Gender Bias in Parenting Styles and its Contribution to Gender Differences in Empathy

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Abstract

Empathy can be separated into three major components, cognitive empathy, affective empathy and affect regulation, which are all associated with socioemotional well-being. Research has shown a consistent gender difference favouring females in all aspects of empathy, concurring with the societal stereotype that females are more empathetic. This study proposed that this consistent gender difference could be due to gendered parenting practices: studies have shown a gender bias in parenting styles also favouring females, indicating that girls experience more positive parenting. This study aimed to replicate these findings in a South African sample of 56 (46 coloured and 10 black African) children aged 9 to 13 in the province of the Western Cape. The first objective was to explore whether females obtained higher empathy scores than males. The second objective was to investigate whether females experienced more positive, authoritative parenting. Lastly, this study aimed to determine whether any female biases found in parenting styles contributed towards any female superiority found in empathy. A gender difference favouring girls was only found for affective empathy, while boys were found to experience significantly more authoritative parenting than girls. The final objective could thus not be addressed. Nevertheless, multiple regression analyses were run to analyse key study variables' contribution towards different aspects of empathy. These revealed verbal IQ to be the most important predictor for cognitive empathy, gender to be a significant predictor of affective empathy and parenting style to be a significant contributor to affect regulation. Although this study's primary aim could not be fulfilled, these divergent findings warrant further enquiry in South Africa.

Keywords: cognitive empathy; affective empathy; affect regulation; parenting style; South Africa; gender difference; gender bias.

Gender Bias in Parenting Styles and its Contribution to Gender Differences in Empathy

Empathy is critical to study because of its connection to various types of beneficial and detrimental behaviour. For instance, empathy has been linked to prosocial behaviour (Garaigordobil & Garcia de Galdeano, 2006), conduct disorder (D. Cohen & Strayer, 1996) and aggressive behaviour (Malcolm-Smith, Woolley, & Ward, 2015), to name just a few. Analysing empathy and its covariants is thus important as it could lead to the deeper understanding of various other behaviours.

Empathy is without a doubt a difficult construct to describe and whose definition is widely debated. In lay terms, to be empathetic refers to "the feeling that you understand and share another person's experiences and emotions" (Empathy, 2015). More scientifically, most studies agree on two major components of empathy: affective and cognitive (Gerdes, Segal, & Lietz, 2010; Snow, 2000). Affective empathy is explained as subconsciously perceiving and reproducing another person's emotional state (Snow, 2000). This occurs as a result of one's autonomic nervous system reacting to someone's non-cognitive stimuli by reproducing a similar response (Basch, 1983; Snow, 2000). Decety and Jackson (2006) explain that this form of mimicry, matching one's affective response to another's, allows for the accurate perception of another's feelings. For example, when witnessing someone walking into a lamp post, affective empathy will lead you to wince in pain, feeling the same emotion as the other person, even though you are physically fine. On the other hand, cognitive empathy is described as being able to see life from somebody else's perspective, or, in common terms, putting yourself in somebody else's shoes (Decety & Jackson, 2006).

However, more recently, other researchers have started to agree on the presence of a third, equally important component to empathy: emotion (or affect) regulation (Decety & Jackson, 2006; Elliott, Bohart, Watson, & Greenberg, 2011; Gerdes et al., 2010). This is understood as the ability to control one's emotions by reflecting upon them. This allows individuals to respond empathically instead of being overwhelmed by the emotional response that occurs through affective empathy (Gerdes et al., 2010). Continuing the aforementioned example, after witnessing someone in pain and subsequently wincing, emotion regulation allows you to put your own emotional reaction aside in order to perform an empathetic behaviour such as helping the person up.

Empathy and Gender

In stereotypical gender roles, it is common for the feminine role to be associated more with warmth and understanding others (Garaigordobil, 2009). On the other hand, the stereotypical 'macho' masculine role encouraged in young boys invites them to hide their

emotions and is well known and accepted even in modern society (Kausar & Shafique, 2008). In some ways, these gender stereotypes are reinforced by the literature on empathy. Cotton's (1992) review states that females of all ages have been found to have more empathy than males, particularly affective empathy. This result continues to be found in more recent research (Garaigordobil, 2009; Wolfradt, Hempel, & Miles, 2003). Females have also been shown to use more emotion regulation strategies than males (Garnefski, Teerds, Kraaij, Legerstee, & van den Kommer, 2004; Stanton, Kirk, Cameron, & Danoff-Burg, 2000).

However, studies have shown that with empathy training, the gaps in empathy levels between males and females can be effectively reduced (Cotton, 1992). This begs the question of whether the differences found between males and females are biological or if they are, in fact, taught via gendered socialisation practices, such as through parenting.

Parenting Styles

Parenting styles have been thoroughly studied and results consistently show that they have a significant impact on several, if not all, of a child's developmental domains (Cotton, 1992). Like empathy, a universal definition or operationalisation of parenting styles is hard to come by. However, most researchers have agreed on three main types of parenting styles: Authoritative, Authoritarian and Permissive (Cornell & Frick, 2007; Cotton, 1992). The last two have been shown to produce negative socioemotional outcomes in the development of children, while the first has been shown to generate positive outcomes (Kausar & Shafique, 2008).

Originally described in her 1971 article, Baumrind defines these three parenting styles: authoritarian parenting controls a child's behaviour in order to uphold a certain absolute standard which at no point can be explained to or negotiated with the child, to the extent that forceful and punitive measures will be used to create obedience. At the other extreme, permissive parenting involves affirmative practices which indulge the child's whims and desires. The parent makes few demands and does not establish themselves as a firm authority, but rather as a tool which the child can utilise. Authoritative parenting directs rather than controls the child's behaviour, and encourages negotiation while offering explanations of a parent's standard. The parent respects and does not restrict the child's individuality but still establishes him/herself as a firm authority when needed, however never with forceful measures but rather with reason (Baumrind, 1971).

Alternative definitions of parenting styles exist including types of discipline, responsiveness, and supervision (Kausar & Shafique, 2008; Schaffer, Clark, & Jeglic, 2009). Nevertheless, most of these typologies share core features with Baumrind's typologies which

have now been explored and supported for decades in research (Cornell & Frick, 2007; Russell, et al., 1998).

Parenting styles and empathy. Numerous studies have found associations between the type of parenting style a child is brought up with and the child's empathy level (Cornell & Frick, 2007; Schaffer et al., 2009). Responsive and non-authoritarian parenting is related to higher levels of both cognitive and affective empathy (Cotton, 1992). On the other hand, threats, physical punishments and inconsistent care produce lower levels of empathy (Cotton, 1992; Cornell & Frick, 2007). Pears and Moses' (2003) study revealed that the use of power-assertive discipline techniques such as yelling or spanking are detrimental to the development of Theory of Mind (often considered part of cognitive empathy). Research has shown that affect regulation is also negatively associated with harsh parenting (Chang, Schwartz, Dodge, & McBride-Chang, 2003; Manzeske & Stright, 2009).

Parenting styles and gender. Studies have found that parents are biased in their parenting styles depending on the child's gender. Authoritarian parenting, especially physical punishment, is mostly used for boys while girls, on the other hand, are given more reasoning (McKee et al., 2007; Russell et al., 1998). McKee et al. (2007) suggest that parents may be basing their parenting style on the gender role stereotype that only boys require physical discipline to alter their behaviour. Also, Williams, Radin and Allegro (1992) state that girls are raised to be more affectionate and sensitive, possibly affecting their empathy levels in future life. In terms of discipline, a meta-analysis revealed that girls are more likely to receive paternal psychological controlling such as being ignored rather than direct, physical punishment which is more common between fathers and sons (Kawabata, Alink, Tseng, van Ijzendoorn, & Crick, 2011).

Notably, Kausar and Shafique's (2008) study found that female adolescents perceived their fathers to be more authoritative, while male adolescents perceived their mothers to be more authoritative. The researchers explain this bias in terms of their Pakistani context where mothers are more strict raising their daughters and conversely fathers seek to control their sons more, thus children will incline favourably towards the more lenient, opposite gender parent. This context-dependent result introduces the idea that an interaction of variables may be at work during childhood development.

The Interaction of Gender, Parenting Style and Empathy

More recently, researchers have begun to realise that investigating one variable in isolation is not appropriate for analysing empathy (Cornell & Frick, 2007; Garaigordobil, 2009). Although the isolation of one variable allows for the production of more reliable

results, these results would not represent what is actually at work outside of a laboratory: interactions of multiple variables.

Cornell and Frick (2007) mention that the development of a conscience (including empathetic concern) could be due to the interaction of variables such as temperament and parenting style, rather than the individual variables acting alone. For example, although their research found authoritarian parenting to be detrimental to the development of empathy, Cornell and Frick (2007) found that behaviourally uninhibited children actually benefited from high rather than low authoritarian control. This raises the important point that the simultaneous study of different variables could be critical to investigating the causal factors in empathy development.

Rationale

Most of the aforementioned research was conducted in developed countries such as the United States and Australia. In fact, there is a general lack of South African literature regarding empathy development and its covariants in children. In contrast to developed countries, South Africa is a developing country with varying cultures and contexts across its population. It is thus important to increase the knowledge produced within and about South Africa in order to determine if and how context-specific factors impact an individual's development differently.

Overall, there is a lack of literature that examines both child gender and parenting styles in a correlational research design exploring whether there could be a link between the gender bias found in parenting styles and the gender difference found in empathy.

Aims and Hypotheses

Research question 1: The first question investigated whether Western Cape coloured children follow the gendered patterns of empathy commonly seen in the literature.

Hypothesis 1: Girls have higher levels of empathy than boys.

Research question 2: The second question examined whether parents use different child-rearing practices on boys compared to girls.

Hypothesis 2: Boys will experience more negative (authoritarian and permissive) parenting than girls.

Research question 3: The primary purpose of this study was to investigate whether gender biases in parenting styles contribute towards gender differences in empathy in Western Cape coloured children.

Hypothesis 3: The female bias in parenting style contributes towards higher scores of empathy in females.

Method

Research Design

This research was part of a larger, cross-sectional design project on the moral development of Western Cape coloured children. This specific study used aspects of both quasi-experimental and relational design as it investigated gender (group) differences as well as conducted regression modelling to examine associations of empathy. Empathy scores were obtained through parent-report questionnaires measuring cognitive empathy, affective empathy and emotion regulation. Parenting style was also determined through a parent-report questionnaire and was scored along a single continuum. Gender information was obtained through a general demographic questionnaire.

Participants

This study recruited 60 neurotypical children from primary schools in and around Cape Town. This initial sample consisted of equal numbers of boys and girls. Due to the constraints of the Honours project timeline, stratification for potential influential demographic variables could not be done. As such, this sample was kept largely homogenous in terms of race (coloured, although 10 black African children were included as they attended the recruitment schools) and language of schooling (English). The data for this study was collected from April 2016 to September 2016.

Purposive Sampling. ***Age.*** The participants recruited were between the ages of 9 and 13. This age band was chosen so that any differences in empathy, especially cognitive empathy, could not be attributed to the effects of age. Baron-Cohen (2001) and Happé (1994) suggest that correctly inferring double bluff in story characters is mostly present in children at an 8-year mental age. Thus, it would be difficult to infer gender differences in cognitive empathy from children younger than 8 as both genders would perform poorly due to their under-developed cognitive empathy. Therefore, it can be assumed that in order to potentially observe true gender differences in cognitive empathy scores, participants are required to be older than 8 years old.

Socioeconomic status (SES). It is often observed that participants of lower SES perform more poorly, especially on cognitive tasks (Hackman & Farah, 2009). As a result, only participants from middle-high SES schools were recruited to limit this possible influence.

Exclusion criteria. In order to avoid biasing of the results, potential participants with any central nervous system damage were excluded. This includes developmental disorders such as Autism Spectrum Disorder but also medical disorders such as epilepsy and any head

injuries. Children with behavioural disorders such as Conduct Disorder or Attention Deficit Hyperactivity Disorder were not excluded as they are of interest to the larger moral development project.

Estimated required sample size. G*Power was used to calculate an estimated sample size required for this study according to statistical analyses that were run, namely t-tests and multiple linear regressions (Faul, Erdfelder, Lang, & Buchner, 2007, 2009). As J. Cohen (1988) and most literature recommends, 0.80 was used as the statistical power estimate and 0.05 was established as the alpha level.

Using an independent means t-test, an effect size of $d = 0.59$ was determined by averaging effect sizes found in relevant literature on parenting styles and empathy (McLeod, Wood, & Weisz, 2007; Reniers, Corcoran, Drake, Shryane, & Völlm, 2011; Slicker, 1998; Tamis-LeMonda, Briggs, McClowry, & Snow, 2009; Van Der Bruggen, Stams, & Bögels, 2008). Using these parameters, G*Power estimated a required total sample size of 74 participants. Using a multiple regression analysis with a medium effect size of $f^2 = 0.15$, G*Power estimated a required total sample size of 68 participants (J. Cohen, 1988). Time constraints of this Honours project prohibited the recruitment of a large enough sample size, and the current sample size of 60 participants thus falls slightly short of being able to detect such an effect.

Ethical considerations. The study was conducted according to the principles for ethical research stipulated by the University of Cape Town (UCT) and the Western Cape Education Department (WCED). UCT's ethical review board and the WCED granted the moral development project ethical approval respectively in March 2013 (Appendix A) and in February 2016 (Appendix B). Considering this study forms part of the moral development project, ethical clearance was not sought for this specific study.

Before the first session began, parents and children were asked to sign consent (Appendix C) and assent (Appendix D) forms informing them that they and their children may withdraw from the study at any moment, without penalty. The consent form also assured the parent and child that all data and identifying information gathered throughout the study would remain confidential and protected.

There were minimal risks for the children who participated in this study and no risks for the parents. Both the parents and the children were assured that if the children became fatigued during the assessment, they were allowed to take a break or continue the assessment another day. In terms of benefits, parents received R100 as compensation after they had completed all the questionnaires. Children received stickers and sweets during the assessment

sessions. Once the report has been completed, the schools and parents are thanked for their participation and guaranteed general feedback on the findings of the research.

Measures

General measures. ***Demographic information.*** A general demographic questionnaire (Appendix E) regarding the parent and the child was sent home to be completed by the parent. This questionnaire includes general information such as the gender of the child but also important exclusionary information such as the presence of clinical and medical disorders.

Parent-report measures. ***Parenting style.*** This study used the shortened version of the Parenting Styles and Dimensions Questionnaire (PSDQ; Appendix F), a self-report measure with 32 items which comprise three scales measuring each of Baumrind's (1971) parenting typologies (Robinson, Mandleco, Olsen, & Hart, 1995, 2001). However, the PSDQ in this study has only 31 items as one item (Number 28: I punish by putting our child off somewhere alone with little if any explanations) was removed for its lack of comprehensibility.

The response format is a 5-point Likert scale which ranges from "Never" to "Always" (coded as 1 to 5). Baumrind's three parenting typologies have been shown to have satisfactory internal consistency and good predictive validity even in minority populations such as rural Euro-American families (Hubbs-Tait, Kennedy, Page, Topham, & Harrist, 2008), African-American families (Querido, Warner, & Eyberg, 2002) and in developing countries like China (Fu et al., 2013). These studies provide promising evidence for the cross-cultural applicability of the PSDQ in a developing and culturally diverse country like South Africa.

Child's empathy. The Questionnaire of Cognitive and Affective Empathy (QCAE; Appendix G) is a parent-report measure regarding the child made up of 31 items which measures both cognitive (19 items) and affective empathy (12 items) in separate subscales (Reniers et al., 2011). This measure was formed using items from other reliable and valid measures such as the Empathy Quotient (EQ; Baron-Cohen, Richler, Bisarya, Gurunathan, & Wheelwright, 2003) and the Hogan Empathy Scale (HES; Hogan, 1969; Reniers et al., 2011). Confirmatory Factor Analysis was conducted by Reniers et al. (2011) to verify their five-factor solution as consistent between genders; there is no inherent gender bias within the measure.

The response format is a 4-point Likert scale which ranges from "Strongly agree" to "Strongly disagree" (coded as 2 to -2). This even-numbered forced-choice format diminishes

neutral response sets (Reniers et al., 2011). Both of the subscales have shown to have good validity and internal consistency (Lockwood, Seara-Cardoso, & Viding, 2014; Reniers et al., 2011). Also, Decety et al. (2015) successfully used the QCAE in a sample of 5- to 12-year-old children in Cape Town, South Africa.

Child's emotion regulation. Moretti (2003) developed the 12-item Affect Regulation Checklist (ARC; Appendix H) particularly to measure the multidimensional nature of emotion regulation (Moretti & Craig, 2013). The measure is comprised of some items from other published emotion regulation scales and assesses three factors of affect regulation: two factors of maladaptive affect regulation (dyscontrol and suppression) and one factor of adaptive affect regulation (reflection) (Moretti & Craig, 2013; Penney & Moretti, 2010). The response format is a 3-item scale which ranges from "A LOT like my child" to "NOT like my child" (coded as 1 to 3). The ARC has shown to have satisfactory internal consistency for each of the three factors, mostly above $\alpha = 0.80$ (Moretti & Craig, 2013; Penney & Moretti, 2010). Moreover, Pileggi (to be submitted) found that the internal consistency reliability values for the ARC were good at .72 and .70 for two South African samples of adolescents aged 11-13.

Verbal IQ (VIQ). The Wechsler Abbreviated Scale of Intelligence (WASI) forms part of the larger project's intelligence assessment for children above the age of six. Of its four subscales only Vocabulary was used in the present study (Wechsler, 1999). However, it is not possible to derive a VIQ score simply from the vocabulary subtest. As such, scaled scores derived from the raw vocabulary scores were used as indicators of VIQ, which needs to be controlled for as evidence has shown that it influences cognitive empathy scores (Happé, 1995). The WASI has produced good results of both reliability and validity (McCrimmon & Smith, 2013). Moreover, Ferrett (2011) found that all four subscales of the WASI were appropriate for English-speaking coloured children from a middle-high SES in the Western Cape.

Working memory (WM). The Digit Span task forms part of the fourth edition of the Wechsler Intelligence Scale for Children (WISC-IV) (Wechsler, 2003). This consists of two subscales: a forward digit span which assesses attention and a backwards digit span which assesses WM. This study only used the backwards digit span because WM, like VIQ, needs to be controlled as it can influence cognitive empathy scores (Carlson, Moses, & Breton, 2002). The backwards digit span task has a good average reliability of $\alpha = .80$ for children aged 6-16 (Wechsler, et al., 2004) and has been used to assess children in South Africa and other developing countries before (Choi, et al., 2015; Van der Merwe, 2008).

General Procedure

After ethical approval was obtained, the schools were contacted and permission was obtained to recruit their students as participants in the larger study. The primary caregivers of the children were informed of the project, and those who were interested in participating were given demographic questionnaires and consent forms to complete at home. The measures used in this study (the PSDQ, QCAE and ARC) comprised part of the parent-report measures which were given to the parents to complete and were returned via the school. Data collection was conducted by a team of four post-graduate researchers. The children were assessed during school days in a separate, quiet room on the school premises. The child assessment consisted of two sessions which were conducted by a researcher, lasting approximately 45 minutes each. These sessions were always done on different days so as not to fatigue the child.

Data Analysis

Statistical analyses were conducted according to the breakdown of the research questions. Both descriptive and inferential statistical tests were run using Version 23 of Statistical Package for Social Sciences (SPSS; IBM Corporation, 2015). Firstly, descriptive statistics were examined. Although some skews of the data were evident, none appeared to warrant a transformation. Secondly, independent means t-tests were conducted to examine whether there were significant gender differences in any of the study variables. Seeing as each variable had a directional prediction regarding gender, the t-tests were one-tailed. An alpha of 0.05 was used, as per convention. If the Levene's test for equality of variances was violated, results for equal variances not assumed between groups were used.

Next, zero-order correlations were examined between all the study variables. This was done to investigate the possibility of creating a composite empathy measure and to explore the relationships between the key study variables. One-tailed correlations were conducted when two variables had a directional prediction, while two-tailed correlations were conducted for those without directional prediction. The latter was the case for parenting style and intellectual functioning (both measures), VIQ and affective empathy, VIQ and affect regulation, WM and cognitive empathy, and WM and affective empathy. Lastly, multiple regression analyses were run in order to analyse key study variables' contribution towards each aspect of empathy. All assumptions were upheld.

Raw scores of the empathy and parenting style measures were used while raw WM and VIQ scores were transformed into corresponding t-scores, and then further transformed into corresponding scaled scores which removed the effect of age. According to the QCAE's

items, the cognitive subscale had a minimum possible score of -38 and a maximum possible score of 38 while the affective subscale ranged from -24 to 24. PSDQ responses were originally scored according to subfactors which comprised Baumrind's three parenting typologies. However, in order to facilitate data analysis, these categories were converted into continuous scores. Considering the literature on these three parenting styles, the responses for the authoritarian and permissive factors were converted into negative scores, while the responses for the authoritative factor were kept positive and doubled to account for the two negative parenting factors. The continuum thus ranged from -8 (lowest negative parenting) to 8 (highest positive parenting). Lastly, the ARC had a minimum score of 0 and a maximum of 24.

Multicollinearity. Considering the inclusion of two measures of intellectual functioning and three measures of empathy, there were some risks of multicollinearity undertaken. This had to be looked out for seeing as it is a key assumption of multiple regression analysis. However, neither the two measures of intellectual functioning nor the three measures of empathy were highly or significantly correlated. The correlations (Table 2) and collinearity statistics (Appendix I: Tables 18, 19 and 20) show that the variables were relatively independent and that there was only a small amount of overlapping influence. In fact, tolerance levels for each variable in all steps of all three models remained high which shows that the predictors contributed unique influences towards the dependent variable. Thus, no problematic evidence of multicollinearity was found.

Results

Table 1

Sample Characteristics Across Gender

Variable	Group			Significance Across Gender		
	Males (*n* = 29)	Females (*n* = 27)	Full sample (*N* = 56)	*t*	*p*	*d*
Age range (Years: Months)	9:7 – 13:10	10:0 – 13:9	9:7 – 13:10			
M (SD)	11.40 (1.28)	11.47 (.95)	11.43 (1.12)	-.24	.811	.06
WM						
M (SD)	8.28 (3.64)	7.89 (2.65)	8.09 (3.18)	.45	.327	.12
VIQ						
M (SD)	5.62 (3.43)	7.30 (2.66)	6.43 (3.17)	-2.03	.024	-.55
ARC						
M (SD)	15.66 (2.94)	14.96 (3.85)	15.32 (3.40)	.76	.226	.20
PSDQ						
M (SD)	4.36 (1.80)	2.99 (1.69)	3.70 (1.86)	2.94	.003	.78
QCAE_Cog						
M (SD)	7.34 (14.67)	2.96 (16.99)	5.23 (15.84)	1.04	.153	.28
QCAE_Aff						
M (SD)	4.07 (7.80)	9.30 (4.91)	6.59 (7.02)	-3.02	.002	-.80

Notes. Working Memory (WM) as measured by the backwards Digit Span task of the WISC-IV.

Verbal IQ (VIQ) as measured by the Vocabulary scale of the WASI (M = 10, SD = 3).

Affect Regulation Checklist (ARC).

Parenting Styles and Dimensions Questionnaire (PSDQ).

Cognitive empathy subscale of the Questionnaire of Cognitive and Affective Empathy (QCAE_Cog)

Affective empathy subscale of the Questionnaire of Cognitive and Affective Empathy (QCAE_Aff)

Sample Characteristics

Descriptive analyses of the data included examining boxplots (for the full sample and split by gender), histograms and P-P plots to investigate the spread and normality of the data set, and to check for outliers. The affect regulation data had one extreme outlier, while the affective empathy data had two outliers which were subsequently removed from the data set. The histograms and P-P plots for the affect regulation, cognitive and affective empathy data were all relatively normally distributed (Appendix J: Figures 1, 2 and 3). The WM data revealed one outlier, whose data was removed. The full sample size was thus 56. No transformations were undertaken considering the lack of severity of the abnormal data and the small size of the sample (N = 56).

Gender differences among key study variables

Empathy measures. Affect regulation (t = .76, p = .226, d = .20) and cognitive empathy (t = 1.04, p = .153, d = .28) did not produce any significant gender differences. However, the small effect sizes for both aspects of empathy suggest a gender difference favouring males which this sample did not have sufficient power to detect. In contrast, the affective empathy data (t = -3.02, p = .002, d = -.80) did reveal a significant gender difference with a large effect size of -.80, with females (M = 9.30, SD = 4.91) achieving higher scores than males (M = 4.07, SD = 7.80). Finding at least one significant gender difference in an empathy measure favouring females confirms this study's first hypothesis.

Parenting style and intellectual functioning. Significant gender differences were found for the PSDQ (t = 2.94, p = .003, d = .78) and VIQ scores (t = -2.03, p = .024, d = -.55), and not for WM (t = .45, p = .327, d = .12). Males (M = 4.36, SD =1.80) were found to experience more positive parenting than females (M = 2.99, SD =1.69), with a large effect size of .78, contrary to the literature and to this study's second hypothesis. Nevertheless, this finding satisfies the second research question as there is a significant gender difference in parenting styles among South African coloured children. Regarding VIQ, females (M = 7.30, SD = 2.66) performed better than males (M = 5.62, SD = 3.43).

Predicting Empathy

Table 2

Pearson Correlations between Key Study Variables

	PSDQ	Gender	VIQ	WM	QCAE_COG	QCAE_AFF	ARC
PSDQ	-						
Gender	-.371**	-					
VIQ	.166[a]	.267*	-				
WM	.186[a]	-.061	.254*	-			
QCAE_COG	.320**	-.139	.267*	.038[a]	-		
QCAE_AFF	-.166	.375**	.207[a]	-.172[a]	.121	-	
ARC	.346**	-.103	.100[a]	.246*	.244*	-.116	-

Notes. Gender was coded as 1 for Male and 2 for Female.

[a]. Correlation conducted without directional prediction (2-tailed).

**. Correlation is significant at the 0.05 level (1-tailed).*

***. Correlation is significant at the 0.01 level (1-tailed).*

Relationships between key study variables. Cognitive QCAE scores are significantly correlated with ARC scores (r = .244, p = .035), while affective QCAE scores are poorly and non-significantly correlated with both ARC scores (r = -.116, p = .197) and cognitive QCAE scores (r = .121, p = .187). This prevents the creation of a composite score for empathy. Instead, separate multiple regression analyses which were examined and analysed individually were conducted using cognitive empathy as a first outcome variable, affective empathy as a second outcome variable and affect regulation as a last outcome variable.

The PSDQ is significantly and negatively correlated to gender (r = -.371, p = .002), confirming the significant gender difference where males (coded as 1) have experienced more positive parenting styles than females (coded as 2). Cognitive empathy and affect regulation are positively and significantly correlated to PSDQ scores, r = .320, p = .008 and r = .346, p = .005, respectively. On the other hand, affective empathy is negatively and non-significantly correlated with PSDQ, r = -.166, p = .110.

VIQ and WM are significantly and positively correlated, r = .254, p = .029, which is expected considering they are both measures of general intellectual functioning. VIQ is also significantly and positively correlated with cognitive empathy, r = .267, p = .024. Gender is significantly and positively correlated to both VIQ (r = .267, p = .023) and affective empathy (r = .375, p = .002). Lastly, WM is significantly and positively correlated with affect regulation (r = .246, p = .034).

Post-hoc power analyses. Post-hoc power analyses for t-tests and correlations were run to demonstrate the limitation of this small sample size. Given the small effect size of d = 0.2 for the non-significant gender difference in ARC scores, G*Power calculated an 18% chance of finding a difference in ARC scores, given the sample size. In addition, cognitive empathy scores revealed a non-significant difference between genders, with an effect size of d = 0.28. G*Power calculated the power of detecting a difference in this sample to be 27%. Furthermore, post-hoc power analyses of zero-order correlations also revealed poor power estimates. The correlation between affective empathy and affect regulation only had 22% power, while the correlation between cognitive empathy and affective empathy had 23% power. Lastly, the correlation between parenting styles and affective empathy revealed 34% power.

Modelling the relationship between the predictor variables and empathy. Considering the unanticipated male bias in parenting styles, the third hypothesis specifying female gendered parenting contributing to female gendered empathy could not be addressed. Nevertheless, this unexpected and interesting pattern warranted further investigation through regression models examining influences on the different aspects of empathy. Three initial hierarchical regressions were run, including variables according to the preliminary data analyses and the literature.

Considering their significant zero-order correlation, WM and VIQ were placed together in the first regression block, as they were considered control variables. Gender was placed as the next predictor variable, considering it has weaker correlations to all three empathy measures compared to parenting styles. The last predictor variable examined was parenting styles, as it has significant correlations to both affect regulation and cognitive empathy scores. Thereafter, variables which did not add significance or explained variance to the overall model were removed and final regression models were run to further examine the effect sizes and unique influence of the retained variables.

Tables 5, 9 and 13 show that the final models were statistically significant for all three empathy measures: cognitive empathy, F (3, 52) = 3.32, p = .027, R^2 = .161, affective empathy, F (3, 52) = 4.02, p = .012, R^2 = .188, and affect regulation, F (2, 53) = 4.82, p = .012, R^2 = .154. Each outcome variable had a different combination of predictor variables resulting in the overall model's significance and different predictor variables contributing the most influence.

The inclusion of non-significant predictors. The decision was made to include non-significant predictors in each empathy regression model. Although this is contrary to the

norm (Field, 2009), it was done with the aim of creating models with the largest amount of explained variance, the least number of non-significant predictors, and the most significance as a model overall. As Fraser (2012) states, an insignificant predictor is removed from a model only if it adds no explanatory power. In fact, the inclusion of non-significant predictors in each empathy model was shown to be beneficial to the overall models. Appendix K shows that the inclusion of only, or only almost, significant predictors in each model (VIQ for cognitive empathy (Table 15), gender for affective empathy (Table 16) and parenting style for affect regulation (Table 17)) would all result in models with less explained variance. It was thus clear that some non-significant variables were beneficial to the empathy models and were consequently maintained.

Cognitive empathy. Together, WM and VIQ did not produce a significant F change in the initial model, F (2, 53) = 2.06, p = .138. However, on inspection of the beta values, VIQ was revealed to be the closest to significance, t = 1.98, p = .053, and was retained while WM, t = -.65, p = .521, was removed. Gender did not produce a significant F change, F (1, 52) = 3.00, p = .089, and did not have a significant beta value, t = -.89, p = .379. However, its contribution of 5.1% of explained variance justified its preservation in the final regression model. Lastly, parenting style was not a significant addition to the cognitive empathy regression, F (1, 51) = 2.75, p = .103. However, PSDQ scores contribute 4.5% of explained variance in cognitive empathy and were thus retained.

Although only VIQ produced a significant F change in the final model, F (1, 54) = 4.13, p = .047, gender and parenting style contributed explained variance (4.8% and 4.2% respectively) which added more significance to the overall model. The coefficients table (Table 5) reveals that VIQ had the largest amount of influence (B = .26) followed closely by parenting style (B = .23) with gender last (B = -.12). However, none of these variables' slope coefficients were significantly different from 0, with VIQ being the closest, t = 1.89, p = .064.

Table 3

Initial Model Summary (Cognitive Empathy as Outcome Variable)[d]

					Change Statistics						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	F	*p*
1	.27[a]	.07	.04	15.54	.07	2.06	2	53	.138	2.06	.138
2	.35[b]	.12	.07	15.26	.05	3.00	1	52	.089	2.42	.076
3	.41[c]	.17	.10	15.01	.05	2.75	1	51	.103	2.57	.049

a. Predictors: (Constant), WM, VIQ

b. Predictors: (Constant), WM, VIQ, Gender

c. Predictors: (Constant), WM, VIQ, Gender, PSDQ

d. Dependent Variable: QCAE_Cog

Table 4

Initial Model Coefficients (Cognitive Empathy as Outcome Variable)[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	*p*
3	(Constant)	-1.84	10.20		-.18	.858
	VIQ	1.42	.72	.28	1.98	.053
	WM	-.43	.67	-.09	-.65	.521
	Gender	-4.13	4.65	-.13	-.89	.379
	PSDQ	2.04	1.23	.24	1.66	.103

a. Dependent Variable: QCAE_Cog

Table 5

Final Model Summary (Cognitive Empathy as Outcome Variable)[d]

					Change Statistics						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	F	*p*
1	.27[a]	.07	.05	15.41	.07	4.13	1	54	.047	4.13	.047
2	.35[b]	.12	.09	15.15	.05	2.87	1	53	.096	3.57	.035
3	.40[c]	.16	.11	14.92	.04	2.60	1	52	.113	3.32	.027

a. Predictors: (Constant), VIQ

b. Predictors: (Constant), VIQ, Gender

c. Predictors: (Constant), VIQ, Gender, PSDQ

d. Dependent Variable: QCAE_Cog

Table 6

Final Model Coefficients (Cognitive Empathy as Outcome Variable)[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	*p*
3	(Constant)	-4.67	9.16		-.51	.612
	VIQ	1.31	.69	.26	1.89	.064
	Gender	-3.88	4.60	-.12	-.84	.403
	PSDQ	1.96	1.22	.23	1.61	.113

a. Dependent Variable: QCAE_Cog

Affective empathy. WM and VIQ almost contributed significantly towards this regression, F (2, 53) = 2.83, p = .068, and contributed 9.7% of explained variance in the initial model. These two variables were thus retained. Gender produced a significant F change for affective empathy, F (1, 52) = 5.88, p = .019, and a significant beta value, t = 2.02, p = .048, and was retained. Parenting style was not a significant addition to this model, F (1, 51) = .133, p = .716, which explains why model 2 of this regression (F (1, 52) = 4.02, p = .012) is more significant than model 3 (F (1, 51) = 3.00, p = .027). Parenting style was thus removed. The beginning two steps of the initial model (WM and VIQ, and gender) were thus replicated in the final model. Regression coefficients in Table 8 show that gender had by far the largest influence on the outcome variable (B = .32), with its slope coefficient being significantly different from 0, t = 2.43, p = .019. In contrast, WM (B = -.20) and VIQ (B = .17) did not have significant slope coefficients.

Table 7

Initial Model Summary (Affective Empathy as Outcome Variable)[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change	F	*p*
1	.31[a]	.10	.06	6.80	.10	2.83	2	53	.068	2.83	.068
2	.43[b]	.19	.14	6.51	.09	5.88	1	52	.019	4.02	.012
3	.44[c]	.19	.13	6.56	.002	.13	1	51	.716	3.00	.027

a. Predictors: (Constant), WM, VIQ

b. Predictors: (Constant), WM, VIQ, Gender

c. Predictors: (Constant), WM, VIQ, Gender, PSDQ

d. Dependent Variable: QCAE_Aff

Table 8

Initial Model Coefficients (Affective Empathy as Outcome Variable)[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	*p*
3	(Constant)	2.00	4.46		.45	.656
	VIQ	.41	.31	.19	1.31	.195
	WM	-.42	.29	-.19	-1.45	.155
	Gender	4.11	2.03	.30	2.02	.048
	PSDQ	-.20	.54	-.05	-.37	.716

a. Dependent Variable: QCAE_Aff

Table 9

Final Model Summary (Affective Empathy as Outcome Variable)[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					F	*p*
					R Square Change	F Change	df1	df2	Sig. F Change		
1	.31[a]	.10	.06	6.80	.10	2.83	2	53	.068	2.83	.068
2	.43[b]	.19	.14	6.51	.09	5.88	1	52	.019	4.02	.012

a. Predictors: (Constant), WM, VIQ

b. Predictors: (Constant), WM, VIQ, Gender

c. Dependent Variable: QCAE_Aff

Table 10

Final Model Coefficients (Affective Empathy as Outcome Variable)[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	*p*
2	(Constant)	1.08	3.66		.30	.768
	VIQ	.38	.30	.17	1.27	.209
	WM	-.43	.29	-.20	-1.50	.139
	Gender	4.42	1.82	.32	2.43	.019

a. Dependent Variable: QCAE_Aff

Affect regulation. WM and VIQ did not produce a significant F change together in the initial model, F (2, 53) = 1.76, p =.182. Nevertheless, they contributed 6.2% of explained variance to the overall model. In fact, upon examination of the beta values, it appeared that WM, t = 1.41, p = .164, was much closer to significance than VIQ, t = -.07, p = .942, indicating that WM contributed to the model while VIQ did not. WM was thus preserved in the final model while VIQ was removed. Gender did not produce a significant F change for ARC scores, F (1, 52) = .60, p = .441, and was removed from this regression. Parenting style contributed significantly in the affect regulation regression, F (1, 51) = 4.92, p = .031, and produced a significant beta value, t = 2.22, p = .031, and was retained. In the final model, WM did not produce a significant F change by a small amount, F (1, 54) = 3.49, p = .067, yet contributed 6.1% of explained variance in ARC scores, while parenting styles contributed 9.3% of explained variance significantly, F (1, 53) = 5.83, p = .019. Lastly, parenting style had the largest influence on affect regulation (B = .31) with a significant slope coefficient, t = 2.41, p = .019, while WM had a lower influence (B = .19) and a non-significant slope coefficient, t = 1.47, p = .149 (Table 11).

Table 11

Initial Model Summary (Affect Regulation as Outcome Variable)[d]

					Change Statistics						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	F	*p*
1	.25[a]	.06	.03	3.35	.06	1.76	2	53	.182	1.76	.182
2	.27[b]	.07	.02	3.36	.01	.60	1	52	.441	1.37	.264
3	.39[c]	.16	.09	3.24	.08	4.92	1	51	.031	2.33	.068

a. Predictors: (Constant), WM, VIQ
b. Predictors: (Constant), WM, VIQ, Gender
c. Predictors: (Constant), WM, VIQ, Gender, PSDQ
d. Dependent Variable: ARC

Table 12

Initial Model Coefficients (Affect Regulation as Outcome Variable)[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	*p*
3	(Constant)	11.25	2.20		5.10	.000
	VIQ	-.01	.16	-.01	-.07	.942
	WM	.20	.14	.19	1.41	.164
	Gender	.22	1.00	.03	.21	.832
	PSDQ	.59	.27	.32	2.22	.031

a. Dependent Variable: ARC

Table 13

Final Model Summary (Affect Regulation as Outcome Variable)[c]

					Change Statistics						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	F	*p*
1	.25[a]	.06	.04	3.32	.06	3.49	1	54	.067	3.49	.067
2	.39[b]	.15	.12	3.18	.09	5.83	1	53	.019	4.82	.012

a. Predictors: (Constant), WM

b. Predictors: (Constant), WM, PSDQ

c. Dependent Variable: ARC

Table 14

Final Model Coefficients (Affect Regulation as Outcome Variable)[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
2	(Constant)	11.60	1.34		8.63	.000
	WM	.20	.14	.19	1.47	.149
	PSDQ	.57	.23	.31	2.41	.019

a. Dependent Variable: ARC

Discussion

The objectives of this study were three-fold. Firstly, to explore whether, in line with research, Western Cape coloured girls obtain higher scores of empathy than boys. This study only found significant gender differences favouring girls in affective empathy. Secondly, to investigate whether Western Cape coloured females experience more positive (authoritative) parenting compared to males, as is found in the literature. Unexpectedly, a significant gender difference for parenting style was found, but favouring males rather than females. Thirdly and most importantly, this study aimed to explore whether gender biases in parenting styles, favouring females, are partly responsible for gender differences in empathy, also favouring females. Considering the divergent result of the second research objective, the third research question could not be addressed. Nevertheless, multiple linear regressions were still run to explore the differing influence of key study variables on the different aspects of empathy.

Cognitive Empathy

Gender difference. No significant gender difference was found in cognitive empathy. However, the small effect size suggests that there could be a gender difference favouring males in the data, but that the sample size was too small to detect significance. Furthermore, both male and female scores had very high standard deviations, indicating a wide range of scores which could have also contributed towards the lack of significance. If significance were detected, it would be interesting to note that males achieved higher scores than females, contrary to the literature.

Despite the wide range of scores, the full sample mean of 5.23 on a scale which ranges from -38 to 38, indicates that this sample of Western Cape children did not obtain high scores of cognitive empathy. The low scores of cognitive empathy evident for both males and females possibly indicate the existence of a maturation threshold regarding cognitive empathy which this sample of children aged 9 to 13 had not yet reached (Schwenck, Göhle, Hauf, & Schneider, 2014). In fact, Schwenck et al. (2014) found that age strongly predicted components of cognitive empathy while it did not predict affective empathy, suggesting that this development is already completed by school-going age, in contrast to cognitive empathy.

Correlation with parenting style. Pearson correlations revealed significant positive correlations between parenting styles and cognitive empathy (at the $p < .01$ level). This suggests that more positive parenting is associated with higher levels of cognitive empathy. In fact, authoritative parenting incorporates reasoning and negotiation into conflict situations (Baumrind, 1971). Parenting involving explanations from a parent thus allow the child to

learn about others' mental states, developing their cognitive empathy (Farrant, Devine, Maybery, & Fletcher, 2012). This finding thus coincides with the literature stating that authoritative parenting can effectively develop a child's cognitive empathy (Cotton, 1992; Farrant et al., 2012).

Predictors. Cognitive empathy was found to be significantly predicted by, in combination, verbal IQ, gender and parenting style, although only verbal IQ was close to contributing uniquely to the outcome variable. It thus appears that these three variables only exert their influence in combination. It is interesting to note that gender contributed explanatory power towards cognitive empathy's prediction despite the lack of significant preliminary analyses. This curious result reflects the small effect size found in the non-significant gender difference and once again suggests that this study did not have enough power to detect significant results.

Moreover, despite the significant positive zero-order correlations between parenting style and cognitive empathy, parenting style did not significantly contribute towards cognitive empathy. Yet, it did contribute explanatory power in the form of explained variance. Given that males were found to experience more positive parenting and the small, yet non-significant gender effect mentioned above, it makes sense that such a gender bias in parenting would result in males achieving higher scores of cognitive empathy. Although in contrast to this study's specific hypotheses, the premise of biased parenting influencing gendered empathy scores remains the same. This finding thus warrants further investigation as it is evident that gender and parenting style could be important predictors for cognitive empathy. Nevertheless, it appears that verbal IQ was the closest to contributing significantly in this study. This is in line with Happé's (1995) research which posited that verbal IQ is necessary to pass theory of mind tasks, and that a verbal IQ above a certain threshold would guarantee a participant passing.

Affective Empathy

Gender difference. A significant gender difference was found for affective empathy, with females achieving higher scores than males at the level of $p < .01$. This study's first hypothesis is thus only supported with regard to this aspect of empathy. Cotton (1992) mentions that gender differences favouring females are more reliably found in affective empathy compared to other forms of empathy. A longitudinal study by Mestre, Samper, Frias, and Tur (2009) also found that affective empathy gender differences favouring females had a much larger effect size than any cognitive empathy gender difference. However, mean

scores of 4.07 (*SD* = 7.80) for males and 9.30 (*SD* = 4.91) for females suggest an overall low level of empathy considering the possible scores range from -24 to 24.

Correlation with parenting style. Affective empathy was not correlated with parenting styles, despite research supporting it (Schaffer et al., 2009). However, this, and the significant gender difference mentioned above, can be explained by Decety's (2011) neuro-evolutionary model of empathy, stating that affective circuits were present in the brain much earlier than higher cognitive abilities. This means that affective empathy, being an older, bottom-up mechanism, is rapid and rigid compared to newer, cognitive developments such as cognitive empathy and affect regulation which are integrative and flexible (Decety, 2011). A primitive mechanism such as affective empathy thus is not influenced by socialisation effects. This is also in line with Schwenck et al.'s (2014) suggestion that affective empathy has already developed in early childhood. This posits that females could have a biological superiority for affective empathy. However, this then conflicts with the idea that the significant gender difference found in affective empathy is due to socialisation effects. Future research is required to investigate this further.

Predictors. Affective empathy was significantly predicted by the combination of working memory, verbal IQ, and gender, although only gender produced significant changes independently. The finding that working memory and verbal IQ together contribute explained variance to this regression supports the premise that these two control variables influence empathy scores even if they are not significant on their own. Parenting styles did not significantly predict affective empathy or contribute explanatory power. However, this could be as a result of the Decety's (2011) neuro-evolutionary model mentioned above, or the male bias in parenting styles. Given that authoritative parenting should be associated with higher levels of empathy, the unusual male bias for positive parenting found in the current study would, obviously, not contribute towards females obtaining higher empathy scores.

Affect Regulation

Gender difference. There was no significant gender difference found in affect regulation. However, the very small but non-significant effect size, similar to cognitive empathy, suggests that this sample did not have sufficient power to detect the significance of a gender effect favouring males. On the other hand, the lack of significant gender difference, although diverging from the literature, can be a positive finding. Considering that the mean ARC score for the full sample is 15.32 within a possible range of scores from 0 to 24, this indicates that both males and females (without a significant gender difference) achieved above the midpoint of the affect regulation scale. This goes against the societal stereotype

that females have higher levels of all aspects of empathy. Thus, the lack of gender difference in affect regulation scores suggests the debunking of the societal assumption that females have more empathy.

Correlation with parenting style. Zero-order correlations revealed significant positive correlations between parenting styles and affect regulation (at the $p < .01$ level). This implies that authoritative parenting is associated with higher affect regulation in coloured children. In fact, research has shown that techniques of affect regulation such as reappraisal and reflection are taught and encouraged through positive parenting such as modeling (Morris, Silk, Steinberg, Myers, & Robinson, 2007). This finding is thus consistent with the literature stating that authoritative parenting is associated with an adaptive affect regulation.

Predictors. Affect regulation was predicted by working memory and parenting style, with only parenting style contributing significantly. In line with the literature, working memory thus contributes towards affect regulation, despite it not being a uniquely significant contributor. Schmeichel, Volokhov, and Demaree (2009) found that a higher working memory capacity allowed for the more successful suppression of negative facial expressions. Parenting styles' significant contribution towards affect regulation is also supported by literature showing that higher levels of negative parenting, including harsh and controlling practices, were associated with lower levels of emotion regulation both in children and in young adults (Chang et al., 2003; Manzeske & Stright, 2009). Authoritative parenting thus appears to facilitate the development of adaptive emotion regulation. Moreover, the significant contribution of a male biased parenting style towards affect regulation makes sense considering the small but non-significant gender effect favouring males.

Parenting Style

Gender differences. Contrary to the literature, males were found to experience more positive parenting than females. This was a significant result, at the level of $p < .01$. This implies that female South African coloured children are experiencing more authoritarian and permissive parenting than males, who instead experience more authoritative parenting. Therefore, this study's second research question is supported in that a significant gender difference was found for parenting style, but diverged from its predicted direction. Considering the numerous variables which may impact on parenting, there may be several explanations for this unexpected finding.

Firstly, this finding could be attributed to the patriarchal cultures which are ever-present in South Africa (Nkosi & Daniels, 2007; Strebel, et al., 2006). In patriarchal cultures, girls often have strict rules they need to adhere to while boys are allowed more freedom and

controlled less. Moreover, males are considered more important than females, which allows them better treatment (Nkosi & Daniels, 2007). In a review, Putnam, Sanson, and Rothbart (2005) state that the majority of research finds that parents are less accepting of negative affect or irritability in girls than boys. In this case, the parents of girls with a negative temparement would respond more negatively towards them than towards boys if they also had a negative temparement. This would thus result in girls experiencing more negative parenting than boys, on account of the lack of acceptance of girls behaving 'badly'.

Secondly, this finding could reflect that parenting differs between a mother and a father (Conrade & Ho, 2001). Considering that the majority (82%) of the primary caregivers were mothers rather than fathers, these findings could mirror what Kausar and Shafique (2008) noticed in their study in an equally patriarchal Pakistani context. Namely, that mothers were more strict raising their daughters. As a result, daughters experienced more authoritarian parenting from their mothers while sons were given more freedom. Bomester (2012) found that sons in the Western Cape were given more attention and more time by both mothers and fathers, supporting the aforementioned explanation of son preferential treatment.

General Discussion

Conceptualisation of empathy. Due to the lack of significant correlations between the three empathy measures (cognitive empathy, affective empathy and affect regulation), a composite of empathy could not be created. It is important to note that affect regulation has only recently been described as part of the construct of empathy, and not all research supports its inclusion. There do not appear to be studies correlating scores between the ARC and the two subscales of the QCAE but Lockwood et al. (2014) found that the reappraisal subfactor of the Emotion Regulation Questionnaire did not correlate with the affective empathy subscale of the QCAE. Furthermore, affect regulation has mostly been examined as a variable separate from empathy, albeit still associating closely with it (Lam, Solmeyer, & McHale, 2012). What is most interesting is the lack of correlation between cognitive and affective empathy, which were taken from the same measure (QCAE). This lack of internal convergent validity and general non-significant correlations between empathy measures emphasise the distinction between components of empathy and the importance of assessing them separately.

Intellectual functioning variables. Working memory and verbal IQ were included in this study as control variables, as literature has shown they are associated with the three components of empathy studied here (Carlson et al., 2002; Happé, 1995; Schmeichel et al., 2009). A significant positive correlation was found between verbal IQ and cognitive empathy. Higher scores of verbal IQ facilitate cognitive empathy by introducing the meaning

of words which represent mental states to children (Miller, 2006). Language exposure in a family thus helps a child learn about others' perspectives (Miller, 2006).

Furthermore, working memory was significantly and positively correlated with affect regulation, and contributed explanatory power towards it, supporting the literature. However, verbal IQ was not correlated with affective empathy or affect regulation, and working memory was not correlated with cognitive or affective empathy, thus somewhat invalidating their purpose as control variables. Nevertheless, Langdon and Mackenzie (2012) found a similar result in 5- to 8-year-olds, where verbal intelligence was positively correlated with cognitive empathy but not with affective empathy. This finding also supports Decety's (2011) neuro-evolutionary model of empathy stating that affective empathy's primitive roots prevent it from being influenced by higher cognitive processes such as verbal intelligence. On the other hand, cognitive empathy, as a flexible and newer mechanism, can be influenced by mediating variables. This once again supports the emerging difference between cognitive empathy, affective empathy and affect regulation and indicates their independence as constructs.

Gender differences in empathy. Societal expectations and stereotypes dictate that the outward expression of empathy (affective empathy) is reserved for females. Males are expected to keep their inner emotions hidden on the premise that males showing affect are 'weak'. Cognitive empathy and affect regulation can thus be understood as inner processes, easier to keep hidden, while affective empathy is an outward expression which is discouraged in males. As a result of such societal expectations, boys become increasingly reluctant to express affect (Eisenberg & Fabes, 1990). The finding of non-significant gender differences in cognitive empathy and affect regulation scores but a significant gender difference found in affective empathy thus may have social mediating factors.

Another explanation is Panksepp's (1998) evolutionary argument which states that affective empathy is a part of mammalian maternal care systems. Other than positing that affective empathy, as an important evolutionary mechanism, is present in all mammals, he also suggests that affective empathy is found more in females because they are biologically wired to care about in-group members (Panksepp, 1998). In fact, nurturant urges of a mother rat are said to activate in less than a day compared to females who are not mothers (Panksepp, 1998). Thus, affective empathy could have an inherent, biological gender bias towards females which newer mechanisms such as cognitive empathy and affect regulation do not.

Parenting style and empathy. The positive and significant correlations between parenting style and cognitive empathy and affect regulation were an anticipated outcome as

literature has found effects of parenting styles on all three aspects of empathy measured in this study (Cotton, 1992; Kochanska, 1993; Melnick & Hinshaw, 2000; Pears & Moses, 2003). More specifically, positive parenting should result in higher scores of empathy. Despite the lack of support for the third hypothesis, regressions were run to investigate whether parenting styles do influence each aspect of empathy. Parenting style only contributed significantly and uniquely toward the affect regulation regression, which did not have a significant gender difference. It thus appears that this study cannot support its third hypothesis stating that gender biases in parenting styles contribute to gender differences in empathy scores. However, the small but non-significant effect sizes for males achieving higher levels of cognitive empathy and affect regulation, and significant male bias in parenting styles warrants further investigation. Although studies have shown the substantial influence of parenting styles on various aspects of a child's development, this study can only support the theory that parenting style significantly contributes to affect regulation.

Limitations and future directions. Naturally, this study was not without limitations. Firstly, it is necessary to revisit the conceptualisation of empathy. Although the correlation of cognitive empathy, affective empathy and affect regulation has been described by several researchers (Decety & Jackson, 2006; Elliott et al., 2011; Gerdes et al., 2010), the lack of convergent validity between the measures and the predictors' differential effects on them calls into question this study's conceptualisation of empathy as one construct. This finding also suggests the need to separate these factors into individual constructs for future research into possible differential effects on behaviour.

In addition, this study was also limited by its sample size and time constraints. With more time, it is recommended that proper stratified sampling across the Western Cape and South Africa takes place. The small sample size (N = 56) not only reduces the reliability of this study's findings but also prevented the detection of other significant findings. Unfortunately, time constraints of this Honours project prevented the collection of more data. As the post-hoc power analyses have shown, there appears to be a gender difference favouring males in cognitive empathy and affect regulation which could not be detected in this study. These findings warrant further research as they could be linked to the male bias in parenting this study found. It is thus recommended that these variables are further investigated within a South African context and with a larger sample size.

Summary and Conclusions

This study has contributed to the research literature by exploring the contribution of parenting styles and gender towards affective empathy, cognitive empathy and affect

regulation. Firstly, a gender bias was found in parenting styles, with boys experiencing more positive parenting than girls, contrary to what was expected. Secondly, a gender difference in empathy was found in affective empathy, favouring girls. However, parenting style did not contribute towards and was not correlated with affective empathy scores, suggesting an innate female superiority in affective empathy. Instead, parenting style only contributed significantly towards affect regulation which, along with cognitive empathy, revealed a small but non-significant gender effect size, unexpectedly favouring boys. Although these findings are unexpected in terms of gender, they are consistent with the literature regarding the effects of positive parenting on these variables. These diverging results warrant further investigation with larger samples.

Nevertheless, each aspect of empathy (cognitive, affective and affect regulation) can be significantly predicted in this sample of typically developing South African coloured children. However, some of the predictor variables do not reliably contribute unique influence to the outcome variables, but contribute to the overall models when placed together with other variables. It can thus be suggested that these models are appropriate for predicting both cognitive and affective empathy, and affect regulation, and thus empathy.

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Appendix

Appendix A: UCT Ethical Approval

UNIVERSITY OF CAPE TOWN

Department of Psychology

University of Cape Town Rondebosch 7701 South Africa
Telephone (021) 650 3414
Fax No. (021) 650 4104

5 March 2013

Dr. Susan Malcolm-Smith
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Dr Malcolm-Smith,

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for your project:

The development of moral reasoning

Please use the reference PSY2013-001 if required. I wish you all the best for your study.

Yours sincerely,

Johann Louw PhD
Professor
Chair: Ethics Review Committee

Appendix B: Western Cape Education Department Approval

Directorate: Research

Audrey.wyngaard@westerncape.gov.za
tel: +27 021 467 9272
Fax: 0865902282
Private Bag x9114, Cape Town, 8000
wced.wcape.gov.za

REFERENCE: 20130315-8009
ENQUIRIES: Dr A T Wyngaard

Dr Susan Malcolm-Smith
Department of Psychology
UCT
Rondebosch

Dear Dr Susan Malcolm-Smith

RESEARCH PROPOSAL: THE DEVELOPMENT OF MORAL REASONING

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Educators' programmes are not to be interrupted.
5. The Study is to be conducted from **15 February 2016 till 30 September 2018**
6. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
7. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
8. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
9. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
10. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
11. The Department receives a copy of the completed report/dissertation/thesis addressed to:

    The Director: Research Services
    Western Cape Education Department
    Private Bag X9114
    CAPE TOWN
    8000

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
Directorate: Research
DATE: 11 February 2016

Appendix C: Parental Consent Form

CONSENT FORM

The research project and the procedures associated with it have been explained to me. I hereby give my permission for my child to participate in the above-described research project.

Child's name: _____

Parent/guardian's name: _____

Date: _____

Signature of parent/guardian: _____

Please provide a contact number below should you be willing to complete the additional questionnaires (for which you will be compensated with R100 upon completion), and indicate which time/s would be most convenient to receive this phone call.

Phone: _____
Time/s: _____

Appendix D: Child Assent Form

The Development of Moral Reasoning and Empathy

Assent Form

Hello! We want to tell you about a research study we are doing. A research study is a way to learn more about something. We would like to find out more about how children feel about good and bad behaviour, and how they understand what other people are feeling and thinking.

If you agree to join this study, you will be asked to do some tasks on the computer. For example, we will show you some pictures and ask you how you feel about them. We will also show you some short movies on the computer screen. These are not the kind of movies you see on TV. They are movies that we made to help us study how children feel about good and bad behaviour. It is very important that you watch the pictures carefully. You will also be asked to do some other tasks, like tell us the meaning of some words, and we will ask you to answer questions about short stories we will read to you.

Together these tasks will take about 90 minutes. We will take a break after you've done some of the tasks. We can take other short breaks too if you get tired.

You do not have to join this study. It is up to you. No one will be angry with you if you don't want to be in the study or if you join the study and change your mind later and stop.

Do you have any questions about the study? If you think you can do it and you don't have any more questions about it, will you sign this paper? If you sign your name below, it means that you agree to take part in this study.

Child's Signature: _____ Date: _____

Interviewer's Signature: _____ Date: _____

Appendix E: Demographic Questionnaire

DEMOGRAPHIC QUESTIONNAIRE

International research guidelines suggest that researchers report some attributes of all research participants (e.g., children's gender, parents' educational background, etc.). To help us collect this information, we are asking you to complete this brief questionnaire. All your answers are kept private, and won't be used in a way that identifies you or your child. If you are uncomfortable answering any of the items, feel free to ignore them.

Today's Date: _____

Who is completing this questionnaire? (Please √)

☐ Biological parent ☐ Grandparent ☐ Nanny
☐ Foster parent ☐ Aunt/Uncle ☐ Friend
☐ Stepparent ☐ Sibling ☐ Other: _____

Are you the child's primary caregiver? (Circle one) Y / N

Your gender: M / F

Child's Information

Child's date of birth (including the year): _____

Child's gender: M / F

Child birth order: Child number _____ out of _____ children.

Ages of siblings: Boy / Girl Age: _____
Boy / Girl Age: _____
Boy / Girl Age: _____

Child's height (in cm):_____ Child's weight (in kg): _____

Child's home language: _____

Child's race (Please √):

☐ Black South African ☐ Coloured ☐ Indian
☐ Black African (Other) ☐ White/Caucasian ☐ Other: _____

(Please specify)

Please list any serious health problems this child has had:

_____

_____

_____

Was this child born more than two weeks early? Y / N

Please list any medications this child is taking for behavior issues, attention difficulties, or issues related to moods and feelings:

_____

_____

_____

Does this child currently attend (Please √):

☐ Daycare/Crèche ☐ Grade R

☐ Preschool ☐ Primary school (Grade: _____)

Household Information

Who does this child currently live with? (Please √ **all** that apply)

☐ Biological parent ☐ Grandparent ☐ Nanny

☐ Foster parent ☐ Aunt/Uncle ☐ Friend

☐ Stepparent ☐ Sibling ☐ Other: _____

Who is this child's primary caregiver?

☐ Biological parent ☐ Grandparent ☐ Nanny

☐ Foster parent ☐ Aunt/Uncle ☐ Friend

☐ Stepparent ☐ Sibling ☐ Other: _____

Languages currently spoken at home:

Home language:_____

Other: _____

Religion(s) practiced in the home: _____

Primary Caregiver Information

Current age: _____

Marital Status:

☐ Married ☐ Divorced ☐ Widow/Widower
☐ Single ☐ Remarried ☐ Separated

Current job title:

Mother: _____

Father: _____

Primary caregiver: _____

Total family/household income last year:

☐ Less than R35 000 ☐ R176 000-R225 000 ☐ R376 000-R425 000
☐ R36 000-R75 000 ☐ R226 000-R275 000 ☐ R426 000-R475 000
☐ R76 000-R125 000 ☐ R276 000-R325 000 ☐ R476 000-R525 000
☐ R126 000-R175 000 ☐ R326 000-R375 000 ☐ More than R525 000

Appendix F: Parenting Styles and Dimensions Questionnaire

PSDQ: Parenting Styles and Dimensions Questionnaire
Your child and your family

This questionnaire will ask you questions about your child and your family. Some of the questions ask about how you deal with your child's disruptive behaviours. Not all of these questions may be appropriate for your family, but please try answering them all as accurately as you can.

Please circle the appropriate response.

		Never	Some times	About Half of the Time	Often	Always
1.	I am responsive to my child's feelings and needs. □	1	2	3	4	5
2.	I use physical consequences as a way of disciplining □my child. □	1	2	3	4	5
3.	I take my child's desires into account before asking him to do something. □	1	2	3	4	5
4.	When my child asks why he has to conform, I state: because I said so, or I am your parent and I want you to. □	1	2	3	4	5
5.	I explain to my child how I feel about his good and bad behaviour. □	1	2	3	4	5
6.	I spank when my child is disobedient. □	1	2	3	4	5
7.	I encourage my child to talk about his□troubles. □	1	2	3	4	5
8.	I find it difficult to discipline my child. □	1	2	3	4	5
9.	I encourage my child to freely express □himself even when disagreeing with his parents. □	1	2	3	4	5
10.	I discipline by taking privileges away from my□child with little if any explanations. □	1	2	3	4	5
11.	I emphasize the reasons for rules. □	1	2	3	4	5
12.	I give comfort and understanding when my child is upset. □	1	2	3	4	5
13.	I yell or shout when my child misbehaves. □	1	2	3	4	5
14.	I give praise when my child is good. □	1	2	3	4	5
15.	I give into my child when he causes a commotion about something. □	1	2	3	4	5
		Never	Some times	About Half of	Often	Always

PSDQ: Parenting Styles and Dimensions Questionnaire

Your child and your family

				the Time		
16.	I explode in anger towards my child. ☐	1	2	3	4	5
17.	I threaten my child with consequences more often than actually giving it. ☐	1	2	3	4	5
18.	I take into account my child's preferences in making plans for the family. ☐	1	2	3	4	5
19.	I grab my child when being disobedient. ☐	1	2	3	4	5
20.	I state consequences to my child and do not ☐actually do them. ☐	1	2	3	4	5
21.	I show respect for my child's opinions by ☐encouraging him to express them. ☐	1	2	3	4	5
22.	I allow my child to give input into family rules. ☐	1	2	3	4	5
23.	I scold and criticize to make my☐child improve. ☐	1	2	3	4	5
24.	I spoil my child. ☐	1	2	3	4	5
25.	I give my child reasons why rules should be obeyed. ☐	1	2	3	4	5
26.	I use threats as a consequence with little or no ☐justification. ☐	1	2	3	4	5
27.	I have warm and intimate times together with my☐child. ☐	1	2	3	4	5
28.	I help my child to understand the impact of ☐behaviour by encouraging my child to talk about the ☐consequences of his own actions. ☐	1	2	3	4	5
29.	I scold or criticize when my child's behaviour doesn't meet my expectations. ☐	1	2	3	4	5
30.	I explain the consequences of his☐behaviour. ☐	1	2	3	4	5
31.	I slap my child when he misbehaves. ☐	1	2	3	4	5

Thank you for your participation. We really appreciate your contribution. We will provide feedback on the overall results at the end of the year and will be available to answer any questions you might have.

Appendix G: Questionnaire of Cognitive and Affective Empathy

People differ in the way they feel in different situations. Below you are presented with a number of characteristics that ***may or may not apply to your child***. Read each characteristic and indicate how much you agree or disagree with the item by selecting the appropriate box. Answer quickly and honestly.		Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
1.	My child sometimes finds it difficult to see things from another's point of view.				
2.	My child is usually objective when he/she watches a film or play, and doesn't often get completely caught up in it.				
3.	My child tries to look at everybody's side of a disagreement before he/she makes a decision.				
4.	My child sometimes tries to understand his/her friends better by imagining how things look from their perspective.				
5.	When my child is upset at someone, he/she will usually try to "put him/herself in the person's shoes" for a while.				
6.	Before criticizing somebody, my child tries to imagine how he/she would feel in their place.				
7.	My child often gets emotionally involved in his/her friends' problems.				
8.	My child is inclined to get nervous when others around him/her seem nervous.				
9.	People my child is with have a strong influence on his/her mood.				
10.	It affects my child very much when one of his/her friends seems upset.				
11.	My child often gets deeply involved with the feelings of a character in a film, play, or novel.				
12.	My child gets very upset when he/she sees someone cry.				
13.	My child is happy when he/she is with a cheerful group and sad when others are glum.				
14.	It worries my child when others are worrying and panicky.				
15.	My child can easily tell if someone else wants to enter into a conversation.				
16.	My child can quickly pick up if someone says one thing but means another.				
17.	It is hard for my child to see why some things upset people so much.				
18.	My child finds it easy to put him/herself in somebody else's shoes.				
19.	My child is good at predicting how someone will feel.				
20.	My child is quick to spot when someone in a group is feeling awkward or uncomfortable.				
21.	Other people tell my child he/she is good at understanding what others are feeling and what others are thinking.				
22.	My child can easily tell if someone else is interested or bored with what he/she is saying.				
23.	Friends talk to my child about their problems as they say that my child is very understanding.				
24.	My child can sense if he/she is intruding, even if the other person does not tell him/her.				
25.	My child can easily work out what another person might want to talk about.				
26.	My child can tell if someone is masking their true emotion.				
27.	My child is good at predicting what someone will do.				
28.	My child can usually appreciate the other person's viewpoint, even if he/she does not agree with it.				
29.	My child usually stays emotionally detached when watching a film.				
30.	My child always tries to consider the other person's feelings before he/she does something.				
31.	Before my child does something, he/she tries to consider how his/her friends will react to it.				

Appendix H: Affect Regulation Checklist

*Circle the answer that best describes **your child** (circle ONE answer for each question):*

	A LOT like my child	A LITTLE like my child	NOT like my child
1. My child has a hard time controlling his/her feelings.	0	1	2
2. It's very hard for my child to calm down when he/she gets upset.	0	1	2
3. My child's feelings just take over him/her and he/she can't do anything about it.	0	1	2
4. When my child gets upset, it takes a long time for him/her to get over it.	0	1	2
5. Thinking about why he/she has different feelings helps my child learn about him/herself.	0	1	2
6. Thinking about why he/she acts in certain ways helps my child understand him/herself.	0	1	2
7. The time my child spends thinking about what's happened to him/her in her life helps him/her to understand him/herself.	0	1	2
8. If my child thinks about his/her feelings, it just makes everything worse.	0	1	2
9. My child tries hard not to think about his/her feelings.	0	1	2
10. My child prefers to keep feelings in control and not to think about them.	0	1	2
11. My child keeps his/her feelings to him/herself.	0	1	2
12. My child tries to do other things to keep his/her mind off how he/she feels.	0	1	2

Appendix I: Collinearity Statistics

Table 18

Final Model Collinearity Statistics (Cognitive Empathy as Outcome Variable)[a]

		Correlations			Collinearity Statistics	
Model		Zero-order	Partial	Part	Tolerance	VIF
1	VIQ	.27	.27	.27	1.00	1.00
2	VIQ	.27	.32	.32	.93	1.08
	Gender	-.14	-.23	-.22	.93	1.08
3	VIQ	.27	.25	.24	.85	1.18
	Gender	-.14	-.12	-.11	.75	1.33
	PSDQ	.32	.22	.21	.79	1.27

a. Dependent Variable: QCAE_Cog

Table 19

Final Model Collinearity Statistics (Affective Empathy as Outcome Variable)[a]

		Correlations			Collinearity Statistics	
Model		Zero-order	Partial	Part	Tolerance	VIF
1	VIQ	.21	.26	.26	.94	1.07
	WM	-.17	-.24	-.23	.94	1.07
2	VIQ	.21	.17	.16	.86	1.17
	WM	-.17	-.20	-.19	.92	1.09
	Gender	.38	.32	.30	.91	1.10

a. Dependent Variable: QCAE_Aff

Table 20

Final Model Collinearity Statistics (Affect Regulation as Outcome Variable)[a]

		Correlations			Collinearity Statistics	
Model		Zero-order	Partial	Part	Tolerance	VIF
1	WM	.25	.25	.25	1.00	1.00
2	WM	.25	.20	.19	.97	1.04
	PSDQ	.35	.32	.31	.97	1.04

a. Dependent Variable: ARC

Appendix J: Histograms and P-P plots

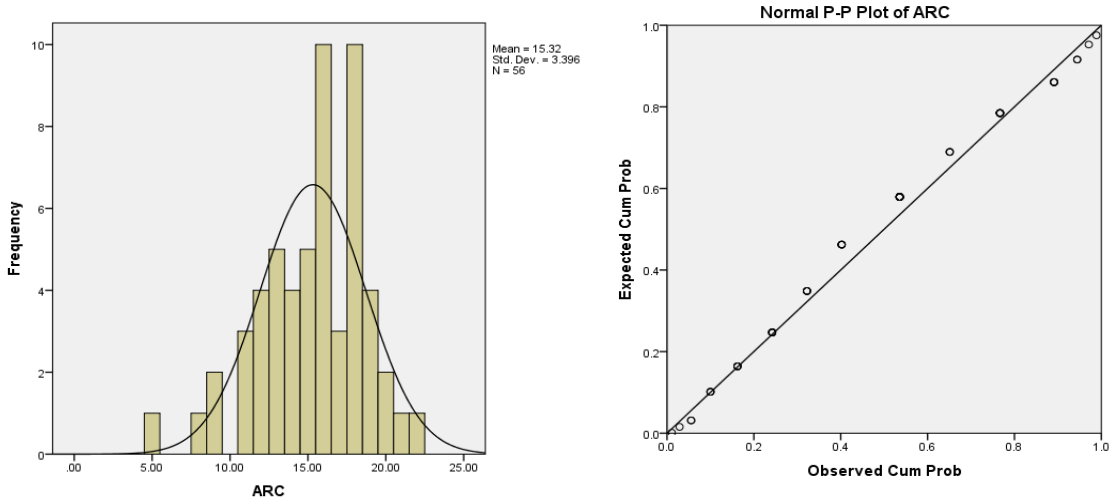

Figure 1. Histogram and P-P plot of affect regulation scores

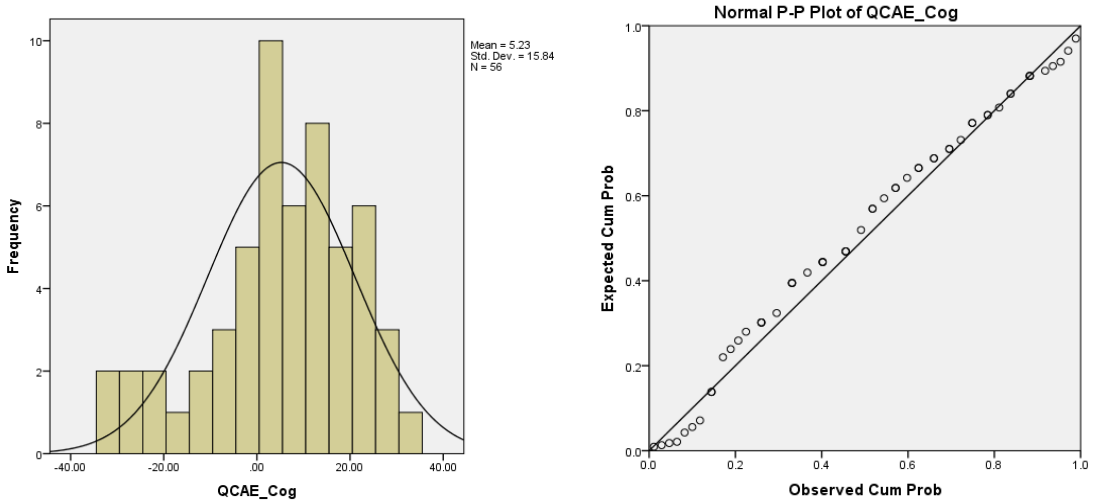

Figure 2. Histogram of cognitive empathy scores

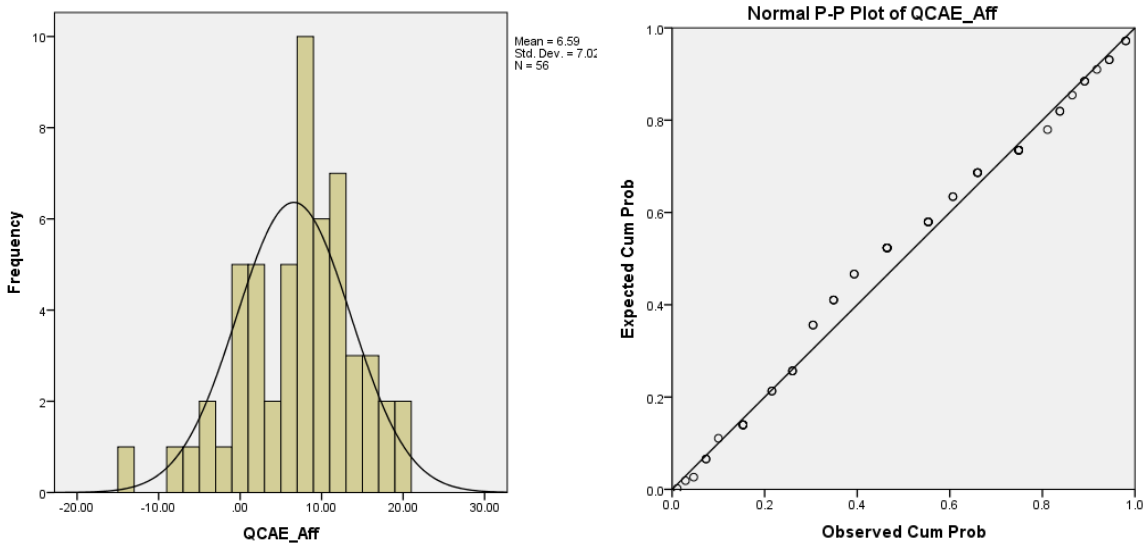

Figure 3. Histogram of affective empathy scores

Appendix K: Model Summaries with Only Significant Predictors

Table 15

Cognitive Empathy Model Summary with only Verbal IQ[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.27[a]	.07	.05	15.41	.07	4.13	1	54	.047

a. Predictors: (Constant), VIQ

b. Dependent Variable: QCAE_Cog

Table 16

Affective Empathy Model Summary with only Gender[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.38[a]	.14	.13	6.57	.14	8.86	1	54	.004

a. Predictors: (Constant), Gender

b. Dependent Variable: QCAE_Aff

Table 17

Affect Regulation Model Summary with only Parenting Style[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.35[a]	.12	.10	3.22	.12	7.33	1	54	.009

a. Predictors: (Constant), PSDQ

b. Dependent Variable: ARC