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***Parenting styles and their impact on children's academic self-concept,  
behavioural problems and executive functions***

Hoshiar Sadiq Muhammad Sangawi

A thesis submitted for the degree of Doctor of Philosophy in the Department of

Psychology at Durham University

April 2017

## Table of Contents

List of Tables.....	5
List of Figures.....	6
Declaration .....	7
Statement of Copyright .....	7
Dedication .....	8
Acknowledgements .....	9
Thesis Abstract .....	10
Publications included in this thesis.....	12
<b>Chapter 1: Introduction.....</b>	<b>13</b>
<b>Chapter 2: Literature Review .....</b>	<b>19</b>
2.1 Parenting Style .....	19
2.2 Child Self-Concept.....	21
2.2.1 Models of the Academic Self-Concept/Achievement Relation.....	24
2.3 Child Behaviour Problems:	
2.3.1 Definition of Behavioural Problems.....	28
2.3.2 Types of children's behaviour problems .....	28
2.4 The Role of Parenting Styles on Children Academic Self-Concept and Behaviour.....	29
2.5 The Effects of Parenting Styles on Behavioural Problems in Primary School Children: A Cross-Cultural Review	
2.5.1 Introduction.....	31
2.5.2 Methods of the Review .....	34
2.5.2.1 Search Strategy .....	34
2.5.2.2 Selection Criteria .....	34
2.5.3 Results.....	35
2.5.3.1 Search Findings .....	35
2.5.3.2 Study Characteristics .....	36
2.5.3.3 Outcome Measures Used (Parenting and Behavioural Problems)	36
2.5.3.4 Study Outcomes.....	37
2.5.4 Discussion.....	41
2.5.5 Conclusion .....	45
2.6 The Effects of Parenting Programmes on Psychological and Behavioural Outcomes.....	46
2.7 Are the Positive Changes Created by Parenting Trainings Maintained Over Time? .....	49
2.8 The Effectiveness of Parenting Interventions among Disadvantaged Families.....	52
2.9 Do Parenting Interventions Produce Similar Results for Individuals in Developing Countries? .....	53

2.10	Child Executive Functions:	
2.10.1	What is 'Executive function'?	55
2.10.2	Significance of Executive Function	55
2.10.3	Development of Executive Function	62
2.10.4	Parenting Styles and Executive Function	64
2.10.5	Executive Function and Hyperactivity	66
2.10.6	Cultural Belief to Executive Function	69
2.11	Summary	70

## Chapter 3: Study One

### Study 1: The Impact of Parenting Styles on Children Developmental Outcome: The Role of Academic Self-Concept as a Mediator

3.1	Abstract	73
3.2	Introduction	74
3.3	Background of the Kurdistan Region	76
3.4	History of Learning and Education System in Kurdistan	76
3.5	Method	78
3.5.1	<i>Participants</i>	78
3.5.2	<i>Procedures</i>	78
3.5.3	<i>Measures</i>	79
3.5.4	<i>Statistical Analyses</i>	83
3.6	Results	84
3.6.1	<i>Descriptive statistics and preliminary analyses</i>	84
3.6.2	<i>Regression analyses</i>	88
3.6.3	<i>Mediation analyses</i>	92
3.6.4	<i>t-test analyses</i>	95
3.7	Discussion and conclusion	97

## Chapter 4: Study Two

### Study 2: The Effects of a Parent Intervention on Behavioural and Psychological Outcomes for Kurdish Parents and their Children: A Randomised control Pilot Trial

4.1	Abstract	104
4.2	Introduction	105
4.3	Method	108
4.3.1	<i>Participants</i>	108
4.3.2	<i>Procedures</i>	108
4.3.3	<i>Measures</i>	110
4.3.4	<i>Study Design</i>	112
4.3.5	<i>Setting</i>	113
4.3.6	<i>Intervention (Treatment)</i>	113
4.3.7	<i>Statistical Analyses</i>	114
4.4	Results	115
4.4.1	Analysis one: Before the training session	115
4.4.2	Analysis two: Post training session	116
4.4.3	Analysis three: after three months Follow-up	118
4.5	Discussion and conclusion	124

## Chapter 5: Study Three

### Study 3: Individual differences in executive function: The role of parental monitoring as a Moderator

5.1 Abstract .....	129
5.2 Introduction .....	130
5.3 Method .....	133
5.3.1 <i>Participants</i> .....	133
5.3.2 <i>Procedures</i> .....	133
5.3.3 <i>Pilot study</i> .....	136
5.3.4 <i>Measures</i> .....	137
5.3.5 <i>Tests and materials of executive function</i> .....	138
5.3.6 <i>Statistical analyses</i> .....	142
5.4 Results.....	142
5.4.1 <i>Group differences</i> .....	142
5.4.2 <i>Moderation analysis</i> .....	146
5.5 Discussion and conclusion.....	149

## Chapter 6: General Discussion

6.1 Summary of findings.....	153
6.2 Theoretical implications .....	155
6.3 Strengths, limitations and future research.....	168
6.4 Implications for application .....	172
6.5 Conclusion.....	176
References.....	177
Appendix A.....	213
Appendix B .....	219
Appendix C.....	219
Appendix D.....	220

## List of tables

Table 3.1 Skewness and Kurtosis for the dependent variables.....	84
Table 3.2 Descriptive statistics and correlation matrixes between used variable....	87
Table 3.3 Regression Coefficients and Beta Weights for the association between Parenting styles subscales and academic self-concept .....	89
Table 3.4 Regression Coefficients and Beta Weights for the association between Parenting styles and behavioural problems independently.....	91
Table 3.5 Gender differences in parenting styles, academic self-concept and behavioural problems .....	96
Table 4.1 Demographic information for participants .....	108
Table 4.2 Reports Skewness and Kurtosis for the study sample (n=17) prior to the intervention .....	115
Table 4.3 Means, standard deviations and t-test of pre-test scores on the APQ and PPS.....	116
Table 4.4 Descriptive statistics of post-test scores on the APQ and PPS for both groups.....	117
Table 4.5 Group differences in APQ and PSS from pre-treatment to post training session.....	117
Table 4.6 Descriptive statistics of the APQ and PPS in follow-up time point.....	120
Table 4.7 Group differences in APQ and PSS from pre-treatment to follow-up....	121
Table 4.8 Descriptive statistics from base-line to post-tests for children.....	123
Table 4.9 Group differences in academic self-concept and behavioural problems among children.....	124
Table 5.1 Normality of the used variables in the study.....	142
Table 5.2 Mean differences in variables assessed by STOP-IT task between children with poor and good parental monitoring.....	143
Table 5.3 Mean differences in variables assessed by STOP-IT task between children with hyperactivity and control group .....	144

## List of figures

Figure 2.1 Shows multidimensional, hierarchic organisation of self-concept hypothesised by Shavelson et al. (1976) .....	24
Figure 2.2 Shows the search of included studied in the review .....	35
Figure3.1 Hypothetical model underlying the analyses conducted in the study.....	75
Figure 3.2 Shows the level of behavioural problems among Kurdish year six children .....	85
Figure3.3 Results from <i>PROCESS</i> shows indirect effect of parenting styles on behavioural problems through academic self-concept.....	95
Figure 4.1 Illustrates changes in parenting styles and parental stress between groups.....	122
Figure 5.1 shows flowchart of the sampling procedure.....	135
Figure 5.2 a, b and c. Moderating analysis of parental monitoring on the association between response inhibition, reaction time and accuracy (assessed by STOP-IT task) and hyperactivity.....	146
Figure 5. 3a, and b. Moderating analysis of parental monitoring on the association between response processing speed and verbal inhibition (assessed by MOW task) and hyperactivity.....	148
Figure 5. 4. Moderating effect of parental monitoring on the association between task persistence and hyperactivity.....	148



## **Declaration**

The material in this thesis has not been accepted in contribution to any other degree, and is not being submitted for a degree in this or in any other institution. The material in this thesis is my own independent work except where otherwise indicated.

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## ***Dedication***

*I dedicate this work:*

*To my wonderful parents, to my  
loving wife without whose support  
this thesis could not  
have reached this stage, and to my  
children Anas and Lilyan who have  
been very patient when Daddy was  
busy doing his studying.*

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## Thesis Abstract

Parental styles have a significant impact on children's developmental outcomes. It could be argued that negative parenting characteristics, including strictness, neglect, control, punishment, and lack of support potentially impact child academic self-concept, behavioural problems as well as child's cognitive abilities. The current thesis examines this question in Kurdish primary school children.

This thesis comprises 6 chapters: **Chapter 1 and 2** consist of an introduction and literature review about the topic. **Chapter 3** reports *study 1* which examines parenting styles and their relationship with academic self-concept and behavioural problems. This chapter also considers whether academic self-concept serves as a mediator in the relationship between parenting styles and behavioural problems. In support of previous studies, results indicate a vital role of parenting styles on children's academic self-concept and behavioural problems among Kurdish children. The results also indicate that academic self-concept serves as a significant mediator in the relationship between parenting styles with prosocial behaviour and internalising problems.

**Chapter 4** reports *study 2*, which is an intervention study. This study tests the impact of Systematic Training for Effective Parenting (STEP) programme to improve parenting styles and decrease parental stress. After three months a follow-up study was carried out in order to examine the effectiveness of the STEP programme. It was found that the intervention was effective in promoting parenting styles and reducing the level of parental stress in Kurdish mothers. The follow-up study showed that the changes were sustained over a three months period. However, contrary to expectation, no significant statistical differences were found in academic self-concept and

behavioural problems between children whose mothers attended STEP and others whose mothers did not attend.

**Chapter 5** reports *study 3* in which the individual differences in executive functions based on the parental monitoring and hyperactivity expressed by children was investigated. Additionally, a moderating role of parental monitoring in the relationship between children's executive function and hyperactivity was performed in this study. Results indicated that children subjected to poor parental monitoring and showing a high level of hyperactivity had difficulties in inhibitory control, accuracy, processing speed and task persistence compared with the matched sample. *PROCESS* analysis indicated a significant moderating role of parental monitoring in the association between accuracy, verbal inhibition and task persistence with hyperactivity.

The last chapter, **Chapter 6**, summarizes the findings of the empirical studies and provides the discussion, conclusion, limitations, implications and suggestions for future research.

### **Publications included in this thesis**

1. Sangawi, H., Adams, J., Reissland, N., Jaff, R, A., Ahmmad, Y.K., & Abdulrahman, B.S. (2014). Single-sided Kurdish version of SDQ for parents or teachers of 4-17 year old. *Youth in mind*. <http://www.sdqinfo.com/>
2. Sangawi, H., Adams, J., & Reissland, N. (2015). The effects of parenting styles on behavioral problems in primary school children: a cross-cultural review. *Asian social science.*, 11(22), 171-186.
3. Sangawi, H., Adams, J., & Reissland, N. (2016). The impact of parenting styles on children developmental outcome: the role of academic self-concept as a mediator. *International journal of psychology*. <http://dx.doi.org/10.1002/ijop.12380>
4. Sangawi, H., Adams, J., & Reissland, N. (In press). The Effects of a Parent Intervention on Behavioural and Psychological Outcomes for Kurdish Parents and their Children: A Randomised Control Pilot Trial. *Eastern Mediterranean Health Journal*
5. Sangawi, H., Adams, J., & Reissland, N. (Under review). Individual differences in executive function: The role of parental monitoring as a Moderator

## Chapter One: Introduction

There is widespread evidence demonstrating the effect of parenting styles on children's developmental outcomes, including academic self-concept, behaviour problems as well as executive function (Ali & Frederickson, 2011; Baumrind, 1991; Batool & Bond; 2015; Chang, Schwartz, Dodge, & McBride-Chang, 2003; DeDonno & Fagan 2013; Gámez-Guadix et al., 2011; Merz et al., 2015; Meuwissen & Carlson, 2015; Nelson, Robinson, Olsen, & McNeilly-Choque, 1998; Kim & Chung, 2003; Raboteg-Šari , Rijavec, & Brajša-Žganec, 2001; Rochette & Bernier, 2014; Scharf, Wiseman & Farah, 2011; Stevens, Vollebergh, Pels, & Crijnen, 2007).

*Parenting styles* are defined as patterns of behaviour that primary caregivers employ to interact with their children (Besharat, Azizi, & Poursharifi, 2011). A growing body of research suggest that parenting styles strongly impact children academic self-concept. The term of *academic self-concept* is typically referred to a “person's perception of self with respect to achievement in school” (Reyes, 1984, pp. 559). It has been argued that involving parents in their children's schooling has a significant impact on children's school attainment, supporting pro-social behaviour and helping children to construct their self-concept (Desforges & Abouchaar, 2003). This is supported by Nishikawa, Sundbom and Hägglöf, (2010) whose study observed that emotional warmth from mothers was positively related to academic self-concept. Similarly, among 655 9<sup>th</sup> to 12<sup>th</sup> grade adolescences it was found that family support, such as listening to the child, respecting the child's decisions, supporting the child in doing things, had a large positive effect on children's self-concept (Hoelter & Harper, 1987). McClun and Merrell (1998) administering a multidimensional self-report measure to 198 children, reported that self-concept scores of children raised using an authoritative parenting style were higher than in children raised by parents using a

permissive or authoritarian style. This is supported by DeDonno and Fagan (2013) whose study observed that parents who praise and are involved in their children's school activities tend to have children with higher academic self-concepts. Lau and Leung (1992) recruited a sample of 1,668 Chinese secondary school children to investigate the impact of parental relation with their children. They found that children who had a good relationship with their parents scored higher on a number of measures of self-concept including physical, social, and academic self-concepts. In sum, positive parenting techniques are central to helping children develop their academic self-concept.

Not only do parenting styles play an important role in the development of children's academic self-concept they also are central factors in a child's behavioural problems (Essau et al., 2006; Gorya & Sabah, 2013; Huntsinger & Jose, 2009; Nishikawa et al., 2010a). More specifically, in a study reported by Stanger et al. (2004) it was indicated that parenting dimensions (e.g., parental involvement and positive parenting, including warmth, praise, appropriate discipline, guidance and spending time together with the child) were significantly correlated with their children's behavioural problems. Additionally, Steinberg, Mounts, Lamborn and Dornbusch (1991) demonstrated that individuals who are living with democratic parents show less stress, psychological problems and are less likely to show deviant or antisocial behaviour. A study by Chan and Koo (2010) in the United Kingdom revealed that authoritative parenting style contributes to the children's well-being, school achievements, and a lower risk of being involved in fights or having a drug addicted friend. A longitudinal study of 352 children from kindergarten to 2<sup>nd</sup> grade illustrated that low support and high levels of control by parents were related to children's attention and externalising problems (Gadeyne, Ghesquière, & Onghena,



2004). This was also shown in a study conducted in Algeria in which 168 parents of pre-school children were recruited to test the relationship between negative parenting dimensions and children's behaviour problems. Their results showed that authoritarian and neglecting parenting styles were positively and significantly related to behaviour problems especially in the child's expression of anger and aggression (Atrous, 2010). Overall, the findings emerging from the above studies point to the preliminary conclusion that parenting styles play a significant role in children's behavioural problems.

Examining a more specific area of child functioning, parenting styles have been found to be essential factors in predicting executive function skills of children (Alaniz, 2015; Holochwost et al., 2016; Rochette & Bernier, 2014; also see section 2.10.4 for more details). Coddington, Lewandowski and Gordon (2001) define *executive function* as an "ability to control oneself, whether that involves motor, memory, attention, motivation, or planning functions" (p. 2). Previous research found that lower levels of inhibition, planning and working memory problems in preschoolers were significantly associated with high levels of maternal sensitivity and positive maternal discipline (Kok et al., 2014). Furthermore, Meuwissen and Carlson (2015) examined the role of two parenting dimensions (paternal autonomy and controlling parenting style) on executive function composite for their preschool children. The results showed that paternal autonomy was positively and controlling parenting style was negatively associated with children's executive function abilities. To summarize, fostering a child with less negative parenting (such as neglect and harsh discipline) as well as with more positive styles (such as high levels of warmth and support) can help children to grow in their academic self-concept and executive function and decrease their social and behavioural problems.

Based on the aforementioned studies it is possible to conclude that negative parenting styles have significant role in negatively shaping children's psychological and behavioural outcome. It is important to acknowledge however that, negative parenting styles can be improved as a result of attending parenting programmes (Fennell & Fishel, 1998; Larson, 2000; Pan & Wu, 2008). Furthermore, the effectiveness of parenting programmes, especially the STEP programme, has been found in the study of Landerholm and Lowenthal (1993). Their study result showed that participating parents were more involved in their children's activities than those who did not. Some improvements in parenting styles, parental stress, children's behaviour, self-concept and academic achievement have been noted as a consequence of attending parenting programmes (Bradley et al., 2003; Burnett, 1988; Davis, 1994; Hammett, Omizo, & Loffredo, 1981; Huebner, 2002; Scott et al., 2014). Therefore, it can be concluded that parenting programmes can potentially play an important role in the psychological and developmental wellbeing outcomes for both parents and their children.

Previous studies report contradictory findings regarding the effect of cultural contexts on parenting style outcomes. For example, in a study conducted by Stormshak, Bierman, McMahon and Lengua (2000) demonstrated that punitive discipline (yelling, nagging and threatening) was more strongly associated with child behaviour problems in European American than African American families. Similarly, physically aggressive discipline strategy (e.g. hitting, beating) was found to be more strongly related to internalizing behaviour problems in European Americans than in African American children. Chao (2001) concluded that authoritative parenting styles have more effect for European American children than for their Asian American counterparts. In addition, Holochwost et al. (2016) investigated the

impact of parenting behaviors on executive functions across ethnic groups. In their study higher levels of executive functions were found to be predicted by higher levels of parental sensitivity only among European American, but not African American families.

However, in contrast to studies reporting data from Western cultures, an authoritative parenting style has a positive effect on social, academic performance and behavioral problems among some Eastern societies (e.g., Iranian and Chinese children) (Azimi, Vaziri, & Kashani, 2012; Chen, Dong, & Zhou, 1997). Another study examined the association between parenting styles and children behavioural problems among 108 African American female caregivers of three- to six-year-old children. The findings indicated that authoritative parenting was the strongest predictor of children lower behavioural problems (Querido, Warner, & Eyberg, 2002). Parent academic involvement has also been found to be positively associated with achievement for African Americans, whereas this was not the case for European American children (Hill et al., 2004). Thus, the findings show the influences of parenting styles are contradictory and inconsistent across cultures around the world.

### **Statement of the Problem**

Around the world a large number of children suffer because of negative parenting styles or maltreatment by adults. Negative parenting styles exist in all countries regardless of whether they are developed or developing countries. Several global organizations and research centres have illustrated these issues. For example, in Pennsylvania (USA) in 2011 (3,408) children from age 1 to 17 were neglected or abused, leading to 34 deaths. The report also showed the factor or “perpetrator” that

led to the deaths of those children was often a parent (43% fathers and 34% mothers) (Pennsylvania Department of Public Welfare, 2011 p.33).

Another study in the UK found that 13.4% of children aged 11-17 reported that they had experienced severe negative treatment by a parent or guardian (Radford et al., 2011). In addition, a high prevalence of corporal punishment was reported by 1,071 Spanish university students. Specifically, more than 60% of the participants reported to be physically hit by their parents at the age of ten (Gámez-Guadix, Straus, Carrobbles, Muñoz-Rivas, & Almendros, 2010). As regards the Kurdistan region of Iraq (KRG), the lack of organizations to conduct studies on parental behavior is one of the issues in Kurdish society. An indication of the problem is that a cross-sectional study of 275 college students found that 20% of students reported that before the age of 17 they encountered negative treatment (e.g., neglect, physical and emotional). Furthermore, the study found that 26.4% of males and 18.8% of females had been left at home alone during their childhood (Saed,Talat, & Saed, 2013). Due to the fact that there is no empirical research up to date on the effect of parenting styles on academic self-concept, behavioural problems and executive functions among Kurdish school children, it is not clear to what extent parenting styles affect those children's psychological outcomes. The main purpose of the current research therefore is to address this issue.

## Chapter Two: Literature Review

### 2.1 Parenting Styles

Over the past four decades research linking parenting styles to children's behavioural outcomes has been reported in the literature. Baumrind (1991) classified four styles of parenting as being authoritarian, authoritative, permissive, and rejecting-neglecting. These styles were based on two indices of responsiveness and demand. An *authoritarian* parent is a restrictive and punitive parent who tries to control and restrict a child's autonomy. Furthermore, an authoritarian parent-child relationship is characterised by obedience, little warmth or flexibility, authority and little verbal exchange are present in this style. This type of parent when interacting with their child exhibits high levels of control and demands, as well as low levels of responsiveness and communication (Baumrind 1966; Reitman, Rhode, Hupp, & Altobello, 2002). In contrast, *authoritative* parents are characterized by high demand and responsiveness, attempts to direct, shape and evaluate children's behaviour in a positive and socially responsible manner. Warmth, autonomy, support, good nurturing, and verbal exchange are valued by this type of parent (Baumrind 1966, 1991; Darling, 1999; Reitman et al, 2002).

One should note that both authoritarian and authoritative types of parents place high demands and parental rules on their children. However, the difference is that in an authoritarian parenting style children must accept parents' decisions and judgments without questioning. In addition, this parent also has a high level of psychological control. Consequently, although children of authoritarian parents tend to do well in school, they have low levels of self-esteem, social skills, and may suffer

to a significant extent from psychological ill health. In contrast, authoritative parents are more flexible and tend to explain reasons for their decisions; they tend to use lower levels of psychological control and are also more democratic and forgiving when their child fails in a particular subject (Azimi, et al., 2012; Darling, 1999; Kaufmann et al., 2000).

A *permissive parenting* style is characterized by high levels of communication and responsiveness but low levels of demand placed on the child. Demands of obedience, power and control are minimally used in the permissive parenting style, and the child is allowed to organize and regulate their own activities. Such a parent does not establish rules for their child's behaviour. Although, children's school attainment in the permissive style engagement may be lower compared to the authoritarian parenting style, these children exhibit high self-esteem, social skills, and low levels of stress (Baumrind 1966; Darling, 1999; Reitman et al, 2002; Turner, Chandler, & Heffer, 2009). *Rejecting-neglecting* parents show low responsiveness, and demand very little of their children. In this style children are not supported, monitored and engaged in their academic work. Children also have difficulty achieving academically and they tend to exhibit more internalizing and externalizing problems (Baumrind, 1991; Bornstein and Zlotnik, 2009).

Although a number of studies have adopted other models of parenting, most of them are derivative of Baumrind's four types of parenting styles. For example, some studies include concepts of warmth, rejection, structure, chaos, autonomy support, and coercion (Skinner, Johnson, & Snyder, 2005); affection, behavioural and psychological control (Aunola & Nurmi, 2005; Barber et al., 1994); physical and harsh corporal punishment (Deater-Deckard, Dodge, Bates, & Pettit, 1996; Javo,

Rønning, Heyerdahl, & Rudmin, 2004; Simons, Johnson & Conger, 1994); and parental involvement, positive parenting (as a positive parenting technique) and poor monitoring/supervision, inconsistent and corporal punishment (as a negative parenting technique) (Shelton, Frick, & Wootton, 1996).

## **2.2 Child Self-Concept:**

Self-concept has been defined as "the totality of an individual's thoughts and feelings having reference to himself as an object" (Rosenberg, 1979.p.7). It has been argued that self-concept is learned and is shaped throughout life by repeated experiences, particularly with significant others (Purkey, 1988). Experiences with other people are crucially important in developing our ideas about ourselves. William James, (1890) and Cooley (1902) as cited in (Hayes, 2000) argued that social comparison and feedback from others have been shown to play a vitally important role in the development of self-concept. According to Cooley (1902), self-concept can be likened to a *looking-glass*, reflecting what individuals think or believe that other people think about them. This looking-glass concept of the self denotes two dimensions—an illustrative and an evaluative dimension. The illustrative dimension which refers to what we think other people see when they look at us, while the evaluation dimension consists of the judgements that we think other people are making about us (Hayes, 2000).

Furthermore, the term of self-concept has been considered from a variety of perspectives. For example, behavioural theorists view the self as a package of conditional responses (Sirgy, 1982). According to behavioural theory, which focuses primarily on environmental factors, an individual's behaviour is either the product of

reinforcement and punishment, or a response to certain stimuli in the environment. Consequently, perceptions of self can be shaped and influenced by environmental factors.

On the other hand, psychoanalysts regard self-concept to be the sum of internal self-conflict (Sirgy, 1982). Freud, the founder of psychoanalytic theory, proposed that the self is comprised of the id, which operates on the principle of maximising pleasure; the ego, which tries to strike a balance between the id and superego; and the superego, which conscience-driven and has the greatest impact on how we think about ourselves (Dolan, 2007; Sincero, 2012). Should the sum of this internal self-conflict between the id, ego and superego amount to a negative self-concept, Freud proposed that one will attempt to cover for this self-concept with any of a number of defence mechanisms. For instance, the mechanism of compensation refers to the process of ‘masking perceived negative self-concepts, or of developing positive self-concepts to make up for the perceived negative self-concepts’ (Dolan, 2007, p. 52).

Rogers proposed what became known as the humanistic perspective, which assumes the self to be a product of social interactions. As such, our interaction with others and with the wider society is considered an essential component of our individual personality and adjustment (Purkey, 1988). For Rogers, a person with high self-worth has positive feelings about themselves (McLeod, 2014). Self-image and self-worth are important elements of one’s self-concept (Hayes, 2000). Self-image includes information about the body, which influences one’s inner personality. It also refers how individuals see themselves and how they feel, think and behave in the world. Self-worth, on the other hand, is viewed in terms of internalised judgements and idea about our perceived worth (Hayes, 2000; McLeod, 2014). Rogers posits that



self-actualisation is the product of congruence between self-image and the ideal-self (i.e. we are who we want to be).

Generally, self-concept has been construed from a multidimensional perspective. According to Shavelson, Hubner and Stanton (1976) self-concept is a hierarchically ordered and multidimensional construct. “General self-concept” has been put at the apex of the pyramid, separated into academic self-concept and non-academic self-concept. Academic self-concept has been further divided into subject areas, such as English, history and mathematics. Non-academic self-concept is relating to the perception of oneself in the non-academic situations which consists of emotional, social and physical self-concept. Further subdivisions have been hypothesised in the model. For instance, the math self-concept can be further divided into distinct math topics, such as trigonometry, algebra or calculus and each of these topics can further be subdivided into specific components pertinent to each of the mathematical subjects (Marsh, 2006).

In everyday life, self-concept is considered an important factor influencing education, health, management, child development and sport/exercise sciences (Marsh, 2006). Research has showed that children with high self-concept tended to have more positive characteristics such as being cooperative, persistent in class, showing greater leadership and higher teacher expectations for their future success than children with low self-concept (Hay, Ashman & Van Kraayenoord, 1998).

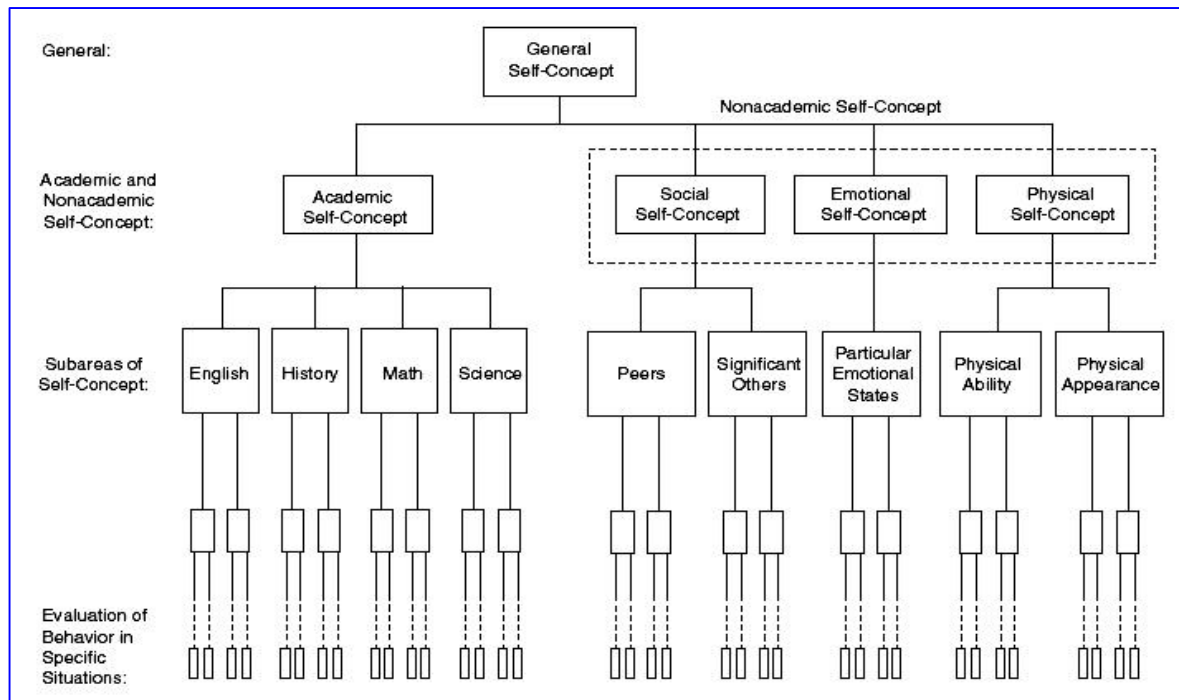


Figure 2.1. Shows multidimensional, hierarchic organisation of self-concept hypothesised by Shavelson et al. (1976)

### 2.2.1 Models of the Academic Self-Concept/Achievement

Although strong associations between academic self-concept and academic achievement have been established (e.g. Chen, Chiu, & Wang, 2015; Ghazvini, 2011; Khalaila, 2015), there is debate in the literature regarding the direction of causality between academic self-concept and academic achievement. Three perspectives have been proposed, namely the *self-enhancement model*, *skill development model* and *the reciprocal effects model*, suggesting the direction of causality (Calsyn & Kenny, 1977; Marsh, 1990a).

According to the *self-enhancement model*, academic self-concept is causally predominant over academic achievement (Calsyn & Kenny, 1977; Green, Nelson, Martin, & Marsh, 2006). This model assumes that increases in academic self-concept

lead to increases in subsequent academic achievement (Marsh & Martin, 2011). Based on this model therefore, academic self-concept is the most important factor and, students with low or negative academic self-concepts would be expected to be under-achievers. Conversely, students with a higher positive self concept have higher academic achievement (Caplin, 1969). Hence, this model suggests that substantial initial effort and time should be spent by teachers and professionals in order to increase the academic self-concept of children in an educational programme (Calsyn & Kenny, 1977). Empirical research supports this model. For instance, Gonzalez-Pienda et al. (2002) tested a structural equation model (SEM) approach among 261 a group of 12- to 18-year-old adolescents. They found that self-concept was statistically and predominantly associated with academic achievement, but the reverse was not found. Likewise, in the study Fin and Ishak (2014) academic self-concept was found to be a strong predictor for academic achievement amongst 493 tenth grade students in Malaysia. The authors concluded that higher academic self-concept might contribute to better academic achievement. In the study by Chen et al. (2015) data from 407 college students in Taiwan were collected. The results showed that academic self-concept was significantly and positively affect academic achievement.

In contrast, the *skill development model* posits that academic achievement is a primary determinant of the academic self-concept (Calsyn & Kenny, 1977; Marsh, 2006; Pinxten, De Fraine, Van Damme, & D'Haenens, 2010). This model proposes that academic self-concept is enhanced by developing stronger academic skills. Thus, according this model, teachers should mainly focus on enhancing their students' academic skills rather than their academic self-concept because degree of achievement affects the formation of self-concept, but not vice versa (Barker, Dowson, & McInerney, 2005; Pinxten et al., 2010). In a longitudinal study Calsyn

and Kenny (1977) compared self-enhancement and skill development models with 556 adolescents. The findings did not support the self-enhancement model; conversely, the skill development model was supported as it was found that academic achievement is causally predominant and has more impact over self-concept. Further support has been shown by Hoge, Smit and Crist (1994) in a two-year longitudinal study of 322 sixth and seventh grade students. The results of a structural equation approach showed that the effect from self-concept to grades was very weak, whereas, modest causal predominance from achievement to self-concept was noticed.

Different to the above models, Marsh (1990a) proposed the *reciprocal effects model (REM)*. This model, suggests mutual causality between academic self-concept and academic achievement and they reciprocally influence each other. Based on this model, any increases in academic self-concept will enhance academic achievement, and, similarly, improvement in academic achievement predicts higher academic self-concept (Barker et al. 2005; Marsh & Martin, 2011). Guay, Marsh and Boivin (2003) carried out a study to verify developmental trends between academic self-concept and academic achievement among elementary school children. The structural equation model indicated that academic self-concept has an influence on achievement (self-enhancement model) and also that achievement has an influence on self-concept (skill-development model), thus supporting the reciprocal-effects model.

Therefore, based on the models presented above considerable disagreement exists regarding the causal ordering of academic self-concept and academic achievement. Some methodological concerns of these studies, including sample size, age and grade may have influenced the explanation of the direction of causality. For instance Guay et al. (2003) found that the association between academic self-concept and achievement is stronger as children grow older. In addition, from the study of

Newman (1984) it was found that the effect of academic achievement on later self-concept occurs among younger children (e.g. grade 2 and 5), rather than older children (e.g. grade 10). Newman (1984) suggests that the causal relationship between achievement and self-concept is likely to depend on the children's age.

Indeed, the debate among researchers regarding whether academic self-concept influences academic achievement, or, achievement leads to academic self-concept, has been considered a “chicken and egg” question (Marsh, Hau, & Kong, 2002). Nevertheless, the reciprocal model is considered to be the best fitting model, and mostly supported in the literature (Guay et al., 2003; Jen & Chien, 2008; Marsh, 1990a). Thus, both academic self-concept and achievements can be considered as two most important variables in the educational settings. We can adopt the reciprocal effect model by concluding that the improvements of both academic self-concepts and achievements should not be ignored in the educational settings as they could mutually be a prerequisite to enhance each other. Based on this model teachers should attempt to enhance simultaneously both academic self-concept and achievement because the gains in students’ self-concept might be short-lived if teachers strive to improve academic self-concept without enhancing academic achievement. The gains of students’ academic achievement are also unlikely to be long lasting if teachers improve academic achievement without promoting students’ self-concept (Marsh, 2006; Green et al, 2006).

## **2.3 Child Behaviour Problems:**

### **2.3.1 Definition of behavioural problems**

Behavioural problems can be defined as expressions of child activity that are socially not considered acceptable; they are also defined as a reactive behaviour that is not up to the expectation of society (Jessor, Donovan, & Costa, 1991). Children with behavioural problems are considered to be at risk socially and academically (Chen et al., 2003). According to Gibbs, Underdown, Stevens, Newbery and Liabo (2003), children's behavioural problems have negative long-term impacts including mental health difficulties, criminal behaviour, relationship breakdowns, and drug misuse.

### **2.3.2 Types of children's behaviour problems**

Behaviour problems have been reported as either internalising, characterized by reacting negatively toward themselves or externalising, reacting negatively toward others. Examples of internalising problems are withdrawal, somatic complaints, emotional symptoms, anxiety/depression and feelings of loneliness. Problems associated with externalising are social problems, rule-breaking, hyperactivity, peer problems, attention-seeking and aggressive behaviour (Achenbach & Edelbrock, 1978, 1981; Goodman, 1997; Javo et al., 2004; Kerr et al., 2004; Mulvaney & Mebert, 2007; Stanger, Dumenci, Kamon, & Burstein, 2004).

## **2.4 The Role of Parenting Styles on Children's Academic Self-Concept and Behaviour**

A growing body of research suggests that parenting styles play a central role in children's developmental outcomes. More specifically, it has been found that parenting styles are a significant factor which contributes to the development of their children's academic self-concept (DeDonno & Fagan, 2013; Lau & Leung, 1992; McClun & Merrell, 1998). Niaraki and Rahimi (2012) also showed a significant effect of parenting style on children's self-concept among 91 Iranian children. Their results showed that children raised under an authoritative parenting style tended to have higher self-concept than those who were subject to permissive and authoritarian parenting styles. Furthermore, it was found that child's self-concept positively associated with parental warmth, but it was negatively related to parental punishment, rejection, and over-protection (Lin, 2004). Among 261 (12-18 years) adolescents, Gonzalez-Pienda et al., (2002) indicated that parental involvement was a variable that most positively affected their children's academic self-concept. Likewise, Hernandez (2010) found that parental monitoring was a significant predictor of academic self-concept. Therefore, the findings derived from the above studies support the notion that parenting styles affect children's academic self-concept.

Not only do parenting styles play a significant role in the development of children's academic self-concept they also have central role in child's behavioural problems. For instance, in a study reported by Stormshak et al. (2000) it was found that children exhibiting more oppositional and aggressive behaviour problems tended to have parents characterised by physically aggressive and low levels of positive involvement. In a similar study parental involvement was found to be a significant predictor of child's behaviour problems (El Nokali, Bachman & Votruba-Drzal, 2010). Furthermore, the relationship between parenting and relational aggression

behaviour (e.g. deliberately withdrawing friendships, excluding others from the peer group and spreading rumours to hurt others) has been shown in a meta-analysis based on 48 studies (28,097 children). It was demonstrated that positive parenting was related to less relational aggression. Harsh as well as uninvolved parenting behaviours were linked with increased relational aggression (Kawabata, Alink, Tseng, Van IJzendoorn, & Crick, 2011). Parental involvement, inconsistent discipline, and corporal punishment were also found to be significant predictors of child behavioural problems including hyperactivity and aggression (Garland, 2007). The author concluded that children showing more hyperactivity have caregivers who use more inconsistent discipline, corporal punishment and are less involved. Therefore, based on these studies it is evident that the nature of parent-child interaction is an important factor in a child's behavioural problems.

Other factors such as parenting stress and depression have also been considered to negatively influence the parent-child relationship (Deater-Deckard, Chen, & Mallah, 2013). According to Deater-Deckard (2004), stressed parents compared with non-stressed parents are likely to be harsher, feel less involved and employ punitive discipline with their children. Furthermore, it was shown that parenting stress is a predictor of dysfunctional parenting behaviours, which in turn it can lead to child behavioural problems (Morgan, Robinson & Aldridge, 2002). Further evidence reports that children's social competence, hyperactivity and antisocial behaviour were found to be clearly associated with negative parenting, parental depression and stress (Anthony et al., 2005; Garland, 2007; Scott et al., 2012). Thus, it is plausible to argue that when parents have less negative parenting styles and parental stress their children are more likely to have high level of academic self-concept and low level of behavioural problems.



## **2.5 The Effects of Parenting Styles on Behavioural Problems in Primary School**

### **Children: A Cross-Cultural Review**

#### **2.5.1 Introduction**

Parental strategy in rearing children has a significant impact on children's developmental outcomes. Theoretically, it could be expected that negative parenting characteristics, including strictness, neglect, control, punishment, and lack of support will potentially lead to subsequent child behavioural problems such as emotional problems and misconduct at school. The findings of a number of studies reveal an association between the quality of parenting styles and children's behavioural problems (Anthony et al., 2005; Aunola & Kurmi, 2005; Chang et al., 2003; Hart, Nelson, Robinson, Olsen, & McNeilly-Choque, 1998; Henderson, Dakof, Schwartz, & Liddle, 2006; Mulvaney & Mebert, 2007; Raboteg-Šari et al., 2001; Russell, Hart, Robinson, & Olsen, 2003; Stevens et al., 2007). More specifically, Barnes and Farrell (1992) found that parenting styles were significant predictors of behavioural problems, suggesting that positive parenting techniques such as high level of parental support and monitoring tended to have children who were less likely to exhibit drink problems, drug use, misconduct at school and deviant behaviour in general.

However, the presence of Negative parenting techniques such as poor supervision, inconsistent discipline and corporal punishment as described by (Shelton et al., 1996) may contribute to children displaying negative behaviours (Essau, Sasagawa, & Frick, 2006). In addition, Gámez-Guadix et al. (2010) found that parents using corporal punishment significantly increased the probability of their children expressing antisocial traits or negative behaviours. Further, Mulvaney and Mebert (2007) showed a significant correlation between corporal punishment and negative

behavioural adjustment among children. In addition, Van As and Janssens (2012) also proposed that the poor quality of parent–child interaction and the lack of parental support are related to children’s behavioural problems. Broadly speaking, an empirical body of literature has established that corporal punishment, characterized by screaming, yelling, shouting, slapping, and hitting a child, was found to be related to children’s behavioural problems. Overall, the findings emerging from the above studies point to the conclusion that negative parent-child rearing practices are associated with children’s behavioural problems.

Nevertheless, there is still debate in the literature of the relative importance of parenting styles in relation to cultural practices. Although some studies support an association between parenting styles and child outcomes, some evidence suggests that this relation may differ across cultures (Dai, 1999; Deater-Deckard et al., 1996; Huntsinger & Jose, 2009; Leung, Lau, & Lam, 1998; Polaha, 1999; Steinberg et al., 1991; Stormshak et al., 2000). For instance, physical discipline has been found to be positively associated with higher externalising and aggression scores in European American children, but in African American children this correlation was negligible and non-significant (Deater-Deckard et al., 1996). Chao (2001) reported that Chinese American youth raised in an authoritative parenting style did not show higher school attainment than their peers with authoritarian parents. Furthermore, it is suggested that a proportion of parents in Eastern and Islamic societies believe that parents should be firm and restrictive. The idea that an authoritarian parenting style is desirable may stem from the parents’ belief that this will lead to positive consequences for children’s social and academic lives, and lead to their children learning to value discipline, norms and social hierarchy (Alsheikh, Parameswaran, & Elhoweris, 2010).

However, inconsistent with the above notion in relation to Eastern culture, a study of 262 Syrian pre-school children showed that authoritarian, harsh, rejecting and neglectful parenting styles were negatively related to children's personal and social adjustment; whereas , democratic styles were positively associated with children's social adjustment (Muhriz, Ahmad, & Al-Atum, 2005). Contradictory findings indicate that the effect of varying parenting styles is mixed and possibly inconsistent, particularly among Eastern societies. Based on these differences in the effect of parenting styles across cultures it can be suggested that generalizations about parenting styles and their effect on children should be viewed with caution.

Moreover, it is important to note that much of the research of the parents' role on children's behavioural outcomes has been conducted among American families (Deater-Deckard et al., 1996; Kaufmann et al., 2000; Lau et al., 2006; also see a systematic review by Waller et al. 2013 in which 19 out of 30 included studies were conducted in the USA). Therefore, studies that evaluate the importance of parenting styles on children's behaviour in Eastern cultures are lacking. This is still the case today in spite of the criticism over a decade ago by Kim and Wong (2002, p. 185) who wrote:“ Today's parenting literature is dominated by concepts and measures based on Western cultures even though Asian cultures constitute approximately 60% of the worlds' population” . Therefore, evaluating the effect of parenting styles among Western and non-Western societies is essential in order to obtain information about “the full cultural range of socialization experiences” (Stewart et al., 2000, p. 336). Hence, the purpose of this review is to examine results of studies published in different cultures which have investigated the relationship between parenting styles and children's behavioural problems.

## **2.5.2 Methods of the Review**

### **2.5.2.1 Search Strategy**

The search of the literature was based on the following databases: Web of Knowledge, EBSCO, sycINFO and PsycArticles, Sciencedirect, JSTOR and Google Scholar. The search included studies published in English (or with available English translation) from 1990s to 2015. The following search terms were used: parenting, parenting styles, parental treatment, parenting practices, role of parenting, impact of parents, the relationship between parents, effect of parents on children behavioural problems, internalising problems and externalising problems. An initial literature search yielded 941 articles. Subsequent screening of titles and abstracts identified 86 potentially relevant studies. These were stored in full text for additional checks in order to further verify if they corresponded to the purposes of the review. This resulted in the inclusion of 21 studies meeting all inclusion criteria used in the current review.

### **2.5.2.2 Selection Criteria**

In this review the following criteria were used to the identified studies:

- Studies with parents who were diagnosed with clinical or psychological disorders were excluded (e.g., depression, bipolar or substance abuse), because their practices might differ from normal, non-clinical groups of parents.
- The current review included children ranged (6-12 years old). Studies that only focused on kindergarten, high school or college students were excluded. The studies that had a range of ages in their sample (e.g., 4-12 or 6-15) were included.
- Full text studies were required; unpublished studies, not written in English, published on website only and studies before 1990 were excluded.

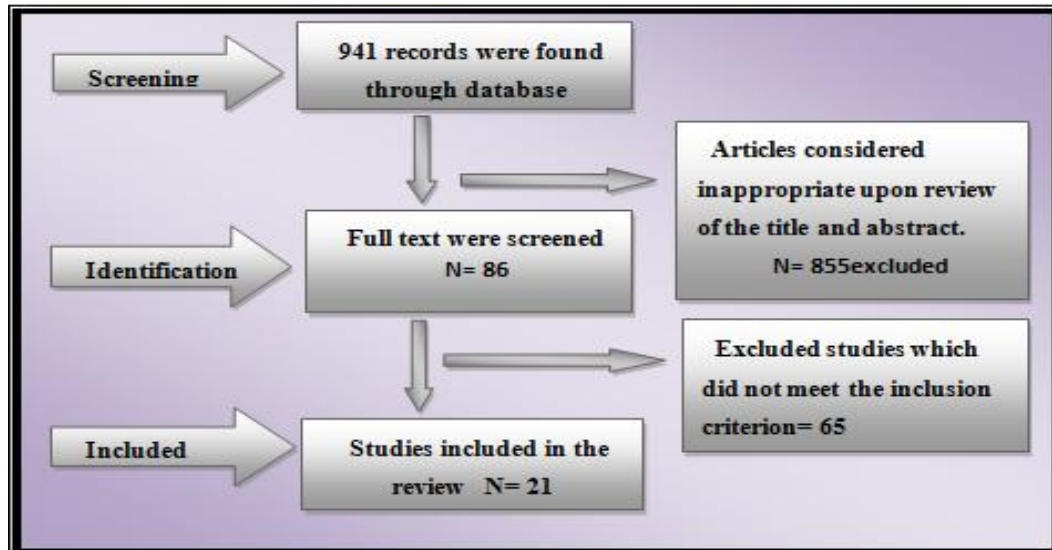


Figure 2.2 shows the search of included studied in the current review

## 2.5.3 Results

### 2.5.3.1 Search Findings

In total, 21 studies met the criteria (Ali & Frederickson, 2011; Alizadeh, Abu Talib, Abdullah, & Mansor, 2011; Aunola & Nurmi, 2005; Azimi et al., 2012; Barber, Olsen, & Shagle, 1994; Berkien, Louwerse, Verhulst, & van der Ende, 2012; Braza et al., 2013; Chen et al., 1997; Deater-Deckard et al., 1996; Fletcher, Walls, Cook, Madison, & Bridges, 2008; Goraya & Sabah, 2013; Ho, Bluestein, & Jenkins, 2008; Kaufmann et al., 2000; Lansford, Deater-Deckard, Dodge, Bates, & Pettit, 2004; Lau, Litrownik, Newton, Black, & Everson, 2006; McKee et al., 2007; Pereira, Canavarro, Cardoso, & Mendonca, 2009; Raboteg-Sari et al., 2001; Scott et al., 2012; Stevens et al., 2007; Yang, Kuo, Wang, & Yang, 2014). Appendix A provides an overview of these studies.

### **2.5.3.2 Study Characteristics (Setting, Sample Size, SES, Normality and Missing Data)**

Studies meeting the criteria were collected in America, Canada, Europe and Asia. Sample sizes ranged from 68 children in study of Ali and Frederickson (2011) to 14,990 (Ho et al., 2008). All reviewed studies provided information about children's gender with 48% female children. Ages of the children ranged from 4-7 years (e.g. Scott et al., 2012) to a wide range of 4-18 years (e.g. Stevens et al., 2007). Participating parents were predominantly mothers and information of demographic factors was provided in 19 reviewed studies, based largely on parental educational background and income levels. Demographic information was not reported in two studies (Alizadeh et al., 2011; Azimi et al., 2012). Normality of the data was reported in the study of Aunola and Nurmi, (2005) and Braza et al. (2013). Missing data were reported in 5 studies (Deater-Deckard et al., 1996; Lansford et al., 2004; Ho et al., 2008; McKee et al., 2007; Yang et al., 2014).

### **2.5.3.3 Outcome Measures Used (Parenting and Behavioural Problems)**

Different parenting self-reports or questionnaires were used in the reviewed studies. The Child Rearing Practices Report (CRPR) was used in three studies (Aunola & Nurmi, 2005; Chen et al., 1997; Kaufmann et al., 2000). The Children's Report of Parenting Behaviours Inventory (CRPBI) was used in two studies (Barber et al., 1994; Fletcher et al., 2008). The remaining 16 studies used a variety of parenting style questionnaires (see appendix A). In addition to using parenting styles questionnaires, in five studies home interviews were conducted to gather further information.

Behavioural problems were measured using various types of child behaviour questionnaires. The Child Behaviour Checklist (CBCL) by Achenbach & Edelbrock (1981) was a common questionnaire which was administered in eleven studies. The Strengths and Difficulties Questionnaire (SDQ) by Goodman (1997) was found in three studies (Aunola & Nurmi, 2005; Ali & Frederickson, 2011; Scott et al., 2012) in the UK and Finland respectively. The studies that assessed their own reliability reported internal consistency using Cronbach's alpha (Cronbach, 1951). Test-retest correlations were reported in three studies (Aunola & Nurmi 2005; Stevens et al., 2007; Pereira et al., 2009). Kuder- Richardson 20 (K -R 20) coefficient and Split-half reliability (Spearman-Brown) were reported in study of Aunola and Nurmi (2005).

#### **2.5.3.4 Study Outcomes**

Studies included in this review highlight the different parenting styles and their cultural effects on the behaviour of children. Two North American studies (Deater-Deckard et al., 1996; Lansford et al., 2004) revealed differences in the impact of physical discipline between different ethnic groups (European-American versus African-American). Lansford et al. (2004) reported that the relationship between physical discipline and high level of mother-reported externalising behaviour problems was significant among European-American children only. Deater-Deckard et al. (1996), using teacher- and peer-reports, found that the association between physical discipline and externalising behavioural problems was not significant for African-American children, whereas it was positive for European-American children. However, significant relationships were found for both ethnic groups when relying on mother-reported externalising behavioural problems.

The use of physical discipline on children was also reported to be higher among African-American mothers compared to their European-American counterparts (Lansford et al., 2004). However, Lau et al. (2006) found that physical discipline was equally prevalent among both racial groups. Fletcher et al. (2008) found that punitive disciplinary methods were positively and significantly associated with externalising behaviours and social problems. Moreover, a study by McKee et al. (2007) demonstrated positive associations between harsh verbal and physical discipline by mothers and fathers and both internalising and externalising problems among children. Parental warmth was negatively associated with internalising and externalising problems. The authors observed gender differences in the parental use of physical discipline, particularly in relation to sons. Whereas no differences were observed between fathers and mothers with respect to the use of harsh physical discipline with their daughters, fathers tended to physically discipline their sons more often than mothers.

Ho et al. (2008) reported a positive relationship between parental harshness and parental ratings of children's aggression among Canadian families of all ethnicities. However, when teacher-reports were used, this relationship was positive only for European Canadian families, but negative for South Asian Canadian families. No significant differences were found in the association between parental harshness and emotional problems among children across ethnic groups. However, in the study by Yang et al. (2014) no statistically significant results were found using teacher- based reports among Taiwanese children. In contrast, using parental reports, several correlations were found. For instance, children who reported low levels of paternal and maternal care had high levels of behavioural problems (e.g. attention problems, withdrawn/depressed, rule-breaking behaviour and aggressive behaviour).



In addition, strong positive correlations were found between physical discipline and externalising and internalising problems among some Pakistani children. However, parental warmth and involvement negatively correlated to externalising (Gorya & Sabah, 2013). These studies suggest that, while differences exist in the cross-cultural pattern of disciplinary approaches, few differences exist in relation to their effects on children's externalising and internalising behaviours.

However, we cannot conclude that children's behavioural problems are necessarily the result of harsh physical discipline alone. High levels of parental rejection, over protection and excessive control have similarly been found to be positively associated with children's behavioural problems. In contrast these relationships were reported to be negative when parents displayed high levels of emotional warmth and support (Barber et al., 1994; Berkien et al., 2012; Pereira et al., 2009).

Scott et al. (2012) in the UK reported that antisocial behaviour was related to negative parenting styles as characterized by harsh inconsistent discipline. Using a structured interview and questionnaire, the investigators explored the positive relationship between prosocial behaviours (e.g., concern for others and helpfulness) and positive parenting; however, they did not find any relationship using the interview measure. Moreover, the parents of White British children reported more serious antisocial problems than other groups including ethnic minorities based on the interview data; however, these reported antisocial problems were incongruent with the results of the questionnaire as completed by parents and teachers.

Another UK study (Ali & Frederickson, 2011) also illustrated a negative and significant correlation between parenting inconsistency and children's total

difficulties scores on the Strengths and Difficulties Questionnaire (SDQ) among a British Pakistani sample, but found no such correlation among a sample of Caucasian British mothers. However, they did not find any between (ethnic) group differences regarding the relationship between Total Difficulties Score and other dimensions of parenting (e.g., nurturance, physical punishment). The investigators concluded that, “more similarities than differences between the self-reported parenting dimensions of British-Pakistani and White mothers of primary aged children” (Ali & Frederickson, 2011, p. 324) exist.

Five studies included in this review describe different effects of parenting styles on children’s behaviour in the context of Baumrind’s definition of parenting styles. Chen et al. (1997) in a Chinese study of parenting styles found that authoritative parenting by mothers and fathers was significantly and negatively associated with greater childhood aggression; however, the relationship was positive when parents were in agreement concerning an authoritarian parenting style. Braza et al. (2013) revealed that there was a positive relationship between authoritarian maternal style and behavioural problems among a sample of Spanish children. Further, it was found that the combination of authoritarian (maternal and paternal) parenting negatively correlated to children’s externalising problems. In addition, studies by Alizadeh et al. (2011) and Azimi et al. (2012) in Iran showed negative associations between an authoritative style and children’s behavioural problems; whereas, the relationship was positive for authoritarian parenting. Similarly, Kaufmann et al. (2000) demonstrated that authoritative parenting among North American families was negatively correlated with children’s maladaptive behaviours, as characterized by behavioural and emotional problems. In contrast to other studies discussed, this relationship was not significant for authoritarian parenting style.

Furthermore, the impact of parenting styles on children's adjustment was not moderated by demographic factors (e.g., ethnicity, grade level, child's gender or family income). Specifically, Kaufmann et al. (2000) indicated that the effect of parenting on children's socio-emotional development was not moderated by ethnicity, supporting the view that, "predictive power of parenting style is similar across ethnic subgroups" (p. 242).

Several studies also describe the effects of parental monitoring on children's behaviour. In a study of Moroccan immigrants residing in the Netherlands, Stevens et al. (2007) reported a negative relationship between parental monitoring and internalising and externalising problems among adolescents, but not young children. In Croatia a study by Raboteg-Saric et al. (2001) found negative associations between parental monitoring and involvement and children's behavioural problems as indicated by school misconduct and cigarette smoking. The investigators reported that younger children were subject to a higher degree of parental involvement and monitoring than older children were. Furthermore, girls also tended to have higher score for parental monitoring than boys.

#### **2.5.4 Discussion**

Parenting styles have an impact on children's behaviour in ethnic minority groups, both in western and non-western societies. Studies described in this review confirm a relationship between parenting styles and child behaviour problems across ethnic groups (e.g., Deater-Deckard et al., 1996; Lansford et al., 2004). However, these differences are not necessarily attributable to ethnic characteristic alone; the methodologies of these studies may play a role in the reporting of the relationship between parenting styles and child behaviour problems. For example, Deater-Deckard

et al. (1996), found a positive relationship between physical discipline and behavioural problems only for European-American children based on teacher- and peer-reports. However, when mother-reported child externalising problems were evaluated, significant relationships were found for both European-American and African-American. Similarly, Ho et al. (2008), using teacher-reports, showed a positive relationship between parental harshness and parent-rated child aggression among European Canadians, but not among Southern Asian Canadian families. Likewise, in the study by Yang et al. (2014) no statistically significant results were found using teacher- reported behavioural problems; however, several correlations were reported between parenting styles and behavioural problems when using parents' statements. Further inconsistencies were apparent in the results of the questionnaire compared with interview findings of the study by Scott et al. (2012) in terms of the relationship between prosocial behaviours and positive parenting. Such discrepancies have been previously noted in the literature; for example in the study by Tao et al. (2010), it was noticed that the relationship between authoritarian parenting styles and externalising problems was stronger using parental rather than teachers reports.

Another possible methodological limitation of some studies reported is unbalanced sampling which led to under-representation of non-Caucasians. For example, in the study by Deater-Deckard et al. (1996) the sample distribution was 81% for European -American and 17% for African-American participants. Similarly, in the study by Lansford et al. (2004) the distribution of the study sample was 84% for European -American and 16% for African-American participants respectively. Therefore, it might be difficult to generalise the results to other ethnic groups due to the majority of participants being European American.

In addition, some studies (e.g., Raboteg-Saric et al., 2001; Stevens et al., 2007) found that the relationship between parenting style and behavioural problems was age related. Furthermore, the link between the child's age and parenting style has been reported in the literature within the same society. For example, Qarachatani (1997) demonstrated a tendency among some Kurdish parents to use authoritarian parenting styles while bringing up their children. Conversely, Ismail (2008) reported in a study of 391 Kurdish college age students in the Kurdistan-region of Iraq that participants often indicated that their parents tended to practice more democratic parenting styles. Therefore, the child's age might be considered to be a mediating factor of parenting styles.

Additionally, as shown in the studies of Braza et al. (2013), McKee et al. (2007) and Raboteg-Saric et al. (2001), gender may also influence parent-child interactions. Evidence suggests that there are gender differences in terms of parental use of physical discipline (McKee et al., 2007). In particular, boys are more likely than girls to receive harsh physical discipline, particularly by their fathers. Berkien et al. (2012) also showed that boys feel more maternal rejection than girls, whereas, girls tended to feel more parental emotional warmth than boys. Furthermore, almost half of the studies included in this review relied solely on mothers as informants, neglecting to include data from fathers. This oversight, constituting a form of bias, may affect the results as prior studies have indicated that mothers and father may exhibit marked differences in child rearing practices (McKee et al., 2007). The studies reviewed in this paper indicate that fathers and mothers play different child rearing roles, and that the relationship between parenting styles and behavioural problems varies with the gender of the child.

Furthermore, it is believed that some negative aspects of parenting style are subject to a social desirability bias (Botello-Harbaum, Nansel, Haynie, Iannotti, & Simons-Morton, 2008; Kaufmann et al., 2000). Multi-informant reporting may help to overcome some of the bias involved in single-informant studies. Therefore, collecting data simultaneously from teachers, parents and their children may be preferable to single-informant methods.

There is some suggestion that the punitive discipline or authoritative parenting style has less effect on children in non-European minorities (Stormshak et al., 2000; Steinberg et al., 1991). However, in this review we found strong associations between mother's harsh/physical discipline and mother's authoritative parenting style with behavioural problems among Eastern cultures (i.e., Pakistan, Iran and China). Specifically, the study of Alizadeh et al. (2011) in Iran showed that authoritarian parenting styles are positively related to childhood behavioural problems. Chen et al. (1997) in China showed that authoritative parenting styles are negatively related to childhood behavioural problems. In another Asian society, Yang et al. (2014) revealed that the lower level of parental care was significantly related to the high level of Taiwanese children's behavioural problems (e.g., attention problems, withdrawn/depressed, rule-breaking behaviour and aggressive behaviour). Therefore, these findings indicate that "good" parenting discipline may positively affect children within non-western cultures. They are also inconsistent with the notion that authoritative parenting style has few effects for non-western children.

The current review makes no assumptions about parenting styles being similar across cultures; neither does it deny differences in the consequence of parenting styles. However, we argue that this review indicates that certain

methodological problems may have skewed the results of some of the reviewed studies. For example, both Iranian studies (Alizadeh et al., 2011; Azimi et al., 2012) showed a significant effect of parenting styles on children's behaviour. However, the results of the study by Alizadeh et al. (2011) showed fewer associations between parenting styles and externalising behavioural problems, including aggressive behaviours, compared to Azimi et al. (2012). Therefore, these findings indicate that the effect of parenting styles cannot be generalised even within the same culture.

### **2.5.5 Conclusion**

This review identified studies which examined the association between parenting styles and behavioural problems in primary school children. Based on the review's criteria, 21 studies were included in the final review. Results of the review suggest that negative parenting styles toward their children may result in child behaviour problems. Evidence from some of the reviewed studies suggest that this impact may be culturally specific particularly for African and Chinese children. Eastern empirical studies showed that "positive" parenting styles have superior effects on the children's developmental outcomes. Interestingly, these results show that negative parents-child rearing practices have a negative impact on the children's behavioural problems not only in Western but also in Eastern societies. Moreover, it was shown from this review that certain demographic characteristics, such as socioeconomic status, the ages and gender of the children, as well as methodological consideration (e.g., sample size, sample balance, the use of interviews versus questionnaire and reporting sources) can influence the study results which may have contributed towards some inconsistency of the findings. The present review, however, has some limitations. The review was limited to school age children (i.e. 6-12 years

old) which may or may not be generalized to other age groups. Secondly, this review has focused on the correlational findings from studies. Although simple correlations demonstrate the existence of a significant association between parenting styles and child behaviour, causality cannot be attributed as potentially confounding variables are not controlled. Future cross-cultural research is needed in order to be able to compare the effect of parenting styles more reliably and on any possible moderating variables. Since negative behaviour in schools is linked to poor academic achievement, further research needs to examine the effects of children's behavioural problems as these have long term costs for society. Furthermore, as negative parenting styles have long term impact on child behavioural, social and academic aspects, further research regarding attending parents in parenting programmes can be useful in order to improve their parenting skills.

## **2.6 The Effects of Parenting Programmes on Psychological and Behavioural Outcomes**

There is consistency in the literature regarding the importance of the skills parents use to nurture their children. The U.S. Commissioner of Education, T. H. Bell (1975, p. 276) argued that "Every child has a right to grow up in a happy, loving atmosphere with parents trained in the knowledge and skills necessary to understand and meet his or her social, emotional, physical, and intellectual needs'. To that end, parent education, if needed, is defined as the "...purposive learning activity of parents who are attempting to change their methods of interaction with their children for the purpose of encouraging positive behaviour in their children' (Croake & Glover, 1977, p. 151). There is much research confirming that parenting programmes can improve



various aspects of family life. Bunting (2004) examined the findings from a number of systematic reviews which summarised the effect of a variety of parenting programmes. The results indicated that parenting programmes have a positive influence on improving behavioural and psychological outcomes for parents and children, including the child's behaviour, parent-child interaction and knowledge, maternal self-esteem and stress. There have also been improvements noted in parenting practices, parenting stress, children's self-concept, academic achievement and behavioural problems as a consequence of parenting interventions (Bradley et al., 2003; Burnett, 1988; Davis, 1994; Hammett, Omizo, & Loffredo, 1981; Huebner, 2002; Scott et al., 2014).

One of a variety of parenting programmes examined in the literature is the Systematic Training for Effective Parenting (STEP) by Dinkmeyer and McKay, (1976). STEP is considered to have a central role in improving parent-child interaction and promoting parental experiences by providing more knowledge and understanding about children's behaviour (Dinkmeyer, McKay, & Dinkmeyer, 1997). Studies which have empirically evaluated the effectiveness of the STEP include that of Larson (2000) who found that STEP resulted in a significant increase in authoritative parenting and a significant decrease in authoritarian parenting styles. Staying with parents, Brooks et al., (1988) found that there were improvements in parental attitudes toward children and a noticeable increase in parental confidence for the STEP group. Child rearing attitudes in parents were also positively enhanced after participation in a STEP group programme (Hammett et al., 1981). A meta-analytic approach to the efficiency of the STEP programme conducted by Gibson (1994) revealed that in general, STEP facilitates positive changes in parent and child attitudes, self-esteem, behaviour and change in parent-child interactions.

The effects of STEP have further been examined by Johnson (1990) who focused on specific parenting skills including feelings, attitudes and behavioural skills. Significant group differences in favour of the STEP groups were found, the author concluding that those parents who participated in STEP show more improvements in their overall parenting skills than those who do not. The benefits of the STEP were also shown by Huebner (2002) who found an improvement in the quality of the family environment alongside a significant decrease in parenting stress, particularly stresses which originated from parent–child interactions. Along similar lines, Al-Shopaki and Hamdi (2008) reiterated the effectiveness of the programme regarding a decrease in parental stress for those parents who attended the programme. STEP was also found to be effective in a pretest-posttest control group design study by Fennell and Fishel (1998). Their findings indicated that those who participated in STEP had more positive perceptions of their children's behaviour; they were also significantly less potentially abusive in comparison to those who did not attend STEP. Likewise, in a study of 56 parents attending a STEP programme, it was found that the intervention increased parental understanding of children's behaviour and facilitated more effective communication between them and their children (Sharpley & Poiner, 1980). In summary, the studies reviewed above indicate that participating in STEP is beneficial to parents, helping to improve their parenting styles and decrease parental stress.

All of the above studies provide evidence for the impact on parental outcomes but there is more to STEP than that. Substantial improvements in children's behaviour are also seen as a result of STEP. Wantz and Recor (1984) carried out a study with eleven families who participated in a 6-week STEP intervention. The results showed a noteworthy improvement in the children's behaviour as a result of

their parent's participation in the programme. In Larson's (2000) study, it was also found that parents perceived their teenage children's externalising behaviour as significantly reduced after participating in a STEP intervention. Al-Shopaki and Hamdi (2008) also pointed out that the intervention was effective at facilitating an improvement in psychological adjustment to those children whose parents attended the programme. Overall, the findings emerging from the above studies indicate that the STEP programme plays an important role for psychological and developmental wellbeing outcomes for both parents and their children.

## **2.7 Are the Positive Changes Created by Parenting Trainings Maintained Over Time?**

There is debate in the literature regarding whether positive gains due to participation in parenting interventions are sustained over time. Research has yielded varied results. The results of a meta-analysis by Barlow, Coren and Stewart-Brown (2002), found that parenting programmes can be effective in the short-term (up to 6 months) alleviating maternal depression, reducing stress, increasing self-esteem and improving the mother's relationship with her spouse. However, in Durlak and Wells' (1998) review, no significant within group changes in the mean scores from post-test to follow-up were found in thirty-five studies which collected follow-up data covering three different time periods ( 3, 5 and 24 months). Exploring this area in a little more detail, the research of some studies (e.g., Kozlowski, 1979; Schramm, 1990; as cited in Gibson, 1999) showed that although interventions such as STEP are effective for both parental and child outcomes, initial gains eroded considerably by the three-month follow-up testing period. This was particularly noticeable in the Parent Attitude Survey (understanding scale) and for personality traits (democratic,

social and personal style of interpersonal functioning). Of note Stewart-Brown et al. (2004) found that positive changes in child behaviour, parents' parental stress and self-esteem were sustained for both treatment and control groups in the 12 month follow-up. However, the authors proposed that these results might be due to the Hawthorne Effect as control group parents "reported taking more interest in their children's behaviour than they had previously done" (p.523).

In contrast, several studies have found that the impact and efficacy of parenting interventions can be sustained over a period of time. For example, Clarkson (1979) found that the positive changes in parent-child relationships due to parenting programme such as STEP were still evident at three months post intervention. Likewise, Webster-Stratton, Hollinsworth and Kolpacoff (1989) who reported reduced parental stress and improvements in child behaviour problems at the end of the intervention, found that these improvements were maintained when compared to baseline pre-treatment report data at one-year follow-up. In the study of DeSherbinin (1981) the parents from intervention group responded to eight-week follow-up interview. They reported changes in their own and their children's behaviour at home and school.

In another study by Webster-Stratton, Hollinsworth and Kolpacoff (1988), it was found that parents in the treatment groups reported significantly less spanking, fewer children's behavioural problems and more prosocial behaviour compared to the control group. Three years after this study, Webster-Stratton (1990) investigated the long-term effect for 83 mothers and 51 fathers who had already received the parent training programmes in the study of Webster-Stratton et al (1988). She found that parents reported a significant decrease in their total children's behaviour problems and an increase in prosocial behaviour at 3-years follow-up in comparison to base-

line data. For externalising problems, it was also found that improvements could be maintained long-term (for up to 3 years) in about 1/3 of parents.

The follow-up results from Hautmann et al. (2009) also indicated that improvements in outcomes variables were maintained up to the 1-year follow-up period, suggesting that positive changes in parenting and considerable decreases in child behavioural problems can be attributed to the effects of the programme. Reedtz, Handegard and Morch (2011) found significant differences from pre to post intervention between the control and intervention groups, with parents from the intervention group showing significant improvements in positive parenting, a decrease in the use of harsh discipline and a simultaneous decrease in children's behavioural problems. The authors concluded that the changes from pre-intervention to one-year follow-up in positive parenting and harsh discipline were maintained in the intervention group. Likewise, Posthumus, Raaijmakers, Massen, Engeland, and Matthys (2012) found that parents from an intervention group reported significant improvements in parenting (less harsh and inconsistent discipline), and these improvements were maintained 2 years after cessation of the training programme.

In summary, despite the fact that some studies found no sustained gains of the parenting programmes, other studies have concluded that the initial positive improvements in parent's and child's behaviour can be sustained for up to 3 years. These studies also suggest that maintenance of these positive changes in parenting and a reduction in children's behavioural problems can be attributed to the effects of the programmes.

## **2.8 The Effectiveness of Parenting Interventions among Disadvantaged Families**

It is argued that certain factors such as poverty and poor education are considered to be common risk factors, which in turn contribute to increases in emotional and behavioural difficulties in children and depression in parents (Mejia, Calam, & Sanders 2012; Rahman, Iqbal, Roberts, & Husain, 2009). It is also argued that parenting interventions have the least effect on behavioural and psychological outcomes among disadvantaged families. For example, from a meta-analysis of 63 studies that evaluated the ability of parent interventions to improve children's and parents' behaviour, it was found that children and parents from disadvantaged families benefited less from parent training compared to their non-disadvantaged counterparts (Lundahl, Risser, & Lovejoy, 2006).

Despite those somewhat discouraging results, other research has concluded that parent training programmes appear to be useful in improving parental psychosocial health at the same time reducing child disruptive behaviour for both disadvantaged and non-disadvantaged families, at least in the short term (Barlow et al., 2002; Leijten, Raaijmakers, Orobio de Castro, & Matthys, 2013). Support for this is found in the work of Gillette (1989) who conducted a study with twenty-four, young, low-income Puerto Rican mothers. The results revealed that the mothers in the treatment group reported significant improvement in their attitudes towards their children's behaviour, as measured by an adapted Adlerian Parental Assessment of Child Behaviour Scale (APACBS). A further systematic review by Eshel, Daelmans, Mello and Martines (2006) found that parenting interventions were beneficial, specifically for disadvantaged families, with regard to improvements in maternal responsiveness, thus promoting child health and development. Gibson (1994) argued that the STEP programme is very successful in improving parent and child attitudes,

self-esteem, behaviour and in promoting change in parent-child interactions, particularly with less well-educated parents. Therefore, it can be concluded from these studies that parenting interventions promote positive psychological and behavioural outcomes even among disadvantaged individuals.

## **2.9 Do Parenting Interventions Produce Similar Results for Individuals in Developing Countries?**

Parenting interventions are considered to be effective preventative strategies in high-income countries, but, to date there is a paucity of studies examining their efficacy in lower-income or developing countries (Mejia et al., 2012). It has been argued that parenting intervention can be effective in developing countries if the programme is delivered well (Tomlinson & Andina, 2015). A small number of studies investigating the impact of parenting programmes in developing countries have found positive effects. For example, in Ethiopia, Klein and Rye (2004) found that mothers in a treatment group were considered to be more responsive, sensitive and optimistic about their ability to affect their child's development in comparison to mothers in the control group. A systematic review by Knerr, Gardner and Cluver (2013), looking specifically at the effect of parenting interventions on parenting practices, examined a total of twelve studies which had been carried out in nine low- and middle-income countries. The findings suggest that parenting programmes can contribute positively to the improvement of parental knowledge and parent-child interaction in these countries.

Parenting interventions were also found to have some success among a few developing Muslim countries in the Middle East. For example, a study by Tehrani-Doost, Shahrivar, Gharaie and Alaghband-Rad (2009) which included 120 Iranian

mothers showed that the intervention had a positive effect on parenting styles, depression, anxiety, stress and children's behavioural problems. In a different study in Pakistan, 163 mothers were recruited by Rahman et al. (2009). They found significant improvements in positive attitudes and mothers' knowledge about their children's development for those in the intervention group. Al-Shopaki and Hamdi (2008) working in Jordan, examined the impact of parenting training on 60 Jordanian parents. The parenting intervention reduced parental stress and improved levels of psychological adjustment for both parents and their children. Therefore, it is evident that a variety of parenting training programmes can facilitate positive change for some parental and child developmental outcomes in developing countries.

In summary, there is a large body of research demonstrating the effectiveness of parenting programmes such as STEP for both parents and children. STEP is also a successful programme to use with disadvantaged families. Given the fact that the majority of past research has focused on examining STEP interventions in the West, it is not as clear whether this programme can provide similar positive changes for both parents and children in Eastern societies or Muslim countries. Nevertheless, some research has found some evidence to suggest that STEP is effective in changing children's developmental outcomes, particularly concerning behavioural problems. In addition, despite evidence from some studies that any immediate gains of parenting programmes, including STEP, cannot be maintained over time, several studies have concluded that the initial positive improvements in parent and child behaviours can be sustained for up to 3 years.



## **2.10 Child Executive Function:**

### **2.10.1 What is Executive function?**

Research on the types of actions performed has been classified in Psychology into two major types. The first kind includes habitual behaviours which involve automatic responses and may need a bit effortful process, such as driving to go home on a recognised road. The second kind includes adaptive or flexible responses to difficult or new situations, such as driving in an unfamiliar city. The term which is used to describe the second kind of action is executive function (Hughes, Graham & Grayson, 2004).

Researchers have established a difference between *cold* executive function (purely cognitive operation; e.g. working memory, or the ability to do mental arithmetic) and *hot* executive function which reflects the ability to regulate emotions (e.g., ability to control anger) (Encyclopedia on Early Childhood Development, 2013; Zimmerman, Ownsworth, O'Donovan, Roberts, & Gullo, 2016). Executive function is not a single and simply identifiable cognitive skill, but it is considered as an umbrella term which encompasses a set of higher order processes, including planning, mental flexibility, response–inhibition, information processing, self-regulation, persistence and working memory (Anderson, 2002; Barkley, 1997; Diamond, 2013; Hughes et al., 2004; Weyandt & Willis, 1994; Searle, 2013).

### **2.10.2 Significance of Executive Function**

Over recent decades, significant attention has been paid to the development of executive function. It has been argued that executive functioning plays an essential role in a child's behaviour, control of emotion and social interaction (Anderson,

2002; Chan, Shum, Touloupoulou, & Chen, 2008; Searle, 2013). The development of executive functioning throughout the school years is critical, and has been related to later social and academic development (Alduncin, Huffman, Feldman, & Loe, 2014; Best, Millerb & Naglieric, 2011; Ganesalingam et al., 2011).

Children displaying weak executive skills show problematic interpersonal skills, and have problems in terms of their social relationships, experience increasing frustration and generally struggle to manage their duties in everyday life (Anderson, 2002; Searle, 2013; Tuckman, 2009). Individuals with a low level of executive function may also react aggressively or impulsively when they become angry with a friend, instead of waiting to discuss the matter with them at a later time (Alaniz, 2015). Similarly, it has been argued that individuals with poor response inhibition might be impulsive and act out things without thinking (Diamond, 2013), which in turn may face a number behavioural problems such as antisocial behaviour and alcohol drinking and illicit drug use (Nigg et al., 2006; Swann, Lijffijt, Lane, Steinberg, & Moeller, 2009). Thus, overall executive skills are necessary in everyday life in terms of academic, social relationships and emotional aspects.

There is much theoretical discussion regarding which executive function elements are the most significant. Some models illustrate that inhibition has a central role in an individual's cognitive processes, for example Barkley's hybrid model of executive functions (1997a). This model proposes that other executive functions are put into action by behavioural inhibition. According to the model, such inhibition appears to be associated with other executive neuropsychological function skills, including: (a) working memory, (b) self-regulation, (c) internalising of speech, and (d) reconstitution (behavioural analysis and synthesis).

Barkley (1997a) has defined working memory as holding information or events in mind to direct later behaviour and manipulation of events. According to Barkley, working memory consists of two processes: retrospective function (understanding or remembering past events after they have occurred), and prospective function (forethought or predicting future events). Barkley and others scholars argue that children with ADHD have poor working memory, and therefore may have difficulty remembering or holding information in their mind (Barkley, 1997a; Kofler et al., 2011; Martinussen, Hayden, Hogg-Johnson, & Tannock, 2005). In addition, children with ADHD have difficulty controlling their behaviour in terms of time, and temporally monitoring or organizing their behaviour in relation to their sense of time (Barkley, 1997a;), which in turn may lead to difficulty in completing homework, household tasks, or other duties in a timely manner (Coddington et al., 2001).

The second executive ability in Barkley's model is self-regulation which is referred to the ability to manage one's emotions, cognitions and behaviours that allow individuals to control their immediate impulses for the benefit of their long-term goals. Self-regulation also allows individuals to have an appropriate plan for the future and persist at difficult tasks (Adams, 2014). It has been stated that aggressive behaviours and experiencing difficulties in healthy relationships with others are considered to be associated with individuals with poor emotion regulation skills (Mills & McCarroll, 2012). Barkley (2001) suggests that this function allows overt emotions from being expressed to become covert and regulated. According to Barkley (1997a), children with ADHD have poor inhibition, which leads to difficulty in modifying their emotional reactions and regulating their emotional state in an appropriate manner in certain situations. These individuals also display less anticipatory emotional reactions to future emotional events.

Internalising of speech is a third executive function which is considered by Barkley (2001) to be similar to verbal working memory. Operations related to this function include reflection, description, the creation of new rules for problem-solving, self-questioning and as a means of formulating rules and plans (Barkley, 1997a, 2001). The final executive function proposed by Barkley is reconstitution, which is rather apparent in verbal fluency and conversation. This function serves the ability to reconstitute parts of speech into complete messages for others. There are two main processes involved in this function: analysis, and synthesis (Barkley, 2001). Analysis breaks the old situation or behaviour down into its component smaller units; and synthesis is conceptualized to reorder or combine these units in order to construct a new approach or response set. According to Barkley (1997a, 2001), generating a variety of new combinations of behavioural units out of old ones can be made through these interacting processes. It has been noted that children with ADHD tend to have a poor ability for reconstitution (Barkley, 1997).

There is a hierarchical organization in Barkley's model, with behavioural inhibition at the top of the hierarchy, and the other four executive functions at a lower level. These functions are partially dependent on inhibition for their effective execution. Barkley (1997a) has argued that inhibition consists of three different processes: 1) inhibition of a prepotent or dominant response to an event; 2) interrupting or stopping of an ongoing response, which thus allows a delay in the decision to respond; and 3) interference control (or resistance to distraction), which protects this delay period from distracting by competing events and responses. Diamond (2013) argues that interference control allows individuals to focus on what they choose and suppress attention to other stimuli.

Barkley's model also predicts that any deficit in behavioural inhibition reduces "i.e. depletes" the other four executive abilities. Furthermore, Barkley (1997) has emphasized that children characterised by ADHD should be related to impairments in these four executive functions and the motor control they afford. Thus, Barkley's model assumes that ADHD children have a deficit in response inhibition, which in turn causes secondary impairments in the four aforementioned neuropsychological abilities that are moderately dependent on inhibition for their executive function. This hierarchical relationship in this model leads to the conclusion that any improvement in inhibition deficit can probably cause improvement in the other four executive function skills that partially depend on it, and also result in improvement in motor control; whilst the opposite is true for any deficit in inhibition (Barkley, 1997a). Likewise, inhibition has been considered to be important in motor control (e.g. stopping ourselves from batting a cricket ball pitched outside the off stump) and in cognitive control (e.g. suppressing an irrelevant thought or an inappropriate remark) (Logan & Cowan, 1984).

Supporting Barkley's view, other scholars (e.g. Anderson, 2002) have proposed that attentional control has an important impact over the other executive function domains. Anderson (2002) posited a theoretical model of executive function, termed the "executive control system" model. The model conceptualizes executive function as four different domains: *Attentional control*, *Information processing*, *Cognitive flexibility and Goal setting*. According to the model, there is significant impact of attentional control on the functioning of other executive domains. However, information processing, cognitive flexibility, and goal setting have been considered inter-related and inter-dependent. Anderson (2002, 2008) suggested that the attentional control domain contains the ability to address certain stimuli and inhibit

“proponent” responses. It also includes the capacity to “focus attention” over a long time period. Attentional control domain, moreover, has a role in monitoring and regulating actions, in order to effectively implement plans in the correct order, identify errors, and allow goal achievement. Deficiencies or impairments in this domain can cause individuals to be impulsive, unable to have self-control, fail with task completion, display inadequate responses and commit more errors.

*Information processing* also refers to fluency, efficiency and output speed in the proposed model. The information processing domain’s status can be assessed using speed as well as quantity and quality of the output. Shortfalls of information processing are delay in response, reluctance or hesitancy, reduced output and slowed reaction times (Anderson, 2002).

Furthermore, according to the model, the capability to shift amongst sets of responses, develop alternate strategies, learn from mistakes, divide attention, and process multiple information sources simultaneously is termed cognitive flexibility. Working memory is a component of the cognitive flexibility domain in Anderson’s model. Inflexible individuals have difficulty when faced with variation in procedures, and are not able to adjust to new requirements. Impairment in cognitive flexibility is due to preservative behaviour, with individuals displaying such behaviour breaking the same rules, continuing to perform the same mistakes, struggling to manipulate or recall previously presented information, and failing to adapt to new demands.

*Goal setting* is the last domain of Anderson’s model, and refers to the ability to develop new initiatives and ideas. It is also associated with the ability to pre-plan actions, and approach tasks in competent ways. Deficiencies in this domain are likely to cause poor abilities in arranging complex information and sequencing of stages in a logical manner, reflecting a lack of organization. It is also likely to cause poor

problem-solving capacity, inadequate planning, difficulties in developing effective strategies, and dependence on strategies that have been previously learned (Anderson, 2002, 2008).

In summary, a theoretical formulation of Barkley's model leads to two hypotheses: first, hyperactivity/ADHD is associated with poor response inhibition, which in turn leads to secondary impairments in the other four executive functions mentioned previously; and second, inhibition is an important component which is considered as an independent or primary executive function. Furthermore, based on Anderson's theoretical model, attentional control has also been suggested to have an important effect on the functioning of other executive domains. In addition, the other domains given in the model have bidirectional relationships, and interact with each other. According to Anderson's model, the attentional control domain contains the ability to address certain stimuli and inhibit "proponent" responses. Additionally, in comparison to the other four functions, inhibition is a superordinate function in Barkley's model. This is supported by Diamond (2013) arguing that the core executive function is response inhibition. Most researchers define it as "one's ability to deliberately inhibit dominant, automatic, or prepotent responses when necessary" (Miyake et al., 2000, p.57). According to other scholars it is also referred to as the suppression of actions that are inappropriate or no longer required in a given context (Verbruggen & Logan, 2008; Mostofsky & Simmonds, 2008). It is worth noting that the term inhibition is commonly used to describe a wide variety of functions (Miyake et al., 2000); however, in our study we adopt Barkley's definition regarding the notion of inhibition which is restricted to deliberate, suppress dominant or prepotent responses.

### **2.10.3 Development of executive functions**

There are well-documented changes in children's cognitive functioning during their development. Significant growth in executive function has been associated with particular periods of life. Early childhood (12 months to 5 years) is a time of rapid development in the component process of executive function ("The Emergence of Executive Function", 2014). There is significant development of the processes within the attentional control domain through infancy and early childhood. By the time of middle-childhood, there is relative maturity of self-control and self-regulation processes (Anderson, 2002). Empirical research has also shown that once children become older, their cognitive abilities appear to be more developed. For instance, in the study of Gerstadt, Hong & Diamond (1994), the inhibitory control of 160 children aged 3.5 to 7 years was examined. It was found that younger children (younger than 5 years old) had significant difficulty in inhibitory control, with a low percentage of correct responses in a day-night task. Additionally, in order to examine the development of attention and response inhibition, 40 children (20 5-year-olds and 20 7-year-olds) participated in the study of Bartgis, Thomas, Lefler and Hartung (2008). Older children (i.e. 7 years old) performed significantly better than younger children in an attention task; however, no significant difference was revealed in response inhibition. The authors suggested that in contrast to response inhibition, attention may improve between the ages of 5 and 7.

However, in contrast to these studies, it has been claimed that age related improvements in performance of executive functions slow down with age. For instance, Best, Miller & Naglieri, (2011) examined age-related changes in executive function amongst 2,036 children aged 5 to 17. They reported significant differences for both younger (5-7 years) and older age groups (8-17 years). Significant



improvements in performance were found amongst younger children for all tasks, whereas improvements for all tasks were not the case for the older children, with their performance generally slowing during adolescence. Best et al. (2011) concluded that executive function appears to have less rapid improvement at older ages.

Nonetheless, in the study of Davis, Bruce, Snyder and Nelson (2003), 20 adults (with a mean age of 22.1) and 21 six-year-old children were recruited. Slower reaction times and more response inhibition errors were seen amongst 6-year-olds compared to adults. However, in contrast to these studies, others (e.g. Searle, 2013, p.9) have claimed that “the level of a child’s executive function skills is not highly predictable by age because the developmental rate of the prefrontal cortex, which governs the function, can vary by a large degree from person to person”. Therefore, it is suggested that there is rapid development in executive function in young children, followed by moderate development in later childhood stages.

Some research suggests that development of executive function is associated with neurophysiological developments of the frontal lobe systems (Diamond, 1988; Welsh and Pennington, 1988). This development may be vital for assisting children in developing self-regulation during their early years (New & Cochran, 2007). In addition, Diamond (1988) argues that the capacity to hold two or more pieces of information in mind while simultaneously inhibiting strong response tendencies is a function of the dorsolateral prefrontal cortex. According to Diamond and Tylor (1996), the ability to inhibit a strong response tendency improves between 3-6 years of age, which may reflect significant changes within the frontal cortex during this time. Thus, based on this research, it is evident that the frontal lobes can affect the development of executive functioning.

It is important to note, however, that apart from the frontal lobe systems, there are also several social and psychological factors associated with executive function. Influential factors such as parental behaviour should not be neglected and may have a central role in the development of executive function skills (Alaniz, 2015; Rochette & Bernier, 2014; Roskam, Stievenart, Meunier & Noël, 2014).

#### **2.10.4 Parenting Styles and Executive Function**

The reviewed literature has mainly documented the impact of parenting on children's executive function (Bernier, Carlson & Whipple, 2010; Fay-Stammbach, Hawes & Meredith, 2014; Meuwissen & Carlson, 2015). It has been reported that positive parenting styles enhance child executive function development; with the opposite being true for negative parenting styles (Alaniz, 2015; Roskam et al., 2014). Children's cognitive development can be improved by high levels of monitoring and supportive parenting, which may include elaborating and explaining the rules children need to follow when performing a specific task (Roskam et al., 2014). Blinco (1992) also argued that parents have important role in transmitting the significance of persistence and creating home learning atmosphere for their children. In addition, Hughes et al. (2014) pointed out that parents are likely able to enhance their children's executive function skills by encouraging goal-directed activities. Furthermore, it has been stated that children reared by primary care providers through positive parenting methods exhibited a greater degree of emotional regulation and reactivity when compared to other children (Roskam et al., 2014). Thus, positive behaviour by parents promotes the child's social development.

Empirical research has also shown evidence to claim that social factors, including parenting styles, have a crucial influence on child executive function development. For instance, from a longitudinal study among 1,292 children between ages of 36 and 60 months it was found that parenting sensitivity and responsiveness strongly related to the children executive function, and they have a central role in the development of executive function (Blair, Raver, & Berry, 2014). Similarly, parenting discipline such as parental responsiveness is further considered to be essential factors to predict children cognitive skills (Merz et al., 2015). Additionally, Patock-Peckham, King, Morgan-Lopez, Ulloa and Moses (2011) found that parental monitoring is a significant factor which plays a role in individual's impulsiveness. From a longitudinal study among 114 mother-child dyads, Rochette and Bernier (2014) found that maternal behaviour was significantly associated with better child performance on executive function. Additionally, maternal involvement was found to be positively correlated with child self-regulation and cognitive competence (Brody & Flor 1998).

The result of the study by Alaniz (2015) also revealed that negative parenting (i.e. rejection) and positive parenting (i.e. emotional warmth) were significantly associated with children's executive function. Among 607 families, Lucasse et al. (2015) investigated the association between harsh parenting and sensitive parenting practices and three domains of children's executive functions (metacognition, inhibitory self-control and flexibility). The findings showed that harsher and less sensitive parenting were significantly associated with lower scores of inhibitory self-control and emergent metacognition, whereas, parenting was not related to child flexibility. Similarly, Chang et al. (2003) whose study examined 325 Chinese children and their parents, found that harsh parenting strongly affected children's

emotion regulation, in which this effect in turn lead to school-based behavioural aggression. Likewise, Potter et al. (2011) concluded that parenting style influences child executive behaviours. Specifically, they found that authoritarian parenting style has greater effects on negative child behaviour and it tends to cause greater executive difficulties among children. Therefore, parenting styles are possible key factors to explain cognitive impairment.

#### **2.10.5 Executive Function and Hyperactivity**

There are increasing numbers of studies reporting a relationship between ADHD and poor performance on executive function measures (e.g. Fischer, Barkley, Smallish, & Fletcher, 2005; Wodka et al. 2007). ADHD is considered as a neurodevelopmental disorder that can be defined by “impairing levels of inattention, disorganization, and/or hyperactivity-impulsivity.... Hyperactivity-impulsivity entails over activity, fidgeting, inability to stay seated, intruding into other people's activities, and inability to wait—symptoms that are excessive for age or developmental level” American Psychiatric Association (2013, P.32). Population surveys suggest that ADHD occurs in most cultures in about 5% of children. Regarding the diagnosis of ADHD, there is no single test that can be used. Most researchers depend on the Diagnostic and Statistical Manual of Mental Disorders DSM-V, 2013 in making psychological diagnoses for ADHD. According to the DSM-V, to have a formal diagnosis of ADHD, there must be six or more symptoms of inattention and/or six or more symptoms of hyperactivity-impulsivity for at least 6 months in more than one setting (American Psychiatric Association, 2013). Based on the number and type of symptoms, children are diagnosed with one of three subtypes of ADHD:

Predominantly Inattentive, Predominantly Hyperactive or Combined type. It should be noted that hyperactivity alone is not sufficient for positive diagnosis and behavioural markers are not specific. For example, each behavioural statement (talk excessively) is prefaced with the term “often” which can be interpreted in a variety of ways by different informants.

However, ADHD is a complex task as there are some factors that can affect the diagnosis of ADHD. Comorbidity is one of the issues that complicate the diagnostic assessment of ADHD and can frequently overshadow underlying ADHD symptoms (Iudici, Faccio, Belloni & Costa 2014; Cumyn, Kolar, Keller, & Hechtman, 2007). Children diagnosed with ADHD may display symptoms that coexist in other disorders in 70–80% of cases (Iudici et al., 2014). In childhood, frequently certain disorders that are considered to be externalizing disorders, such as conduct disorder and oppositional defiant disorder overlap with ADHD (American Psychiatric Association, 2013).

Furthermore, gender is another issue that must be taken into account when diagnosing ADHD. It has been shown that ADHD is more frequent in males than in females in the general population, with a ratio of approximately 2:1 in children (American Psychiatric Association, 2013). Previous research found that boys manifest higher levels of externalising behavioural problems, particularly hyperactivity than girls (Gaub & Carlson, 1997). Thus, under-diagnosing among girls may happen due to the fact that they mainly display internalizing symptoms which are less obvious. Further issues in diagnosing ADHD is that the assessments used to diagnose ADHD may be easily biased and lack standardization; for that reason the diagnosis can be found on subjective rather than objective ways (Iudici et al., 2014). Therefore, it is suggested that in evaluating children with ADHD some factors

including comorbid conditions, child's gender, multi-informant and developmental assessment of symptoms should be taken into account.

Returning to the association between hyperactivity and executive function, Fischer et al. (2005) recruited 147 hyperactive and 71 matched community controls to assess executive function. They found that the hyperactive group showed increased executive function deficits in the areas of inhibition, attention and reaction time compared with the control group. Similarly, the result of a study by Van Dijk et al. (2014) suggests that impaired response inhibition can be present among children with ADHD. In addition, Wodka et al. (2007) examined response inhibition among fifty eight children with ADHD and eighty four children without ADHD. The result showed that children with ADHD made significantly more errors than controls. The authors concluded that response inhibition appears to be a primary deficit in children with ADHD, as it is observed even when executive function demands of tasks are minimal. In a similar vein, Albrecht, Banaschewski, Brandeis, Heinrich and Rothenberger (2005) found deficits in behavioural response-inhibition among AD/HD children compared to the control group. Therefore, these studies suggest that attention and hyperactivity disorders are associated with deficits in executive functions.

Moreover, although there is a strong association between executive functions and hyperactivity, there is conceivably a causal relationship between these two variables. The direction of the relationship between executive functions and hyperactivity has been well established the literature. According to Barkley's model (1997a), problems in response inhibition is the core deficit in ADHD. Likewise, poor inhibition was found to significantly predict externalizing problem behaviours and ADHD symptoms (Bohlin, Eninger, Brocki, & Thorell, 2012). In addition, it has been

claimed that impairments in the executive functions may lead to behavioural problems (Hughes et al., 2004). Deater-Deckard, Petrill, Thompson and DeThorne (2005) also found that task persistence is associated with showing fewer signs of behavioural problems. Willcutt, Doyle, Nigg, Faraone, and Pennington (2005) conducted a meta-analysis of 83 studies that used executive function measures with groups of children and adolescents with (N = 3,734) and without (N = 2,969) ADHD. Significant impairments of response inhibition, vigilance, working memory, and planning were found for ADHD groups. Effect sizes for all measures fell in the medium range (.46 –.69). The authors concluded that “Difficulties with executive function appear to be one important component of the complex neuropsychology of ADHD” (p. 1336).

Therefore, it can be concluded that executive function is involved in complex processes that regulate behaviour. This conclusion is supported by the casual modelling by Morton and Frith (1995) showing that biological and cognitive levels affect behavioural problems including hyperactivity symptoms.

#### **2.10.6 Cultural Belief to Executive Function**

Cultural belief regarding children’s executive abilities is also considered to be an important factor. For example, in Japanese society there is a belief that the persistence of behaviour starts in early childhood and it should be reinforced during the educational process. They also believe that the economic and educational success is attributable to the persistence element of their children’s behaviour (Blinco, 1992). The study by Oh and Lewis, (2008) also found cultural difference among seventy-six (36- to 59-month-old) Korean preschool children and sixty-four (36- to 62-month-

old) English children in the UK. The findings indicated that the Korean children were performing better and show precocious performance in some executive tests compared with their English peers. In addition, in a cross cultural study between 107 Japanese and 86 American first-grade elementary school children, the Japanese children showed greater persistence than their American counterparts (Blinco, 1992). Thus, we can conclude that the child's cultural context (including parenting styles) may play a role in their performance of executive function tasks.

## **2.11 Summary**

The above literatures reviewed parenting styles, child's academic self-concept, behavioural problems, executive function and parenting programmes. The rationale behind working on these variables in the current thesis is that very few studies have explored the role of parenting styles on children's outcomes in a non-western society or Islamic countries (Alsheikh, et al., 2010). Some western studies showed that the presence of negative parenting techniques such as poor supervision, inconsistent discipline and corporal punishment contributed to children displaying negative behaviour (Essau et al., 2006), which in turn is linked to poor academic achievement (Adams, Snowling, Hennessy, & Kind, 1999; Gutman & Vorhaus, 2012). Pisecco et al. (2001) found that negative academic self-concept directly contributes to the increase of antisocial behaviours. As previously shown, academic self-concept has also been found to be an important prerequisite in educational settings. Thus, investigating these variables has several practical implications for Kurdish primary school children.



Since elevated behaviour problem scores among children could be linked to the psychological consequences of threatening, stressful experiences and living conditions (Ahmad et al., 2007), measuring the level of behavioural problems is important, especially as the children in this study live in a society (i.e. Iraqi Kurdistan) which is “still suffering from acts of violence, difficult life conditions and an uncertain future” (Ahmad et al., 2007. P.21). Furthermore, behaviour problems have been found to be significantly associated with social and academic problems (Chen et al., 2003). Likewise, children with externalizing problems have been found to have less positive self-concept, more conflicts with teachers and more negative attitudes in teacher relationships than children without behavioural problems (Henricsson & Rydell, 2004). Likewise, child executive functioning plays a significant role in a child’s academic development, behaviour and social interaction (Alduncin et al., 2014; Best et al., 2011; Chan et al., 2008; Ganesalingam et al., 2011; Searle, 2013).

It has been argued that some parents in the Kurdistan region need more support to improve their parenting skills, because based on some reports in 2014 ([www.goo.gl/EJ7Aqt](http://www.goo.gl/EJ7Aqt)) certain Kurdish children aged 3-12 years old were the victims of negative treatment by their parents, leading to the death of a 5 year old child. There is a large body of research demonstrating the effectiveness of parenting programmes such a STEP for both parents and children. STEP has also been found to be a successful programme to the facilitation of some positive improvements for parents and their children with disadvantaged families (Gibson, 1994). Therefore, it is argued that STEP programme can provide positive change for both Kurdish parents and their children.

In our studies, we recruited children aged 11–12 years old (i.e. early adolescence). Early adolescence is a critical stage characterised by considerable psychological, physical, behavioural, emotional and social change. According to the World Health Organization (2001), up to 20% of adolescents have one or more mental health or behavioural problems. In addition, psychological changes, such as pubertal timing, are also significantly correlated with increased mental health problems (Kaltiala-Heino, Marttunen, Rantanen, & Rimpelä, 2003). Therefore, research is needed to better understand adolescents' health and psychological wellbeing, elucidating upon the essential ingredients for building a strong sense of self and for developing into a healthy and productive member of society.

Regarding the sample selection, the participants in each of the studies were unique, with participants recruited for the study being excluded from participation in either subsequent study (i.e. there was no overlap in the samples for studies 1 and 3).

## **Chapter Three: Study One**

### **The Impact of Parenting Styles on Children Developmental Outcome: The Role of Academic Self-Concept as a Mediator**

#### **3.1 Abstract**

Although the importance of parenting styles directly influencing child development is well established, fewer studies have examined whether parenting styles also affect children's behavioural problems indirectly, mediated through children's academic self-concept. In this chapter we show study 1 which examined direct and shared effects of parenting styles on behavioural problems of 199 Kurdish primary school children. The results revealed that parenting styles, particularly the dimension testing parental monitoring, independently predict academic self-concept and behavioural problems. The results of mediation analysis revealed that Positive and Negative Parenting Composites are indirectly related to children's internalising behaviour problems. In addition, academic self-concept partially mediated the relationship between the Negative Parenting Composite and prosocial behaviour. However, the mediation analysis did not show the expected indirect effect of parenting styles on externalising problems as being mediated via academic self-concept. Hence, it is argued that parenting styles contribute to the development of children's academic self-concept and decrease behavioural problems in Kurdistan. We also argue that the academic self-concept serves as a significant mediator in the relationship between parenting styles with prosocial behaviour and internalising problems.

### **3.2 Introduction**

As mentioned in sections 1.1 and 2.4, there are a number of studies indicating that positive parenting styles play not only an important role in the growth of children's academic self-concept but also an effect in reducing behavioural problems.

Most research in this area concerns only direct effects of parenting styles on behavioural problems but neglects indirect effects of parenting styles on behavioural problems. Based on previous research (e.g. DeDonno & Fagan, 2013) we can conclude that parenting styles predict children's academic self-concept and also a negative academic self-concept directly contributes to the development of behavioural problems in children (Houck et al., 2011; Pisecco et al., 2001).

Furthermore, based on a large sample of 612 primary and secondary school children and their parents, the study by Wang, Zhang, Xu, Chen and Liu, (2007) reported indirect effects of specific parenting styles on children's behavioural problems, for example, parents' negative punishments influenced children's social behaviour. The results of their study suggest that children's self-concept acts as a mediator in the relationship between parental use of negative punishments and children's social behavioural problems. Hence, based on these studies, it is suggested that parenting styles and academic self-concept can jointly predict children's behavioural problems.

Additionally, given that most research on the role of parenting style on children's psychological and behavioural outcomes has been conducted among Western or North American cultures, the research to address the importance of parenting styles on children's outcomes in Eastern cultures is lacking. Furthermore, it is argued that gender might be a factor that influences parent-child interactions; in particular, boys are more likely than girls to receive harsh physical discipline and feel more maternal rejection (Berkien et al. 2012; Braza et al., 2013; McKee et al., 2007).

There is a strong segregation of boys and girls in most of Kurdish families, in which many families believe that girls have to be calm, shy and be more protected than boys. Hence, it might be useful to investigate gender differences since recent research concerning the impact of parenting style on academic self-concept and behavioural problems among Kurdish society are absent.

The purpose of the present study was therefore to determine in an Eastern Culture (Kurdish culture) whether parenting styles independently are significant predictors of children's academic self-concept and behavioural problems subscales after controlling for socioeconomic-demographic variables. In addition, we examined whether academic self-concept serves as a significant mediator in the relationship between parenting styles and behavioural problems in an Eastern culture (i.e. Kurdistan of Iraq) (see Figure 1). We also investigated gender differences in the relationships under investigation in the current study.

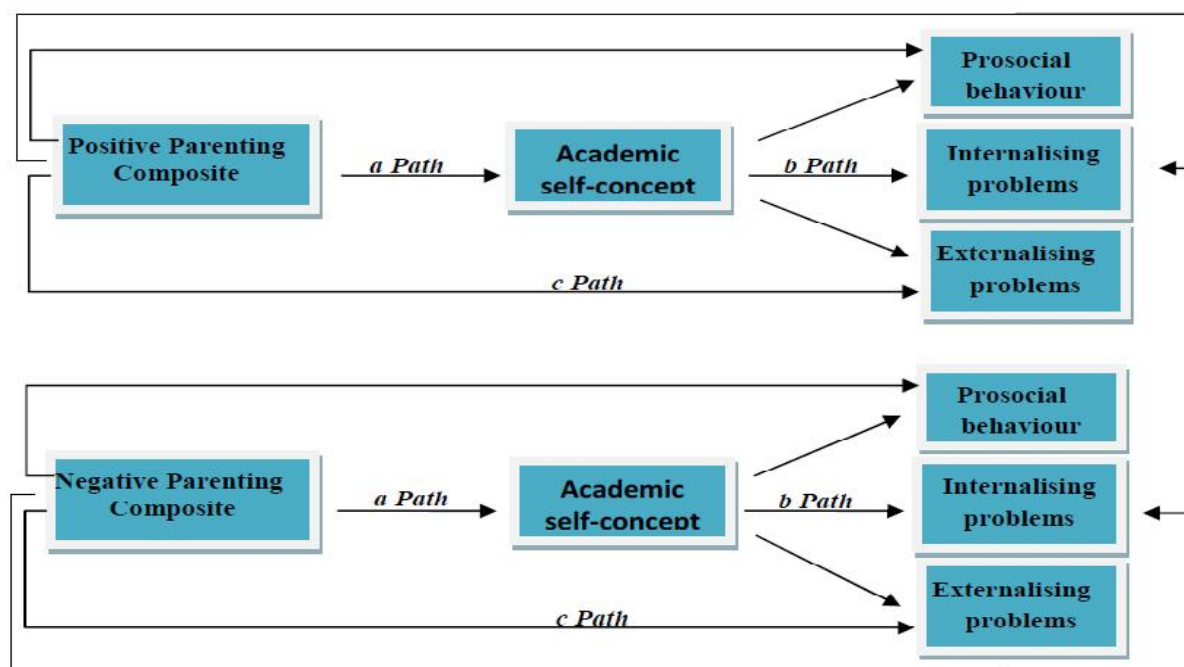


Figure 3.1. Hypothetical model underlying the analyses conducted in this study.

### **3.3 Background of the Kurdistan Region of Iraq**

The participants comprised of Kurdish children who lived in Kurdistan (i.e. the land of the Kurds). Kurdistan is a semi-independent region, which comprises four governorates, Erbil, Sulaymanyah, Duhok, and Halabja. It borders Syria to the west, Iran to the east, and Turkey to the north. Erbil is the capital of this region. The area of the region is about 40,643 square kilometres. The population is approximately four million. In terms of the language, Kurdish is the most widely spoken language, which is in the Indo-European family of languages. The two most widely spoken dialects of Kurdish are Sorani (uses Arabic scripts) and Kurmanji (uses Latin script) (Kurdistan Regional Government, KRG, 2015; Meho, 1997).

### **3.4 History of Learning and Education System in Kurdistan**

Historically, the learning process in Kurdistan has come from the mosques. It has been pointed out that the beginning of the learning (education) in Kurdistan began in the 11<sup>th</sup> century when a Kurd scholar, Khidr Nasry Auqil, finished his religious study under Shafi Scholars in Baghdad in A.D. 1085. When he returned Kurdistan Aba Mansur, who was the prince of that time, built a mosque for him to teach children there. The topics given at that time were alphabets and religious contexts (Hawrami, 2008). In the last decades, however, from the 1970s until the uprising in 1991 Kurds were not encouraged to practise their own language in schools, and education was mostly taught in Arabic. It is argued that this political issue was a reason for hindering the improvement of the educational system in Kurdistan (Jukil, 2009; Meho, 1997).

However, after 1991, a massive expansion happened in the educational system. Kurds had the right to practice Kurdish education, and several kindergartens

and schools were built in Kurdistan. Moreover, apart from Kurdish, Arabic and English were taught in schools without forgetting that the minorities (e.g., Assyrians, Turkmani, and Arabs) have rights to practise their own language in education. Education starts from kindergarten (4-5 years old), basic education (6-15 years old), to high school (16-18 years old) (Aziz, 2011; Jukil, 2009; Skutnabb-Kangas & Fernandes, 2008).

With respect to higher education, there are nine public as well as a number of licensed private universities in Kurdistan. The largest public universities are Sulaymani, Salahaddin, Dohuk, Koya, and Soran University. They offer various subjects to undergraduate and postgraduate students. The number of the students at higher education in Kurdistan is 94,700, and 48% of them are female. There is no tuition fee for education in public universities. Moreover, two universities (the American University of Iraq, Sulaimani and the University of Kuridstan-Hawler) have recently been established. The learning in these two universities is exclusively in English (Aziz, 2011; Kurdistan Regional Government, KRG, 2015).

According to Altbach (2013), research has a very important role in affecting the academic system, particularly for developing countries. Hence, despite the many political problems that Kurdistan has previously faced, conducting research, such as the current study, in Kurdish society may contribute to the development of education in Kurdistan.

### **3.5 Method**

#### **3.5.1 Participants**

Two hundred and twenty-five sixth-grade children with a mean age 11 years 7 months (range 11 years 5 months to 12 years and 3 months) participated in the study in Sulaymaniyah city in Kurdistan region. Twenty-six questionnaires to be completed by teachers were not returned and the data of these 26 children were removed from the analysis. Therefore, the final sample size of the study comprised 199 children, 118 girls (59%) and 81 boys (41%). A questionnaire filled out by children provides information about their parents' demographic background, including level of education: children reported that 68 % of mothers and 62.2 % of fathers tended to have low education background (i.e. primary and secondary school) with the remainder having obtained a high educational level with college or university education. Parental age was also reported by children, 65.5 % of mothers and 59.3 % of fathers ranged between (30-45 years) and the rest ranged in age from (46-60 years). In addition, children reported that 31.2% of mothers and 95.5% of fathers were employed outside of the home.

#### **3.5.2 Procedure**

After obtaining access agreement from the Director of the Sulaymaniyah Education Authority, twenty schools were chosen in different neighbourhoods in Sulaymaniyah city. A letter requesting permission to use the school for research purposes received a positive reply from 12 schools. The research and methods were explained to the headteacher, teachers and children in order for them to understand the research instructions. Parental consent forms were sent via children to their



parents assuring them that children's responses were confidential and would only be shared with the research team.

### **3.5.3 Measures**

Three questionnaires were used in order to collect the data about the children: Alabama Parenting Questionnaire (APQ; Shelton et al., (1996) to measure parenting styles, Myself-As-Learner Scale (MALS; Burden (1998) to assess academic self-concept and the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) for teachers to identify children's behaviour problems. APQ and MALS were completed by the children. Some negative aspects of parenting style are subject to a social desirability bias (Botello et al., 2008) therefore children's self-reports represent a more accurate picture of parenting practice than parental self-reports (Zhou et al., 2004). It should also be noted that these questionnaires are considered to be relatively culture bias-free and have already been used in several Eastern countries including Arabic and Iranian societies (Badahdah, Turner & Kien, 2013; Siyamak, 2011). It is worthwhile to note that the SDQ has been translated to 85 different languages and the Kurdish version of SDQ (see appendix D) has been reviewed and accepted by the publisher and is available from their website <http://www.sdqinfo.com/py/sdqinfo/b0.py>.

All questionnaires were back-translated to the Kurdish language. This process was performed by four professionals, including three bilinguals and a native speaker (Appendix B). Initially, the APQ, MALS and SDQ were translated to Kurdish by one of the professionals, and the translated copies were back-translated to English by another professional. Then, both copies (original and back-translated copy) were reviewed and compared by a third person in order to establish consistency between

them. Finally, the back- translated versions were given to a native speaker of English for comments. In addition, in order to assure that these questionnaires were comprehensible to children and their teachers, a pilot study was conducted with fifteen children and 8 teachers. All teachers understood the SDQ but some children asked for further explanation of two items of APQ (item 8 and 12) which were slightly amended. Following changes to these two items, the Kurdish versions of the three questionnaires were accurate and can be used for research purposes with Kurdish children.

**Alabama Parenting Questionnaire (APQ) .** The Child Form of APQ consists of 42-items that require children to respond on a 5-point Likert scale ranging from 1 (never) to 5 (always). The APQ covers 5 subscales; parental involvement (mother and father) that comprises of 10 items; an example of an item would be “Your mum helps you with your homework” and positive parenting 6 items; e.g., “Your parents reward or give something extra to you for behaving well”. These two dimensions can be considered as a positive composite. However, other subscales can be considered as a negative composite including poor parental monitoring, inconsistent discipline and corporal punishment. Poor parental monitoring consists of 10 items, such as “You go out without a set time to be home” and inconsistent discipline includes 6 items; e.g., “Your parents threaten to punish you and then do not do it” with a last subscale of corporal punishment that contains 3 items; e.g., “Your parents slap you when you have done something wrong”.

The seven remaining items have not been classified according to a specific style, but they also assess discipline practices other than corporal punishment. These items have been included in the APQ in order to avoid an implicit negative bias for corporal punishment items (Shelton et al., 1996). The measure of each APQ subscale

was obtained by summing the scores of its items. The positive dimensions of APQ (parental involvement and positive parenting) have been combined into a *Positive Parenting Composite*. The negative dimensions (poor parental monitoring, inconsistent discipline and corporal punishment) have also been combined into a *Negative Parenting Composite* (Garland, 2007; Scott, Sylva, Kallitsoglou & Ford, 2014). In the study of Garland (2007) internal consistency coefficients was reported to Positive .80 and Negative Parenting Composite .70. In the current study the APQ sub-scales reliability ranged from .61 – .79, and for the *Positive Parenting Composite* and *Negative Parenting Composite* .86 and .71 were obtained respectively.

**Academic Self-Concept (ASC).** In order to assess children's academic self-concept, Myself-As-Learner Scale (MALS; Burden (1998) for students' was used. The scale consists of 20 items; an example of an item include "I am good at doing tests"; "I need lots of help with my work". The scale also has five possible answers to each item (a= yes definitely, b= yes a bit, c= yes and no, about half and half, d= no not much, and e= definitely not). A total score for (MALS) ranges from 20 to 100. Higher scores show high academic self-concept and vice versa for low scores. The alpha reliability in the study of Burden (1998) was .85 and in the current study .80 was obtained.

**Strengths and Difficulties Questionnaire (SDQ).** To measure children's behavioural problems Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was administered. There are different formats of SDQ that can be completed by children, parents or teachers. In the present study the teacher-form comprising questions on prosocial behaviour, hyperactivity, emotional symptoms, conduct problems, and peer relationship problems was used.

The prosocial subscale measures a positive aspect of behaviour by children with higher scores measuring strength; an example items included “Considerate of other people’s feelings”. However, the other four subscales have widely been used together (as total difficulties) in order to measure negative aspects of children’s behavioural problems. Higher scores on the other four subscales reflect difficulties; an example of an item would be “Often fights with other children” or “Many fears, easily scared”. The key answers for the items of SDQ scale is (not true = 0, somewhat true = 1, certainly true = 2) except the items 7, 11, 14, 21 and 25 which the scoring is reverse (not True = 2, somewhat true = 1, certainly true = 0). For mediation analysis we followed the suggestion by Goodman, Lamping and Ploubidis, (2010) claiming that it might be useful to combine the negative subscales (emotional + peer problems) into internalising problems and (conduct + hyperactivity symptom) into externalising problems in general population or low risk samples.

Regarding reliability, a number of studies have reported moderate to appropriate internal consistency, but not for all SDQ subscales. For example, in the study of Mieloo et al (2012), using teacher reports high alpha Cronbach was reported for total difficulties and also some of the subscale (e.g., prosocial behaviour, hyperactivity and emotional symptoms), whereas the alpha was notably lower for the peer problems subscale. In harmony with the study of Mieloo et al. (2012), in the current study except of peer problems subscale (lower than critical cut-off .70) sufficient Cronbach’s alphas for total difficulties and other SDQ subscales were obtained. For internalising and externalising problems .63 and .74 were also reported respectively.

### 3.5.4 Statistical Analyses

All analyses were performed with SPSS 21.0. Frequencies were computed using the sample's demographic characteristics. Missing values were treated by SPSS using the Expectation-Maximisation Algorithm method. This approach is considered to be powerful, unbiased and efficient way to deal with missing values based on a hypothesis that missing values are replaced with predicted ones (Dong & Peng, 2013; how2stats, 2011). Skewness and kurtosis values for each variable were assessed based on the Kline's (2011) and Schmider, Ziegler, Danay, Beyer and Buhner (2010) recommendations claiming that skewness value for a variable should be lower than 3 and kurtosis should be less than 8. In the current study no skewness or kurtosis values for any used variables were above those recommended cut-offs and no deviations from normality were detected. The internal consistency of the study scales was also determined by Cronbach's alpha coefficient.

Correlation matrixes were determined by Pearson correlations in addition to computing the descriptive statistics (means, standard deviations) for them. The relationship between continuous-level variable and binary (dichotomous) variables was assessed by Point-Biserial Correlation. Multiple regression analyses were performed to find whether parenting styles, independently, predict dependent variables when controlling for the demographic factors. The *PROCESS* analysis by Hayes (2013) was used to create the mediation models. Differences between gender were analyzed by t-test analyses. Welch's t-test value was calculated for those variables violating the assumption of homogeneity of variance. As regard to the effect size, Cohen's *d* value was used to determine the effect size which was calculated by the Becker's effect-size calculator (<http://www.uccs.edu/~lbecker/>).

Table 3.1

Skewness and Kurtosis for the used variables

Variables	Skewness	Kurtosis
<b>APQ</b>		
Mother involvement	-.17	-.21
Father involvement	-.26	-.38
Positive parenting	-1.5	2.3
Poor parental monitoring	1.9	4.6
Inconsistent discipline	.01	-.39
Corporal punishment	1.7	3.5
Positive Parenting Composite	-.39	.08
Negative Parenting Composite	1.2	2.3
<b>Academic self-concept (ASC)</b>	-.51	.49
<b>SDQ</b>		
Prosocial behaviour	-.15	-.71
Hyperactivity problems	.42	-.29
Emotional problems	.58	-.09
Conduct problems	1.1	1.4
Peer problems	.24	.20
Total difficulties	.23	-.32
Internalising problems	.44	.09
Externalising problems	.46	-.23

### 3.6 Results

#### 3.6.1 Descriptive statistics

Descriptive statistics showed that children tended to have high level of academic self-concept  $M= 78.3 /SD= 9.9$  and low level of behavioural problems (total difficulties)  $M= 9.3 /SD= 4.4$ . It was noticed that hyperactivity was slightly higher behavioural problem among Kurdish children compared to other negative behavioural subscales of SDQ. It has been interpreted that children may have clinically significant problems if their score of SDQ reach between 17- 40 in the Total Difficulties Score, 5-10 in Emotional Symptoms, 6 -10 in Hyperactivity and 4-10 in Conduct Problem and Peer Problem (Australian Mental Health Outcomes and Classification Network, AMHOCN, 2005). Despite having some children ( $n= 37$ )

who had a high score of behavioural problems individually, it can be seen that the total sample's score did not fall within this standard range (i.e., 17- 40).

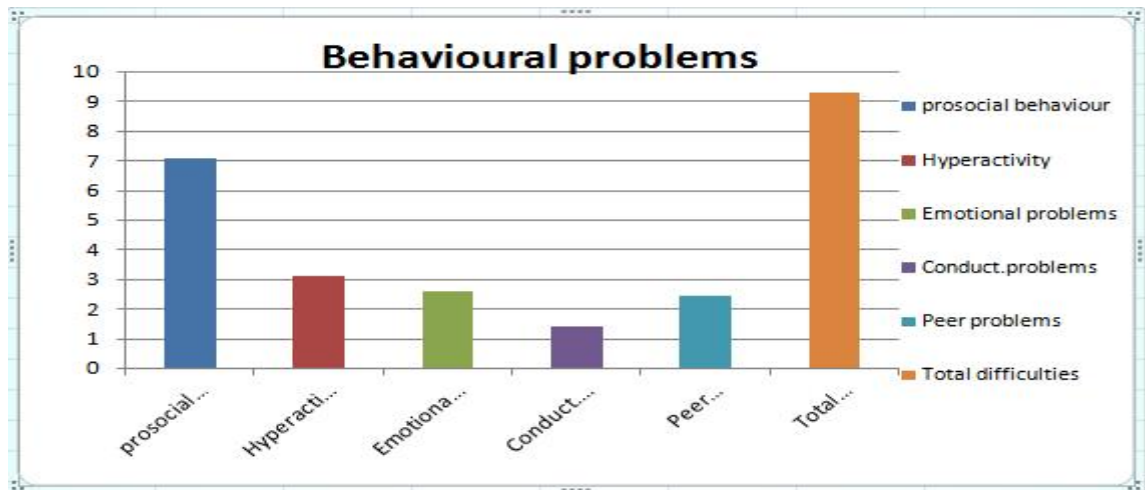


Figure 3.2. Shows the level of behavioural problems among Kurdish year six children

### **Relations of socioeconomic-demographic factors and variables**

The relationship between demographic variables and outcome variables was assessed by Point-Biserial Correlation as denoted as  $r_{pb}$ . This correlational analysis is mathematically similar with Pearson Coefficient  $r$ ; however,  $r_{pb}$  is computed to find the association between binary or nominal variables with continuous variable (Becker, 2000; Statistics solutions, 2015).

Prior to computing the relationships, combined variables from demographic variables were created. To mitigate multicollinearity it is suggested to combine variables involved in the regression analysis when the variables are highly correlated with each other (Keith, 2015; Leech, Barrett & Morgan, 2005; Morgan, Leech, Gloeckner & Barrett, 2013). Therefore, we created a combined variable (parental age group) instead of using mothers and fathers at age group separately. This is because the correlation between mothers and fathers age-group score was high. Likewise, due to the above reasons a combined variable (parental education) was created for

mothers' and fathers' educational level. However, because mothers' and father's scores in employment status were uncorrelated,  $r=.12$ ,  $p \text{ value}=.10$  ), they were kept as separate demographic variables in the regression analyses. This uncorrelated result might be due to the fact that the percentage of unemployed mothers was 68.8%, whereas only 4.5% of fathers were not employed.

The analysis showed some significant results between demographic and outcome variables. For example, parental age, children's gender, parental education and employment status were found to be significantly related to some of the parenting dimensions (see Table 3.2 for further information). Since parental age was not related to parenting styles or behavioural problems, it was not controlled in regression analyses of parenting styles (as predictor) and behavioural problems. However, parental age was significantly associated with academic self-concept; hence, it was controlled to find the relationship between parenting styles and academic self-concept.

Moreover, using Pearson Coefficient we found some significant associations between parenting styles, independently and in combination, with the academic self-concept and behavioural problems (see Table 3.2). These results demonstrate simple correlations indicating that parenting styles were related to the academic self-concept and behavioural problems among Kurdish primary school children. For the next step we tested whether the relationships were affected by socioeconomic-demographic factors using a regression analyses by controlling those demographic variables that significantly related to the outcome variables.



Table 3.2. Descriptive statistics and correlation matrixes between the variables

VARIABLES	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Mother involvement	38.5	5.8																	
2 Father involvement	36.5	6.5	.68**																
3 Positive parenting	26.6	3.9	.51**	.52**															
4 Poor parental monitoring	16.0	6.4	-.20**	-.21**	-.19**														
5 Inconsistent discipline	14.6	4.2	.07	.01	.09	.10													
6 Corporal punishment	4.7	2.3	-.25**	-.28**	-.41**	.27**	.10												
7 Positive Parenting Composite	103	13.9	.89**	.91**	.73**	-.23**	.05	-.35**											
8 Negative Parenting Composite	35.2	8.7	-.18*	-.22**	-.21**	.83**	.54**	.50**	-.24**										
9 Academic self-concept	78.3	9.9	.40**	.36**	.40**	-.26**	-.02	-.30**	.44**	-.27**									
10 Prosocial behaviour	7.1	2.1	.22**	.19**	.23**	-.26**	.04	-.25**	.24**	-.24**	.21**								
11 Hyperactivity problems	3.0	1.8	-.23**	-.15*	-.22**	.33**	-.02	.23**	-.22**	.30**	-.21**	-.47**							
12 Emotional problems	2.6	1.7	-.18**	-.16*	-.10	.18*	-.13	.11	-.18*	.09	-.17*	-.20**	.30**						
13 Conduct problems	1.4	1.5	-.21**	-.17*	-.19**	.16*	-.03	.28**	-.22**	.18*	-.10	-.41**	.43**	.30**					
14 Peer problems	2.4	1.2	-.13	-.18*	-.02	.17*	.09	.01	-.11	.17*	-.18**	-.27**	.31**	.33**	.15*				
15 Total difficulties	9.3	4.4	-.28**	-.21**	-.20**	.31**	-.05	.24**	-.27**	.27**	-.25**	-.49**	.77**	.72**	.68**	.59**			
16 Internalising problems	5.03	2.4	-.20**	-.17*	-.09	.21**	-.06	.09	-.19**	.15*	-.22**	-.28**	.37**	.88**	.29**	.74**	.81**		
17 Externalising problems	4.3	2.8	-.26**	-.18*	-.24**	.30**	-.03	.30**	-.26**	.29**	-.20**	-.52**	.88**	.35**	.81**	.28**	.86**	.39**	
<b>Demographic variables</b>																			
Children's Gender	- a	-	-.01	.08	-.21**	.31**	.01	.22**	-.03	.29**	-.12	-.30**	.31**	-.04	.23**	.02	.20**	-.02	.32**
Parental age	- a	-	.01	.01	-.09	-.07	.01	-.12	-.02	-.08	-.18**	.01	.01	.03	-.03	.07	.03	.05	-.01
Parental Education	- a	-	.22**	.26**	.07	.04	.14*	.01	.23**	.11	.21**	-.01	-.05	-.04	-.10	-.02	-.08	-.04	-.08
Mothers employment status	- a	-	.05	-.03	.06	-.19**	-.04	.002	.03	-.16*	-.01	-.05	-.06	-.09	-.12	-.07	-.12	-.10	-.10
Father employment status	- a	-	.20**	.12	.16*	-.16*	.07	-.27**	.18**	-.16*	.20**	.02	-.16*	-.09	.06	.04	-.07	-.05	-.07

Note. - a = dichotomous variable; Gender (girls=1, boys=2), parental age group (1= 30- 45 years, 2= 46-60 years), parental education (1=low, 2= high), employment status (1=unemployed, 2= employed).\*. Correlation is significant at the 0.05 level, \*\* is significant at the 0.01 level

### 3.6.2 Regression analyses

#### Do parenting styles predict academic self-concept?

To address this question, a series of multiple regressions analyses was performed. Before conducting the regression analyses, the data were checked to test outliers as assessed by (Standardised Residual, no cases greater than  $\pm 3.29$ ), collinearity of data as checked by (VIF value no greater than 10 or Tolerance is less than 0.1), independent errors as assessed by (Durbin-Watson value; as no value was found to be less than 1 and higher than 3 for the all used variables), random normal distribution of errors by ( histogram and Normal P-P Plot) and non-zero variances (all variables' Variances were over zero). After checking the assumptions, regressions analyses were performed by loading parenting dimensions as predictors and children's academic self-concept and behavioural problems as dependent variables.

The results indicated that three of the parenting styles variables were significant predictors of children's academic self-concept,  $R^2 = .31$ , after controlling for socioeconomic factors (Table 3.3). Mother involvement,  $\beta = .20$ , positive parenting,  $\beta = .18$  and poor parental monitoring,  $\beta = -.16$ ,  $p < .05$  were significantly related to academic self-concept. These findings indicate that 31% of the variance in children's academic self-concept is accounted for by these three parenting dimensions. In addition, father's involvement,  $\beta = .007$ , inconsistent discipline,  $\beta = -.06$  and corporal punishment  $\beta = -.13$  were found to be non-significantly related to the academic self-concept. Overall, these results suggest that the higher mothers' involvement and positive parenting styles and the lower poor monitoring style, the higher will be their child's academic self-concept.

Table 3.3

Regression Coefficients and Beta Weights for the association between Parenting styles subscales and academic self-concept

Predictor	Academic self-concept			
	<i>B</i>	<i>SE</i>		<i>Sig.</i>
<b>Step 1</b>				
Gender	-2.5	1.4	-.12	.07
Parental age	-3.6	1.4	-.18	.01
Parental education	3.9	1.4	.19	.006
Mother employment status	-.02	1.5	-.001	.98
Father employment status	8.6	3.2	.18	.000
Constant		73.5		
R <sup>2</sup>		.12		
<b>Step 2</b>				
Gender	-.41	1.4	-.02	.76
Parental age	-3.6	1.3	-.18	.005
Parental education	3.1	1.4	.15	.021
Mother employment status	-1.2	1.4	-.06	.38
Father employment status	3.1	3.1	.07	.32
Mother involvement	.35	.16	.20	<b>.030</b>
Father involvement	.01	.15	.007	.94
Positive parenting	.46	.21	.18	<b>.030</b>
Poor parental monitoring	-.24	.11	-.16	<b>.025</b>
Inconsistent discipline	-.13	.15	-.06	.38
Corporal punishment	-.54	.30	-.13	.077
Constant		58.9		
R <sup>2</sup>		.31		
in R <sup>2</sup>		.19		

*B*= unstandardized coefficient, *SE*= standard error, = standardized coefficient, sig= significant

### Do parenting styles predict behavioural problems subscales?

Regression analyses were also carried out to determine the relation between parenting styles and children's behavioural problems. The result showed that poor parental monitoring predicted behavioural problems more than other parenting dimensions after controlling for socioeconomic factors (Table 3.4). Specifically, poor parental monitoring was negatively related with prosocial behaviour, ( $R^2 = .19$ ,  $\beta = -.15$ ,  $P < .05$ ) and positively related with hyperactivity ( $R^2 = .21$ ,  $\beta = .22$ ,  $P < .005$ ), peer problems ( $R^2 = .06$ ,  $\beta = .16$ ,  $P < .05$ ) and total difficulties respectively ( $R^2 = .21$ ,  $\beta =$

.18,  $P < .01$ ). There was a marginal ( $p = .053$ ) relationship between poor parental monitoring and child emotional problems. This finding indicates that 19 % of the variance in children's prosocial behaviour, 21% of the variance in hyperactivity problems, 6 % of the variance in children's peer problems and 18 % in total difficulties are explained by poor monitoring style. In addition, mother involvement was found to significantly predict hyperactivity ( $R^2 = .21$ ,  $\beta = -.21$ ) and total difficulties ( $R^2 = .18$ ,  $\beta = -.22$ ,  $P < .05$  respectively), suggesting that 21 % of the variance in hyperactivity and 18 % in total difficulties are accounted for by mother involvement.

Furthermore, the results illustrated a positive relationship between corporal punishment and conduct problems ( $R^2 = .18$ ,  $\beta = .26$ ,  $P < .005$ ). The finding suggests that 18 % of the variance in conduct problems is explained by corporal punishment. Overall the results of the regression indicated that the models containing parenting styles as predictors were significant for some of the children's behavioural problems, particularly hyperactivity and total difficulties.

Table 3.4

Regression Coefficients and Beta Weights for the association between Parenting styles and behavioural problems independently

Predictors	Behavioural problems																							
	Prosocial behaviour				Hyperactivity Problems				Emotional problems				Conduct Problems				Peer problems				Total difficulties			
Step 1	B	SE		Sig	B	SE		Sig.	B	SE		Sig.	B	SE		Sig	B	SE		Sig.	B	SE		Sig.
Gender	-1.3	.29	-.31	.00	1.2	.26	.30	.00	-.22	.25	-.06	.39	.73	.21	.24	.001	.05	.18	.02	.78	1.7	.63	.19	.009
Parental education	.11	.30	.03	.72	-.23	.26	-.06	.37	-.05	.26	-.02	.83	-.37	.22	-.12	.09	-.06	.18	-.02	.75	-.71	.64	-.08	.27
Mother employment status	-.35	.31	-.08	.26	-.19	.27	-.05	.50	-.42	.27	-.11	.13	-.26	.23	-.08	.24	-.15	.19	-.06	.42	-1.0	.67	-.11	.13
Father employment status	-.25	.70	-.03	.71	-1.1	.61	-.13	.07	-.94	.61	-.11	.12	.61	.50	.09	.23	.21	.43	.04	.62	-1.2	1.5	-.06	.41
Constant		9.3				2.5				3.94				.015				2.2				8.7		
R <sup>2</sup>		.10				.12				.024				.081				.006				.06		
Step 2																								
Gender	-1.0	.31	-.24	.001	.78	.27	.21	.005	-.39	.28	-.11	.17	.57	.22	.19	.011	-.01	.20	-.005	.94	.95	.66	.11	.15
Parental education	-.05	.30	-.01	.86	-.21	.27	-.05	.43	.10	.27	.03	.71	-.26	.22	-.09	.23	-.04	.19	-.01	.85	-.41	.64	-.04	.53
Mother employment status	-.53	.31	-.11	.09	.06	.27	.01	.84	-.32	.28	-.08	.25	-.22	.22	-.07	.32	-.05	.20	-.020	.80	-.53	.66	-.06	.42
Father employment status	-1.2	.70	-.12	.09	-.34	.62	-.04	.58	-.35	.63	-.04	.56	1.3	.51	.18	.012	.40	.45	.07	.36	1.0	1.5	.05	.50
Mother involvement	.05	.04	.15	.14	-.07	.03	-.21	<b>.035</b>	-.03	.03	-.102	.33	-.04	.03	-.15	.15	-.03	.02	-.10	.17	-.17	.07	-.22	<b>.030</b>
Father involvement	.01	.03	.03	.78	.03	.03	.12	.27	-.01	.03	-.047	.67	-.004	.02	-.02	.87	-.002	.02	-.01	.90	.01	.07	.02	.85
Positive parenting	.02	.05	.04	.68	-.02	.04	-.04	.66	.02	.04	.034	.70	.01	.03	.03	.74	.02	.03	.05	.56	.02	.10	.02	.80
Poor parental monitoring	-.05	.02	-.15	<b>.044</b>	.07	.02	.22	<b>.003</b>	.04	.02	.153	<b>.053</b>	.006	.02	.03	.72	.03	.02	.16	<b>.043</b>	.14	.05	.21	<b>.006</b>
Inconsistent discipline	.03	.03	.05	.44	-.01	.03	-.02	.82	-.06	.03	-.13	.068	-.02	.02	-.04	.52	.02	.02	.08	.27	-.06	.07	-.06	.39
Corporal punishment	-.11	.07	-.13	.09	.07	.06	.08	.27	.06	.06	.075	.35	.16	.05	.26	<b>.001</b>	-.02	.04	-.04	.63	.27	.15	.14	.069
Constant		7.9				2.7				4.7				.22				2.2				9.9		
R <sup>2</sup>		.19				.21				.094				.18				.06				.18		
in R <sup>2</sup>		.09				.09				.07				.099				.054				.012		

### 3.6.3 Mediation analyses

To test whether parenting styles are indirectly related to children's behavioural problems through academic self-concept, mediation analysis were conducted. The *PROCESS* analysis by Hayes (2013) was used in creating the models. Baron and Kenny (1986) suggested that for mediation to be established, the following conditions must hold. First, the independent variable must significantly predict the dependent variable (IV\_ DV). Second, the independent variable must significantly predict the mediator (IV\_ M). Third, the mediator must be a significant predictor of the dependent variable (M\_ DV) when controlling for (IV); therefore, the effect of the independent variable on predicting the dependent variable should no longer be significant (or less strongly than in condition 1) when both M and IV are simultaneously used to predict DV in the model. Importantly, the above conditions can easily be checked using the *PROCESS* analysis.

To conduct the mediation, the values of 10,000 bootstrap samples were selected and considered to be sufficient for the mediation (Hayes, 2013). The demographic variables were put in the covariates box and were only controlled for academic self-concept (mediator). This is for two reasons. First, most of the demographic variables (e.g., parental age, parental education level, and fathers' employment status) were significantly related to the mediator rather than the outcome variables. Second, there is no an option in *PROCESS* to identify some covariates for the mediator only and other covariates for the dependent variable only.

### Direct versus indirect effects of parenting styles

Six mediation analyses were tested using *PROCESS* for the only combined variables (i.e. *Positive and Negative Parenting Composites*) as predictors and (prosocial behaviour, internalising and externalising problems) as outcome variables (Figure 3.2). Consequently, for the direct relationships between parenting styles and behavioural problems (without the mediator), it was found that *Positive Parenting Composites* directly predict prosocial behaviour ( $R^2=.071$ ,  $B = .036$ ,  $p < .005$ ), internalising problems, ( $R^2 = .035$ ,  $B = -.033$ ,  $p < .01$ ), and externalising problems ( $R^2=.065$ ,  $B = -.052$ ,  $p < .001$ ). Likewise, results revealed that *Negative Parenting Composites* predict prosocial behaviour ( $R^2=.055$ ,  $B = -.056$ ,  $p < .001$ ), internalising problems ( $R^2=.023$ ,  $B = .042$ ,  $p < .05$ ), and externalising problems ( $R^2=.083$ ,  $B = .094$ ,  $p < .001$ ). These findings illustrate that *Positive and Negative Parenting Composite* were uniquely and directly predicting Kurdish children's prosocial behaviour, internalising and externalising problems. The results of this analysis also indicated that the first condition for mediation has been satisfied; the IV \_ DV is significantly related to each other (c path).

Moreover, the results showed that both *Positive and Negative Parenting Composites* significantly and directly predict academic self-concept ( $R^2=.25$ ,  $B = .28$ ,  $p < .001$ ) and ( $R^2=.19$ ,  $B = -.33$ ,  $p < .001$ ), respectively. These significant relationships also showed that the second condition (IV \_ M) for mediation has been met (a path).

With respect to the relationship between the mediator and dependent variables, while controlling for the independent variables (M\_DV), only three significant relationships were found (b path). It was found that academic self-concept

significantly predicted prosocial behaviour ( $R^2=.077$ ,  $B = .032$ ,  $p < .05$ ) when controlling for *Negative Parenting Composites*, whereas the prediction was not the case when controlling for *Positive Parenting Composites*. In addition, academic self-concept significantly predicted internalising problems, but did not predict externalising problems, while controlling for both parenting composites. Hence, the results of this analysis indicated that the third condition for mediation has been satisfied for three significant analyses.

Regarding the indirect effect, of the six mediation analyses three potential indirect effects were noted. Specifically, it was observed that the direct effect of both *Positive and Negative Parenting Composites* on internalising problems became non-significant when academic self-concept, as a proposed mediator, was simultaneously presented in the model, ( $B = -.020$ ,  $p = .149$ ; and  $B = .028$ ,  $p = .168$ ). The indirect effect of *Positive Parenting Composites* was  $(-.012, CI [-.025, -.003])$  and for *Negative Parenting Composites* was  $(.015, CI [.005, .033])$ . In addition, it was found that academic self-concept partially mediated the relationship between *Negative Parenting Composites* and prosocial behaviour ( $B = -.046$ ,  $p = .007$ ), and the indirect effect was  $(-.010, CI [-.024, -.002])$ .

Therefore, the mediation analysis confirmed that academic self-concept emerges as mediator in the relationship between both *Positive and Negative Parenting Composites* and the internalising problems. In addition, academic self-concept showed a small and partial mediation role in the association between *Negative Parenting Composites* and prosocial behaviour. However, the mediation analysis found no significant indirect relationship between parenting styles and externalising problems through academic self-concept.



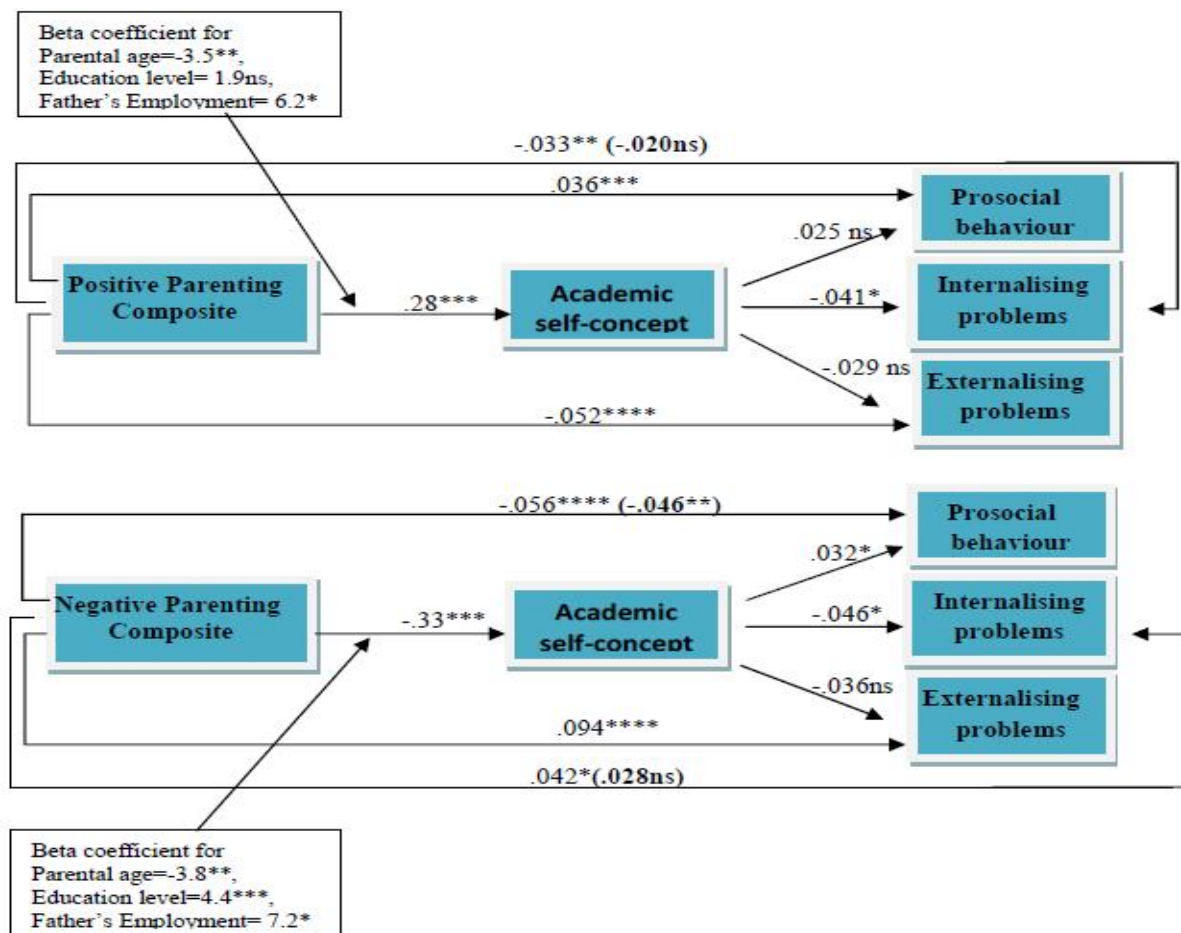


Figure 3.3. Results from *PROCESS* shows indirect effect of parenting styles on behavioural problems through academic self-concept, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .005$ , \*\*\*\* $p < .001$

### 3.6.4 Are there gender differences?

Independent-sample t-tests were performed to address this question.

Preliminary assumption checking was carried out to test normality and the data were normal for the purpose of performing a t-test. Furthermore, the assumption of homogeneity of variance was also checked via Levene's F test ( $P > 0.05$ ) as satisfied for most of the variables. Welch's t-test (equal variance not assumed between groups) was used when any variable violating the assumption of homogeneity of variance.

Thus, the results (see Table 3.5) show that parental involvement and inconsistent discipline were similar for boys and girls. However, significant

differences (small to medium effect size) in mean scores were observed for positive parenting,  $t(197) = 2.84, p < .01, d = .41$ ), poor parental monitoring,  $t(197) = -4.22, p < .001, d = .63$ ) and corporal punishment,  $t(197) = -3.03, p < .005, d = .42$ ), suggesting that positive parenting was more prevalent amongst girls, whereas poor monitoring and corporal punishment were higher among boys. In addition, no gender difference was found when accounting for the Positive Parenting Composite; however, Negative Parenting Composite was found to be generally higher among boys than girls,  $t(197) = -4.25, p < .001, d = .61$ ).

Table 3.5

Shows gender differences in parenting styles, academic self-concept and behavioural problems

Variables	Boys		Girls		95% Confidence Interval			
	M	SD	M	SD	t-test	d	Lower	Upper
Mother involvement	38.4	5.9	38.6	5.8	.14	.03	-1.5	1.8
Father involvement	38.1	5.9	37.0	6.9	-1.1	.17	-2.9	.83
Positive parenting	25.6	4.5	27.2	3.1	2.84**	.41	.51	2.8
Poor parental monitoring	18.3	7.5	14.3	4.9	-4.22****	.63	-5.9	-2.1
Inconsistent discipline	14.5	4.4	14.6	4.1	-.09	.02	-1.2	1.1
Corporal punishment	5.3	2.8	4.3	1.9	-3.03***	.42	-1.8	-.37
Positive Parenting Composite	102.1	14.3	102.8	13.8	.37	.05	-.51	5.2
Negative Parenting Composite	38.3	9.5	33.1	7.5	-4.25****	.61	-3.2	4.7
Academic self-concept	76.9	8.9	79.3	10.6	1.62	.24	-7.5	-2.8
Prosocial behaviour	6.3	2.1	7.6	1.9	4.44****	.65	.71	1.8
Hyperactivity problems	3.6	1.9	2.4	1.6	-4.60****	.70	-1.7	-.67
Emotional problems	2.5	1.8	2.6	1.7	.59	.06	-.35	.65
Conduct problems	1.8	1.6	1.1	1.3	-3.27***	.50	-1.1	-.27
Peer problems	2.5	1.2	2.4	1.2	-.26	.41	-.39	.30
Total difficulties	10.4	4.6	8.6	4.2	-2.8**	.41	-3.0	-.52
Internalising problems	4.9	2.4	5.1	2.4	.30	.08	-.59	.80
Externalising problems	5.4	3.0	3.5	2.5	-4.8****	.70	-2.6	-1.1

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .005$ , \*\*\*\* $p < .001$

For academic self-concept, the means score for girls and boys were found to be not significantly different,  $t(197) = 1.62, ns$ ). As regards to behaviour problems, girls had higher levels of prosocial behaviour,  $t(197) = 4.44, p < .001, d = .65$ ), whereas boys showed higher levels of negative behaviours. Specifically,

hyperactivity problems,  $t(197) = -.4.60, p < .001, d = .70$ ), conduct problems,  $t(197) = -3.27, p < .005, d = .50$ ), externalising problems,  $t(197) = -4.8, p < .001, d = .70$ ), and total difficulties,  $t(197) = -2.8, p < .01, d = .41$ ) were significantly higher among boys than girls. No gender differences were found for the emotional problems and peer problems subscales  $t(197) = .59$  and  $-.26$ ) and therefore, the same non-significant difference was found for the combined behavioural problems (i.e. internalising problems) respectively.

### **3.7 Discussion**

The central research question of this study was whether parenting styles among a sample of Kurdish primary school children are associated with their academic self-concept and behavioural problems; specifically, whether academic self-concept acts as a significant mediator in the relationship between parenting styles and children's behaviour problems. The descriptive results revealed that children tended to score high academic self concept and scored low on level of behavioural difficulties. The results of the correlation analyses also indicate that apart from the inconsistent discipline dimension all parenting subscales were, independently and in combination, correlated to the academic self-concept and most of behavioural problems subscales. These findings support the study of DeDonno and Fagan (2013) and Essau et al. (2006) reporting the vital role of parenting styles on children's academic self-concept and behavioural problems.

Moreover, a series of regression analyses was conducted to examine the predictive capacity of the parenting dimensions (independent subscales) on academic self-concept and behavioural problems. The multiple regression analysis revealed that the effects of the parenting dimensions were weakened when demographic

factors were controlled for. The only dimensions that significantly predicted academic self-concept after having controlled for demographic variables were mother involvement, positive parenting and poor parental monitoring. Corporal punishment also found to be marginally related to academic self-concept. These findings suggest that the greater amount of mothers' involvement, positive parenting and the less amount of poor parental monitoring the higher will be their children's academic self-concept. Father involvement, however, was not found to be a significant predictor of a child's academic self-concept. This finding is consistent with those reported by Besharat et al. (2011) and Braza et al. (2013), who found that the mother's parenting style had the strongest influence on children's developmental outcomes. These findings also parallel those of Nishikawa et al. (2010a), who observed that only mothers' parenting dimension, particularly emotional warmth was positively related to academic self-concept. Although there is no clear explanation for these results, these findings might be explained by way of Kurdish mothers spending more time with their children than fathers. While most Kurdish fathers are employed and spend considerable time away from the family home working, mothers have more clearly defined responsibility for nurturing their children at home.

As noted earlier, the regression analysis also showed that the effect of parenting styles on behavioural problems was weakened when controlling for demographic factors. Mother involvement was a significant predictor of hyperactivity and total difficulties, while father involvement and the positive parenting dimensions were not significant predictors of any of the behavioural problem subscales. These findings parallel those of Grolnick and Ryan (1989), who observed that while maternal involvement was significantly correlated with

behavioural adjustment, no such correlation could be established for father involvement. Again, this finding might be explained by the greater amount of time that mothers spend with their children as opposed to fathers.

Corporal punishment was found to be significantly related to conduct problems, suggesting that the increased use of corporal punishment contributed to heightened levels of conduct problems among children. This is supported by a study of Strassberg, Dodge, Pettit and Bates (1994) who found that spanked children showed significantly more aggressive behaviour toward peers compared with non-spanked children. In addition, accordance with the study Raboteg-Šari et al. (2001), parental monitoring is the only dimension to be consistently highly related to childhood behavioural problems. The effects of poor monitoring remained significant even after controlling for potential confounding factors, suggesting that poor monitoring contributed to decreased prosocial behaviours and increased hyperactivity, peer problems and total difficulties. Thus, the results of the current study support the claim that parenting styles are central factors in children's developmental outcomes in Eastern societies in general and specifically in Kurdish Society.

For the mediation analysis parenting dimensions and behavioural problems subscales were separately combined and some direct effects for combined variables were noticed. The findings indicate that some of the variance for academic self-concept, prosocial behaviour, internalising and externalising problems can be explained by *Positive and Negative Parenting Composites*. These findings are in the direction as predicted—as the composite of positive parenting dimensions increases, academic self-concept and prosocial behaviour levels also increase; conversely, the level of internalising and externalising problems declines. The opposite is also true

for our analyses of *Negative Parenting Composites*. The findings are consistent with much of the previous literature using Eastern samples (e.g., Alizadeh et al., 2011; Goraya & Sabah, 2013; Yang, Kuo, Wang & Yang, 2014) all of whom found that parenting style has significant effects on children's psychological and behavioural outcomes. This cultural consistency in parenting styles might be explained in terms of the fundamental changes in the Kurdistan region. In the past decades, most of Kurdish women used to be subject to restrictions of their education, freedoms and rights compared to the recent decade. These changes might have become responsible for the similarity of parenting styles between Kurdish and Western mothers in terms of their impact on children's developmental and psychological outcomes.

Regarding the indirect effect of the six mediation analyses, three potential indirect effects are evident. Specifically, *Positive and Negative Parenting Composites* were indirectly linked to internalising problems via academic self-concept, suggesting that academic self-concept plays an important role in the parenting - internalizing problems association. In addition, the mediation analysis also confirmed a small or partial mediating role for academic self-concept on the relationship between *Negative Parenting Composite* and prosocial behaviour, suggesting that a negative style of parent-child rearing is related to academic self-concept, which in turn is related to children's prosocial behaviour. The findings are also in part consistent with those of Wang et al. (2007), who found that children's self-concept plays a mediating role in the relationship between parents' negative punishments and children's social behaviour.

Our mediation analysis did not show any significant indirect relationships between parenting styles and externalising problems being mediated through

academic self-concept. This finding is also consistent with the study of Nishikawa et al. (2010b) who found that self-concept confirmed the mediating role in the relationships between attachment and internalising problems, but not externalising problems. We suggest that this unexpected result is due to the fact that associations between parenting styles (as the predictor) and externalizing problems are stronger than the association with internalising problems. This is supported by the fact that based on the magnitude of standardized beta weights, the direct association between both *Positive and Negative Parenting Composites* with externalising appeared stronger ( $\beta = -.052, p < .001$  and  $.094, p < .001$ ) than internalising ( $\beta = -.033, p < .01$  and  $.042, p < .05$ ) problems. In addition, based on the Pearson coefficient, the associations between both parenting composites with externalising were higher ( $r = -.26$  and  $.29$ ) than internalising problems ( $r = .15$  and  $-.19$ ).

With respect to the gender differences, our results indicate that parents applied the positive parenting dimension more for girls than boys. In contrast, poor monitoring and corporal punishment were used more frequently with boys than girls. This finding is consistent with previous studies (e.g., Essau et al., 2006; Li, Feigelman & Stanton 2000; McKee et al., 2007; Raboteg-Šari et al., 2001) which found that girls tended to have significantly higher scores on positive parenting, lower score in poor parental monitoring and physical discipline than boys. Regarding the academic self-concept, our findings are consistent with the previous literature that demonstrated no differences in the mean scores between girls and boys for academic self-concept (Anis-ul-Haque & Khan, 1998; Worrell, Roth, & Gabelko, 1998; Ghazvini & Khajepour, 2011). However, the findings were inconsistent with the study by Dai (2001) who found a significant gender effect among 10<sup>th</sup> grade Chinese students in general academic self-concept in favour of females. These

results might be because Kurdish girls and boys in primary school are taught to use similar learning strategies to solve the problems and responsibility for their academic failures.

As regards behaviour problems, our results support findings of previous studies (e.g. Muris et al., 2003; Muris, Meesters, Eijkelenboom & Vincken, 2004), with girls reporting higher levels of prosocial behaviour than boys. In contrast, boys manifested higher levels of behavioural problems, particularly hyperactivity and conduct problems, both of which are considered to be externalising problems. This finding supports those of prior studies (Lau et al., 2006; Raboteg-Šari et al. 2001; Stevens et al., 2007), indicating that boys have higher scores for externalising problems than girls. Cultural factors might go some way toward explaining this finding, with Kurdish families generally being more protective of girls than boys. Additionally, certain behaviours, such as cheating, fighting with other children and stealing may reflect cultural values as such behaviours are regarded as being entirely unacceptable for girls in Kurdish culture (Ahmad et al., 2007). Furthermore, our finding is consistent with the previous literature that found no overall gender differences with respect to peer problems (Gershon, 2002). This finding might be related to items in this subscale; for example, one of the items is 'Has at least one good friend'. It might be impossible for either a girl or boy to not have at least one good friend in school, hence the similar scores for girls and boys for this subscale.

To summarize, we found that if parents can provide a high level of positive parenting and a low level of negative parenting, their children's academic self-concept increased and their level of behavioural problems decreased. Although there are some arguments in the literature claiming that parenting styles seemed not to show large impact on children brought up in non-Western society, the present study



found in contrast that parenting styles play a significant role in children's developmental outcomes in Eastern society. Furthermore, regression analysis showed that parenting dimensions, particularly poor parental monitoring was a strong and better predictor of academic self-concept and behavioural problems, and was highly predictive of hyperactivity problems. Additionally, hyperactivity was reported by teachers to be more prevalent than other behavioural problems among Kurdish children in schools. The *PROCESS* analysis showed that parenting styles are indirectly related to internalising problems as mediated through academic self-concept. In addition, academic self-concept was found to partially mediate the relationship between *Negative Parenting Composites* and prosocial behaviour. These results suggest that parents and educators need to pay more attention to the importance and necessity to enhance the academic self-concept when dealing with children's internalising problems, particularly problems related to their emotional development and their social and peer relationships at school.

The current study revealed that the sample tended to have an overall high level of academic self-concept and low level of behavioural difficulties. Nonetheless, the teachers reported that some children in the sample ( $n=37$ ) scored highly for behavioural problems, while 32 of them (i.e. 16% of the total sample) were found to score highly for negative parenting styles. Therefore, in the second study (see Chapter 4), the parents of these 32 children were asked to participate in a training programme in order to examine whether an intervention teaching parents to improve their parenting and observe if their children's academic self-concept and behavioural problems are affected by completing such a programme.

## Chapter Four: Study two

### The Effects of a Parent Intervention on Behavioural and Psychological Outcomes for Kurdish Parents and their Children: A Randomised Control Pilot Trial

#### 4.1 Abstract

**Background:** Parenting interventions that improve psychological and behavioural outcomes for parents and children have been found to be beneficial in high income countries. However, such programmes are rarely offered in developing countries and there is an urgent need to include low income countries.

**Objective:** to examine the effectiveness of STEP in improving behavioural and psychological outcomes for Kurdish parents and their children.

**Design:** Randomised control pilot trial. The intervention lasted seven consecutive weeks and participants were surveyed using pre-test, post-test and 3 months post intervention.

**Setting:** This trial was undertaken in Sulaymaniyah city, Iraqi Kurdistan.

**Participants:** 17 mothers (mean age 35 years 3 months; range 29 years 7 months - 45 years and 4 months) agreed to participate in the intervention.

**Results:** Statistically significant differences between groups on three subscales of the APQ: the mother involvement subscale,  $F(1,13) = 25.81, p < .001, \eta^2_p = .67$ ; the inconsistent discipline subscale,  $F(1,13) = 25.46, p < .001, \eta^2_p = .66$ ; and the corporal punishment subscale  $F(1,13) = 17.3, p < .005, \eta^2_p = .57$ . A statistically significant difference between groups was also found on the PSS,  $F(1,13) = 19.63, p < .001, \eta^2_p = .60$ . The changes were sustained over a three months period. No statistical differences were found in academic self-concept and behavioural problems between children whose mothers attended STEP and others whose mothers did not attend.

**Conclusion:** The STEP programme appears to promote parenting style and reduce the level of parental stress in Kurdish mothers but does not change children's academic self concept and behavioural problems.

**Limitation:** Given the small sample size of this trial, the intervention warrants further testing. Generalisation to other ethnic groups should be taken into account.

**Trial Registration:** IRCT2016032527125N1

## 4.2 Introduction

A number of researchers have suggested that parents require help to develop their parenting skills (e.g. Kordi & Baharudin, 2010). Parenting training has been considered to be an effective approach to improve relationships between children and their parents (World Health Organization, 2009). The Systematic Training for Effective Parenting (STEP) is considered to be helpful in improving parent-child interaction and promoting parental experiences by educating parents about effective parenting methods and thereby improving children's behaviour (Dinkmeyer et al., 1997).

Based on a review and critique of 16 major parent education programmes, STEP has been rated as one of the best programmes using three review criteria—program readiness, strength of scientific base, and empirical evidence of programme effectiveness (Collins & Fetsch, 2012). It has been demonstrated that in addition to “typical” parent populations the STEP programme has been used successfully in special populations such as, abusive parents, drug-addicted parents, and disadvantaged single mothers, parents of children with behavioural problems, low self-concept, and children with learning disabilities (Burnett, 1988; Gibson, 1999). STEP has been translated into many languages, such as German, Spanish, Greek, Japanese and Korean (Carlson, 2002). The STEP is based on the theory by psychologist Alfred Adler that child developmental outcome and parent-child interactions are influenced by some social factors (e.g. poverty, low social support, parents' beliefs and attitudes) which operate within a family unit (Huebner, 2002). Adler also argued that misbehaving children are “discouraged” children and therefore to support them they need to feel that they can contribute to social engagement in a positive way (Spence, 2008).

As shown in section 2.6, there has been considerable empirical research evaluating the effectiveness of the STEP programme of improving parenting styles and psychological adjustments. Recently in a quasi-experimental research design by Jonyniene, Kern and Gfroerer (2015), the efficacy of STEP programme was examined amongst Lithuanian parents. The findings showed noteworthy improvements in the parenting styles and parental negative perceptions of their child's behaviour. Additionally, in the study of Larson (2000) fifty-six family dyads of parents and their target children (ages 12-15) participated in STEP intervention. It was found that the sessions resulted in a significant increase in authoritative (positive) parenting and a significant decrease in authoritarian (negative) parenting style. Pan and Wu (2008) also carried out an intervention study with eleven Chinese parents and the result showed improvement in the parent-child relationships as a result of the parent's participation in the STEP. The findings indicated that those who participated in STEP had more positive perceptions of their children's behaviour; they were also significantly less abusive in comparison to those who did not attend STEP.

These studies provide evidence for the impact on parents; however STEP has also been found to substantially improve children's behaviour. More specifically, in the study by Larson (2000) parents reported that their teenage children's externalising behaviour was significantly reduced after participating in a STEP intervention. Al-Shopaki and Hamdi (2008) reported that the intervention was effective in improving psychological adjustment for children of parents who attended the programme. Overall, these results indicate that the STEP programme plays an important role in the psychological and developmental wellbeing of both parents and their children.

Parenting interventions have been widely carried out in Europe and America. For instance, a systematic review by Thomas et al. (1999) indicated that from 14 included studies, 75% of the studies were conducted in the USA, 17% in the Canada and 8% in the UK. The lack of research in developing countries is a clear gap in the literature. Both Knerr et al.(2013) and Mejia et al. (2012) argued that most of parenting training programmes have been tested in high income countries and that there is an urgent need to include low income countries. At present, very little evidence shows that STEP training can have an effect on parents and their children from Middle Eastern countries or low income areas such the Kurdistan region of Iraq.

The importance of such study is supported by a cross-sectional study of 275 Kurdish college students which found that 20% of students reported that during childhood they encountered at least one of negative treatment including, neglect, emotional and physical mistreatments (Saed et al., 2013). It has also been reported by media and police that in 2014 some Kurdish children aged (3-12) years old were the victims of negative treatment by their parents, leading according to one report to the death of a 5 year old child ([www.goo.gl/EJ7Aqt](http://www.goo.gl/EJ7Aqt)). These findings indicate that parents in this area need more support to improve their parenting skills. Currently, there is no empirical research on the efficacy of educational and counselling interventions with parents in Kurdish society. The current study examines whether participation in the STEP as a standardized, highly structured parent education group has the effect of improving Kurdish parenting styles as well as decreasing the level of parental stress. Based on previous research it was hypothesised that mothers participating in STEP will significantly improve their parenting styles and decrease the level of their parental stress compared to those who do not attend STEP.

## 4.3 Method

### 4.3.1 Participants

Seventeen mothers mean age (35 years 3 months) range (29 years 7 months - 45 years and 4 months), in Sulaymaniyah city, agreed to participate in the STEP programme. They were randomly assigned (following simple randomisation procedures) to either treatment (n = 9) or control groups (n = 8). One mother in the treatment group could only attend four sessions and her post-test data could not be collected at the end of the programme. A questionnaire filled out by mothers provided information about their demographic background (see Table 4.1).

Table 4.1

Shows demographic information for Mothers

Variables	%	Treatment group	Control group
<b>Mother Educational background:</b>			
- Low education	71%	n= 7	n= 5
- High education	29 %	n=2	n=3
	(Missing data 0% )		
<b>Mother mean age:</b>	(Missing data 0.0% )	36.1 years	34.5 years
<b>Employment status:</b>			
- Employed:	35%	n= 3	n= 3
- Unemployed:	65%	n=6	n=5
	(Missing data 0.0% )		
<b>Marital status</b>			
- Married	94%	n= 8	n= 8
- Widowed	0.0%	n=0	n=0
- Divorced	6%	n=1	n=0
	(Missing data 0.0% )		

*Note: low education included primary, secondary and high schools; high education included diploma, bachelor, master and PhD.*

### 4.3.2 Procedure

The sample came from a group of mothers whose children had taken part in our first study (see chapter 3). Based on the interpretation for the SDQ symptom

scores (AMOCN, 2005) a number of children (37 children out of 199) were reported by teachers as having a high scores in one or more of the behavioural problems subscales; 32 of them were also found to have higher than cut-off scores on negative parental style. Following these results, the mothers of these 32 children were asked to participate in the STEP programme.

The eligibility criteria for participants were: Mothers had to have at least one child in 6th grade (i.e.11-12 old). Although there is no doubt that father has a significant role on children's development (e.g. Lamb & Lewis, 2004), mothers rather than fathers were asked to participate because Kurdish fathers are primarily responsible for the financial needs for family. Children in Kurdistan spend more time at home with their mothers than their fathers as our first study found that maternal rather than paternal involvement of parenting was a significant predictor of levels of children's academic self-concept and behavioural problems. In general, it has been established that mothers tend to be more responsible for child rearing and therefore have a comparatively greater impact on children's psychological outcomes in comparison to fathers (Besharat et al., 2011; Braza et al., 2013; Grolnick & Ryan, 1989). Another criterion was that mothers had to be Kurdish speakers.

An invitation letter was sent to 32 mothers via their children's schools outlining the purpose of the study and a brief description of the STEP programme. In the parental consent form mothers were informed that their responses were confidential and would only be shared with the research team. Mothers were also told that they were free to withdraw from the study at any time without giving a reason. Seventeen mothers agreed to participate in the programme. All mothers were eligible to be recruited based on our criteria and they were randomly assigned

following simple randomisation procedures (i.e. putting their name in to a bag, shaking well and drawing their names to either treatment or control groups).

The treatment (STEP) group was led by the researcher in weekly workshops lasting 2 hours. Approximately one week before the initial treatment, baseline measures were collected through questionnaires from both treatment and control groups. Participants in the treatment group were asked to return the questionnaires before starting the training sessions. After the treatment procedure, lasting 7 weeks, post-test measures were requested from both groups.

Three months after the intervention, the questionnaires were sent to the mothers in both groups by their school children to establish whether there were any changes in parenting styles and parental stress during the 3 month period. We also examined whether any positive changes in children's academic self-concept and behavioural problems were observed after their mothers attended the STEP.

#### **4.3.3 Measures**

Three questionnaires were used to collect the data from mothers: 1) the parent version of Alabama Parenting Questionnaire (APQ; Shelton et al., (1996) to assess individual parenting styles; 2) the Parental Stress Scale (PSS; Berry & Jones, 1995) to measure the level of stress experienced by parents and 3) the STEP Parenting Assessment Technique (SPAT; Dinkmeyer et al., 1997) to ensure that the mothers in the treatment group learned the material from the STEP program. All questionnaires were translated and back-translated to Kurdish by three professionals (Appendix C); two bilinguals who were fluent in both English and Kurdish and an English native speaker who evaluated the content equivalence of each item.



**Alabama Parenting Questionnaire (APQ): (Version2: parental form).**

The Alabama Parenting Questionnaire (APQ, parent form; Shelton et al., 1996) was used to measure parenting styles. The parent form of APQ is similar to the child version consisting of 42-items that require parents to respond on a 5-point Likert scale ranging from 1 (never) to 5 (always). An example of an item of parental involvement would be “You have a friendly talk with your child” and for poor parental monitoring would be “You don’t tell your child where you are going”. In terms of the reliability, apart from corporal punishment, adequate coefficient ( $> .70$ ) was reported for the APQ sub-scales.

**Parental Stress Scale (PSS).**The Parental Stress Scale (PSS; Berry & Jones, 1995) was used to measure the level of parental stress. PSS is a self-reporting scale that consists of 18 positive and negative items rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The positive items (1, 2, 5, 6, 7, 8, 17, and 18) should be reverse scored giving 5 (strongly disagree) to 1 (strongly agree). Parents are asked to either agree or disagree with items in terms of their typical relationship with their children. An example of a positive item would be “I am happy in my role as a parent” and “The behaviour of my child(ren) is often embarrassing or stressful to me” is a negative item. The total score is obtained by summing up the value for each item. A higher score indicates a higher level of parental stress, and overall possible scores on the scale range from 18 – 90. The scale can be used for the evaluation the level of parental stress for both parents of children with and without clinical problems (Berry & Jones, 1995). Reliability of the PSS is adequate with coefficient alpha of .83 and Test-retest reliability of .81 (Berry & Jones, 1995). In the current study, a coefficient alpha of .79 was obtained.

**STEP Parenting Assessment Technique (SPAT).** In order to ensure that the participants in the treatment group learn the material from the STEP programme we used SPAT survey. This has been designed by (Dinkmeyer et al., 1997) to be used before and after the STEP programme. SPAT contains 20 questions about participant's belief and parenting attitudes. An example of an item would be "encouragement motivates children". Another item is "children learn best when mistakes are pointed out to them". Participants are asked to agree or disagree with items in terms of their typical relationship with their children. Each item can be rated on a four-point scale: strongly disagree (1) to strongly agree (4). Higher scores on the scale at the end of the programme will demonstrate that participants have greater knowledge and understanding of the STEP programme.

#### **4.3.4 Study Design**

In this pilot trial a randomised controlled design using pre- and post-test scores was employed. The intervention tested was a 7-week structured parent educational group programme. Mothers assigned to the control group did not receive any intervention from the research project, but completed the questionnaires at the same time as the treatment groups. This type of study can be considered as "proof of principle" as we wanted to verify whether STEP is effective among Kurdish mothers.

#### **4.3.5 Setting**

The programme was delivered at the *Kanakawa Iskan* primary school in Sulaymaniyah city. Some mothers came by buses or taxis when attending the session. Thus, for each session 7.500 ID (\$6.5) was given to the parents as reimbursement for their expenses.

#### **4.3.6 Intervention (Treatment)**

The age-appropriate STEP programme can be typically taught through 7 -9 weeks and is presented in a group workshop format with an optimal class size consisting of 6 to 14 parents. The workshops include information about parental behaviours and styles, exploring alternative ways for parental behaviour and expressing different ideas and feelings, understanding the reasons for children's misbehaviours, and developing children's responsibilities and confidence. The programme also includes videos that demonstrate examples of effective and ineffective family interactions. During the workshops parents are encouraged to share their personal experiences concerning their parenting skills. The workshops can be facilitated by a social worker, counsellor, paediatrician, nurse, teacher or individual who has been trained in STEP (Dinkmeyer et al., 1997).

In the current study mothers in the treatment group participated in the STEP for 7 consecutive weeks. Seven sessions were taught; each session lasted approximately 2 hours. During the sessions mothers were asked to share and discuss their experiences they gained from the practice activity. Furthermore, in each session videotape interactions were shown illustrating examples of effective and ineffective family interactions which gave mothers opportunity for discussion.

The pre-test questionnaires were collected from mothers approximately one week before starting the programme. The leader reviewed the purpose of STEP and outlined the topics that centred around the following 7 topics based on the STEP parent handbook:

- (1) Understanding yourself, your child and the reason behind children's misbehaviour
- (2) Understanding children's misbehaviour and choosing effective respond for this behaviour.
- (3) Encouraging your child to promote positive behaviour.
- (4) Communication: How to Listen to your child's feeling and talk to your child
- (5) Helping children cooperate
- (6) Discipline that makes sense
- (7) Choosing your approach (Dinkmeyer et al., 1997).

#### **4.3.7 Statistical analysis**

The Statistical Package of Social Sciences (SPSS 21) was used to perform all data analyses. Frequencies were computed for the sample's demographic characteristics. Descriptive statistics (means, standard deviations) were also used. Independent sample t-test analyses performed to examine differences between groups before starting the intervention. Hypotheses were tested by Analysis of Covariance (ANCOVA) in order to investigate group means differences from each other. ANCOVA has been shown to have benefits over repeated measures, such as a higher power (larger F-ratios) and smaller standard errors (Huitema, 2007). Therefore, this analysis was performed after checking the assumptions.

Based on the Kline's (2011) and Schmider et al. (2010) recommendations, no deviations from normality were detected (see Table 4.2). Regarding the effect size,

Cohen's  $d$  value (as assessed by the Becker's effect-size calculator) and partial eta-square ( $\eta^2_p$ ) were used to determine the effect size. According to Cohen's  $d$  (1992) guidelines  $d = .2$  is a small effect,  $d = .5$  is a moderate effect and  $d = .8$  or bigger is a large effect. Suggested norms for partial eta-squared have been shown to be: small  $= .01$ ; medium  $= .06$  and large  $= .14$  ("Statistics & Methods Centre", 2015).

Table 4.2

Reports Skewness and Kurtosis for the study sample ( $n=17$ ) prior to the intervention

<b>Variables</b>		
	<b>Skewness</b>	<b>Kurtosis</b>
<b>APQ:</b>		
Mother involvement	.22	1.1
Positive parenting	-.01	-1.51
Inconsistent discipline	-.49	-1.04
Poor parental monitoring	.16	-.59
Corporal punishment	.04	.76
<b>PSS</b>	.59	.14

## 4.4 Results

### 4.4.1 Analysis one: Before the training session

Prior to the STEP programme, an independent samples t-test was performed in order to test for differences between the treatment and control groups on the pre-tests scores of APQ and PSS. Furthermore, the assumption of homogeneity of variance was performed via Levene's  $F$  test as  $P$  values were greater than the critical value ( $p > .05$ ), ranging from ( $p = .07$  for poor parental monitoring to  $p = .96$  for inconsistent discipline). As shown in Table 4.3, the result showed no statistically significant differences in the pre-test scores between treatment and control groups.

Table 4.3

Shows means, standard deviations and t-test of pre-test scores on the APQ and PSS

Variables	Treatment group (n=9)		Control group (n=8)		t-test	Effect size
	M	SD	M	SD		
APQ:						
Mother involvement	33.2	2.4	32.8	4.8	.20	.11
Positive parenting	25.3	3.8	24.1	3.6	.66	.32
Inconsistent discipline	18.8	5.2	19.2	5.39	-.14	-.07
Poor parental monitoring	19.3	2.7	18.5	5.1	.43	.20
Corporal punishment	8.2	2.3	8.0	2.3	.22	.08
PSS	50.5	7.1	53.3	6.5	-.84	-.41

#### 4.4.2 Analysis two: Post training session

After completion of the intervention, data from 16 mothers were entered into the analyses. Descriptive statistics are shown in Table 4.4. In order to test the hypothesis that mothers participating in STEP would significantly improve their parenting style and have significantly lowered stress levels based on their parental stress score compared to those who did not attend STEP an analysis of covariance ANCOVA (with pre-test scores as the covariate) was performed. Prior to conducting the analysis, the data were checked in SPSS to make sure that they meet the assumptions. The value of covariate (pre-test) was not significant ( $p > .05$ ) over the level of independent variable (i.e. the groups). No significant result was found in the homogeneity of the regression slopes ranging from ( $p = .06$  for parental stress scale to  $p = .88$  for poor parental monitoring). This assumption checks whether there is an interaction between the covariate and the independent variable. No outliers were noticed in the data, as no cases with standardized residuals were greater than  $\pm 3.29$  standard deviations.

Table 4.4

Shows descriptive statistics of post-test scores on the APQ and PSS

Variables	Treatment group (n=8)		Control group (n=8)	
	M	SD	M	SD
<b>APQ:</b>				
Mother involvement	37.6	2.9	33.1	4.3
Positive parenting	26.1	3.0	24.5	3.7
Inconsistent discipline	13.7	3.9	18.3	3.8
Poor parental monitoring	17.8	2.6	18.0	4.3
Corporal punishment	5.2	1.4	7.8	1.7
<b>PSS</b>	45.7	7.1	52.8	5.0

*Note: post-test data for one mother in the treatment group could not be collected at the end of the programme*

Therefore, as shown in Table 4.5, the result of the ANCOVA showed statistically significant differences between groups on three subscales of the APQ: the mother involvement subscale,  $F(1,13) = 25.81, p < .001, \eta^2_p = .67$ ; the inconsistent discipline subscale,  $F(1,13) = 25.46, p < .001, \eta^2_p = .66$ ; and the corporal punishment subscale  $F(1,13) = 17.3, p < .005, \eta^2_p = .57$ . A statistically significant difference between groups was also found on the PSS,  $F(1,13) = 19.63, p < .001, \eta^2_p = .60$ . No other significant results were found in the positive parenting and poor parental styles.

Table 4.5

Shows the result of (ANCOVA) in APQ and PSS between groups

Tests of Between-Subjects Effects				
Dependent variables	df	F	P	$\eta^2_p$
<b>APQ</b>				
Mother involvement	1	25.8	.001	.67
Positive parenting	1	.77	.39	.05
Inconsistent discipline	1	25.4	.001	.66
Poor parental monitoring	1	1.51	.24	.10
Corporal punishment	1	17.3	.005	.57
<b>PSS</b>	1	19.6	.001	.60

In order to examine these results in more detail, Pairwise comparisons of the estimated marginal means were conducted with Bonferroni adjusted levels showing significant mean difference between groups, which suggests that mothers in the treatment group achieved more positive improvements in parenting styles (mother involvement, inconsistent discipline and corporal punishment) and a noteworthy decrease in parental stress compared with mothers not taking part in the programme.

Moreover, in order to test that the mothers in the treatment group did gain knowledge of the material from the STEP programme, paired t-test compared the pre-test and post test scores of the SPAT questionnaire. A high association between the two conditions ( $r = .81$ ,  $p < .05$ ) was noticed, suggesting that the paired t-test is suitable in this case. Consequently, the result showed that the mothers' post-test mean in SPAT was statistically and significantly higher than the pre-test mean,  $t(7) = -3.28$ ,  $p < .05$ ,  $d = -.70$ , indicating that mothers in the training group tended to achieve high knowledge of the STEP materials.

Although the findings overall indicate that there were some improvements in the parenting styles and parental stress for intervention group, it was unclear whether the changes were sustained over time. In addition, it was not evident whether STEP can impact on their children's academic self-concept and behavioural problems. Therefore, our next study followed up the changes after 3 month time points (as shown in the analysis three).

#### **4.4.3 Analysis three: Three months Follow-up**

In order to examine the effectiveness of the STEP programme with mothers who attended the intervention, follow-up research was conducted three months after completion of the intervention. Follow-up measures of academic self-concept and



behavioural problems were also tested for the children (girls= 4, boys= 12) whose mothers participated in the programme. It should be clarified that one child belonged to each mother who had participated in the intervention. In this follow-up study we aimed to address two questions: First did the improvements found after attending STEP in parenting styles and parental stress persist over a period of time? Second, were there any positive changes in children's academic self-concept and behavioural problems are observed after their mothers attended the STEP?

The procedure was started by sending questionnaires to the mothers in both groups by their school children in order to obtain information on changes in parenting styles and parental stress during the 3 month period. Children's data from our first study was used as the base-line (i.e. pre-test) data. To obtain post-test data, the children were asked to fill in Myself-as-a-Learner Scale (MALS; Burden, 1998) to measure their academic self-concept. Teachers also filled the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) in order to identify children's behavioural problems for a second time (post-test) having already done so at pre-test.

The data from pre-test to follow-up were tested by computing ANCOVA for the following reasons: first, to be sure about the 'true' intervention effect, whether or not improvements have been maintained or if mothers have regressed to using negative parenting techniques which they employed before the intervention (pre-test). Second, the values of the covariates were significantly over the level of the independent variable (i.e. the groups). In other words, because there were some differences in the four variables between both treatment and control groups in the post-test, we were not able to use post-test data as a covariate. As Rausch, Maxwell and Kelley (2003) argued, because the groups are likely to differ at post-test, "the design now potentially compares non-equivalent groups"; thus, comparing groups

from post-test to follow-up may methodologically have some issues even though the groups are initially equivalent at pre-test (p.478). In our study therefore, the data were analysed using the pre-test to the follow-up time point.

Most of the previous research reviewed has only used data from treatment groups at follow-up (Smith, 2013). The use of a control group is essential because accurate results are based on direct comparisons between the two groups. Without the use of a control group it may be unclear that the effects (negative or positive) are due to the intervention or due to other confounding variables e.g., maturity and social circumstances. Hence, we used both groups in the follow-up period.

### **Group Differences in Parenting Styles and Parental Stress (pre-test to follow-up)**

Descriptive statistics of the follow-up are shown in Table 4.6. In order to test whether mothers participating in STEP were able to maintain positive gains over the three months long follow-up period, ANCOVA (with pre-test scores as the covariate) was performed. Again, the assumptions of ANCOVA were checked with no violations being observed.

Table 4.6

Shows descriptive statistics of the APQ and PPS in follow-up time point

Variables	Treatment group (n=8)		Control group (n=8)	
	M	SD	M	SD
<b>APQ:</b>				
Mother involvement	38.0	3.8	33.3	3.2
Positive parenting	27.0	3.1	25.1	3.5
Inconsistent discipline	14.4	2.5	18.6	4.1
Poor parental monitoring	17.6	2.7	17.1	4.3
Corporal punishment	4.8	1.4	8.1	1.4
<b>PSS</b>	46.1	6.8	52.2	4.0

As shown in (Table 4.7) the result showed statistically significant differences between groups on three subscales of the APQ (mother involvement subscale,  $F(1,13) = 13.2, p < .005, \eta^2_p = .50$ ; the inconsistent discipline subscale,  $F(1,13) = 16.3, p < .001, \eta^2_p = .56$ ; and the corporal punishment,  $F(1,13) = 24.1, p < .0005, \eta^2_p = .65$ . No other statistically significant differences were obtained among the groups for the remaining dependent measures in APQ. Statistically significant differences between groups were also found for parental stress scale (PSS),  $F(1,13) = 5.1, p < .05, \eta^2_p = .28$ .

Table 4.7

The result of Analysis of covariance (ANCOVA) in APQ and PSS between-subjects effects from pre-treatment to follow-up

<b>Tests of Between-Subjects Effects</b>				
<b>Dependent variables</b>	<b>Df</b>	<b>F</b>	<b>P</b>	<b><math>\eta^2_p</math></b>
<b>APQ</b>				
Mother involvement	1	13.2	.003	.50
Positive parenting	1	1.8	.20	.12
Inconsistent discipline	1	16.3	.001	.56
Poor parental monitoring	1	0.20	.89	.002
Corporal punishment	1	24.1	.001	.65
<b>PSS</b>	1	5.1	.04	.28

Pairwise comparisons of the estimated marginal means with Bonferroni adjusted levels showed that mothers in the treatment group compared to the control group had a significantly higher mean score in mother involvement and lower scores for inconsistent discipline, corporal punishment and parental stress scale. Noteworthy results indicate that the significant group differences from (pre-test to follow-up) in mother involvement, inconsistent discipline and PSS are maintained, and that additionally a larger drop in corporal punishment was noticed in the treatment group (see Figure 4.1).

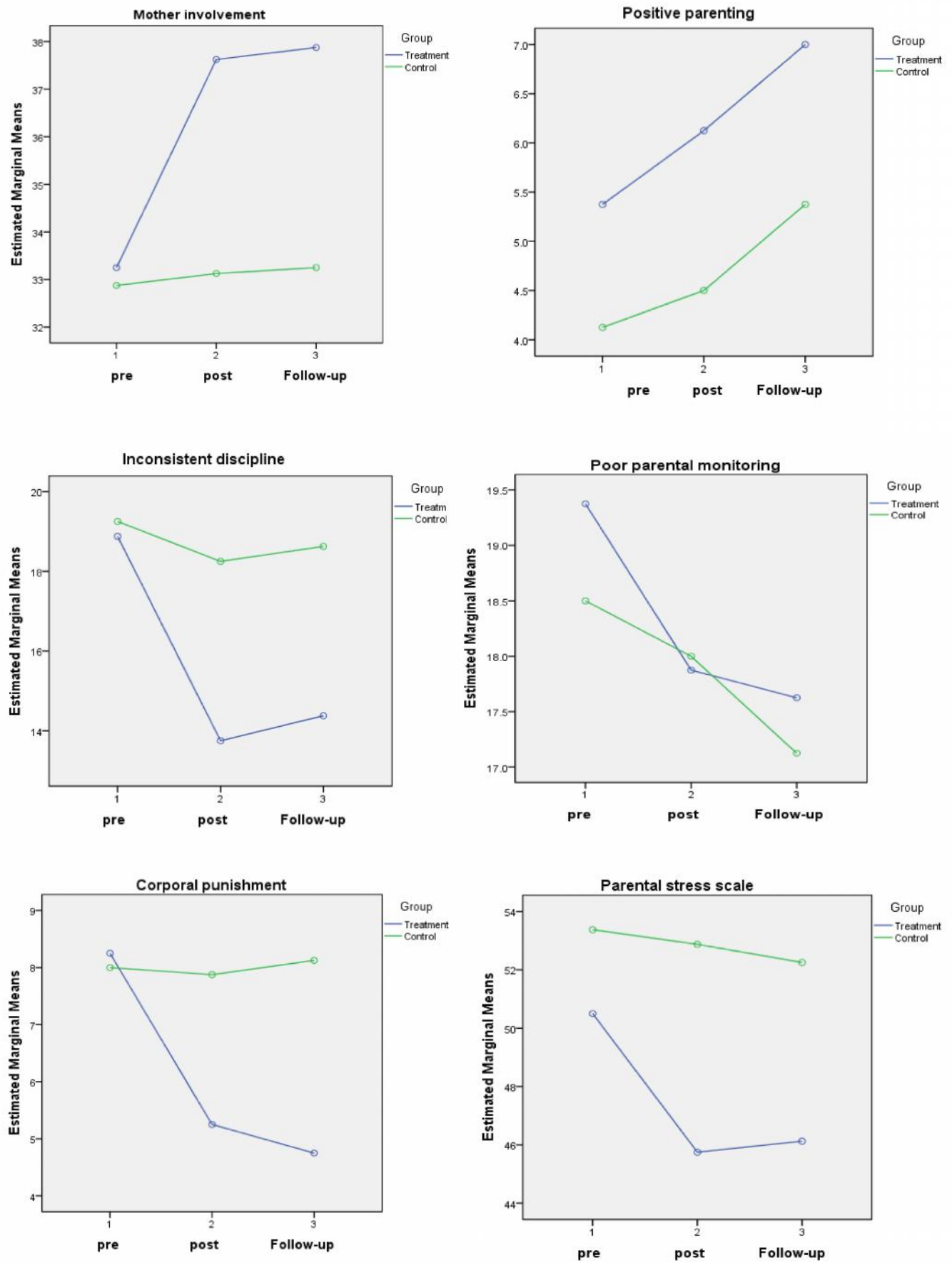


Figure 4.1. Illustrates changes in parenting styles and parental stress between groups

## Group differences in the academic self-concept and behavioural problems of children

The descriptive statistics for the children's data from baseline to post-test was shown in Table 4.8. ANCOVA (with baseline scores as the covariate) was performed to observe group differences in children academic self-concept and behavioural problems for children whose mothers attended the intervention compared to other children whose mothers were in the control group. For the children's data the assumptions of ANCOVA were also tested. The value of covariate was not significant over the level of independent variable *P* value ranging from ( $p = .13$  for peer problems to  $p = .91$  for conduct problems). No significant result was also found ( $P > .05$ ) in the homogeneity of the regression slopes ranging from ( $p = .30$  for emotional problems to  $p = .93$  for internalising problems). No outliers were noticed in the data, as no cases with standardized residuals were greater than  $\pm 3.29$  standard deviations. No skewness or kurtosis values were above the recommended cut-offs.

Table 4.8

Shows descriptive statistics from base-line to post-tests for children

Variables	children whose mother attended (n=8)				children whose mother didn't attend (n=8)			
	Base line		Post-test		Base line		Post-test	
	M	SD	M	SD	M	SD	M	SD
Academic self-concept	74.5	12.3	78.5	11.4	76.5	8.6	77.0	10.3
<b>SDQ</b>								
Prosocial behaviour	5.4	1.06	7.0	.84	6.4	2.4	6.7	1.67
Hyperactivity	6.0	1.2	4.2	1.04	5.0	1.8	3.6	1.2
Emotional problems	5.5	1.9	4.0	1.3	4.8	.89	3.9	.84
Conduct problems	3.4	1.8	3.5	.93	3.2	2.3	3.6	.74
Peer problems	3.4	1.1	3.6	.92	4.4	1.4	4.6	.73
Total difficulties	18.2	2.0	15.3	2.9	17.0	1.9	15.8	1.8
Internalizing problems	9.3	2.1	7.8	1.4	8.3	1.5	7.2	1.04
Externalizing problems	8.9	2.2	7.6	2.0	9.13	1.3	8.5	1.1

Based on the result of ANCOVA we found no statistical differences in academic self-concept and behavioural problems between children whose mothers attended STEP and others whose mothers did not attend (see Table 4.9).

Table 4.9

The result of ANCOVA in academic self-concept and behavioural problems between the two groups of children

<b>Tests of Between-Subjects Effects</b>				
<b>Dependent variables</b>	<b>Df</b>	<b>F</b>	<b>P</b>	<b><math>\eta^2_p</math></b>
Academic self-concept	1	2.57	.13	.16
<b>SDQ</b>				
Prosocial behaviour	1	2.71	.12	.17
Hyperactivity	1	.54	.48	.04
Emotional problems	1	.83	.38	.06
Conduct problems	1	.21	.65	.02
Peer problems	1	2.56	.13	.16
Total difficulties	1	1.2	.30	.08
Internalizing problems	1	2.1	.17	.14
Externalizing problems	1	.30	.59	.02

## 4.5 Discussion

The main aim of this study was to examine whether STEP is an effective intervention to improve parenting styles and decrease parental stress among Kurdish mothers. A secondary objective was to follow up three months post intervention to measure whether the improvements after attending STEP in parenting styles and parental stress persist over a period of time. Academic self-concept and behavioural problems for those children whose mothers attended the programme were also measured in the follow-up study.

In common with previous findings (Al-Shopaki & Hamdi, 2008; Fennell & Fishel, 1998; Huebner, 2002; Larson 2000; Sharpley & Poiner, 1980) our results showed significant improvements in parenting styles and parental stress in the treatment group. Specifically, there were statistically significant differences between the treatment and control groups on a number of subscales of the APQ (i.e. mother involvement, inconsistent discipline and corporal punishment) and the PSS. Mothers in the treatment group scored higher on the mother involvement subscale and lower score in inconsistent discipline, corporal punishment and parental stress scales. Mothers reported through the SPAT questionnaire, that they had a better understanding of the STEP programme materials. Nevertheless, despite there being some positive changes in positive parenting dimensions and poor parental monitoring amongst STEP group, the difference was not found to be significant. One possible reason for this result is that mothers might be motivated to deal with inconsistent discipline and corporal punishment because STEP centres around topics related to this e.g., discipline that makes sense, understanding children's misbehaviour and choosing an effective response for this behaviour.

Regarding follow-up, at three months post intervention, questionnaires were completed by both groups. It was found that positive changes achieved pre- to post-test were sustained at three month follow-up. Furthermore, there was a significant and sustained continuing decrease in the use of corporal punishment in the treatment group. These findings are consistent with the previous literature (Hautmann et al., 2009; Jonyniene et al., 2015; Reedtz et al., 2011; Webster-Stratton et al., 1988, 1989) in which improvements in parenting styles and parental stress as a result of parenting interventions was found to be sustained over a period of time (i.e. 3 months up to 3 years).

Moreover, no statistically significant improvements were found in academic self-concept and behavioural problems for those children whose mothers attended and did not attend the STEP programme. These findings are similar to the results of Davis (1994) who found no significant improvement in child's behaviour after parents attended in four sessions of STEP. The findings are also supported by Clarkson (1978) and Jackson and Brown (1986) all of whom found that the STEP intervention did not engender positive changes in children's self-concept. One reason for this finding may be due to the fact that the children of mothers in the treatment group did not simultaneously attend STEP sessions with their mothers. Another reason may be related to the relatively short duration of the intervention during which time children did not show a direct benefit. It has also been argued that children who are vulnerable to harsh rearing practices are less affected by a positive rearing style (Jarrett, 2016); thus, the characteristics of these children are needed to be studied further to reach any firm conclusions.

Nevertheless, our results suggest that the STEP programme improved parenting style and reduced parental stress which ultimately may be a key mechanism for change in their children's long-term psychological and behavioural outcomes. These findings are promising because it has previously been concluded in the literature that there is a strong relationship between parenting styles with academic self-concept and behavioural problems (DeDonno & Fagan 2013; also see Sangawi et al., 2015 for a review). STEP offers strategies for parents who engage with their children more effectively; therefore, using STEP strategies over a longer period of time may have an increasingly positive impact on reducing children's behavioural problems (Spence, 2008).



In addition, the present study supports previous studies (e.g., Al-Shopaki & Hamdi, 2008; Tehrani-Doost et al., 2009; Knerr et al., 2013) which reported that not only parents in developed countries, benefit from parental training programmes but also parents in developing countries. The findings from the present study provide additional evidence for the positive impact on parenting styles and parental stress after participation in the STEP training programme. In summary, this study was conducted among a group of mothers whose children had taken part in our first study. In short, based on the findings of our first study a number of children was found to have a high scores in one or more of the behavioural problems subscales as well as having higher than cut-off scores on negative parental style. Following these results, the mothers of those children were asked to participate in the STEP programme. As shown above, the current study eventually showed that the intervention can be helpful for Kurdish mothers to improve the negative parenting skills and reduce parental stress.

The following analysis is based on findings of study 1. The results of our first study showed that teachers reported hyperactivity to be more prevalent than other behavioural problems among Kurdish schools children. Poor parental monitoring was also found to be a strong predictor of academic self-concept and behavioural problems, and was highly predictive of hyperactivity problems. Since each of poor parental monitoring and negative behaviour such as hyperactivity expressed by children have previously been found to be linked to poor cognitive abilities in schools, further research needs to examine this conjecture, particularly in Iraqi Kurdistan as these factors have long term costs for society. Nevertheless, the study 1 moved away from examining the moderating role of parenting style, and only addressed question concerning the ways in which children's academic self-concept

acts as a mediator between parenting and behavioural problems. Thus, our next step was to look at the central role of a parenting dimension, such as parental monitoring, in the association between children executive abilities and their behavioural problems such as hyperactivity. It is therefore proposed that these two variables, particularly poor parental monitoring, are important factors that are significantly associated with the Kurdish children's academic and social life; hence they were examined further in our third study (see Chapter 5).

## Chapter Five: Study three

### Individual Differences in Executive Function: The Role of Parental Monitoring as a Moderator

#### 5.1 Abstract

Parenting style is considered to be a factor which is associated with the development of executive functioning in children. It is proposed that parental monitoring of their child has an effect on specific components of executive functions, namely verbal and non-verbal inhibition, reaction time, accuracy, processing speed and task persistence. One hundred and twelve sixth-grade children (mean age, 11 years 5 months range 11.2 - 12.7 years) participated in the study. Children were matched on level of hyperactivity (i.e. high or low level). Parental monitoring assessment (PMA) was used to measure parental monitoring and the Strengths and Difficulties Questionnaire (SDQ) was used to assess the levels of hyperactivity. Executive function was assessed with the Stop-Signal task to examine non-verbal inhibition, accuracy and reaction time, Modified Opposite Worlds to investigate verbal inhibition and processing speed; and a challenging star puzzle to assess task persistence. *PROCESS* analysis was also used to perform the moderation analysis. Results indicated that children characterised by poor parental monitoring had deficits in inhibitory control and had significantly slower processing speeds and made significantly more errors than their matched dyad. Furthermore, children with high levels of hyperactivity had difficulties in inhibitory control, accuracy, processing speed and task persistence compared with the control group. However, contrary to our prediction, no significant differences were found in reaction times compared to the control group. *PROCESS* analysis showed a significant moderating role of parental monitoring in the association between each of accuracy, verbal

inhibition and task persistence with hyperactivity, suggesting that the strength of the relationship between certain executive function components and hyperactivity expressed by the children can be changed based on the level of parental monitoring.

## **5.2 Introduction**

Executive function is not a single identifiable cognitive skill. It is an umbrella term which encompasses a set of higher order mental processes, including planning, mental flexibility, response–inhibition, information processing, self-regulation, persistence and working memory (Anderson, 2002; Barkley, 1997; Diamond, 2013; Weyandt & Willis, 1994). Research has shown that development of executive function is dependent upon the maturation of the prefrontal cortex (e.g. Diamond & Tylor, 1996). It is important to note, however, that positive parenting styles enhance child executive function development; with the opposite being true for negative parenting styles (Alaniz, 2015; Roskam et al., 2014). From a review Belsky and Haan (2011) concluded that neglect or harsh discipline adversely affects brain development. Other social environmental factors (e.g., school, friend, work, and neighbourhood) might have an impact on the development of child's executive function. However, as shown in section 2.10.4, it could be argued that parenting behaviours, including parental monitoring have a significant impact on higher levels of executive functioning (Patock-Peckham, King, Morgan-Lopez, Ulloa & Moses, 2011).

Parental monitoring includes parental supervision, knowledge of where and with whom children are spending time and in what activities they are engaged in (Shelton et al., 1996; Small & Kerns, 1993). Parental support and monitoring can positively impact on children's cognitive development (Roskam et al., 2014).

Empirical research has also suggested that parental monitoring has a crucial influence on child executive function development. For instance, parental monitoring has been found to be associated with low expression of impulsiveness (Patock-Peckham et al., 2011). In addition, based on data collected from 421 families, Roskam et al. (2014) examined the impact of parenting on the development of children's inhibition. The investigators found that parenting behaviours, including greater monitoring, was significantly correlated with the development of inhibition abilities in children. Similarly, Crossley and Buckner (2012) demonstrated that maternal monitoring was a significant predictor of children's self-regulation.

Furthermore (see section 2.10.5), associations between executive functioning and attention deficit hyperactivity disorder (ADHD) have been widely reported (e.g. Barkley, 1997; Booth, Carlson & Tucker, 2007; Hoza, Pelham, Waschbusch, Kipp & Owens, 2001; Willcutt et al., 2005). Empirical research found that hyperactive children tend to encounter more commission errors and display more frequent and longer delays in inhibition responses (Adams & Snowling, 2001; Albrecht, et al., 2005; Mitchell, Chavez, Baker, Guzman & Azen, 1990). Further evidence suggests that hyperactivity is associated with a lack of task persistence. For example, Hoza et al. (2001) analysed the executive functioning, including academic task persistence, of 83 boys meeting diagnostic criteria for ADHD and 66 same-aged male controls. The findings showed that boys with ADHD were off-task more often and solved fewer puzzle tests as compared with their non-ADHD counterparts (see section 2.10.5 for critical interpretation of hyperactivity in the diagnosis of ADHD).

Taken together, based on the results of these studies children who have experienced poor parental monitoring might be at risk for the development of executive function. Additionally, these studies point to the fact that children with

attention and hyperactivity disorders tend to have deficits in executive functions. It is important to note, however, that despite the link between executive functions and hyperactivity, there is no research exploring whether parental monitoring acts as a moderator in this relationship. Therefore, this study investigates the role parental monitoring has in moderating the effects of executive functions on hyperactive behaviour. Previous research (e.g. O'Hara & Holmbeck, 2013) has demonstrated the moderating role of parenting behaviours (i.e. maternal and paternal behavioural control and paternal psychological control) in the relationship between executive functions and youth children adherence health care behaviour. Hence, in the current study we hypothesise that parental monitoring will act a significant moderator in the relationship between executive functions and hyperactivity problem.

Additionally, most of research on the relationship between parenting style and executive functioning has been conducted in North America and Europe. Very little research has been conducted to address role of parental monitoring on executive functions in Eastern or Muslim societies. It has been argued that the child's cultural milieu may play a role in the development of executive function (Lewis et al., 2009). The present study was therefore conducted in the Kurdistan region of Iraq and was designed to address two main questions; (1) to test whether there are group differences in executive functions based on the levels of parental monitoring and child hyperactivity. (2) To examine if there is any moderating role of parental monitoring in the relationship between executive functions and children's level of hyperactivity.

## **5.3 Method**

### **5.3.1 Participants**

Participants were recruited from five primary schools in Sulaymanyah city in the Kurdistan region of Iraq. The eligibility criteria for participants were: First, they had to be Iraqi Kurdish, not other Kurdish refugees (e.g. Syrian) who were resident in Sulaymanyah city. Second, they had to live with at least one parent, rather than other caregivers. Finally, children had to attend year six and be no older than 13 years. Based on the method shown below in the procedure, from an initial sample of 357 potential participants (see the below flowchart), 112 children were selected to participate in the study. The mean age of the children was 11 years 5 months and ranged from 11.2 to 12.7 years, with 34 girls (30%) and 78 boys (70%). No missing data were noted from parents and teachers reporting SDQ and children reporting PMA questionnaire.

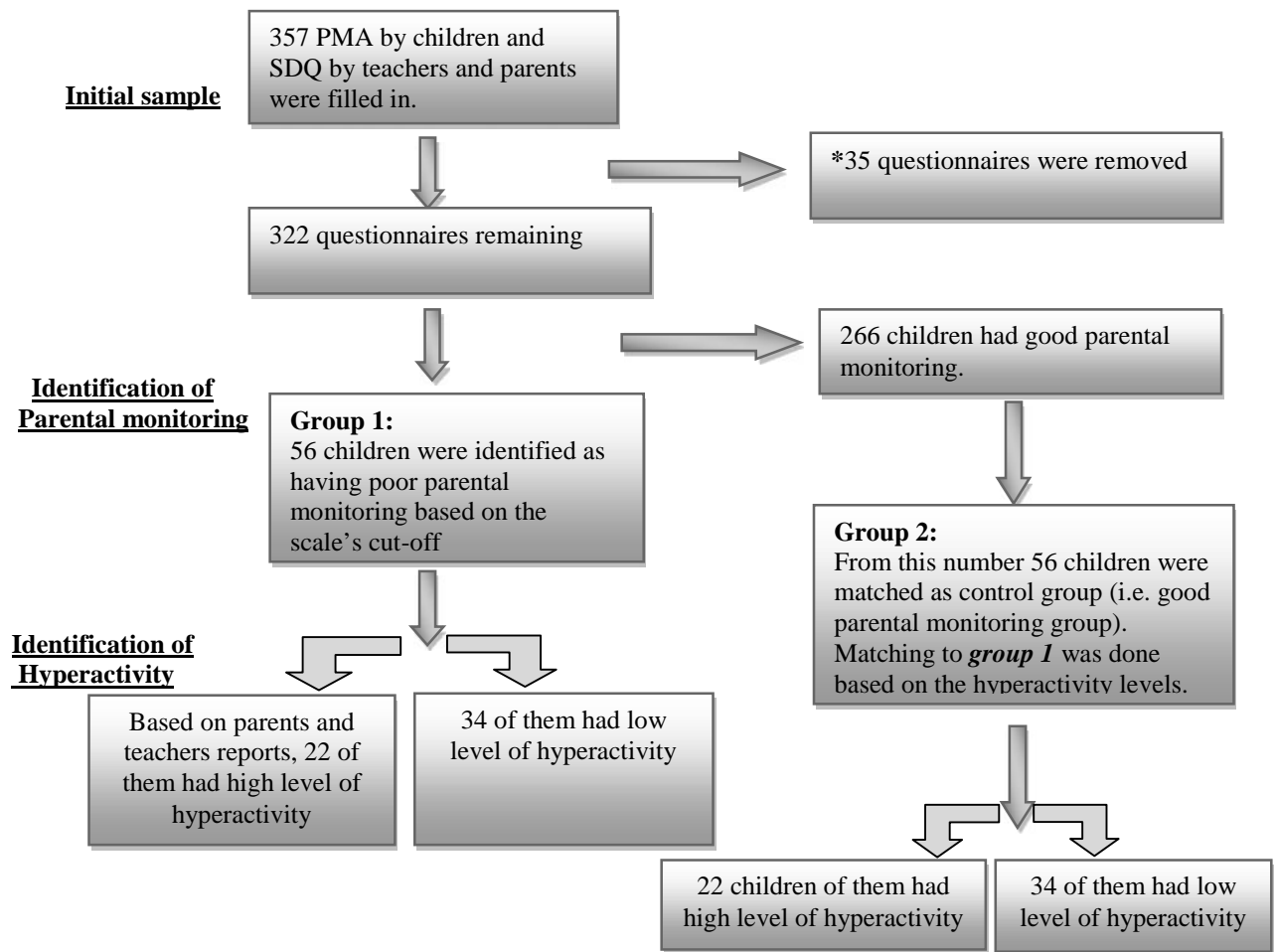
### **5.3.2 Procedures**

A consent letter to approach schools was obtained from the director of the Sulaymaniyah Governor of Education. In addition to one school where the pilot study was carried out, five primary schools were chosen in different neighbourhoods in the Sulaymaniyah city for the sampling procedure. The schools selected in the academic year 2014-15 were *Zargata*, *Kamiaran Shin*, *Makwan*, *Peshkawtn* and *Kamiaran Swr* primary schools. The headteacher and children received a leaflet with brief information about the purpose of the study. Every child took home a copy of the parental consent form along with the SDQ questionnaire, which had to be completed by their parents. Children were assured of the confidentiality of their data

and that any responses would only be seen by the research team. Children participated individually in a quiet room. Each child was given the three tasks (STOP-IT, Same-Opposite World task and persistence task). Before starting the experiments, children were told that they were free to withdraw from the study at any time. After completing the tasks, children received small educational gifts (stationery) for their participation.

Parental Monitoring Assessment (PMA) was completed by the children. Additionally teachers of the children also completed 6 items of the hyperactivity subscale of SDQ, the same subscale which parents were asked to complete. 35 SDQ questionnaires were removed because of highly inconsistent scores between parents' and teachers' reports. The data of a child had to be excluded from the sampling process when there was a big difference (e.g., a parent's report was = 2, but the teacher's report was =7 and vice versa) between teacher and parent ratings of the hyperactivity for this child. As shown in the flowchart, 56 children reported poor parental monitoring based on their low cut-off of PMA. Among these children, 22 showed high levels and 34 children low levels of hyperactivity. The group of children with good parental monitoring (N=56) were matched to children with poor parental monitoring based on their hyperactivity levels.





**Figure 5.1. Flowchart of the sampling procedure**

**Note:** 35 SDQ questionnaires (10%) were removed because of highly inconsistent scores.  
 Based on PMA filled by children from the whole sample (56 children have poor parental monitoring, and other 56 children have good parental monitoring)  
 Based on parents and teachers' reports of SDQ from the whole sample (44 children have high level of hyperactivity, while 68 have low level of hyperactivity)

After classifying the group independent sample t-tests compared the participants' responses. Means and standard deviation scores for PMA of the 56 children classified as receiving poor parental monitoring were ( $M=16.30/SD= 2.1$ ), while for 56 matched children in the good parental monitoring group ( $M=31.3/ SD= 3.8$ ),  $t(110) = 25.4$ ,  $p < .001$ . Additionally, for teachers' reporting SDQ,  $t(110) = 18.5$ ,  $p < .001$  between the total of 44 children placed in high level of hyperactivity group ( $M=6.9/ SD= 1.04$ ) and 68 children placed in low hyperactivity group ( $M=2.2/ SD= 1.4$ ). For parents' reporting SDQ,  $t(110) = 17.7$ ,  $p < .001$  between high level of

hyperactivity ( $M=6.05/SD=1.01$ ) compared with the low level of hyperactivity group ( $M=1.9/SD=1.3$ ). These results indicate that the sampling procedure placed participants correctly into groups. Additionally a *Pearson correlation* between parents and teachers reports of SDQ, ( $r=.86, p < .001$ ), suggests very good consistency between parents and teachers reports of SDQ for the current sample ( $N=112$  children). Hence, due to have high correlation between their responses the parents' and teachers' reports of hyperactivity were combined using "Compute Variables" in SPSS.

### **5.3.3 Pilot study**

This small study was performed in order to evaluate time, cost, adverse events, find any issue and improve upon the study design prior to conduct the main study. One school (Shakar Primary School) was chosen randomly as the site of the study. Twenty ( $N=20$ ) children in sixth grade were recruited to participate. Each child was asked to work on three different tasks to assess children's executive function (STOP-IT task, Same and Opposite World task and persistence task). From this study we observed that the instruction of STOP-IT task was clear for most of the children. However, two children needed further explanation, although they had already read the instructions. For that reason, we decided to be sure that children had understood how the STOP-IT task works in the main experiment. It was noticed that the time spent on the task takes approximately 4-5 minutes.

The Same-Opposite World task was clear for all the children, and it took 1-2 minutes for them to complete it. As for the persistence task, a challenging task (a star puzzle) was given to the children to be solved through two phases of five minutes each. As a result, except for 3 children who solved the puzzle, 17 children did not

want to persist (13 of them gave up during the first phase and 4 children gave up during the second phase). Therefore, this task was considered to be a challenging task and appropriate for assessing persistence in children in age 11-12 years old.

#### **5.3.4 Measures**

The Parental Monitoring Assessment (PMA; Small & Kerns 1993) and Hyperactivity subscale measured by Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) were used to collect data. Before using among children, PMA was back-translated into Kurdish by the professionals mentioned in (Appendix C). The SDQ was already back-translated into Kurdish in our previous study (see chapter 3). PMA has widely been utilized in several Eastern and Muslim countries (e.g. Farid, Che'Rus, Dahlui, Al-Sadat, & Aziz, 2014; Krauss, Collura, Zeldin, Ortega, Abdullah, & Sulaiman, 2014) and considered to be relatively culture bias-free.

**Parental monitoring assessment (PMA).** This measure was employed to assess parents' knowledge and awareness of the whereabouts of their children. The PMA was originally an 8-item scale developed by Small and Kerns (1993) from interview research by Patterson and Stouthamer-Loeber (1984). Children were asked to assess to what extent their parents knew where and with whom they were. Examples of items are, "My parents know where I am after school", "When I go out, my parent(s) ask me where I am going" and "My parents know who my friends are". Each item has a 5-point Likert scale of possible responses, ranging from 1= never, 2 = rarely, 3 = sometimes, 4 = most of the time and 5 = always. To obtain the level of parental monitoring, all items of the scale were summed and divided by the number of items. A higher score indicates higher parental knowledge of the whereabouts of

their children. In terms of reliability, 0.84 and 0.93 were obtained from the study of Farid et al., (2014) and Patock-Peckham et al., (2011), respectively. The alpha reliability of the scale in the current study was 0.81.

**Strengths and Difficulties Questionnaire (SDQ).** Children's hyperactivity was assessed by a subscale of the Strengths and Difficulties Questionnaire (SDQ, Goodman 1997). In the current study, both parents and teachers were asked to fill out the questionnaire because it is argued that using more than one source of information and multiple informant assessment of children would be more accurate (Kagan, Snidman, McManis, Woodward, & Hardway, 2002). Moreover, it has been argued that negative behaviour should be detected in more than one setting, such as the home and school (American Psychiatric Association, 2013). In chapter 3, (section 3.5.3), information regarding example of the SDQ items and reliability has been reported.

### **5.3.5 Tests and materials of executive function**

**STOP-IT task.** This task is a computerized measurement, (Verbruggen, Logan & Stevens, 2008), used to assess non-verbal response inhibition. In this task, participants are required to respond as quickly as possible to a stimulus unless a stop signal is presented. For example, participants are asked to press the (Z) button on the keyboard when they see a square stimulus and the slash (/) button when they see circle stimulus. The task is comprised of two phases: Before starting the general experiment, a practice of 32 trials was shown to the participant followed by an experimental phase of three blocks of 64 trials each (192 trials). Those trials (75%), which were not followed by an auditory signal, are counted as no-signal trials (the

“GO” signal). However, 25% of the trials were followed by an auditory stop signal. Participants were asked not to press anything and to try to withhold their responses when they heard the signal (square or circle stimuli with an auditory “STOP” signal).

In the current study the following dependent variables were assessed: to assess non-verbal response inhibition the number of errors was recorded when participants incorrectly responded during the 48 signal trials. Success was judged by the ability to suppress participants’ response to press the key button when having a STOP signal. Higher commission error (responding to the signal trials) was calculated as fail in response inhibition. The mean reaction time on non signal-respond trials (NS-RT) was also assessed. The reaction time of correct responses was calculated only because it is argued that the reaction times from error trials are unreliable and all trials without an error as the original reaction time (Wall, 2012). In addition, to assess accuracy in response, the mean percentage of correct responses on no-signal trials (NS-HIT) was also calculated. The collected data were analysed by an additional analysing program called ANALYZE-IT created by Verbruggen et al. (2008) to provide descriptive statistics for the dependent variables.

**Modified ‘Opposite Worlds’ MOW.** This task was used to assess the inhibition in the verbal response among children. This task was modified by Adams and Snowling (2001) from a subtest of the ‘Tests of Everyday Attention for Children’ (TEACh) battery (Manly, Robertson, Anderson, & Nimmo-Smith, 2001). In the task, a path of 50 randomly sequenced digits 1 and 2 was shown to the children. In the normal condition (same worlds), children were required to say '1' or '2' as quickly and accurately as possible when they landed on the number. The purpose of this condition was to see any unexpected difficulties a child might experience with the task and also to reinforce the “prepotent” of naming the numbers

in the usual manner. For the reversal trials (opposite worlds), they were asked to say the opposite of what was printed, i.e., when landing on 1 the correct answer was “two” and when landing on 2, the correct answer was “one”, inhibiting the pre-potent verbal response. If a child made a mistake during the test, he or she was encouraged to go back and correct his or her response and continue with the task. The accuracy (number of errors made) was recorded for each child. Higher commission error rates indicate poor inhibitory control. The time to complete each path (speed) was also recorded using a stopwatch.

**Task persistence.** To assess a child’s ability to persist on a task, a challenging task was given to the children. The task was comprised of 9 pieces of a star puzzle and the children were asked to solve it in two phases. Each child was told that certain children previously solved the task in a pilot study; this information was given to reduce boredom and to indicate that it was a solvable task. During the first phase (the first 5 minutes), the child was required to work on the task. If the child finished (assembled the star’s pieces) the task in the first phase but the solution was not correct, he or she was told that it was not correct and was asked if he or she wanted to go on with the second phase. The child was allowed to continue for the second phase (an additional 5 minutes) when he or she asked to have more time. The task was challenging for most of the children, and 82% gave up within the 10 minutes. The data of those (i.e. 18%) who could solve the task quickly were excluded from the analysis. This is because some children could quickly solve the puzzle; hence, we were not able to measure any persistence (i.e. whether they quickly give up or not). The length of time spent working at the task was recorded using a stopwatch.

The three executive function tasks were chosen based upon the following rationale. First, the STOP-IT paradigm which was employed to measure non-verbal inhibition has become increasingly common in the fields of cognitive neuroscience and cognitive psychology (Verbruggen & Logan 2008). It is also a well-established instrument, validated for inhibitory control and suitable for testing response inhibition in the laboratory setting. In addition, the STOP-IT paradigm allows for the simultaneous assessment of several dependent variables (e.g. reaction time and accuracy). Secondly, we utilised the MOW to assess verbal inhibition because previous research (e.g. Adams & Snowling, 2001) has found significant deficits in verbal inhibition among hyperactive children as compared to healthy controls using the MOW task. As such, it is considered an accurate tool for with which to examine group difference between hyperactive children and healthy controls. Third, both the STOP-IT and MOW tasks require that the child perform two essential executive processes (e.g. shifting between retrieval strategies and selectively attending to one stimulus whilst inhibiting others) (Adams & Snowling, 2001). Moreover, to assess persistence, a challenging star puzzle was used. In our pilot study, we found that 17 out of 20 children did not want to persist. We thus considered this task to be challenging and appropriate for assessing persistence in children aged 11–12 years old.

### 5.3.6 Statistical Analyses

The Statistical Package of Social Sciences (SPSS 21) was used to perform all data analyses. Descriptive statistics (means, standard deviations) were also used. Research questions were tested by one-way Analysis of Covariance (ANCOVA) and Independent-sample t-tests to find group differences. The *PROCESS* analysis by Hayes (2013) was also used to create the moderation models. Effect size was estimated by partial eta-squared ( $\eta^2_p$ ) and Cohen's d value by the Becker's effect-size calculator (<http://www.uccs.edu/~lbecker/>). Skewness and kurtosis values for each variable were computed based on the Kline's (2011) recommendation and no deviations from normality were detected (see Table 5.1).

Table 5.1

Shows normality of the used variables in the study

Variables	M	SD	Skewness	Kurtosis
<b>STOP-IT task</b>				
Error (responding to the signal trials)	53.2	15.3	1.9	2.7
Accuracy (NS-HIT)	84.9	8.7	-.88	1.1
Reaction time for non signal trials (NS-RT)	704.5	94.5	-.31	.27
<b>MOW task</b>				
Speed (Same worlds)	23.4	3.7	.67	-.06
Error	.66	.71	.91	.60
Speed (Opposite worlds)	36.5	6.7	.28	-.16
Error	2.2	1.4	.49	-.47
<b>Task persistence</b>				
Time Taking	5.9	1.35	.56	-.42

*Higher commission error rates indicate poor inhibitory control*

## 5.4 Results

### 5.4.1 Are there Group Differences in Children's Executive Function?

#### STOP-IT task

Independent-sample t-tests were performed to address this question.

Preliminary assumption checking was carried out to test assumption of homogeneity of variance which was checked via Levene's F test ( $P > 0.05$ ) as satisfied for most of



the variables. Welch's t-test (equal variance not assumed between groups) was used when any variable violating the assumption of homogeneity of variance. Following this process, three dependent variables of executive function measured by STOP-IT task were tested: non-verbal response inhibition, reaction time for non-signal trials (on correct responses) and accuracy. As shown in Table 5.2, a statistically significant difference (medium effect size) between children with poor and good parental monitoring was found for a fail response in non-verbal response inhibition  $t(110) = 2.61, p < .05, d = .50$  and accuracy  $t(110) = -3.81, p < .01, d = -.72$ ). However, no statistically significant in reaction time was found between children with poor and good parental monitoring  $t(110) = 1.1, n.s.$ .

Table 5.2

Illustrates mean differences in variables assessed by STOP-IT task between children with poor and good parental monitoring

Variables	Poor Monitoring (n=56)		Good Monitoring (n=56)		t-test	D	95% Confidence Interval	
	M	SD	M	SD			Lower	Upper
Error	56.8	16.1	49.4	13.6	2.61*	.50	1.7	12.9
Accuracy	81.9	7.8	87.8	8.5	-3.81**	-.72	-9.0	-2.8
Reaction time	715 <sub>ms</sub>	107.7	694 <sub>ms</sub>	78.8	1.1	.22	-17.4	56.3

\* $p < .05$ , \*\* $p < .01$

*ms = milliseconds*

Group differences were also found based on the children's hyperactivity level. Similarly, the analysis revealed significant differences between children with low and high level of hyperactivity in response inhibition  $t(110) = 2.82, p < .05, d = .53$  and accuracy  $t(110) = -3.41, p < .01, d = -.67$ ). Surprisingly, in spite of having slower reaction times on the trials among hyperactive children, no significant differences were found  $t(110) = .98, n.s.$  compared to the control group (see table 5.3).

Table 5.3

Shows mean differences in variables assessed by STOP-IT task between children with hyperactivity and control group

Variables	High level of Hyperactivity (n=44)		Low level of Hyperactivity (n=68)		t-test	D	95% Confidence Interval	
	M	SD	M	SD			Lower	Upper
Error	58.1	17.5	49.9	12.8	2.82*	.53	1.9	14.2
Accuracy	81.5	7.8	87.0	8.7	-3.41**	-.67	-8.7	-2.3
Reaction time	715.5 <sub>ms</sub>	102.2	697.4 <sub>ms</sub>	89.3	.98	.18	-18.2	54.2

\* $p < .05$ , \*\* $p < .01$

*ms* = milliseconds

*Note: in this analysis hyperactivity was used as a categorical independent variable giving (1 = low level, 2 = high level of hyperactivity).*

### Modified 'Opposite Worlds' (MOW) task

To examine the group differences in the speed and accuracy (number of error) in the opposite conditions assessed by (MOW), one-way ANCOVA was performed using speed and accuracy in the normal conditions as covariates. Prior to conducting the analysis, the data were checked in SPSS to make sure that they met the assumptions. There was homogeneity of regression slopes ( $P > 0.05$ ). There were no outliers as assessed by standardized residuals with no cases greater than  $\pm 3.29$  standard deviations. There was homogeneity of variances as assessed by Levene's F test ( $P > 0.05$ ).

The results of one-way ANCOVA showed a statistically significant group differences on each of speed ( $F(1,109) = 7.6$ ,  $p < .01$ ,  $\eta^2_p = .07$ ) and accuracy in the reversed conditions ( $F(1,109) = 9.7$ ,  $p < .005$ ,  $\eta^2_p = .08$ , after controlling for speed and accuracy in the normal conditions. To further investigate where the differences lie, we looked at the Pairwise comparisons and these confirmed that children with poor parental monitoring were significantly slower in counting the numbers ( $p < .01$ )

and made significantly more mistakes in counting the numbers ( $p < .005$ ) in the reversed condition than children in good parental monitoring group, suggesting that they had slower processing speeds and problems in inhibiting verbal responses.

Similarly, based on their hyperactivity level, significant group differences were also found in speed in ( $F(1,109) = 7.2, p < .01, \eta^2_p = .06$ ) and accuracy in the reversed conditions ( $F(1,109) = 13.2, p < .001, \eta^2_p = .11$ , after controlling for speed and accuracy in the normal conditions. It was further shown using Pairwise comparisons that children with high level of hyperactivity were significantly ( $p < .01$ ) slower in counting the numbers (in reversed condition) and made significantly more mistakes in counting the numbers ( $p < .001$ ) than their counterparts, confirming that they had slower processing speeds and had difficulty in inhibiting verbal responses.

### **Task persistence**

For task persistence, the data of 82% ( $n = 92$ ) children were analysed for this task. As explained before, the data of 18% ( $n = 20$  children) who could solve the puzzle quickly were not included in the analysis. Consequently, the mean scores for children with poor parental monitoring ( $n = 50$ ) and good parental monitoring ( $n = 42$ ) on task persistence were analysed to find the group difference on task persistence. After meeting the assumptions, the result of independent-sample t-test showed no significant difference between children with poor parental monitoring ( $M = 5.7 / SD = 1.2$ ) and good parental monitoring ( $M = 6.18 / SD = 1.4$ ) on task persistence  $t(90) = -1.72, ns$ ). However, the finding revealed a significant group difference on task persistence based on those children's hyperactivity levels  $t(90) = -2.61, p < .05, d = -.64$ ). The mean scores for children with high level of hyperactivity ( $n = 39$ ) was ( $M =$

5.50/ SD= 1.1), while for children with low level of hyperactivity (n=53) was (M= 6.3 / SD= 1.4), suggesting that hyperactive children took shorter times (gave up sooner) in the task than the control group.

#### 5.4.2 Does Parental Monitoring Moderate the Relationship between Executive Function and Hyperactivity?

In order to find the moderating role of parental monitoring in the relationship between executive functions and hyperactivity, the *PROCESS* analysis by Hayes (2013) was used in creating the models. Parental monitoring was treated as a categorical moderator variable. It should be mentioned, however, that at this analysis the data which has already been collected for hyperactivity was used as a continuous DV variable. Consequently, for STOP-IT task variables as shown in figure 5.2 a, and b, the moderation analysis found no significant role of the parental monitoring in the relationship between non-verbal response inhibition and hyperactivity, ( $B = .034$ ,  $t = 1.11$ , interaction  $p$  value = .27, CI [-.026, .094]). Similarly, the results found that

Figure 5.2a

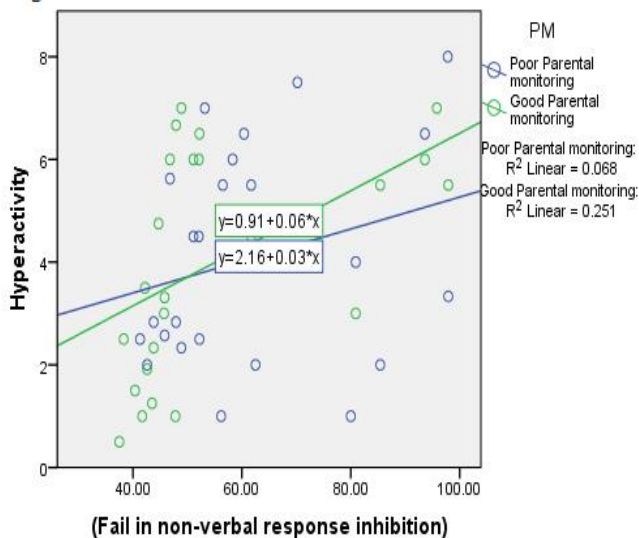
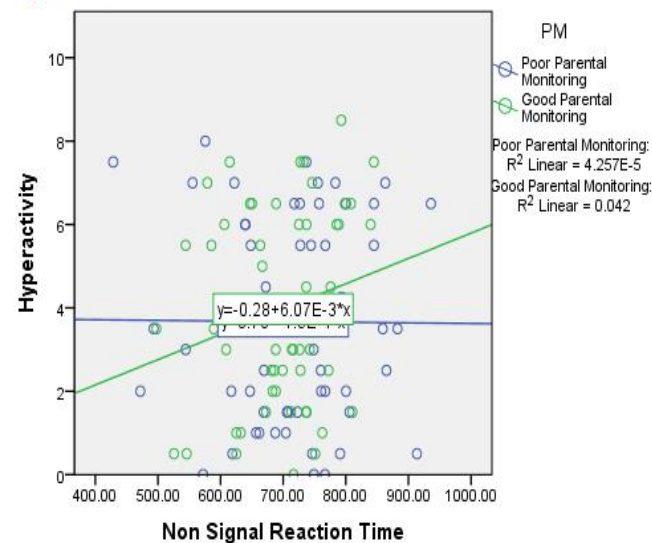


Figure 5.2b



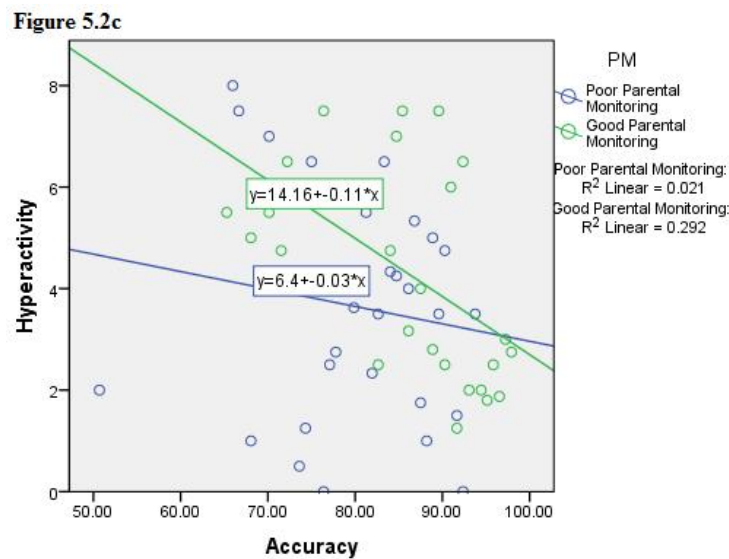


Figure 5. 2a, b and c. Moderating analysis of parental monitoring on the association between response inhibition, reaction time and accuracy (assessed by STOP-IT task) and hyperactivity

the relationship between reaction time and hyperactivity was not moderated by parental monitoring ( $B = .01$ ,  $t = 1.2$ , interaction  $p$  value = .23, CI [-.004, .016]).

However, as shown in the figure 5.2c, moderating role of parental monitoring was found between accuracy and hyperactivity ( $B = -.12$ ,  $t = -2.20$ , interaction  $p$  value = .032, CI [-.22, -.010]), suggesting that the relationship between accuracy and hyperactivity differs across the two groups (i.e. children with poor parental monitoring vs children with good parental monitoring).

With respect to the MOW task, no significant interaction between parental monitoring and processing speed was found, ( $B = -.06$ ,  $t = -.84$ , interaction  $p$  value = .40, CI [-.20, .080]), thus confirming no moderating effect of parental monitoring in the relationship between processing speed and hyperactivity (see figure 5.3a).

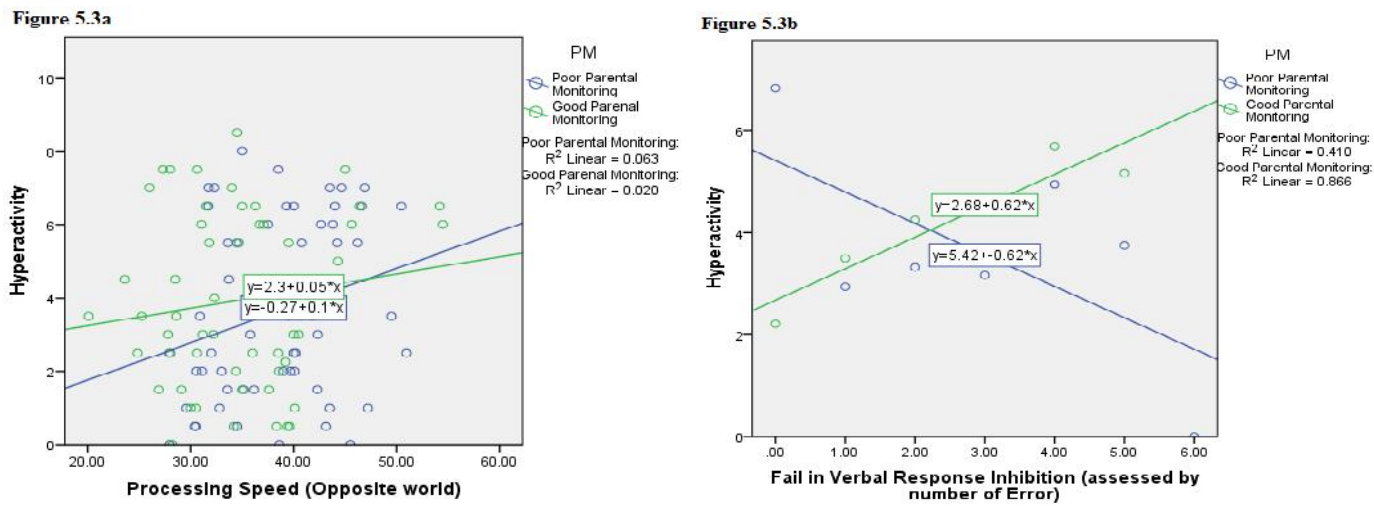


Figure 5.3a, and b. Moderating analysis of parental monitoring on the association between response processing speed and verbal inhibition (assessed by MOW task) and hyperactivity

However, as shown in the figure 5.3b, the analysis revealed that parental monitoring acts as a moderator on the relationship between verbal response inhibition and hyperactivity ( $B = .72$ ,  $t = 2.17$ , interaction  $p$  value = .03, CI [.063, 1.37]).

Furthermore, for task persistence, the moderation analysis confirmed that parental monitoring would emerge as a moderator in the relationship between task persistence and hyperactivity, ( $B = -.91$ ,  $t = -.2.4$ , interaction  $p$  value = .016, CI [-1.64, -.17]), suggesting that the relationship between task persistence and hyperactivity depend on the levels of parental monitoring (see Figure 5.4).

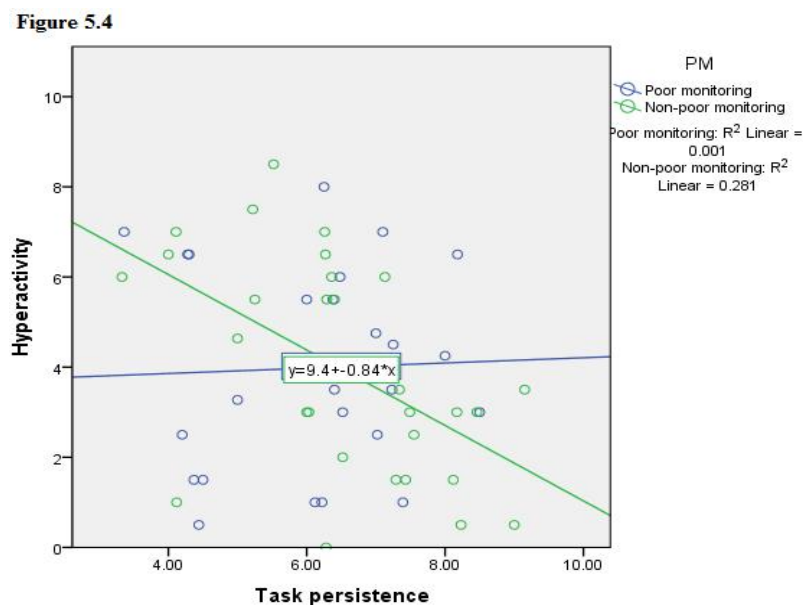


Figure 5.4. Moderating effect of parental monitoring on the association between task persistence and hyperactivity

## 5.5 Discussion

This study was designed to test group differences (i.e. high vs. low hyperactivity) on components of executive function, namely verbal and non-verbal response inhibition, reaction time, processing speed, accuracy and task persistence, in Kurdish primary school children. Secondly, this study explored the possible moderating role of parental monitoring in the relationship between executive function and hyperactivity amongst these children.

The findings showed significant group differences based on the levels of parental monitoring and hyperactivity of executive functions as measured by the STOP-IT task, MOW and task persistence. More specifically, there were some significant group differences in verbal and non-verbal response inhibition, processing speed, accuracy and task persistence. Children with a history of poor parental monitoring exhibited poor inhibitory control; had significantly slower processing speeds and made significantly more errors than controls. Consistent with previous studies (e.g. Hughes et al., 2014; Roskamet al., 2014), the current results suggest that parental monitoring plays a vital role in children's executive function abilities. This could be because children of neglectful parents are less supported, subsequently becoming less responsive and having less expectations being placed upon them, thus resulting in cognitive difficulties and trouble achieving academically (Baumrind, 1991; Spratt et al., 2012). Thus, children's cognitive development can be improved by supportive parenting, including elaborating and explaining rules children need to follow when performing a specific task. The current findings support the claim that the development of children's executive functions is likely to be affected in the absence of parental support and monitoring (Brody & Flor, 1998; Hughes et al., 2014; Roskamet al., 2014).

Consistent with previous studies (Adams & Snowling, 2001; Coddington et al., 2001; Holmes et al., 2014; Hoza et al., 2001; Rubia et al., 2001; Schroeder & Kelley, 2009; Willcutt et al., 2005), children who scored high on hyperactivity exhibited difficulties in executive functions. These children had higher commission errors indicating fails in verbal and non-verbal response inhibition; they also performed poorer in terms of accuracy, processing speed and task persistence compared with the control group. Although children with high level of hyperactivity had slower reaction times on the STOP-IT task, no significant differences were found when compared to the 'low' group. This finding is consistent with that of Karayanidis et al. (2000), who found no group difference in the reaction times of children with ADHD versus healthy controls. Nevertheless, Bolfer et al. (2010) and Booth et al. (2007) reported significantly slower reaction times among children diagnosed with ADHD. These inconsistencies in results reported might be a function of the clinical populations recruited for these studies and the type or nature of the tasks used to assess these variables. Another possible reason could also be that, given that hyperactive children are considered to be impulsive they might have randomly pressed the button which resulted in their reaction time to be fast to the control group. This interpretation is supported by the 'hyperactive' group committing significantly more errors in the accuracy variable compared with the control group.

As such, the findings of the present study lend further support to the mounting evidence that children with hyperactivity and issues pertaining to parental monitoring also exhibit impaired executive functions. In addition, based on the findings, we suggest that those children who had more difficulty in inhibition had issues pertaining to other functions. This is consistent with Barkley's theory (1997), that inhibition is a controlling function in relation to other executive functions, and



that difficulties in inhibition control might adversely influence other executive functions.

Regarding the moderation model, the findings support in part previous research (e.g. O'Hara & Holmbeck, 2013) which found the moderating role of parenting behaviours in the relationship between executive functions and healthcare behaviours in children. Our moderation model indicated that the relationships between each of verbal inhibition (as assessed by the number of error using MOW task), accuracy (as assessed by the STOP-IT task) and task persistence with hyperactivity were moderated by parental monitoring. More specifically, there was a positive relationship between verbal inhibition difficulties and hyperactivity only for those children who were characterised by good parental monitoring. This finding suggests that the less difficulty children with good parental monitoring have in verbal inhibition, the less hyperactive they are. In addition, the model showed that the relationships between task persistence and accuracy with hyperactivity were significantly negative for children with good parental monitoring, whereas, it was not the case for children with poor parental monitoring. These findings also suggest that the more persistent and the more accurate (fewer errors) children with good parental monitoring are, the lower their hyperactive behaviour. On the other hand, the moderation model did not confirm that parental monitoring significantly moderates the association between non-verbal inhibition, reaction time and processing speed with hyperactivity, suggesting that the direction of the relationships were similar in both groups of children (i.e. with poor and good parental monitoring).

Therefore, the current study reveals a correlation between certain executive functions and hyperactivity in children with good parenting. However, in cases of

poor parental monitoring, no correlation was found, suggesting that decreasing good parental monitoring reduces the impact of executive functions on hyperactivity. This shows that, when good parental monitoring is absent, executive functions might not attenuate hyperactivity in children, or might exert less of an influence. In addition, children with poor parental monitoring may not have a supportive environment and might therefore have less opportunity to develop their self-regulatory abilities which are developmentally crucial to regulate hyperactivity. Previous studies indicate that executive deficits impact behavioural problems in children, including hyperactivity (Hughes et al., 2004; Willcutt, et al., 2005). Conversely, improvements in executive function are associated with fewer externalising problem behaviours and ADHD symptoms (Bohlin et al., 2012). Based on these studies, executive function significantly influences hyperactivity. Our study suggests a further possibility, (other than basically conceptualizing executive function as the contributors to behavioural problem), namely that the impact of certain executive functions on hyperactivity might depend on the quality of parental monitoring.

## **Chapter Six : General Discussion**

### **6.1 Summary of findings**

The overarching aim of this thesis was to investigate the role of parenting styles among Kurdish primary school children. Less is known about the effects of parenting with respect to child psychological and behavioural outcomes in Eastern societies. Following on from previous research, we conducted three novel studies. The first study (chapter 3) determined whether parenting styles are independent significant predictors of children's academic self-concept and behavioural problems after controlling for socioeconomic-demographic variables. We also examined the mediating role of academic self-concept in the relationship between parenting styles and behavioural problems. To analyse these questions, data were collected from Kurdish primary school children (year six) and their teachers. The findings supported the claim that parenting styles have a significant role in Kurdish child's academic and behavioural aspects.

The second study (chapter 4) investigated the effectiveness of an educational training programme (STEP) in improving Kurdish parenting styles as well as decreasing the level of parental stress. In a follow-up study conducted three months after completion of the intervention, we further investigated whether the improvements from attending STEP in parenting styles and parental stress persisted over a period of time. We also examined whether any positive changes in children's academic self-concept and behavioural problems were observed after their mothers attended the STEP. The sample of the second study consisted of the mothers of those children who participated in the first study. Behavioural data (SDQ) was also collected from those children who had participated in the first study and had been

reported by their teachers as having high level of behavioural problems. The findings showed that the intervention seems to be effective to promote parenting styles and reduce parental stress. The changes were maintained for three months after the intervention.

In the third study (chapter 5), we tested children executive functioning. Although much research has examined the development of executive functions with regards to the prefrontal context, very little research has examined potential environmental factors that could contribute to the development of executive functioning. Given that it is essential to investigate if the quality of parenting style influences children's executive function. In order to investigate this question we tested whether parental monitoring influences children's executive functions. Furthermore, the moderating role of parental monitoring in the relationship between executive functions and children's hyperactivity was also investigated. The findings indicated that children characterised either by poor parental monitoring or high level of hyperactivity had difficulties in some components of executive functions. The results further showed that the relationship between executive function and hyperactivity is moderated by the levels of parental monitoring.

Findings of the studies are examined in more detail below. This is followed by discussion of theoretical implications based on the results. Finally, the limitations associated with the findings presented in this thesis are discussed, alongside some suggestions for future research.

## 6.2 Theoretical implications

### *Parenting styles, academic self-concept and behavioural problems*

In study 1, associations between parenting styles, academic self-concept and behaviour problems were examined. The results of the correlation analyses indicate that apart from the inconsistent discipline dimension all parenting subscales were, independently and in combination, correlated to the academic self-concept. These findings support the previous studies (e.g. DeDonno & Fagan, 2013; Nishikawa et al., 2010a) which found that parenting style played a significant role in children's academic self-concept. In respect to the child behaviour problems, as previously shown in (table 3.2) several significant correlations were found between parenting dimensions and behavioural problems. Specifically, poor parental monitoring was the only dimension that positively related to all of the behavioural problem subscales. This is consistent with previous studies by Pettit, Bates, Dodge and Meece (1999) and Raboteg-Saric et al. (2001) whose studies found that parental monitoring was strongly associated with children's behavioural problems. In common with other studies, the association between the inconsistent discipline dimension and behavioural problems was found to be small and non-significant. This result is for example supported by Ali and Frederickson (2011), who found no association between inconsistent discipline and behavioural problems among a sample of white British children.

Across the behavioural problem subscales of the SDQ, the findings showed that hyperactivity was significantly related to most of the parenting dimensions except for inconsistent discipline. The peer problem subscale did not correlate strongly with parenting dimensions. Nevertheless, in agreement with previous research (Berkien et al., 2012; Deater-Deckard et al., 1996; Gorya and Sabah, 2013;

Stevens et al., 2007) the relationships were significant when behavioural problems subscales were combined into internalising and externalising problems. This finding supports the argument for combining the negative subscales of SDQ into internalising and externalising problems for the general and low risk populations (Goodman et al., 2010). A possible reason for the results concerning peer problems might be explained by way of poor reliability, as prior studies have reported less satisfactory reliability for this subscale (Mieloo et al., 2012; Muris, et al., 2003). Taken together, the findings indicate that parenting styles are associated with academic self-concept and behavioural problems, particularly hyperactivity (as an independent subscale) and externalising problems (as combined scales).

A series of multiple regression analyses was performed to examine the predictive capacity of the parenting dimensions on academic self-concept and behavioural problems subscales after controlling for the demographic factors. This showed that the effects of the parenting dimensions were weakened when demographic factors were controlled for. The results indicated that maternal involvement, positive parenting (positively) and poor parental monitoring (negatively) predict academic self-concept. These findings suggest that the more mothers are involved and show positive parenting styles, the higher will be their child's academic self-concept. A decrease in parental monitoring was related to lower academic self-concept. Corporal punishment was also found to be marginally related to academic self-concept. The findings, however, did not show father involvement to be a significant predictor of a child's academic self-concept.

For predicting behavioural problems, the regression analysis indicated that mother involvement negatively predict hyperactivity and total difficulties, whilst father involvement and the positive parenting dimensions were not significant

predictors of any of the behavioural problem subscales. These results might be explained by the greater amount of time that mothers spend with their children as compared to fathers. Due to the financial burden and lack of benefits (e.g. child benefit, child tax credit or other financial supports from government) in Kurdistan, fathers have to work hard in order to provide family living costs. Most of them spend considerable time away from the family home working; hence they may have less involvement with their children. Therefore, one could argue that Kurdish mothers have more clearly defined responsibility for nurturing their children at home compared to fathers. This finding is consistent with those reported by Besharat et al. (2011) and Braza et al. (2013), Grolnick and Ryan (1989) who found that the mother's parenting style had the strongest influence on children's developmental outcomes.

In addition, regression analyses found that poor parental monitoring was the only dimension to be consistently and positively related to children's behavioural problems. The effects of poor parental monitoring remained significant for hyperactivity, emotional problems (marginally significant), peer problems and total difficulties even after controlling for potential confounding factors. This finding supports previous studies by Pettit et al. (1999) and Raboteg-Saric et al. (2001) who reported that parenting monitoring is one of the aspects of parental style that has an important role in the children's behavioural problems. One possible explanation for this finding might be due to the reciprocal effects of parental monitoring and behavioural problems, with the child's behavioural problems exerting an adverse effect on parental patience and responses. These findings suggest that increased poor parental monitoring was attributed to the increase of behavioural problems and a decrease in prosocial behaviours among Kurdish children.

Corporal punishment was also found to positively predict conduct problems, suggesting that the increased use of corporal punishment contributed to the increase the levels of conduct problems among children. Broadly speaking, the literature has established that corporal punishment characterized by screaming, yelling, shouting and spanking is related to children's behavioural problems. For example, consistent with our study, Strassberg et al. (1994) found that spanking was significantly related to the higher rates of aggressive behaviour toward peers. From a social learning theory standpoint (Bandura & Walters, 1963) children learn by observing and imitating their parents. Accordingly, corporal punishment could bring some harmful consequences outside the home when children tend to imitate their parents' behaviour by slapping, hitting and shouting at their friends. Therefore, overall the findings emerging from our study propose that the high level of negative parent-child rearing is clearly attributed to the increase children's behavioural problems.

The mediating role of self-concept on the relationship between parenting and behavioural problems was also examined. Consistent with prior research (e.g., Nishikawa et al. 2010b; Wang et al., 2007), we found that academic self-concept acts as a mediator in the relationship between parenting styles and children's behaviour. In particular, the analysis showed a potential indirect relationship between *Positive and Negative Parenting Composites* and internalising behavioural problems mediated through academic self-concept. *Negative Parenting Composites* were also found to be indirectly related to prosocial behaviour via academic self-concept. Consistent with the study of Nishikawa et al. (2010b), the mediation analysis did not show any significant indirect relationships between parenting styles and externalising problems mediated through academic self-concept. As explained in the section 3.7, this might be due to that the association between parenting styles (as the



predictor) and externalizing problems (as the outcome variable) are stronger than the association with internalising problems.

Therefore, this finding suggests that it is worthwhile for parents and teachers to support children's academic self-concept when dealing with children's internalising problems, particularly problems related to their emotional, social and peer relationships at school. They also need to pay more attention to the importance of academic self-concept as it has been shown to be associated being cooperative, persistent in class, academically successful and less behaviourally problematic (Chen et al., 2015; Ghazvini, 2011; Hay et al., 1998; Houck et al., 2011; Pisecco et al., 2001). In addition, Marsh (2006) suggests that self-concept has a central role play in mediating the effects of other desirable educational and health outcomes.

Looking at the gender difference, our findings in the study 1 provide additional empirical evidence supporting gender difference in parenting styles and behavioural problems. Nevertheless, academic self-concept was not found to be different between girls and boys. For parenting dimensions, consistent with the previous study (e.g., Essau et al., 2006; Li et al., 2000; McKee et al., 2007; Raboteg-Šari et al., 2001), our findings indicated that girls tended to have significantly higher scores on positive parenting, and lower scores in poor parental monitoring and corporal punishment than boys. Presumably, cultural context may be a possible reason for this finding as Asian females tend to be more protected by their parents compared with males. Al-Ma'seb (2006) also argued that most Arabs or people in the Middle-East want to monitor and protect their daughters, particularly from interacting with unrelated males as parents think that this "may lead to premarital sexual relations, which is forbidden in Islam and Arab culture" (p.6).

The findings are also consistent with the previous literature showing no gender differences in academic self-concept (Anis-ul-Haque and Khan, 1998; Worrell, Roth, & Gabelko, 1998; Ghazvini & Khajepour, 2011). We do not have a clear reason for this result; however, we think it is likely that Kurdish girls and boys in primary school are taught to use similar learning strategies to solve the problems and responsibility for their academic failures. As Gabelko, Roth and Worrell (1997) argued, another reason of the lack of gender differences on academic self-concept might be related to the use a global academic self-concept measure rather than using Science or English academic self-concept scales independently. This argument is supported by Dai (2001) who examined gender differences in math self-concept and verbal self-concept amongst 208 tenth grade students. The results found that female had higher verbal self-concept, whereas and male demonstrated higher math self-concept. Furthermore, there might be some other factors (e.g. age or grade) which may affect the gender differences in academic self-concept. In the study of Maqsd (1993) for instance, it was found that girls had lower scores in academic self-concept than boys in grade 4, conversely, no gender differences in academic self-concept were found in grade 10. Lau (1990) also found no significant sex difference on academic self concept among primary school children. However, for secondary school children, it was found that boys were more positive in their academic self-concept than girls. Therefore, it could be plausible to argue that certain factors such as child age and using specific academic self-concept scale (Science vs English academic) should be taken into account in the explanation of gender differences in academic self-concept.

Regarding gender differences in behaviour, consistent with previous studies (e.g. Muris et al., 2003; Muris, Meesters et al., 2004), girls reported higher levels of

prosocial behaviour than boys. Also consistent with previous studies (Braza et al., 2013; Lau et al., 2006; Raboteg-Šari et al. 2001; Stevens et al., 2007), boys showed higher levels of externalizing behavioural problems, particularly hyperactivity and conduct problems. As previously stated, cultural factors might go some way toward explaining this finding, with Kurdish families generally being more protective of girls than boys. Additionally, certain behaviours, such as cheating, fighting and stealing may reflect cultural values and are regarded as being unacceptable for girls in the Kurdish culture (Ahmad et al., 2007). Furthermore, in agreement with Gershon (2002) and Last (2006), girls and boys reported similar levels of internalising problems (i.e. peer and emotional problems). Last (2006) claimed that it is sometimes supposed that girls are more anxious or fearful than boys; however, the research literature on this is far from conclusive.

As alluded to in the discussion (see chapter 2) there is a disagreement in the literature regarding the cultural milieu in the relationship between parenting styles and children developmental outcomes. The impact of parenting has been shown to be mixed in Eastern or African societies. Certain extant literature suggested that relationships between parenting and child developmental outcomes may differ across cultures (Dai, 1999; Deater-Deckard et al., 1996; Huntsinger & Jose, 2009; Leung et al., 1998). Interestingly, the findings of the study 1 support the study of Alizadeh et al. (2011), Chen et al. (1997) and Yang et al. (2014) all of whom found that parenting styles play a crucial role in children's developmental outcomes in eastern societies, and the results are inconsistent with the argument in the literature (e.g. Leung et al., 1998) that has claimed that parenting styles are least affective in non-Western societies.

### ***Parenting intervention and psychological outcomes for parents and children***

Parenting interventions have been shown to play a significant role in improving several outcomes including, parenting practices, parenting stress, children's self-concept, academic achievement and behavioural problems (Bradley et al., 2003; Burnett, 1988; Davis, 1994; Hammett, Omizo, & Loffredo, 1981; Huebner, 2002; Scott et al., 2014). According to the theory by Alfred Adler, child developmental outcome and parent-child interactions are influenced by social factors within the family (Huebner, 2002).

As previously mentioned, Kurdish mothers have more responsibilities than fathers nurturing their children which might lead to more stress experienced by mothers compared with fathers. As Reitman, Currier, and Stickle, (2002) found, some factors particularly low income and educational outcome were strongly associated with parental stress. In addition, insufficient information about "healthy" parenting of some Kurdish mothers may affect their interactions with their children. The concern is that many parents in the Kurdistan region of Iraq growing up in low socioeconomic circumstances have inadequate or limited access to educational resources and services. It can therefore be argued that parents in the region of Kurdistan need persistent and intensive support in order to improve their parenting styles and decrease the stress, particularly stresses which originated from parent-child interactions.

In study 2 (chapter 4), the effectiveness of the STEP intervention on mothers and children's outcomes was examined. The results of our study showed that the intervention can contribute to promoting a positive parenting style and reduce the level of parental stress in Kurdish mothers. These results are in line with previous research (e.g. Jonyiene et al., 2015; Larson, 2000; Pan & Wu, 2008) showing the

benefits of STEP in improving parent-child relationships. At three months post intervention, it was found that the positive changes achieved were sustained; particularly we noted a continuing decrease in the use of corporal punishment among the 'experimental' group. These findings support previous research (e.g. Hautmann et al., 2009; Jonyniene et al., 2015; Reedtz et al., 2011; Webster-Stratton et al., 1988, 1989) all of whom found that improvements in parenting styles and parental stress sustained over a period of time (i.e. 3 months up to 3 years). Our findings also extend previous work (e.g., Knerr et al., 2013; Rahman et al., 2009; Tehrani-Doost et al., 2009) who found that parenting training programmes can facilitate positive change for parents' psychological outcomes in developing countries.

However, no statistical differences were found in academic self-concept and behavioural problems between children whose mothers attended STEP and those whose mothers did not. As reported in section 4.5, a possible reason might be that the children of the mothers who attended the STEP did not receive any intervention treatment themselves. Hence, any positive effects of the intervention would arguably have taken longer to appear. It has also been argued that children who are vulnerable to harsh rearing practices are less affected by a positive rearing style (Jarrett, 2016); thus, the characteristics of these children are needed to be studied further to reach any firm conclusions.

Even though children whose mother attended the programme did not show too many improvements compared to those whose mother did not attend, examination of the data of each children individually based on demographic factors and we noticed that those children whose mothers came from a lower educational background tended to improve their academic self-concept and prosocial behaviour more than those whose mothers had higher level of educational background. This

may suggest that children and parents from disadvantaged families benefit more from parent training compared to their non-disadvantaged counterparts. This may suggest that children and parents from disadvantaged families benefit more from parent training compared to their non-disadvantaged counterparts. It is important to note, however, that due to a small sample size of this pilot study, this idea should be interpreted with caution. However, previous research supports the notion that parenting interventions promote positive psychological and behavioural outcomes particularly among disadvantaged individuals. For example, a systematic review by Eshel, Daelmans, Mello and Martines (2006) showed that parenting interventions were beneficial, particularly for disadvantaged families, with regard to improvements in maternal responsiveness, thus promoting child health and development. Gibson (1994) also indicated that the STEP programme is very successful in promoting parent and child attitudes, change in parent-child interactions, improving self-esteem and behaviour, specifically with less well-educated parents.

In conclusion, the findings suggest that for Kurdish mothers the STEP programme is an effective intervention for the promotion of positive parenting styles and a decline in levels of parental stress. Given this parenting intervention has not already been implemented and evaluated in this population; our study suggests that such a programme could be accepted by Kurdish parents as a positive measure in improving their parenting skills and that STEP can be applied in low income countries, particularly those with high prevalence rates of home violence, psychological and physical abuse. It is worth recording that after the intervention mothers gave positive feedback after the intervention and confirmed that they would participate in the programme again in future. They suggested that participation in

STEP increased their motivation to read more information concerning parenting practice.

### ***Parental Monitoring, Child Hyperactivity and Executive Functions***

In study 3 we examined group differences in executive function. We also investigated the moderating role of parental monitoring on the relationship between children's executive function and hyperactive behaviour. In this study we measured elements of executive function in sixth-grade children; verbal and non-verbal response inhibition, reaction time, processing speed, accuracy and task persistence. In line with previous studies (e.g. Hughes et al., 2014; Roskam et al., 2014) the results suggested that parental monitoring plays a vital role in children's executive function abilities. Specifically, we found that those children who had been subjected to poor parental monitoring showed difficulty in verbal and non-verbal response inhibition, processing speed and made significantly more errors than those who had received good parental monitoring. As explained in the section 5.5, previous research (e.g. Baumrind, 1991; Spratt et al., 2012) reported that children with neglectful parents are less supported, monitored and engaged in their academic work. These children may consequently become less responsive and have fewer expectations being placed upon them, which in turn may result in cognitive difficulties and problems with academic achievement. This finding also suggests that parental monitoring can play a significant role in improving their children's cognitive development. This can be through supporting their children particularly by elaborating and explaining the rules children need to follow while performing a specific task. Therefore, our findings support the claim that the absence of parental support and monitoring are likely affect the development of children's executive

functions (Brody & Flor, 1998; Hughes et al., 2014; Roskam et al., 2014).

Nonetheless, the analysis did not show a significant difference in reaction time between poor and good parental monitoring groups. A possible reason for this result might be that reaction time is a "low" attentional function compared to other executive functions; therefore it may be less sensitive to differences in parental style. Another possibility might be that children in both groups were asked to respond to 192 trials, and this might have resulted in fatigue effects. Overall, the results confirm previous conclusions (e.g. Crossley and Buckner, 2012; Patock-Peckham et al., 2011; Roskam et al., 2014) that environmental factors such as parental monitoring are an important influence on children's executive function.

Furthermore, group differences in executive function were also found between children with low and high levels of hyperactivity. Consistent with previous studies (e.g. Adams & Snowling, 2001; Coddington et al., 2001; Foley et al., 2008; Holmes et al., 2014) it was found that children with high levels of hyperactivity exhibited difficulty inhibiting their responses (verbally and non-verbally), performed more poorly in accuracy, processing speed and task persistence compared with controls. However, despite slower reaction times by children with high levels of hyperactivity, consistent with Karayanidis et al. (2000) no significant differences were found when compared to the control group. As mentioned earlier, we speculate that the type or nature of the computerised task used to assess this variable may be an issue. Also due to their high impulsivity the hyperactive children might have impulsively pressed the button which resulted in their reaction time to be as fast as the control group. This interpretation is supported by significantly more errors being recorded by the hyperactive children compared with the control group.



The findings of the present study lend further support to the mounting evidence that children with hyperactivity and issues pertaining to parental monitoring also exhibit impaired executive functions. We found that those children who had more difficulty in inhibition had issues pertaining to other functions. The findings reported here are broadly consistent with current psychological models of executive functions (e.g. Barkley 1997; see section 2.10.2).

The moderation analysis found that parental monitoring moderates the association between verbal inhibition, accuracy and task persistence with hyperactivity. Our findings indicate that the relationship between difficulty in verbal inhibition and hyperactivity was only significant for children with good parental monitoring. In addition, task persistence and accuracy were negatively associated with hyperactivity for children with good parental monitoring, whereas, it was not the case for children with poor parental monitoring. These findings suggest that increasing parental monitoring increases executive control which can mitigate hyperactivity. Conversely, this shows that, when good parental monitoring is absent, executive functions might not attenuate hyperactivity in children, or might exert less of an influence. The moderation model did not confirm that parental monitoring significantly moderates the association between non-verbal inhibition, reaction time and processing speed with hyperactivity, suggesting that the direction of the relationships were similar in both groups of children.

As previously mentioned in section 5.5, prior studies indicate that executive deficits impact upon hyperactivity; conversely, improvements in executive function are associated with fewer externalising problem behaviours and ADHD symptoms (Bohlin et al., 2012; Hughes et al. 2004; Willcutt et al., 2005). Our study suggests a further possibility that the impact of executive functions on hyperactivity might

depend on the quality of parental monitoring. A possible explanation could be that children with good parental monitoring might have the opportunity to shape and develop their executive skills better, due to the fact that their parents explain and elaborate on the rules they must follow when performing a specific task (Roskam et al., 2014). Subsequently, these children are likely able to regulate their hyperactive or impulsive behaviour when performing a particular task. Furthermore, parents of children with good parental monitoring may lead by example which may help their children to internalise adaptive regulatory strategies. However, a child with poor parental monitoring may not have a supportive environment and might therefore have less chance to develop their inhibitory/self-regulatory abilities which are developmentally crucial to regulate hyperactivity. In conclusion, the current study suggests that children with poor parental monitoring appear to have symptoms that are associated with impaired executive control processes. Furthermore, our study highlights the significance of considering parental monitoring when seeking to understand the relationship between executive functions and hyperactivity.

### ***6.3 Strengths, limitations and future research***

The strength of study 1 include its focus on mediated (indirect) relations between parenting styles and children's behavioural problems through children's academic self-concept. The strength of study 2 is that it is the first study exploring the importance of a parent intervention in Iraqi-Kurdistan. In a developing country like Iraq, apart from political issues, there are other factors such as poverty and poor education which have been found detrimental to parents and children's psychological and behavioural wellbeing (Mejia et al., 2012; Rahman et al., 2009). In this area

parents, particularly, mothers need help and effective support because fathers are often away from home to seek better economic conditions. In the light of the findings of this study, we argue that it is essential for concerned authorities in the Kurdistan region, particularly the Ministry of Labour and Social Affairs in Kurdistan, to provide effective support of parenting skills such as STEP. Such a programme will help Kurdish mothers' parenting skills which in turn can have a significant impact on their children's psychological health.

A further strength of this study is that we recruited both treatment and control groups after a follow-up period. This is not the case in most other studies. For example, from a systematic review by Smith (2013), only 4 studies out of 17 were found to use a control group for comparison at follow-up, and the author suggests that the lack of a control group for comparison at follow-up was a significant limitation of many studies. The major contribution of study 3 is that it is the first study to examine the moderating effect of an environmental factor such as parenting style in the relationship between executive function and hyperactivity.

Notwithstanding the strengths of the studies, each of the three studies has a number of limitations which need to be taken into account. First, the results of the study 1 are limited because the sample is only Kurdish children; as such, the findings might not be generalisable to children of other ethnic groups. Second, the study was cross-sectional, which cannot tell us the causal links between the variables examined in this study. It is possible that the children's outcomes impact the child-rearing practices of parents; the study 1 did not address causality directly. A longitudinal study should be undertaken to test this hypothesis. In addition, it remains unclear whether the same results would be found in other age groups such as adolescents, something which future research might help to elucidate.

A further limitation to study 2 is that although a STEP class size of 6 to 14 parents is considered optimal, the STEP program needs to be repeated with several groups in order to increase the sample size and statistical power. Given the small sample size, the findings should be interpreted with caution as it was not possible to control socio-economic factors. Also, as mentioned above the participants were all Kurdish; hence, the results cannot be generalised to other ethnic groups. This study also focused only on parental self reports and did not include any parental interviews or observational data on mothers' behaviour. In addition, we collected data from single-informants to measure parenting style. However, we would also acknowledge the possibility of a discrepancy between parental and children's reports of parenting; therefore, it is important to solicit data from both parents and children to assess parenting styles. This is supported by prior research showing a low degree of agreement between parents and children in reports of parental styles (Tein, Roosa, & Michaels, 1994). Tein et al. (1994) suggests that in order to gain a comprehensive understanding of parenting, reports from both parents and children are needed if examining the effects of parenting styles. The follow-up of 3 months was short term and the children's behaviour profile on the SDQ was reported only by teachers. It might have been better to detect negative behaviours in more than one setting; therefore, multi-informant reporting by both teachers and parents may help to overcome some of the bias involved in single-informant studies. Finally, the manipulations of some confounding variables should be taken into account. The tendency of some mothers to report positive improvement might be affected by their awareness of being observed (i.e. Hawthorne effect); hence, this may lead to a response bias with reference to positive changes. Future research needs to obtain data from a larger sample, collect data from multi-informant, recruit both parents and

could potentially include specific groups for example, parents with children with learning disabilities.

Regarding study 3, limitations include that the children in this study were not clinically diagnosed as having ADHD. Their hyperactivity levels were rated by their parents and teachers. It will therefore be important for future research to replicate these studies in clinical samples as accurate results in attentional problems could be more reliable in a clinical population. Furthermore, as gender differences in parental monitoring were found, future larger studies should control the role of gender when examining the moderating role of parental monitoring in the relationship between executive function and hyperactivity. Additionally, it will be better for future research to account for some of other unmeasured confounding variables (e.g. children achievement, gender) which might be associated with both the moderator and the outcome variables. Although the sample in the study was relatively large (i.e. 112 children), it will be important to have more participation to ensure greater representation. We found that parental monitoring moderated the relationship between some executive function skills and hyperactivity problem; however, it is not clear whether this result would extend other to behavioural problems (e.g. attentional, social or emotional problems). Future research is needed to investigate this conjecture in order to better understand the possible relationship between executive functions and behavioural problems moderating by parental monitoring.

#### ***6.4 Implications for application***

Several practical implications can be suggested based on the findings of our studies. The results of the study 1 are consistent with the findings of the majority studies in the literature emphasising the importance of the academic self-concept in children social and academic life. We suggest that parenting styles can affect academic self-concept which in turn may impact the level of internalising problems. Children with poor academic self-concept might also have problems with self-esteem in general. Furthermore, since academic self-concept has been shown to be an important factor in academic achievement, the findings of the study suggest that experts such as primary care professionals, educators and psychologist have an important role to play in enhancing children academic self-concept. Our results suggest that parenting style has a direct impact on academic self-concept and behavioural problems for their children.

On the basis of the findings, parenting skills have an important influence on children's emotional, social, physical and intellectual development. Negative interactions between parents and their children can increase the risk of aggression and violence, behaviours which are predictive of negative mental health outcomes and can be the precursors of extremist and criminal behaviour later in life (Bhui, 2015). The sample of this study was recruited from the Kurdistan region of Iraq. Due to the fact that extremist groups have controlled wide areas in Iraq, it can be argued that children in this area tend to be at risk of radicalisation if their parents do not monitor their children very well.

Neglectful parents who fail to adequately monitor their children present another factor which might lead to influences of extremist groups on children. The UK governments Prevent Duty strategy for England and Wales points to indicators

of developing extremist influence such as family tensions, sense of isolation and low self-esteem (Department for Education, 2015). Study 1 showed that parenting styles, particularly parental monitoring were a strong predictor of children's self-concept and behavioural problems. When not properly monitored by their parents, children are likely to be more strongly influenced by social media (Harris, 2015) or friends, thus prompting their involvement in delinquency. Therefore, parents play a pivotal role in promoting psychological well-being, which may help to prevent their children from being susceptible to extremist ideologies.

Looking closely at study 2, the results of this study are consistent with the findings of the majority studies in the literature emphasising the effectiveness of STEP parenting programmes in improving a range of parental behaviours. It is suggested that the programme could contribute to the promotion of positive parenting styles and reduced parental stress in the Kurdistan region of Iraq. The results of this study indicate that STEP can be implemented in low income and developing countries, particularly those countries that have high rates of home violence, as well as psychological and physical abuse. Therefore, supporting parents in attending educational intervention is an important factor to reduce negative parenting effects which ultimately have long-term implications for children's psychological and behavioural wellbeing.

Additionally, the effectiveness of parenting educational programme for younger parents should not be forgotten. It has been reported that in some countries, particularly in developing countries, girls marry at a young age. Rashad, Osman, and Roudi-Fahimi (2005) have shown that in certain Middle East countries girls tend to get married in their teen age years (i.e.15-19). These young parents need more comprehensive information and knowledge about nurturing and attitude toward their

children. Previous literature has shown a positive impact of parenting training on young parents' ability to bring up children. For instance, in an effort to examine the effect of parenting programmes on psychosocial and developmental outcomes for teenage mothers and their children, Coren, Barlow and Stewart-Brown (2003) reviewed 14 relevant studies. The findings suggested that parenting programmes can contribute in improving maternal and child outcomes including maternal sensitivity, self-confidence, identity and the infants' responsiveness to their parents. Interestingly, from a meta-analysis by Gibson (1993) it was found that STEP programme was successful in improving parent and child attitudes, self-esteem, behaviour and change in parent-child interactions with younger parents and low educated parents than others. Therefore, due to the fact that there are a great number teenage or young mothers in Iraqi Kurdistan (UNFPA, 2016), the result of the present study might indicate for stakeholders in Kurdistan that parenting interventions are effective for the Kurdish population.

Regarding the implications of study 3, the findings provide support for the argument that children with poor parental monitoring and high levels of hyperactivity are impaired in executive functioning. We can anticipate that some of the children in this study will likely experience social, emotional and intellectual impairment unless some action is taken in order to ameliorate their familial situations. Moreover, children who tend to have poor parental monitoring and hyperactivity also seem find it hard to pay attention in the classroom, and therefore are at risk of being neglected in the educational setting, thus giving rise to further problems (e.g. negative self-esteem). Poor response inhibition may also predict later substance abuse (Peeters et al., 2015). Therefore, these children should be encouraged to engage in activities designed to improve their cognitive abilities,



including computerised training, non-computerised games, aerobics, martial arts, yoga, mindfulness and participation in the school curricula (Diamond & Lee, 2011).

Our results suggest that parental monitoring has an impact on executive functioning, which ultimately has long-term implications for children's psychological and behavioural wellbeing. Moreover, the results of this study suggest that parents are instrumental in enhancing their children's executive function skills and can be important moderators of their child's behaviour. Therefore, the findings of the study indicate that primary care professionals, psychologists and social workers need to play an important role in supporting parents by enacting strategies to reduce the negative effects of poor parental monitoring on the executive functions of children.

Additionally, there is considerable evidence that poor executive function is associated with hyperactivity which in turn causes low achievement in school. Thorell, Veleiro, Siu and Mohammadi (2013) found that both working memory and inhibition were significantly associated with academic achievement. Basic indicators of student achievement show that a sizable group of students in Kurdistan perform poorly. For instance, a recent study reported that in about two-thirds of urban schools, more than 50% of students failed the 2007–2008 national school assessment, and about a third of grade 9 Kurdish students failed to pass the 2008–2009 national English, Physics or Mathematic tests (Vernez, Culbertson and Constant, 2014). It is therefore important, to further investigate the cognitive capacity of children in brought up in this region as it has been found to be an important prerequisite for academic achievement (Best, Miller, & Naglieri, 2011; Engel de Abreu et al., 2014).

## **6.5 Conclusion**

The evidence presented in this thesis shows the central role of parenting skills among Kurdish population. Although previous research has assumed that the impact of parenting styles is least effective among Eastern societies, the findings from this thesis suggest that this may not be the case. The studies have indicated a number of ways in which parenting styles are associated with child academic self-concept, behavioural problems and executive function in young children.

Importantly, study 1 suggests that a factor such as child academic self-concept appears to mediate in complex ways the relationship between parenting styles and prosocial behaviour and internalising behavioural problems. In study 2 we found that a parenting intervention could be an effective strategy to promote parenting styles and reduce parental stress among Kurdish mothers. Interestingly, study 3 suggests that parental monitoring emerges to moderate the effect of executive on hyperactivity in a non-clinical sample. In this thesis some practical implications as well as a number of directions for future research have also been proposed (see section 6.3).

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## Appendix A

Summary of characteristics of studies included in the review in chronological order of publication from 1994-2014

Study	Measure of parenting styles	Measure of Behaviour problem	Children			Some key findings relevant to aims of the review	Country
			Sample size	% Female	Age Range		
Barber et al., 1994	Child Report of Parent Behaviour Inventory (CRPBI).  Colorado self-report of family functioning inventory (CSRFFI)	Child Behaviour Checklist (CBCL)	473	55%	5 <sup>th</sup> , 8 <sup>th</sup> and 10 <sup>th</sup>	<ul style="list-style-type: none"> <li>- Psychological control (excessive control) was associated with internalised problems, but not for externalized problems.</li> <li>- Behavioural control (i.e., monitoring or awareness of their children) negatively related to internalised problems and externalised problems.</li> </ul>	USA
Deater-Deckard et al., 1996	Interviews.  Conflict Tactics Scale and Aggression scale to assess physical discipline and verbal violence.	(CBCL).  Teacher Report Form (TRF).  (CBCL) mother-rating.  Peer ratings of aggression.	566	48%	kindergarten – 3 <sup>rd</sup> grade	<ul style="list-style-type: none"> <li>- Physical discipline was not significant (<math>r = -0.07</math>) related to externalising behaviour problem) for African American children when teacher reported were used, whereas, it was significantly and positively related to externalising behaviour problem for European American children.</li> <li>- Significant correlation found for the both ethnic groups when mother reported child externalising problems.</li> </ul>	USA
Chen et al., 1997	Child Rearing Practices Report (CRPR)	Revised Class Play to assess Social Behaviour.  Teacher-Child Rating Scale (T-CRS)	304	47%	2 <sup>nd</sup> grade	<ul style="list-style-type: none"> <li>- Mothers and fathers authoritative parenting style was negatively associated with aggression-disruption.</li> <li>- The relationship was positive between authoritarian style and aggression-disruption.</li> </ul>	China

Kaufmann et al., 2000	Child-Rearing Practices Report (CRPR) by mothers	Child Health Survey by parents.  (AML-R) Acting out behaviours, Moodiness and Learning difficulties) by the teacher	1230	49%	1st -5th grade	<ul style="list-style-type: none"> <li>- Authoritative parenting was negatively correlated to children's adjustment as characterized by behavioural and emotional problems. By contrast, the relationship was not significant for authoritarian parenting.</li> <li>- For ethnic differences, only authoritarian parenting was found to be different among ethnic groups. Higher score on authoritarianism was reported in Hispanic parents compared to White parents.</li> </ul>	USA
Raboteg-Saric et al., 2001	Three scales of parenting:  Parenting Monitoring PM, Parenting Support PS and Parenting Involvement PI	The School Misconduct Scale.  Deviant Behaviour Scale	287	50%	6th and 7th (11-14)	<ul style="list-style-type: none"> <li>- Parenting monitoring associated with behavioural problems subscales such as school misconduct, deviant behaviour, alcohol and cigarette smoking, whereas, parenting support was not significant for any subscales.</li> <li>- Parenting involvement was significantly related to only school misconduct and cigarette smoking.</li> <li>- Parenting involvement and parental monitoring were found to be higher for girls and younger (i.e., 6th grade) than older children.</li> </ul>	Croatia
Lansford et al., 2004	Home- interviews with Mothers to report Child physical discipline	(CBCL). Youth Self Report version (YSR).  Reactive and proactive aggression questionnaire.  Adolescent Behaviour Questionnaire	453	50%	5-16	<ul style="list-style-type: none"> <li>- Practising physical discipline on children was reported to be higher among African American (AF) mothers than European American (EA).</li> <li>- There were race variances in terms of the relationship between physical discipline and externalising behaviours problems.</li> <li>- Specifically, association between early and later physical discipline with externalising reported by mothers was positive <math>r=0.21</math> and <math>0.24</math>, <math>p &lt; 0.001</math> for EA; conversely it was negative or smaller <math>r=0.07</math> and <math>r=-0.03</math> for AF children.</li> </ul>	USA



Aunola and Nurmi, 2005	Child Rearing Practices Report (CRPR) Finnish version	Hopkins Depression scales Strengths and Difficulties Questionnaire (SDQ)	196	46.9%	Kinder gartner-2 <sup>nd</sup> grade	<ul style="list-style-type: none"> <li>- The level of external (e.g. Antisocial behaviour/problematic peer relations) and internal behaviour (e.g. depressive symptoms) problems among children predicted increases by a combination of high level of affection and high psychological control by mothers.</li> <li>- Children's external problems were revealed to be decreased by a combination of high level of behavioural control and low level of psychological control.</li> </ul>	Finland
Lau et al., 2006	2 hours Home interview. Adolescent Adult Parenting Inventory (AAPI) Parent-Child version of the Conflict Tactics Scale (CTSPC) Child Protective Services (CPS)	(CBCL)	442	51%	4, 6, and 8 years	<ul style="list-style-type: none"> <li>- Physical discipline was found to be similarly operated for both racial groups (i.e., White and Black caregiver).</li> <li>- Lower warm parental attitude and higher level of physical discipline was found to be more in Black caregivers than White.</li> <li>- No race differences were found in levels of parents reported externalising behaviour problem at age four; whereas, at the age of eight more behaviour problems were reported by White caregivers than Black.</li> </ul>	USA
McKee et al., 2007	Positive parenting: Warmth & Appropriate discipline. Physical & Verbal Harsh discipline. Filled in by children.	Brief pediatric Symptom Checklist-17 (PSC-17) by the parent to assess behavioural problems	2582	48%	5 <sup>th</sup> and 6 <sup>th</sup>	<ul style="list-style-type: none"> <li>- Results showed positive association between mothers and father's harsh verbal and physical discipline with behavioural problems. However, parents' warmth was negatively associated.</li> <li>- Fathers and mothers were no different in the use of harsh physical discipline with their daughters, whereas, for their sons, fathers tended to use more harsh physical discipline than mothers.</li> </ul>	USA

Stevens et al., 2007	Nijmegen child - Rearing Questionnaire (NCQ).  Parental monitoring (PM)	(CBCL)	713	49%	4-18	<ul style="list-style-type: none"> <li>- Negative associations between parenting affection and monitoring respectively with internalising and externalising problems were found.</li> <li>- The negative relationship between parental monitoring and externalising problems was only found for adolescents rather than children.</li> </ul>	Moroccan immigrant In Netherlands
Fletcher et al., 2008	Children's Report of Parenting Behaviours Inventory (CRPBI).  Childrearing Issues Questionnaire.  Home interviews	(CBCL)	370	52%	4 <sup>th</sup> grade	<ul style="list-style-type: none"> <li>- Higher levels of responsiveness tended to be negatively correlated with externalising behaviour.</li> <li>- Punitive discipline was positively and significantly related to externalised behaviour and social problems respectively, whereas, it was not the case for internalised behaviour problems.</li> <li>- Children of authoritarian parents tended to have high level of social problems compared to other children of other groups (e.g., authoritative and indulgent parents).</li> </ul>	USA
Hoet al., 2008	Parental Harshness scale (NLSCY)	Ontario Child Health Survey (OCHS).  Montreal Longitudinal Survey (MLS) to assess aggression and emotional problems.	14990	49%	4-11	<ul style="list-style-type: none"> <li>- The positive relationship between parental harshness and parent rated children's aggression was found for all ethnic groups when parents report was used.</li> <li>- However the relationship was positive in European Canadian families and negative in South Asian Canadian families when teacher report was used.</li> <li>- South Asian Canadian parents reported lower level of parental harshness compared to European Canadian.</li> <li>- The association between parental harshness and child emotional problems was not significantly different across groups.</li> </ul>	Canada
Pereira et al., 2009	Portuguese version questionnaire of EMBU-C	(CBCL).  Portuguese version of Teacher Report Form (TRF)	519	52%	8-11	<ul style="list-style-type: none"> <li>- Low support and rejecting-controller parenting (e.g. showing high levels of rejection and control) were associated with higher levels of externalising problems.</li> <li>- However, externalising problems were negatively associated with showing high levels of emotional support.</li> </ul>	Portugal

Ali and Frederickson, 2011	Parental Dimensions Inventory: Short version (PDI-S)	(SDQ).	68	50%	7-11	<ul style="list-style-type: none"> <li>- Parenting inconsistency and children's Total Difficulties Scores was positively correlated for the British Pakistani mother, whereas, no correlation was found for the White mother sample.</li> <li>- Nurture and Physical punishment were not associated with the Total Difficulties Scores for both British Pakistani and White mother sample.</li> </ul>	UK
Alizadeh et al., 2011	Parent Authority Questioner (PAQ)	(CBCL)	681	51%	3, 4 and 5 grades	<ul style="list-style-type: none"> <li>- Authoritative parenting style was negatively associated with externalising and internalising problems.</li> <li>- However, the relationship was positive for authoritarian and permissive parenting style.</li> </ul>	Iran
Azimi et al., 2012	Primary Caregivers Practices Report (PCPR)	Aggressive Behaviour Record Form	379	52%	(primary school have been mentioned in the method)	<ul style="list-style-type: none"> <li>- Positive correlation was reported between mother's authoritarian and child's aggression; however, it was negative for authoritative parenting style.</li> </ul>	Iran
Berkien et al., 2012	Child version questionnaire (my memories of upbringing; EMBU-C)	(CBCL)	658	54%	6-18	<ul style="list-style-type: none"> <li>- Parenting styles subscales (overprotection, rejection) were positively associated with internalising and externalising problems.</li> <li>- For children's internalising problems, the relationship was not significant for parental emotional warmth.</li> <li>- Boys feel more maternal rejection than girls, whereas, girls tended to feel more parent's emotional warmth than boys.</li> </ul>	Netherland
Scott et al., 2012	Alabama Parenting Questionnaire (APQ).  Interview of Parenting Practices	Strengths and Difficulties Questionnaire (SDQ).  Parental Account of Child Symptoms (PACS)	278	42%	4-7	<ul style="list-style-type: none"> <li>- The child's behaviour problems (antisocial behaviour) were related to negative parenting style (as characterized by more harsh and inconsistent discipline)</li> <li>- Prosocial behaviour and positive parenting positively related to each other when questionnaire was used, but no relationship was found while using the interview measure.</li> <li>- High level of severe antisocial problems were reported by parents of White British children than other ethnic minorities when the data of interview was used; but the result was not the same as measured by questionnaire completed by parent or teacher.</li> </ul>	UK

Braza et al., 2013)	Parenting Styles and Dimensions Questionnaire (PSDQ)	(CBCL)  Direct and Indirect Aggression Scale (DIAS)	89	53%	5-6 first year & 8-9 second year	<ul style="list-style-type: none"> <li>- Authoritarian maternal style was positively related to internalising and externalising problems.</li> <li>- The combination of authoritarian (maternal and paternal) style was shown to be negatively correlated to children's externalising problems.</li> <li>- The combination of permissive (maternal and paternal) style was found to be positively correlated to physical aggression among girls only</li> </ul>	Spain
Gorya and Sabah,2013	The Parent Questionnaire (PQ)	(CBCL) & (TRF).  Home Interview with Child (HIWC)	106	51%	8-11	<ul style="list-style-type: none"> <li>- Positive parenting (Warmth/Involvement) and Appropriate/Consistent Discipline were negatively related to externalising problems. However, the relationship was positive for negative parenting (i.e., Harsh/Physical Discipline)</li> <li>- Positive and negative parenting dimensions were significant predictors of children's externalising problems.</li> </ul>	Pakistan
Yang et al.,2014	Parental Bonding Instrument ( PBI )	(CBCL) & (TRF)	957	51.5%	6-12	<ul style="list-style-type: none"> <li>- No statistically significant results were found using teacher-reported behavioural problems.</li> <li>- In contrast, using parent's report showed that children who reported low paternal and maternal care had high level of behavioural problems.</li> </ul>	Taiwan

## Appendix B

Name and position of the professionals who participated in the back-translation process of APQ, MALS and SDQ

N	Professionals name	Position and qualification
1	Dr. Rushdi Ali Jaf (bilinguals)	Professor / Kindergarten Department-Sulaimani University.
2	Dr. John Adams (Native speaker)	Assistant Professor/ Psychology Department-Durham University.
3	Dr. Yadgar Ahmmad (bilinguals)	Lecturer at Koya University. MSc & PhD at Dundee University –UK.
4	Barham Abdulrahman (bilinguals)	Lecturer/ Department of English- University of Sulaimani.

## Appendix C

Name and position of the professionals who participated in the back-translation process of PSS, SPAT and PMA

N	Professionals name	Position and qualification
1	Dr. Rushdi Ali Jaf (bilinguals)	Professor / Kindergarten Department-Sulaimani University.
2	Shamal Abu-baker Hussein (bilinguals)	Lecturer/ Department of English-University of Sulaimani.
3	Ms Terri Edwards(Native speaker)	Durham University/ English Language Centre.

