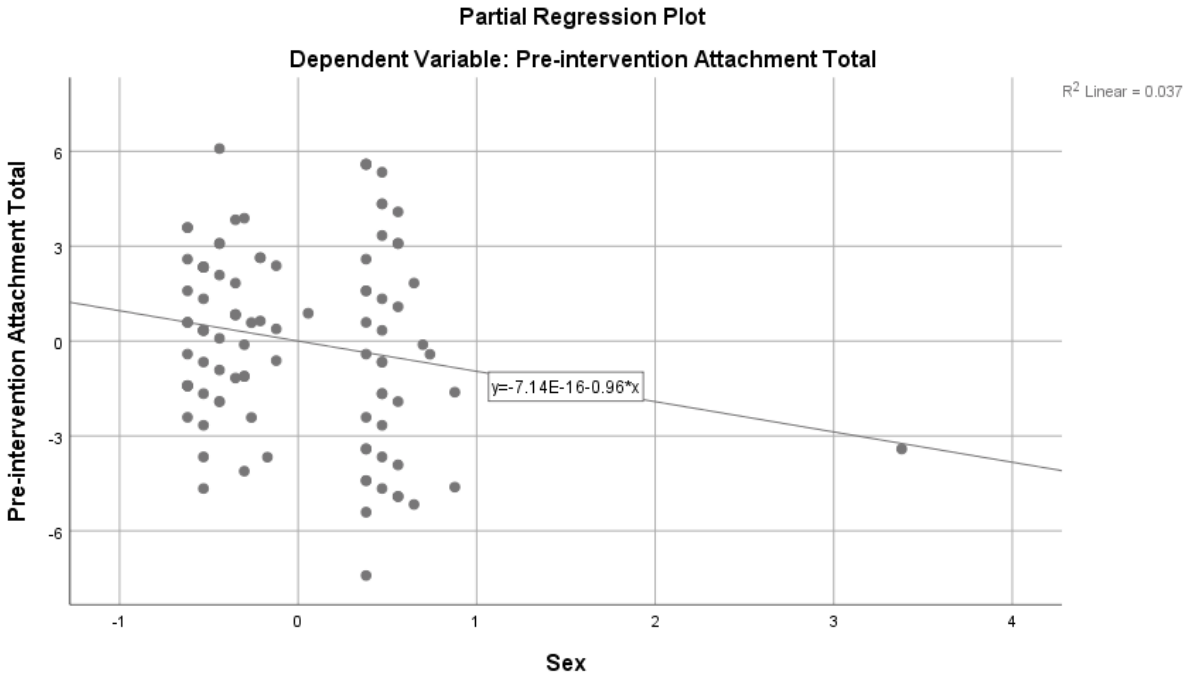
Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	8.403	.822		10.222	.000	6.771	10.036					
	Gender	-.958	.500	-.198	-1.916	.058	-1.951	.034	-.218	-.193	-.191	.937	1.068
	How many siblings are under 13?	.166	.256	.066	.649	.518	-.342	.674	.098	.066	.065	.969	1.032
	Have you mostly lived with two parents?	-.398	.836	-.048	-.476	.635	-2.059	1.262	-.083	-.049	-.048	.963	1.038

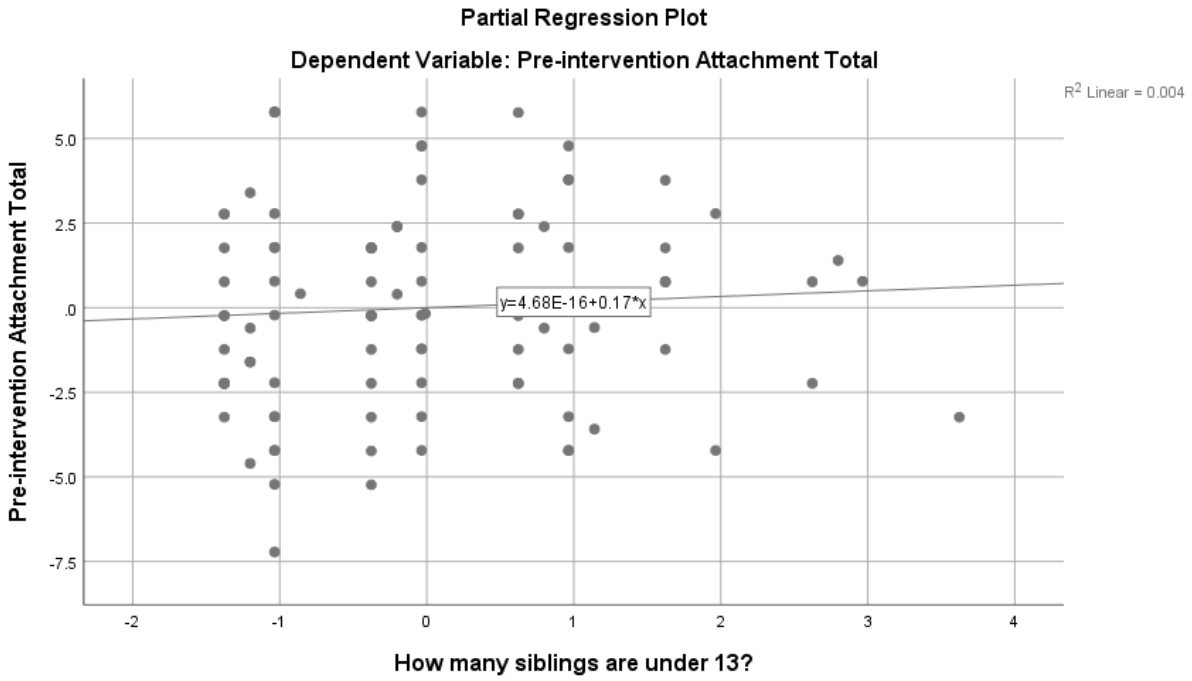
a. Dependent Variable: Pre-intervention Attachment Total

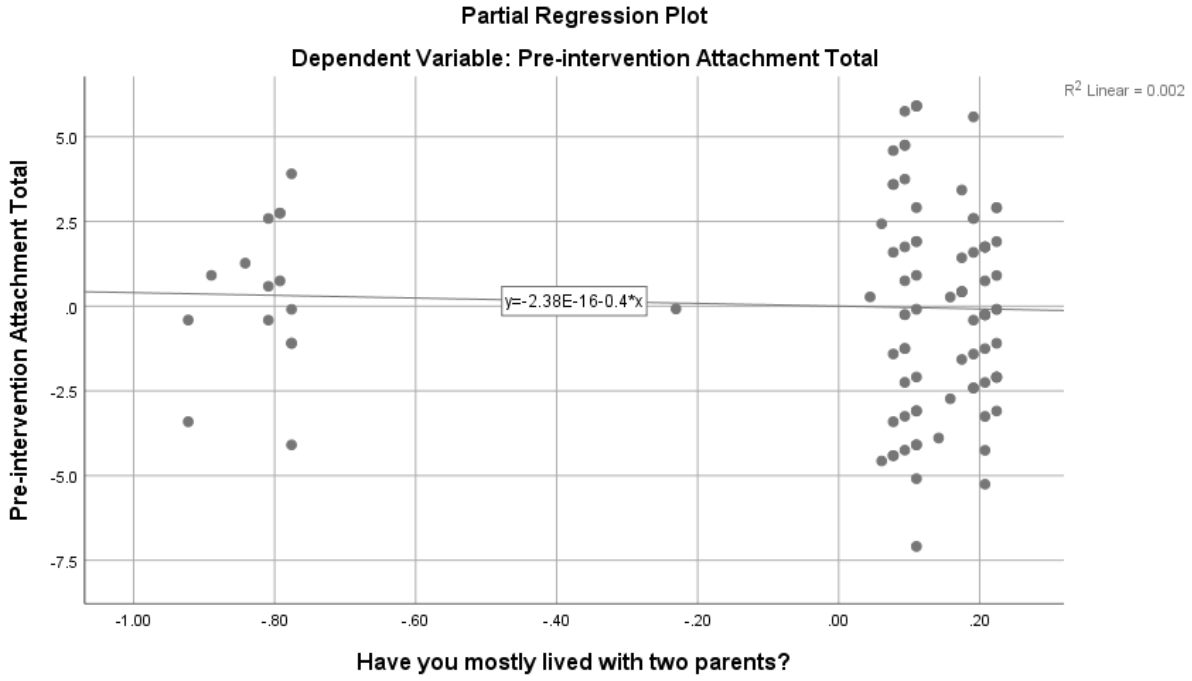

Histogram
Dependent Variable: Pre-intervention Attachment Total
Mean = -5.05E-16
Std. Dev. = 0.985
N = 99
Frequency
Regression Standardized Residual

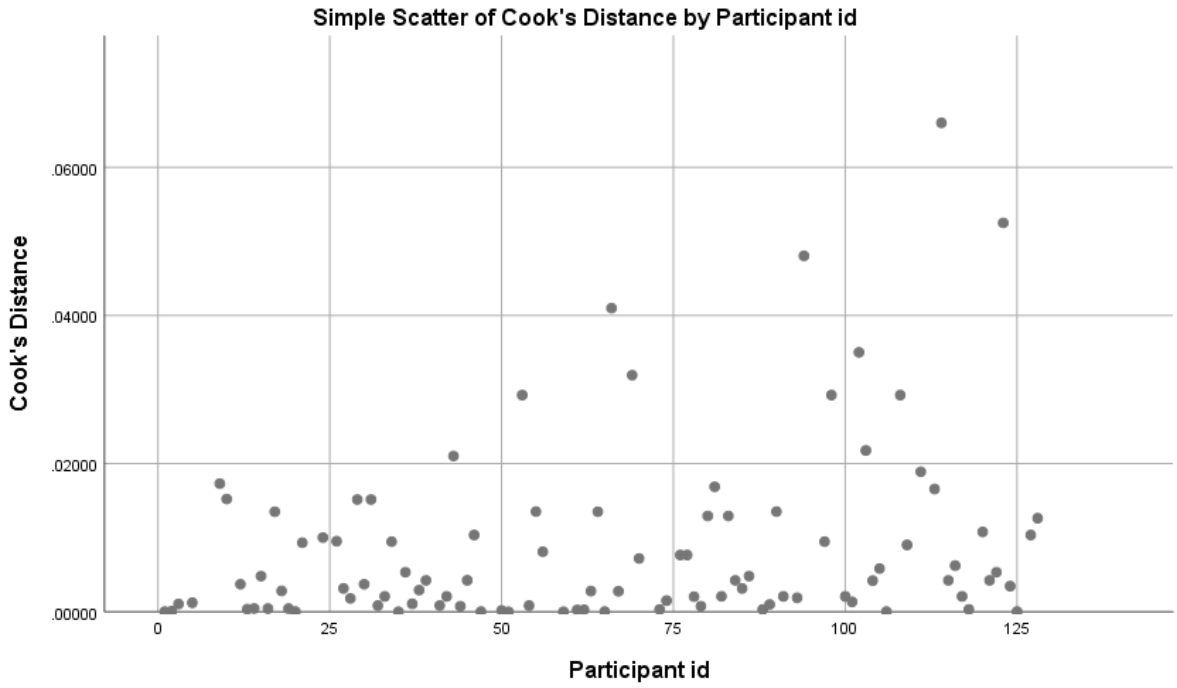

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Pre-intervention Attachment Total
Expected Cum Prob
Observed Cum Prob


Scatterplot
Dependent Variable: Pre-intervention Attachment Total
R² Linear = -6.661E-16
y=2.21E-15+3.48E-16*x
Regression Standardized Predicted Value
Regression Standardized Residual
2
0
-2
-4
-6
-3
-2
-1
0
1
2
3


Partial Regression Plot
Dependent Variable: Pre-intervention Attachment Total
R² Linear = 0.037
y=-7.14E-16-0.96*x
Pre-intervention Attachment Total
Sex
6
3
0
-3
-6
-1
0
1
2
3
4


Partial Regression Plot
Dependent Variable: Pre-intervention Attachment Total
R² Linear = 0.004
y=4.68E-16+0.17*x
Pre-intervention Attachment Total
How many siblings are under 13?


Partial Regression Plot
Dependent Variable: Pre-intervention Attachment Total
R² Linear = 0.002
y=-2.38E-16-0.4*x
Pre-intervention Attachment Total
Have you mostly lived with two parents?


Simple Scatter of Cook's Distance by Participant id
Cook's Distance
.06000
.04000
.02000
.00000
0
25
50
75
100
125
Participant id

Appendix P – SPSS output of regression analysis between gender, number of siblings under 13 years old, who the participants' main caregiver(s) was, and changes in attachment knowledge

Descriptive Statistics

	Mean	Std. Deviation	N
The changes scores between Pre and Post Intervention attachment knowledge	1.82	3.022	50
Gender	.48	.505	50
How many siblings are under 13?	.92	1.104	50
Have you mostly lived with two parents?	.8400	.37033	50

Correlations

		The changes scores between Pre and Post Intervention attachment knowledge	Gender	How many siblings are under 13?	Have you mostly lived with two parents?
Pearson Correlation	The changes scores between Pre and Post Intervention attachment knowledge	1.000	-.076	-.059	.083
	Gender	-.076	1.000	-.186	.310
	How many siblings are under 13?	-.059	-.186	1.000	-.132
	Have you mostly lived with two parents?	.083	.310	-.132	1.000
Sig. (1-tailed)	The changes scores between Pre and Post Intervention attachment knowledge	.	.300	.341	.283
	Gender	.300	.	.098	.014

	How many siblings are under 13?	.341	.098	.	.181
	Have you mostly lived with two parents?	.283	.014	.181	.
N	The changes scores between Pre and Post Intervention attachment knowledge	50	50	50	50
	Gender	50	50	50	50
	How many siblings are under 13?	50	50	50	50
	Have you mostly lived with two parents?	50	50	50	50

Model Summary[b]

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.151[a]	.023	-.041	3.083	.023	.357	3	46	.784	1.886

a. Predictors: (Constant), Have you mostly lived with two parents?, How many siblings are under 13?, Gender

b. Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.188	3	3.396	.357	.784[b]
	Residual	437.192	46	9.504		
	Total	447.380	49			

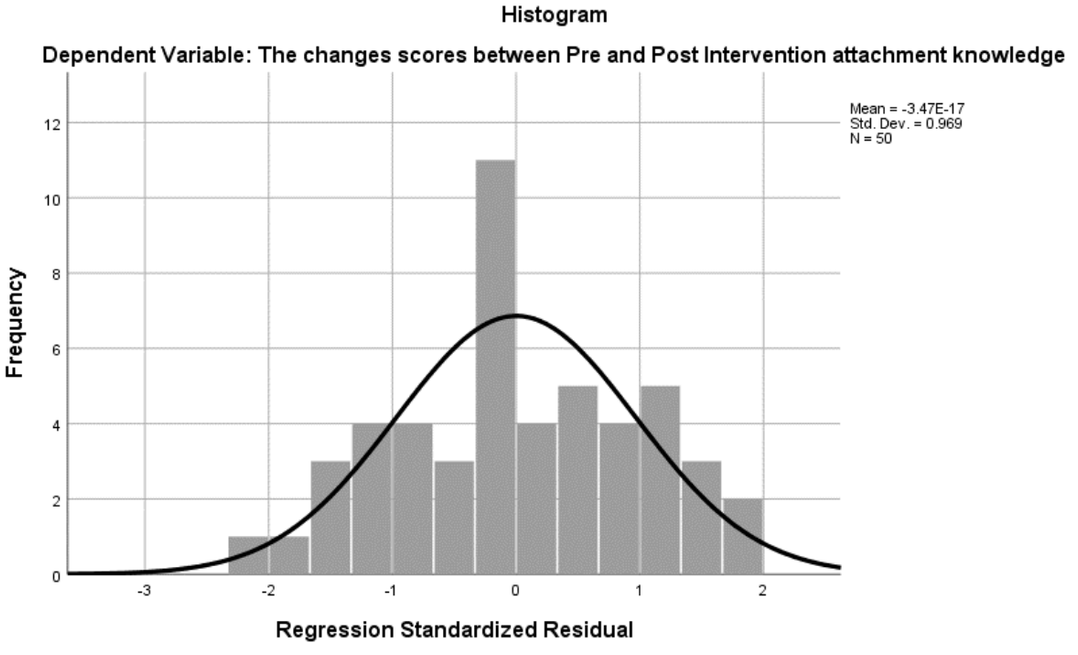
a. Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge

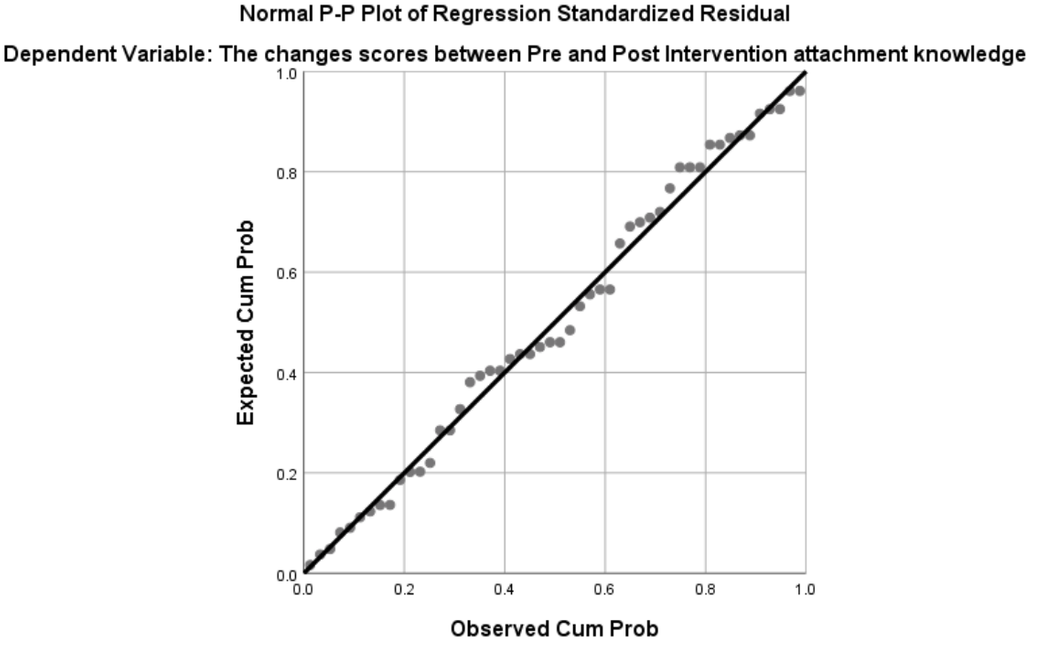
b. Predictors: (Constant), Have you mostly lived with two parents?, How many siblings are under 13?, Gender

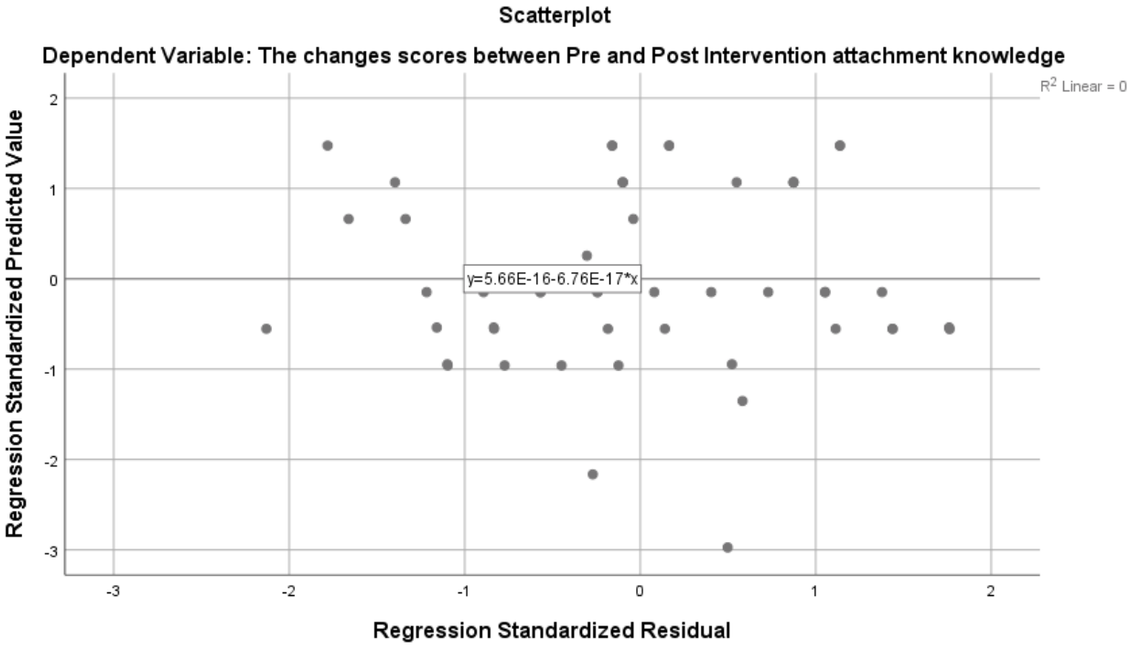
Coefficients[a]

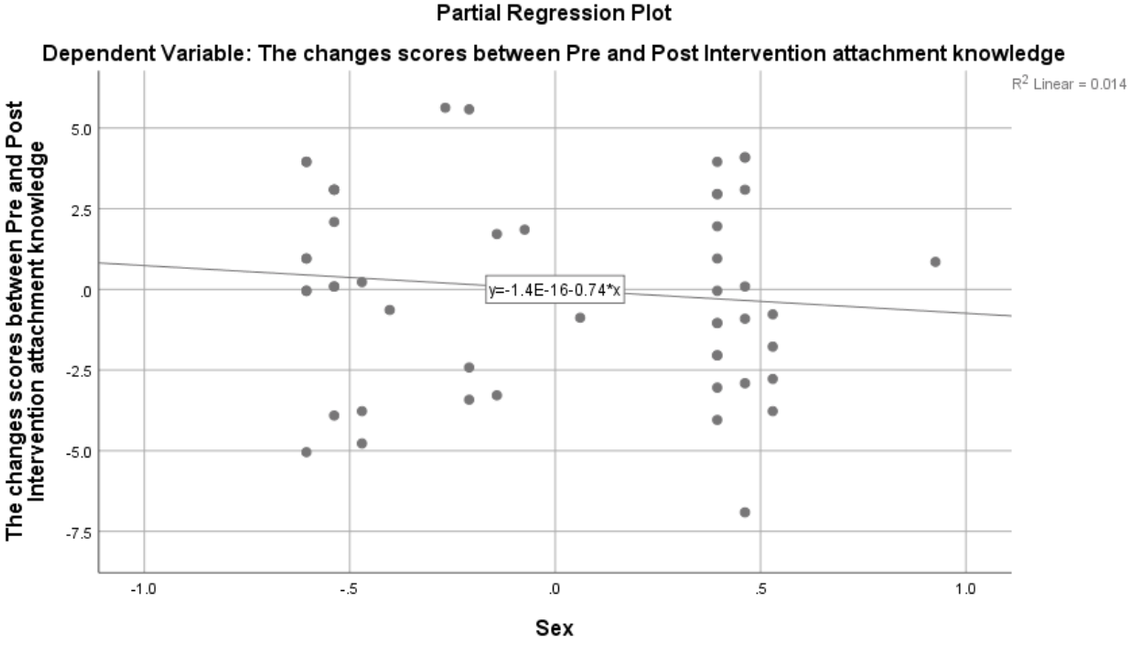
Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.574	1.216		1.294	.202	-.874	4.022					
	Gender	-.739	.929	-.124	-.796	.430	-2.610	1.131	-.076	-.117	-.116	.882	1.133
	How many siblings are under 13?	-.185	.407	-.068	-.455	.652	-1.005	.635	-.059	-.067	-.066	.959	1.042
	Have you mostly lived with two parents?	.918	1.255	.113	.732	.468	-1.608	3.444	.083	.107	.107	.898	1.113

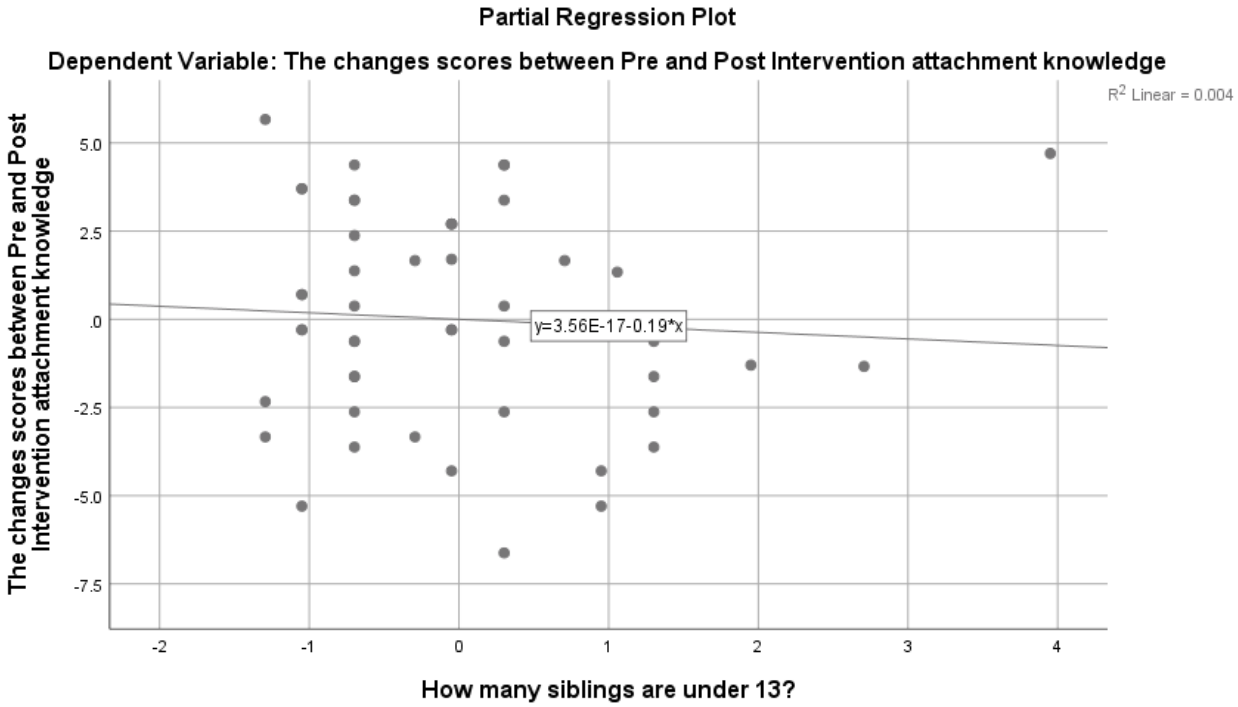
a. Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge

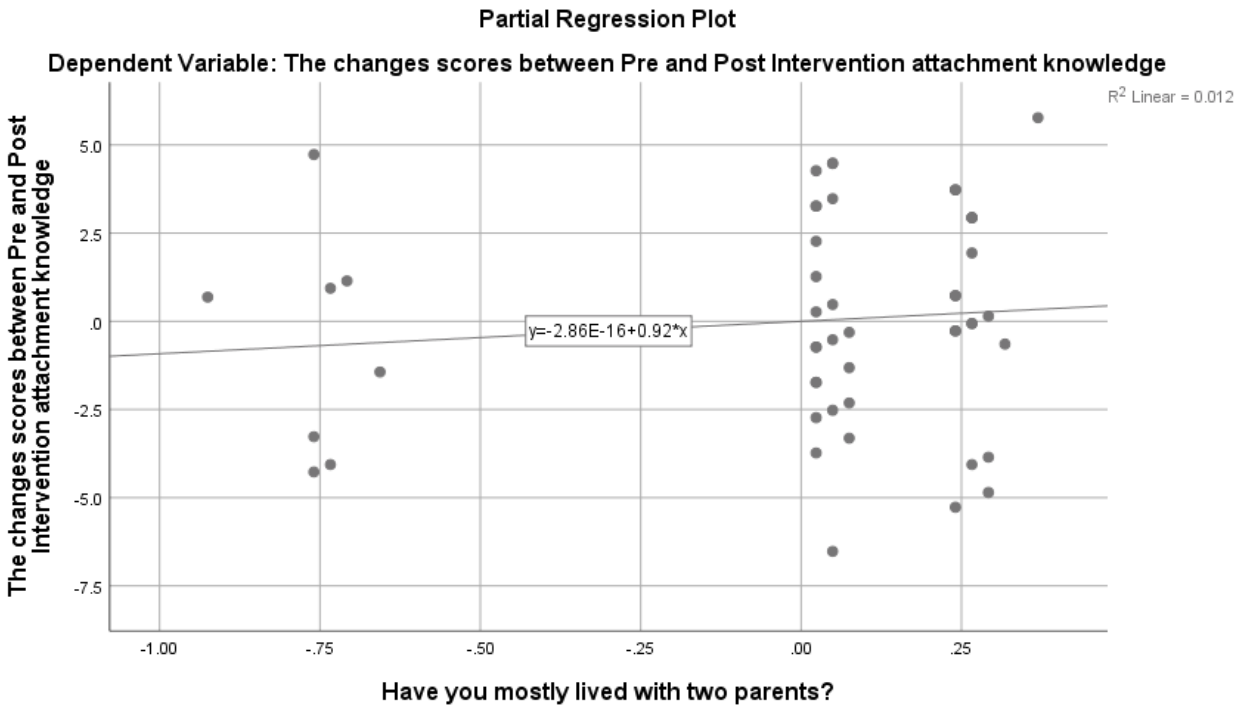

Histogram
Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge
Mean = -3.47E-17
Std. Dev. = 0.969
N = 50
Frequency
Regression Standardized Residual

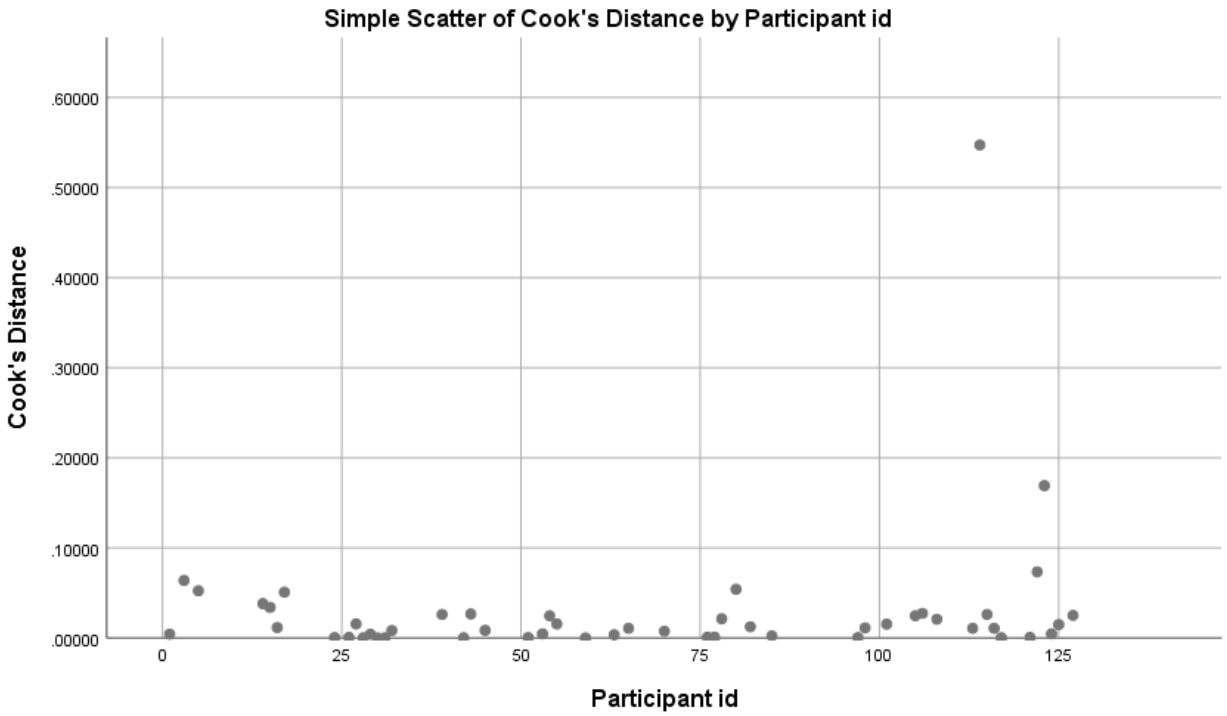

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge
Expected Cum Prob
Observed Cum Prob


Scatterplot
Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge
R² Linear = 0
y=5.66E-16-6.76E-17*x
Regression Standardized Predicted Value
Regression Standardized Residual
2
1
0
-1
-2
-3


Partial Regression Plot
Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge
R² Linear = 0.014
y=-1.4E-16-0.74*x
The changes scores between Pre and Post Intervention attachment knowledge
Sex
5.0
2.5
.0
-2.5
-5.0
-7.5
-1.0
-.5
.0
.5
1.0


Partial Regression Plot
Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge
R2 Linear = 0.004
y=3.56E-17-0.19*x
The changes scores between Pre and Post Intervention attachment knowledge
5.0
2.5
.0
-2.5
-5.0
-7.5
-2
-1
0
1
2
3
4
How many siblings are under 13?


Partial Regression Plot
Dependent Variable: The changes scores between Pre and Post Intervention attachment knowledge
R2 Linear = 0.012
y=-2.86E-16+0.92*x
The changes scores between Pre and Post Intervention attachment knowledge
5.0
2.5
.0
-2.5
-5.0
-7.5
-1.00
-.75
-.50
-.25
.00
.25
Have you mostly lived with two parents?


Simple Scatter of Cook's Distance by Participant id
Cook's Distance
.60000
.50000
.40000
.30000
.20000
.10000
.00000
0
25
50
75
100
125
Participant id

Appendix Q – SPSS output for independent samples t-test comparing males' and females' pre-intervention attachment knowledge

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Pre-intervention Attachment Total	Female	57	8.30	2.283	.302
	Male	45	7.31	3.515	.524

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pre-intervention Attachment Total	Equal variances assumed	13.419	.000	1.712	100	.090	.987	.576	-.156	2.131
	Equal variances not assumed			1.632	71.924	.107	.987	.605	-.219	2.193

Appendix R – SPSS output for independent samples t-test comparing males' and females' post-intervention attachment knowledge

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Post-intervention Attachment Total	Female	27	9.70	2.509	.483
	Male	25	8.92	3.439	.688

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post-intervention Attachment Total	Equal variances assumed	3.626	.063	.944	50	.350	.784	.830	-.884	2.451
	Equal variances not assumed			.933	43.687	.356	.784	.840	-.910	2.478